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BOARD CHARACTERISTICS, OWNERSHIP STRUCTURE AND EXECUTIVE REMUNERATION IN CHINA

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ABSTRACT

This thesis investigates determinants of executive remuneration, both of highest paid directors and the rest of management members in listed Chinese firms. It focuses on the impacts of the board of directors, ownership structure and internal and external labour market comparison factors on executive remuneration. As a major transitional economy and with unique corporate governance characteristics, China provides an interesting and important context to study executive remuneration and corporate governance.

A panel data set of 417 firms over 2001-2003 is analyzed using multivariate techniques. Interviews with 10 Chinese directors are conducted to supplement the quantitative results. The results show a significant relationship between executive remuneration on the one hand and board characteristics and ownership structure on the other hand. However, some of the strong results reported in the Western literature are absent in this study, for instance the monitoring effects of institutional ownership and independent directors. This raises possible concerns about the relevance of agency theory models for studying executive pay in transitional economies like that of China.

This thesis finds the notion of 'market going rate' explain a significant part of the levels and dynamics of executive remuneration. The results suggest that the internal and external comparisons factors identified in Western economies also function in the transitional economy of China.

This thesis not only contributes to the literature on corporate governance, but also has important implications and recommendations for policy makers and corporate practitioners in transitional economic and political contexts.

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CHAPTER 1 INTRODUCTION

1.1 Introduction

Corporate governance has been at the heart of the business debate in most developed economies, as reflected both in the voluminous academic and practitioner literatures and in government regulations (Keasey *et al.* 1999). Recent financial scandals in the West, such as Enron and WorldCom, have led to calls for much tighter corporate governance reforms. The central problem in any corporate governance system is one of agency: how to entice managers to take decisions that maximize shareholders' wealth (Fama 1980; Jensen and Meckling 1976). This problem is never easily addressed and has drawn continuing attention in the literature. Due to the data limitations and the sensitivity of the topic, executive remuneration remains distinctly under-explored in China. Very little has been written on the effects of corporate governance on executive remuneration.

China has been experiencing significant economic and social changes in the last decade. The Chinese government has enforced a series of economic reforms and one of the goals is to establish a sound corporate governance system to ensure the sustainable development of Chinese enterprises (Bai *et al.* 2006; Cha 2001). In particular, recent corporate scandals, capital flight cases and "the 59 years old phenomenon" [1], etc., have prompted the government bodies to place corporate

1 "The 59 years old phenomenon" describes a trend in which people with power (such as government officials and state owned entrepreneurs) grasp the last chance of using their positions of influence immediately before they have to retire at 60, by law, to "gain advantage by trickeries", usually by corruption, bribery, or theft.

governance, management incentives and restraints more specifically at the top of their agendas. To a certain degree, solving the management incentive problems is an important determinant of the success of Chinese economic reform (Wu 2002). The Chinese government has been adopting Western governance mechanisms to China (Cha 2001); however, will Western governance models work in China? It is interesting to investigate corporate governance in China, especially given its special context - a transitional economy undergoing rapid social and economic changes.

Initially motivated by these concerns, this thesis examines the level and changes in executive remuneration in Chinese listed companies, focusing on the effects of board of directors' characteristics, ownership structure and the internal and external market comparison factors. A panel dataset of 417 listed firms for the period 2001-2003 is analyzed using multivariate techniques to test hypotheses developed from agency theory and the institutional background of China. Interviews with 5 executive directors and 5 independent directors are conducted to gain an insider's insight, which helps understand corporate governance in China and interpret the empirical results.

The results show mixed support for the research hypotheses and by implication, for agency theory. It can be concluded that both the corporate governance mechanisms and the market comparison factors play an important role in setting executive pay in Chinese listed firms. However, some of the strong results reported in the Western literature are absent in this study, in particular the lack of a negative relationship between executive remuneration and institutional ownership and that between executive remuneration and the proportion of independent directors, thus raising concerns about the relevance of traditional governance models for studying executive

pay in transitional economies like that of China. The results of this thesis not only contribute to the literature on corporate governance and executive remuneration, but also have important implications for policy makers and the practitioners of corporate control in China.

The purpose of this chapter is to introduce the remainder of the thesis. Section 2 covers the research background and motivation of the study. Section 3 presents the aims and objectives of the thesis. Section 4 discusses research methods. Section 5 discusses the significance of the research undertaken in this thesis. Section 6 summarizes the main findings. Finally, Section 7 provides a brief account of each chapter.

1.2 Research background and motivations

Corporate governance is one of the core issues within most developed economies. According to McKinsey & Company, in recent years, corporate governance has become an important element in shaping how an enterprise is valued in the market place (Monks 2003). A vast literature has emerged covering many aspects of corporate governance, including the impact of the characteristics of the board of directors on executive remuneration, one of the most controversial and interesting issues in corporate governance (Barkema and Gomez-Mejia 1998; Ezzamel 2005; Gomez-Mejia 1994; Gomez-Mejia and Wiseman 1997).

According to Blair (1995), corporate governance can be defined both narrowly and broadly. More often, it is viewed broadly as referring to the whole set of legal,

cultural, and institutional arrangements which includes corporation law and board room practices, corporate finance, securities and bankruptcy law, laws governing the behaviour of financial institutions, labour relations practices, contract law and theory, property rights, remuneration systems, and information and control systems. An efficient corporate governance structure is one that leads to the most efficient use of resources to create wealth for society as a whole (Blair 1995). Although numerous individuals or institutions may contribute resources to and have a stake in the success of a given corporation, professional managers largely control the broad policies and applications of strategic plans. Therefore the central problem in any corporate governance system is how to make corporate executives accountable to the other contributors to the enterprise while still giving those executives the freedom, the incentives, and the control over resources they need in order to exploit investment opportunities and to be tough competitors. However, this can not be easily achieved due to the existence of the agency problem.

The agency problem is an essential element of the contractual view of the firm due to the separation of ownership and control (Fama 1980; Jensen and Meckling 1976). According to agency theory, managers are self-interest seeking rather than shareholder-value maximising. Theoretically, there are three ways to increase the likelihood that management will act in the interest of shareholders: bond them contractually to do so; monitor them to ensure that they do so; and/or provide them with incentives so that it is in their own interest to do so (Denis 2001). But in practice, these methods do not always work.

Ideally, by signing a complete contract with the manager, the financiers can specify what the manager does in all states of the world and how the profits are allocated. The trouble is that the real world is too complicated to wholly describe and foresee future events. As a consequence, managers have substantial residual control rights and therefore discretion to allocate funds as they choose, though with certain limits on this discretion (Shleifer and Vishny 1997). This means that managers have the scope to behave opportunistically, whether in the form of expropriation of investors' funds or of misallocation of company funds. Meanwhile, the managers' fiduciary duty to shareholders makes it difficult to contract around inefficient actions ex post (Shleifer and Vishny 1997).

On the other hand, it is difficult to rely on dispersed shareholders to act as effective monitors, due to their lack of expertise and incentive to monitor. Therefore, a better solution lies in designing and using incentive mechanisms by granting a manager a highly contingent, long-term incentive contract ex ante to align managers' interests with those of the owners or shareholders. If shareholders want to maximise expected financial return on their common stocks, they will benefit from any mechanism that also makes management benefit from an increase in the value of the firms' ordinary shares (Denis 2001).

Consequently, the issue of executive pay has been one of the key indicators of the effectiveness of a corporate governance system and has motivated more research (Becht 2005). According to Greenbury (1995) and Conyon *et al.* (2000a), remuneration arrangements are a strategic tool used to attract, retain and motivate key employees in an increasingly international labour market. Board and executive

remuneration are of concern to shareholders. Companies are expected to disclose sufficient information on the remuneration of board members and key executives so that investors can properly assess the costs and benefits of remuneration plans and the contribution of incentive schemes, such as stock option schemes, to corporate performance. Generally, studies of executive remuneration can be grouped to reflect three issues in the remuneration design (Gomez-Mejia and Wiseman 1997):

- the criteria used in determining pay and employment;
- the consequences to the incumbent; and
- The mechanisms used to link the remuneration criteria to the remuneration consequences.

Research on top management remuneration spans a very large number of studies (Barkema and Gomez-Mejia 1998). The majority of these studies are based on agency theory and focus on incentive alignment issues, anticipating a positive relationship between executive remuneration and firm performance. However, many authors express disappointment at the low sensitivity of firm performance to remuneration (Barkema and Gomez-Mejia 1998). Therefore, some researchers, such as Jensen & Murphy (1990b) and Barkema & Gomez-Mejia (1998) suggest that researchers should examine factors outside an agency framework to explain CEO remuneration. Recent studies have begun to explore a variety of alternative models for explaining CEO pay (Bowen 1994; Daily *et al.* 1998; David *et al.* 1998 etc.; Ezzamel and Watson 1998, 2002; Tosi and Gomez-Mejia 1994; Useem and Gager 1996; Westphal and Zajac 1994, 1995). These studies incorporate other important factors into the remuneration model, explicitly integrating or comparing agency theory with other theories, or using varying international contexts outside the U.S.

The extant literature provides helpful insights into the factors that determine executive remuneration. However, little has been done to explore the extent to which models of corporate governance developed in Western economies can be extended to the transition economy of countries such as China.

One of the more important duties of any board of directors is to appoint, and set appropriate remuneration of, executives. According to agency theory, performance-related pay is a key method of aligning interests of shareholders and managers. The duty of setting the pay of senior executives is often performed by non-executive members of the board, a situation that creates an additional potential agency conflict between the board members, who may themselves be largely recruited by the executives, and shareholders (Becht 2005). In the USA and the UK, it has been advocated that remuneration committees, dominated by non-executive directors, should set the pay for senior managers (Becht 2005; Greenbury 1995). China has recently introduced similar governance reforms, raising the question as to whether Western board structures will work in China and providing a motivation to test the relationship between the characteristics of the board of directors and executive remuneration.

Evidence from Western literature points to the key role played by shareholders in terms of monitoring corporate management and promoting better corporate governance mechanisms. More specifically, some studies have examined the role of shareholders, especially institutional shareholders, in setting executive remuneration by linking executive remuneration to firm ownership (Finkelstein and Hambrick 1989; Hambrick and Finkelstein 1995; Holderness 2003b). However, most of these

researches focus on the effect of ownership concentration and seldom explore the different effects of specific types of institutional ownership. Also, evidence is sparse on the relationship between executive remuneration and ownership structure in transitional economies. Chinese firms have been well-known for their very high concentrated ownership structures, especially the domination of state ownership. As the state continues its slow and gradual withdrawal from direct ownership, one of China's corporate governance reforms, China now has a rich variety of ownership structures. For example, there are several different types of institutional shareholders, such as foreign institutional investors, state controlled enterprise, and private corporate. Therefore, China offers an interesting and distinct context for studying the effects of a variety of ownership structures on executive remuneration.

The vast majority of the literature on corporate governance is based on agency theory and focuses predominantly on incentive alignment issues, testing for a positive relationship between executive remuneration and firm performance (Barkema and Gomez-Mejia 1998). However, the results of many studies have not been fully supportive of agency theory. This could be due to limitations of the theory itself, or it may be because of inappropriate identification of the most relevant variables, measurement of variables, or choice of statistical models and techniques. Calls have been repeatedly made for broadening the theoretical base of research, for example by combining agency theory with other theories, by using varying international contexts other than that of the U.S. and the UK, by modeling other important determinants such as the market, firm size, managerial behaviour and characteristics, by benchmarking against industry or market norms, or by examining finer variations in ownership structure and characteristics of boards of directors etc. (Barkema and

Gomez-Mejia 1998; Ezzamel and Watson 2002; Gomez-Mejia and Wiseman 1997). A number of recent papers have emerged in response to this call (Daily *et al.* 1998; David *et al.* 1998; Ezzamel and Watson 1998, 2002; Hermalin and Weisbach 2003).

From the perspective of social comparison theory and equity theory, Ezzamel & Watson (2002) found that the external labour market, as well as internal pay comparisons within boards of directors, was significant in explaining the adjustment of executive pay. In this work, the authors identified an interesting but surprisingly under-explored research area. Similar work has not been conducted outside the UK. Therefore, it is meaningful to explore the extent to which the Ezzamel and Watson results hold in a non-Western context. Given the socio-political and economic differences between the UK and China, a study of this nature is likely to shed further light on issues of governance that relate more specifically to transition economies. Equally, it is worthy attempting to extend the work of Ezzamel & Watson (1998; 2002) by taking into account the effects of board and ownership characteristics, to explore whether it changes the linkage between market comparisons and executive remuneration.

In addition, substantial literature already exists and provides numerous helpful insights linking executive remuneration with firm ownership (Hambrick and Finkelstein 1995; Holderness 2003b) and board characteristics (Boyd 1994; Core *et al.* 1999; Hermalin and Weisbach 2003; Mehran 1995; Yermack 1996). However, apart from a few studies such as Ezzamel & Watson (1998; 2002) and Main *et al.* (1996), insufficient attention has been paid to pay dynamics for the board/management members other than the CEO (or the highest paid director). Therefore, the pay

dynamics for board/management members other than the CEO (or the highest paid director) remains largely unexplored and requires further research.

Finally, we know precious little about executive remuneration dynamics and their determinants in contexts other than those of advanced capitalist countries. As a developing country, China offers an interesting contrast in that it is a socialist country with emerging elements of a market economy, as manifested in the large number of listed companies in Chinese stock markets. These companies exhibit some characteristics similar to those of the public listed companies in advanced capitalist countries; but crucially, they exhibit country-specific characteristics, such as the presence of large stakes of state ownership. Furthermore, Chinese listed companies operate in fundamentally different socio-economic and political contexts compared to those in the USA and the UK, as evidenced in Chinese corporate regulations and governance mechanisms. Therefore, it is worth exploring corporate governance practice and the impact of such diverse contexts on executive remuneration in China.

1.3 Research aims and objectives

Motivated by these concerns, this thesis aims to contribute to the literature by investigating how executive remuneration, both of the highest paid directors (HPD pay) and the rest of management members (REST pay), is determined in Chinese listed companies. The thesis also aims to explore the extent to which models of corporate governance developed in Western economies can be sensibly extended to the mixed economy of China

First, the thesis focuses on the relationship between corporate governance mechanisms and executive remuneration, in particular the impact of the board of directors and ownership characteristics on executive remuneration. Second, this thesis investigates the relevance of internal and external market comparisons, as identified by Ezzamel & Watson (1998; 2002), in determining the levels and changes of pay for highest paid directors and other management members in China. In addition to replicating their models, this thesis also explores the possible effects of taking into account board and ownership characteristics on the results of Ezzamel & Watson's models.

Therefore, the main factors that this thesis focuses on are characteristics of boards of directors, ownership structure, external labour market and internal comparison factors, although other factors affecting executive remuneration identified by previous studies will be incorporated into the model as control variables (Gomez-Mejia and Wiseman 1997), such as firm performance, firm size, risk, firm diversification, industrial sector and location.

1.4 Research methods

This thesis offers empirical evidence on the roles played by the corporate governance and market comparison factors in setting executive remuneration. A number of research hypotheses are developed from a review of the literature on corporate governance and the institutional background in China. These hypotheses relate executive remuneration (level or changes) to board size, board composition, board leadership structure, state ownership, institutional ownership, managerial ownership,

and internal and external market comparison factors. To test these hypotheses, a sample of 417 listed Chinese companies is used, covering a period of three years, 2001-2003, giving a total of 1251 firm observations. This panel dataset permits the capture of possible effects of any time dynamics on the estimated equations.

Descriptive analyses of the relevant variables are conducted to understand the characteristics of the data and to check for possible violation of the assumptions underlying the statistical techniques applied to address the research questions. Bi-variate correlations are first run to identify the preliminary associations between variables. Afterwards, a series of multiple regression models are run to test the hypotheses. The data is analysed using Ordinary Least Squares (OLS) regression, first difference models, fixed effect models and Two Stage Least squares (2SLS) regression. Equations are estimated independently for the highest paid directors and for the remainder of the management, followed by a series of robustness check. All data analyses are conducted using the STATA statistical software package, with the Excel spreadsheet used for data housekeeping.

1.5 The importance of the study

As mentioned earlier, executive remuneration and corporate governance has received wide-spread attention in the last few decades (Conyon and He 2004; Gomez-Mejia 1994). China has recently been witnessing fundamental changes in its economy and corporate governance. Given the socio-political and economic differences between China and Western countries that have been the focus of the majority of previous research, a study of this nature is likely to shed further light on issues of governance

that relate more specifically to transition economies. Hence, this study has the potential to contribute to the literature on corporate governance and to have implications for policy makers, the practitioners of corporate control and international investors in transitional economies.

More specifically, there are three reasons why studying corporate governance in China is important. First, China is becoming a significant player in the world economy. China is the largest transitional economy with a rapidly expanding corporate sector and stock market. Further, China's corporate sector and stock market are increasingly integrated with the global economy through large amounts of foreign direct investment in China, China's entry to the World Trade Organisation (WTO), the introduction of the Qualified Foreign Institutional Investor (QFII) system[2] and the increasing number of Chinese firms going listed in overseas stock exchanges (Liu 2006; Nolan 2002). As a result, there is a growing international demand for more knowledge and guidance on how Chinese listed firms are governed and managed.

Second, management incentives and restraints have become critical issues in corporate governance, perhaps driven to prominence by emerging corporate scandals and "the 59 year old phenomenon". As Jinglian Wu, the Chief Economist at the Chinese Council's Research & Development Centre, has noted, addressing these problems properly is urgent and will have a major impact on the success of the reform of State-Owned Enterprises (SOEs) (Wu 2002).

[2] QFII program refers to overseas investors (fund management institutions, insurance companies, securities companies, and other asset management institutions), approved by the China Securities Regulatory Commission (CSRC), who can invest in Chinese domestic securities markets.

Third, the scale of the 2001 corporate scandals and capital outflow prompted the Chinese Securities Regulatory Commission (CSRC) to place corporate governance at the top of their economic reform agenda, as reflected in the issuing of a series of rules and policies, e.g. The Code of Corporate Governance of Listed companies (CSRC 2002). Given that determinants of executive pay are among the key indicators of the success of the corporate-governance system (Becht 2005), the research in this thesis could help inform important policy implications in designing effective governance structures (Dalton and Dalton 2005).

Finally, China is in the early stages of transition from a planned economy to a market economy, providing a unique opportunity to examine corporate governance in transition. It is important to conduct the study now because the window of opportunity is only open for a short period of time before China becomes a major market economy.

1.6 Main findings and contributions

In general, the empirical results show that board characteristics, ownership structure and external and internal comparison factors all play an important role in shaping executive remuneration in Chinese listed firms, though not all as anticipated by the hypotheses. Specifically, the results of the pay level models suggest that executive pay, both the pay of the highest paid director (HPD) and the pay of the rest of the management team other than the three highest paid directors (REST), is positively and significantly related to the proportion of independent directors, foreign ownership and managerial ownership. State ownership seems to show no significant impact on HPD pay. The thesis also finds a non-linear relationship between executive pay and board

size, which implies that executive pay peaks at a certain board size. CEO-Chairman/Vice Chairman dualities and other institutional ownership structure variables all have a positive and significant impact on HPD pay, but not in the case of REST pay. Both the HPD and REST pay models reveal a positive relation between HPD pay and REST pay, suggesting that there is an internal comparison effect on executive pay.

The results of the first difference models show that firm size, performance and the market comparison factors, both internal and external, have significant explanatory power over the change in HPD pay, while most corporate governance variables and other control variables have at best weak associations with the dynamics of HPD pay. The results indicate that some of the market comparison effects identified in the West also function in a transitional economy like China.

These findings provide mixed evidence for agency theory and the extant literature. Some of the strong results reported in the Western literature are absent in this study. For example, the literature has reported a negative relation between executive pay and institutional ownership. However, the results of the current study show a positive relation between institutional ownership and executive remuneration. Similarly, the result related to the relation between executive pay and the proportion of the independent directors is also in the opposite direction to that hypothesized. Therefore, the results should be interpreted with caution and should be related to the specific characteristics and background of Chinese listed firms. The insiders' insights gained from the interviewees offer invaluable help in better understanding the empirical results.

Care is taken in this thesis in undertaking the analysis reported here. The analysis includes checks for the endogeneity problem between firm performance and executive remuneration by employing 2SLS models. The models are also checked for their sensitivity to variations in statistical procedure by testing the stability of the results when using different variants of multiple regression analysis (OLS, outlier-resistant regression, and regression corrected for heteroscedasticity). A battery of tests is also conducted to check whether the assumptions underpinning regression are met in the data. Finally, many of the variables are measured in more than one way and / or transformed to meet the assumptions of regression and to check for the robustness of the findings. Taken together, these procedures enhance the robustness of the results to the method of analysis.

The findings of this study can lead to timely practical implications and recommendations, however small, to influence the progress of Chinese corporate governance reform. Before introducing the traditional governance models from the West, Chinese regulators need to consider the relevant institutional settings in China that are required in order to ensure that models work as expected.

1.7 Structure of the thesis

The remainder of the thesis comprises eight chapters and is structured as follows.

Following this introduction, Chapter 2 introduces the institutional background of China. Since the reform and open policy was launched in 1978, China has experienced a rapid development and has now become one of the most powerful

economies in the world. However, as a transitional economy, it has different institutional settings compared with the Western. Chapter 2 first reviews the process and main areas of China's economic reforms, including state-owned enterprises, capital market and stock exchanges, which provide the general background for the corporate governance developments in China. It then moves on to introduce the historical development, current situation, characteristics and existing problems of corporate governance of Chinese listed companies. More specifically, the issues of executive remuneration and incentives are discussed. Generally speaking, both the economic situation and corporate governance system in China have improved substantially; however, there are still some bottlenecks that might hinder Chinese firms from achieving further improvement. One of these bottlenecks is related to managerial incentive and constraint, which makes the issue of executive remuneration an urgent and important topic for both researchers and policy makers.

Chapter 3 reviews the literature on corporate governance and executive remuneration from both theoretical and empirical perspectives. Based on this review the hypotheses of the thesis are developed. The chapter first reviews agency theory, a theory that is most heavily used in the literature on executive remuneration, followed by a discussion of the empirical literature on executive remuneration. Research hypotheses are derived based agency theory, previous literature and the Chinese specific institutional context. These hypotheses relate executive remuneration to several groups of factors: board characteristics, firm ownership structure, and external and internal market pay comparison factors. Other important factors that determine executive pay are also discussed and reviewed in this chapter and are included in this

study as control variables. In summary, this chapter presents the theoretical framework and argument for this study.

Chapter 4 explains the issues related to research methods including the sample, data, models, variables, and statistical techniques employed in the analyses. The chapter first offers a brief introduction to the techniques used, namely OLS regression models, and Panel data fixed effects and random effects models. Although panel data techniques are known as better at analyzing cross-sectional and time series data, they do require sufficient variation in the data over time (Stock and Watson 2003; Wooldridge 2002a). Due to the lack of variation in many variables employed in this study, OLS is used as the basic and main technique for data analyses. Several models are specified in this chapter to test research hypotheses, followed by a detailed explanation and discussion of sample selection, data collection and the choice and measurement of variables. The main variables are proxied by a variety of measures to supplement the main analyses. Finally, some statistically-related issues and means of dealing with them are discussed.

Chapter 5 reports the results of initial analyses, which include descriptive results and bi-variate correlations. Descriptive results are presented in four groups: executive remuneration, board characteristics, ownership structure and the control variables. From the descriptive results, the nature of the data is explored and the trend / changes in the variables are noted. For example, I observe an increase in the proportion of independent directors over time, a decreasing percentage of state ownership and an increased separation of CEO and board role, which all reflect the efforts of the Chinese government towards corporate governance reform. The bi-variate analyses

also offer useful insights into identifying possible sources of multicollinearity in order to address them properly in subsequent multivariate analysis.

Chapter 6 carries out multivariate analyses for executive pay levels, to test Hypotheses 1a-6b and Hypothesis 8. The thesis estimates both HPD pay and REST pay. Chapter 6 first presents and discusses the results for HPD pay models. The results show that most of the focal variables have a significant impact on HPD pay. Robust tests are conducted by the different proxies of main variables, with a different sample, and different analytical methods. Next, the models for REST are presented and discussed, which show that there are some common factors that determine both HPD pay and REST, but the significance of the governance variables can be different in determining pay for these two groups of management members. Regression diagnostics are calculated and presented after every regression model and emerging problems are dealt with econometrically.

Chapter 7 reports and analyses the results for the pay change models. It first discusses the pay change models related to the effects of governance variables and the usual firm size and performance variables. It goes on to test Hypotheses 7a, 7b, 8 and 9 which are concerned with the impact of previous-period pay anomalies compared to the market pay level and the internal pay comparison factors. The analysis first duplicates the studies of Ezzamel and Watson (1998; 2002) by defining the pay anomalies as the residuals of the traditional agency pay model (estimated by firm size and performance). Afterwards, this chapter moves on to further test these Hypotheses by redefining the estimate model of market pay level (including the governance and control variables) and re-running the models. The results vary in precise detail

between the two versions of the models, but show general support for Ezzamel and Watson's findings (1998; 2002): both external and internal comparison factors play significant roles in executive pay adjustments.

Chapter 8 recaps and discusses the main findings of the empirical analyses in Chapters 5, 6 and 7 relating to the focal variables: board characteristics, ownership structure and market comparisons. It first tabulates the research hypotheses and the related results. It then discusses the results at a general and holistic level, linking the empirical results to the research hypotheses, previous literature and Chinese institutional characteristics. The findings of the interviews are also extracted and used to help understand and interpret the related empirical results in this chapter. Generally speaking, this thesis shows mixed support for the research hypotheses: Hypotheses 1a, 3a, 2b, 6b, 7a and 8 are supported; Hypotheses 1b, 3b, 4a, 4b are not supported; Hypotheses 2a, 5a and 6a receive contrary evidence; while Hypotheses 7b and 9 are partially supported by some models, but not by others.

Chapter 9 summarizes the main parts of the thesis and concludes the thesis. It first briefly recaps the objectives, research hypotheses and research methods of this thesis, followed by a summary of the main findings. It then discusses the contributions of the thesis to the literature and explores the implications and recommendations that can be drawn from this study to regulators, business practitioners and investors. Finally, the chapter explicates the limitations in this thesis, explores several avenues for future research, and sums up and concludes the thesis.

1.8 Summary

This chapter draws a general picture of the thesis. After a brief introduction, it provided a general background and motivation for this research and introduced the main aims and objectives of the thesis. Then it discussed the research methods, the significance of this thesis and the main findings of the thesis. Finally, it provides the structure of the thesis and a brief introduction of each chapter.

Looking forward to the thesis itself, a thumbnail sketch of its content and objectives is as follows. It is an empirical study on corporate governance and executive remuneration. A number of hypotheses concerning the roles of the characteristics of board of directors, ownership structure and the internal and external market pay comparison factors are tested with a sample of 417 Chinese listed firms using panel data techniques. The results show that most of these factors have significant impacts on executive remuneration in Chinese listed firms, but the way these factors behave in China might be different from how they behave in the Western economies. The findings of the thesis are of interest both from a theoretical and a practical point of view. By considering the empirical evidence, we can better evaluate the promise that lies in current guidelines and prescriptions for effective governance structures (Dalton and Dalton 2005).

The next chapter introduces the institutional background of China.

CHAPTER 2 INSTITUTIONAL BACKGROUND

2.1 Introduction

While a great deal of research on executive compensation has been carried out in Western contexts, we know little about executive compensation dynamics and their determinants in other contexts. China, a developing country, offers an interesting contrast in that it is a socialist country with emerging elements of a market economy, as manifested in the large number of companies listed in Chinese stock markets since 1990. These Chinese listed companies exhibit some characteristics similar to those of the public listed companies in advanced capitalist countries such as the UK and the USA; but crucially, they exhibit country-specific characteristics, such as the presence of large stakes of state ownership. Furthermore, Chinese listed companies operate in fundamentally different socio-economic and political contexts, as evidenced in Chinese corporate regulations and governance mechanisms. Therefore, to properly understand the Chinese corporate governance mechanisms and correctly interpret the findings, it is necessary to discuss its special institutional background.

China's economic reform began in 1978, and so did its enterprise reform, as one of the tasks of the economic reform. The enterprise reform has gone through several stages (Schipani and Liu 2002) (see Section 2.3.1 and 2.3.2), especially the reform of State-owned enterprises (SOEs). These reforms provide the general background for Chinese corporate governance (Tam 2002). It is well known that the current corporate governance system in China is the outcome of the adaptation by Chinese enterprises to the transition from central planning to a market system (Rui *et al.* 2003).

This chapter provides the necessary background information to study the corporate governance and executive remuneration in China. It is structured as follows. Section 2.2 describes the general economic environment of China, its economic reform and capital market. Section 2.3 traces the evolution of the corporate governance structures of Chinese enterprises, especially SOEs. Section 2.4 introduces the historical and current background of management incentives and executive compensation in China. Section 2.5 provides a summary.

2.2 China's economic reform and capital market

The economic reform policies in China were introduced in 1978. Since then, China has been evolving from a planned economy towards a socialist market economy. As one of the tasks of the economic reform, Chinese enterprise reform also began in 1978; however, the importance of establishing an effective corporate governance structure in the Chinese SOEs was not recognized until the enterprise reform entered a new stage - the corporatization of the SOEs (Tam 2000).

With the initiation of corporatization, the SOEs were expected to transform into modern corporations and improve their efficiency. However, the reform of SOEs so far has not fully achieved the goal of improving the SOEs' performances partly due to the lack of an effective corporate governance system, and especially of effective monitoring mechanisms (Cha 2001).

Despite the remaining problems, with the continuing advancement of the market-oriented economic system, market-determined capital transactions in China have

experienced a fast development, especially after China's entry into WTO in 2001. The final goal for China's economic reform is to establish a sound and complete socialist market economy system, as explicated in the Chinese Communist Party's 14th National Congress (1992).

2.2.1 THE REFORM OF STATE-OWNED ENTERPRISES IN CHINA

How to transform SOEs into profitable modern firms has been a challenge to the Chinese government for decades. SOEs have been the backbone of China's economy, though their importance is declining and is being gradually replaced by other forms of economic entities. Indeed, many SOEs in China have been losing money and continue to be a significant burden on the economy as a whole. Poor economic performance of the SOEs has given rise to various problems that impede the progress of China's economic reform, such as the government budget deficit, inflation and the delay of financial institutions' reform.

The factors that contribute to SOEs' lack of competitiveness might include heavy social obligations (e.g. provisions of life-long employee welfare), soft budget constraints[3], overstaffing, inflexible wage and employment systems, spiralling debt, out-dated technology, and lack of quality controls (Dong and Putterman 2003; Hovey *et al.* 2003). Problems facing Chinese firms often stem from their history as "pure" state enterprises within a centrally planned economy, heightened by their slowness in adapting to the new corporatization regime (Hovey *et al.* 2003).

[3] A term originally formulated by Kornai (1979;1980), which refers to the economic behaviour that SOEs exhibit an almost insatiable appetite for inputs (subsidies and bank loans) because their managers stand to benefit from any profitable expansion of output, but have little to lose if the enterprise incurs losses (Lin and Tan 1999).

Since the founding of the People's Republic of China in 1949, the Government has been trying to improve the performance of SOEs. However, it was not until the Reform and Opening Policy was introduced by Deng Xiaoping in 1978 that economic development became the central task for the government, known as the basic national policy "One Centre, Two Bases". Ever since then, enterprise reforms have been a constant item on the Chinese economic reform agenda, with three strands running through them: the reallocation of rights of control and management between government agencies and enterprises, the organizational restructuring of enterprises, and the transformation of ownership (Chen and Hussain 1999).

In 1992, Deng Xiaoping's call for the introduction of the market economy into China accelerated the process of the establishment of the modern corporate system, which is one of the most important goals of SOEs reform. In the early 1990s, the Shanghai and Shenzhen Stock Exchanges were established, indicating a new era for China's SOEs reform. The 1993 Company Law, the most important legal framework for the regulation of Chinese companies to date, was promulgated to provide the legal support for this process. In 1997, an immense privatization program was introduced to restructure the estimated 308,000 SOEs (Morrison 2000). Under the slogan "protect the large, release the small", this policy was directed at concentrating reform energy on 1,000 of the largest enterprises, many of which were "Pillar industries", while escalating the de facto privatization of those small and medium-sized SOEs.

The reform of the SOEs is still in progress. Some SOEs have been fully or partly privatized. Others remain firmly under the control of the state. The bulk of China's SOEs are now restructured as corporations and more than 1,200 went public on the

stock exchanges. The objective is to introduce elements of modern corporate governance that facilitate improvements in firm performance. However, this objective has not been fulfilled yet (Cha 2001). The lack of an effective corporate governance system, especially an effective monitoring system of management, is still an obstacle to the development of the SOEs and also of other enterprises in China. The SOEs reform from the corporate governance perspective will be discussed in more detail in Section 2.3.

2.2.2 CAPITAL MARKET AND STOCK EXCHANGES

The capital market in China is much younger compared to that in the USA or the UK. Before 1990, bank loans and government subsides were the sole financing sources for Chinese firms. The establishment of the Shanghai Stock Exchange (SHSE) in 1990 and the Shenzhen Stock Exchanges (SZSE) in 1991 has offered an alternative way for Chinese firms to raise capital for further development. It also marked the emergence of the securities market of China. Accordingly, the Chinese Securities Regulatory Commission (CSRC), the national regulatory body, was set up in 1992.

Ever since then the capital market of China has been developing with remarkable progresses in its size, legal framework and market maturity. It has become a key component of China's socialist market economy and has been playing an important role in the development of SOEs, resources allocations, structural adjustment and economic growth. As the sample used in this study is drawn from listed companies in China, it is helpful to review the Chinese capital market. The following sub-section will provide such an overview.

2.2.2.1 Chinese Securities Regulatory Commission (CSRC)

The CSRC, empowered by the State Council, was established in 1992 and is the sole regulator supervising the securities and futures market in China. By 2003, it had 38 regional and local regulatory bureaus throughout the country. The main functions of the CSRC are: to formulate policies, strategies and regulations regarding the securities and futures market; to regulate the securities and futures markets and the activities and transactions of these two markets; to supervise the conduct of listed companies and their senior executives; to regulate and supervise market intermediaries; and to investigate and take actions against persons violating the securities and futures regulations, etc. (CSRC 2004).

2.2.2.2 Stock Exchange

There are two stock exchanges in China: the Shanghai Stock Exchange and the Shenzhen Stock Exchange. Both are supervised and controlled by the CSRC. According to the Securities Law (1998) and *Measures for the Administration of Stock Exchanges* (CSRC 1997b)[4], stock exchanges in China are non-profit-making and self-regulatory legal entities. The exchanges provide the forum for the centralized trading of securities and enforce applicable laws and regulations. They also perform functions such as accepting and arranging for listings, conducting market surveillance and monitoring securities trading, regulating members and listed companies; managing and disseminating market information (CSRC 2004).

[4] Approved by the State Council on November 30, 1997 and promulgated by the Securities Commission under the State Council on December 10, 1997. These Measures are formulated in order to strengthen the administration of stock exchanges, clearly define the powers and responsibilities of stock exchanges and to maintain normal order in securities markets (CSRC 1997b)

2.2.2.3 Listed Companies

Shares in China's stock exchanges are classified by shareholders' identity and their liquidity and/or listing locations (Lin 2001). Generally speaking, there are three main types of shares, A-shares, B-shares and H-shares. Other types of shares include Red Chips, N-shares and L-shares5, for definitions see Table 2-1. Hong Kong and foreign exchanges have higher quality reporting standards, and therefore it has been suggested that firms listed outside China have greater transparency. My sample is drawn from those A-shares companies.

There are primarily three groups of shareholders holding A shares—the state, legal persons (institutions) and domestic individual investors. Legal persons denote legally constituted autonomous organisations, including domestic legal persons, foreign legal persons, and private legal persons who bought shares before IPOs. Domestic legal persons include listed companies controlled by SOEs or other SOEs, which are frequently holding companies established by government agencies to manage investment. In addition, employee shares have limited ownership. Managerial ownership, which refers to the ownership held by the directors, supervisors and top management, though still only accounting for a small proportion of the total, has been more frequently studied recently. Managerial ownership is usually locked and non-tradable in a certain period. It should be noted that the state-owned shares and legal person shares are not allowed to trade in the stock exchanges. Only shares held by individuals and private institutions are freely tradable (Firth *et al.* 2006).

[5] Firms listed in foreign exchanges other than Hongkong are relatively rare; therefore these other types are grouped into H-shares as well in some definitions.

Table 2.1 Types of China Shares

Share Type	Definition	Listed Stock Exchange	Traded Currency
A-shares	Shares that are traded only by mainland citizens and after 2002 a few select foreign institutions[6].	Shanghai Stock Exchange & Shenzhen	RMB
B-shares	Shares that are available to both foreign and mainland citizens	Shanghai Stock Exchange & Shenzhen	USD; HKD
H-shares	Shares issued by PRC for mainland companies listed on Hong Kong and foreign stock exchanges.	Hong Kong Stock Exchange	HKD
Red Chips	The best rated of the H shares	Hong Kong Stock Exchange	HKD
N-shares	Shares issued by mainland companies that are listed and traded on the New York Stock Exchange	New York Stock Exchange	USD
L-shares	Shares issued by mainland companies that are listed and traded on the London Stock Exchange	London Stock Exchange	GBP

(Created by the author, information source: www.fpasf.org and www.csrc.com.cn)

Table 2-2 presents the number of listed companies with different share types. This thesis only select samples from the pool of A-share listed companies. As shown in Table 2-2, A-share listed companies dominate the stock market in China. A-Shares are traded by domestic individual investors and a limited number of foreign institutional investors more recently. By December 2004, there were 1236 companies issuing pure A-shares. By December 2003, 1,287 companies were listed in the two stock exchanges, of which 1,146 companies issued A shares only, 24 companies issued B shares only, 87 companies issued both A shares and B shares, and 30 companies issued both A and H shares (see Table 2-2).

[6]QFII were introduced in 2002 to allow a number of foreign investors to invest in Chinese stock market, like Bear Stearns, Goldman Sachs and Merrill Lynch.

Table 2.2 Number of Listed Companies (1994-2004)

Firms	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Issuing A shares only	227	242	431	627	727	822	955	1025	1085	1146	1236
Issuing A and H shares	6	11	14	17	18	19	19	23	28	30	30
Issuing A and B shares	54	58	69	76	80	82	86	88	87	87	86
Issuing B shares only	4	12	16	25	26	26	28	24	24	24	24
Total	291	323	530	745	851	949	1088	1160	1224	1287	1376

(Source: http://www.csrc.gov.cn Assessed date: 16/02/2005)

Listed companies are drawn from different industry sectors such as machinery, metallurgy, chemicals, electronics, transportation, and energy etc. In recent years, an increasing number of commercial banks and securities companies have gone public as well. The listed companies now reflect the full spectrum of production and service industries in China's economy (CSRC 2004).

2.2.2.4 The Development of the Chinese Capital Market

With a short history of about 15 years, the growth of China's capital market has been impressive. According to the statistics provided by the CSRC (2004), China's stock market had become the third largest market in Asia after Tokyo and Hong Kong by the end of 2002 and the eighth largest in the world by early 2004, with 1377 listed firms and market capitalization of over RMB ¥3705 billions (about £247 billion) (CSRC 2004). The stock exchange trading system has spread over all large and medium-sized cities with 2,412 retail branches all over the country. The total market

capitalization at the end of September 2002 was RMB 4.4 trillion, accounting for about half of the GDP (Tong 2004). Market intermediaries have also been growing rapidly. By the end of 2003, there were more than 133 securities firms with about 70 million investment accounts, 34 fund management companies, 111 investment advisers and 72 accounting firms licensed for securities businesses (CSRC 2004).

However, these developments are not without faults. While the USA was plagued by corporate scandals such as those of Enron and WorldCom in the last few years, China experienced its own version of "Enron" (Cha 2001; Tong 2004). Since late July 2001, the CSRC has reprimanded a number of listed companies for violating financial reporting and management provisions (Cha 2001). A few of the highest-profile cases are "Yin Guang Xia", "Nan Tian", and "Zhenzhou Bai Wen". The emergence of such corporate scandals has ruined investors' confidence and caused the market to take a nosedive (Tong 2004).

Realizing that the recovery of investor's confidence relies on sound corporate governance, the CSRC has been making continuous efforts to improve the corporate governance system (Cha 2001; Tong 2004). This commitment is reflected in a series of regulations and rules issued later. For example, the CSRC issued the Code of Corporate Governance of Listed Companies in China in 2002, intending to enhance the corporate governance and standardize the management and operation of listed companies.

2.3 Corporate governance in China

China's shareholding reform apparently learns from the Western-style organization of public corporations characterized by the separation of ownership and control (Lin and Zhu 2000). The emergence of public corporations in the West was a result of an endogenous, evolutionary process based on voluntary exchanges of private property rights in pursuit of gains from specialization (Fama and Jensen 1983). In that process, various corporate governance mechanisms were developed to deal with the agency problem arising from the separation of ownership and control. This enable the owner-investors- to have effective control over managers and to assure themselves of a return from their investment (Hart 1995; Shleifer and Vishny 1997). Basically, effective corporate governance under a private property rights regime relies on a well-functioning financial market and a sound legal system. The existence of large non-state shareholders may also be crucial for effective governance because they have the abilities and incentives to exercise effective control rights and monitor management (Lin and Zhu 2000).

However, a distinct difference of the development of corporate governance structures in China from those in Western contexts is that China's firms are characterized by an institutional setting based on state ownership (Lin 2004). Also, China is traditionally a planned economy. It takes time to establish the market-oriented economic and legal institutions that are conducive to effective corporate governance. Social institutions necessary for the complete separation of the government from enterprises, such as a social security system, have just started to develop in China. Moreover, socialist legacies in China have made it unlikely or difficult for wealth-constrained private

entrepreneurs to take on major stakes in many large SOEs (Peng and Heath 1996; Qian 2000). Thus, even in the absence of ideological constraints on private ownership of enterprises, certain degree of government ownership and government control in corporate governance in privatized or corporative enterprises is to be expected (Qian 2000).

The above discussion implies that corporate governance in restructured enterprises may deviate from what is stipulated in the law and from what it is like in the West. As Tam (2002) argued, the characteristics of China's corporate governance can only be understood in the context they developed. This section reviews corporate governance in Chinese listed companies, in terms of its historical development, current situation, characteristics, existing problems and scope for future improvement.

2.3.1 A HISTORICAL PERSPECTIVE ON CORPORATE GOVERNANCE

It is essential to understand the historical development of the governance model of SOEs. The governance structure of SOEs has evolved from a totally centrally planned model (1954-1984), through a contracting model (1984-1993), to today's modern model (1993-present) which resembles the stylized Anglo-American corporation (Schipani and Liu 2002).

2.3.1.1 The Centrally Planned Model

From 1949 to 1978, there was no rigorous financial planning and control systems for the commercial and industrial units in China (Jen 1988). The State was assumed to be

the only legal entity to enjoy both the property right and the managerial power of SOEs. The main goal of the commercial and industrial units was to carry out the communist party's economic development policies rather than to enhance profits for the State investor. The term "corporation" or "legal person" did not exist. SOEs were not real business enterprises but were referred to as "factories" functioning as government affiliates responsible for producing goods or rendering services (Schipani & Liu 2002).

Accordingly, the governance structure of SOEs was an integral part of the general governmental framework. The state maintained strong control over the activities of SOEs. Profits were remitted to the government and deficits were covered by the state. SOE executives were appointed and dismissed by, and therefore responsible to government agencies, and enjoyed the same political and economic treatment as government officials (so called "State cadres") (Mengistae and Xu 2004). Meanwhile, their achievements were not evaluated by the financial performance of the enterprises, but by their ability to fulfil the plans made by government agencies (Yueh 2004).

The traditional model served not only as an organizer of economic resources and activities, but also as a tool to firmly bind the State, SOEs and employees together (Mengistae and Xu 2004). The State Treasury was the sole source of SOEs' input; SOEs and their employees effectively lived off the SOE coffers. SOEs were thus both production units and social security units. Once a person entered an SOE, he or she gained an "iron rice bowl" which could be kept for life and which insured the individual's salary, housing, medical treatment and pension for making life (Yueh

2004). Therefore, the SOE, as a State-owned Working Unit ("gongzuo danwei"), was unusually significant to Chinese employees.

The benefit of this central planning was that the agency problem, such as managerial theft or expropriation of funds at the firm level, was tightly restricted since management had little freedom to make discretionary decisions (Peng and Heath 1996). However, the model led to inefficiency of resource allocation, loss of managerial incentives to improve production efficiency and technology innovation, and also a serious agency problem of bureaucrats (Peng and Heath 1996). The agency problem of bureaucrats refers to the phenomenon that bureaucrats, who, while holding control rights of the firm on behalf of the state, typically have goals different from social welfare and are driven by their own political and economic interests in selecting, disciplining and motivating management (Zhang 2005).

2.3.1.2 The Contracting Model

Most SOEs under the centrally planned model were static and uncompetitive, which prompted the state to reform the SOEs, especially after 1978. The main strategy was to encourage SOEs to expand production and earn profits, making SOEs responsible for their own gains and losses. Thus, a contracting model of SOE governance, also termed management contracting system or the transitional model, came into existence and became popular from 1984 to 1993 (Schipani and Liu 2002).

It was the first time that the responsibility, rights, and interests of the state authorities and firms had been clarified in contracts (Schipani and Liu 2002). Policy-makers at

the time believed that "separation between the state ownership and the SOE management rights" was the best way to transform SOEs into legal entities, while retaining state property ownership. To support the reform, the State-owned Industrial Enterprises Law (SOEs Law) was enacted in 1988.

The main features of the corporate governance structure introduced by SOEs Law in 1988 are as follows. First, the government agency and the SOE (as represented by its manager) are the two parties of the contracting system. The manager is selected through a competitive process and acts as the legal representative of the enterprise. The manager then takes the overall responsibility for production, operation and management of the enterprise. The basic principle of the contracting system is to set the minimum amount of profit that the SOEs need to submit to the State while entitling the SOEs to keep the remaining profit with the liability for paying the fixed amount to the State even if the SOEs have not made enough profit (Schipani and Liu 2002). Second, the SOEs Law (1988) recognizes that governmental intervention in the operation of SOEs should be significantly diminished, while the governance bodies in the SOEs remain the Chinese Communist Party Committee, workers' council (the meeting of employees' representatives) and the trade union (commonly referred to now as the "Old Three Boards") (Schipani and Liu 2002). The Party committee ensures the implementation of the Party and State's guiding principles and policies, while the trade union guarantees the employees' interests and the workers' council allows employees to practice participative management and supervision (SOEs Law 1988).

With the implementation of this contracting model, government's intervention in the operation of SOEs was largely reduced and managers of SOEs gained more autonomy to make input and output decisions. As a result, the State's fiscal revenue increased and the enterprises became more efficient and profitable (Li 1997).

However, this model failed to achieve the goal of SOEs reform due to the defects of the contracting system. First, the contracting system led to short term and myopic behaviours by managers. Second, the authority of selecting management was still held by the communist party's personnel departments and the industrial bureaucracy, who have neither incentives nor information to find entrepreneurial people for managerial positions; therefore, bureaucrat agency problem still existed (Peng and Heath 1996). Third, China still maintained a centrally planned economic system under the contracting system. Fourth, state-owned banks have neither the incentive nor the ability to enforce debt contracts (Zhang 2005). Other reasons for the failure of this model to fulfil the SOE reform objectives included the difficulty in proper profit sharing between SOEs and the State, SOEs failure to submit profit in poor performing financial years, the SOEs' mismanagement of reserved profit and exploitation of State assets (Schipani and Liu 2002).

2.3.1.3 The Modern Model

As the contracting system failed to serve the reform objectives, the state started searching for new solutions to the aforementioned problems. The Fourteenth Chinese Communist Party (CCP) Congress in 1992 for the first time called for the establishment of a modern enterprise system as a means to improving the efficiency

of the SOEs. Soon after, the Company Law was passed in 1993, which provides the fundamental rules for corporate governance in modern Chinese corporations. Accordingly, many SOEs were converted into shareholding companies and then sold some of their shares to the public, thus the word 'corporation' entered the socialist vocabulary. Some of SOEs were listed in the two stock exchanges. The fifteenth CCP in 1997 further confirmed the state's continuous efforts in improving the reforms and the establishment of a modern corporate governance system (Tam 2002).

Under Company Law (1993), modern corporations are required to form three statutory and indispensable corporate governing bodies: (1) the shareholders general meeting (SGM); (2) the board of directors (BOD); and (3) the supervisory board (BOS) (commonly referred to as "the New Three Boards"). In addition, the Company Law introduced two new statutory corporate positions - the Chair of the board of directors (Chair) and the chief executive officer (CEO) (Company Law 1993). BOD and BOS are both appointed by and expected to report to the shareholders, functioning as a decision-making unit and a monitoring unit respectively. This setting reflects a two-tier board structure, which is markedly different from the Anglo-American unitary board model and more similar to the German two-tier model (Tam 2002). However, unlike German supervisors, Chinese supervisors are not empowered to appoint and dismiss directors and executives (Dahya *et al.* 2002a). Chinese corporate governance has its own distinctive characteristics compared to those in USA and other countries. The next section discusses the current corporate governance system in detail.

2.3.2 CURRENT CORPORATE GOVERNANCE IN CHINA

2.3.2.1 The Legal Framework

As argued by Sun (2002), corporate governance in any country cannot be separated from its legal environment because the legal protection of corporate stakeholders might be different across countries and can lead to different governance characteristics. In China today, the most important legal sources of corporate governance rules come from the laws passed by the National People's Congress (NPC) and its standing committee, including the Company Law (1993) and the Securities Law (1998). The current legal framework for corporate governance in China also includes the Bankruptcy Law (1986), Certified Accountant Law (1993), Audit Law (1994), People's Bank of China Law (1995), Commercial Bank Law (1995), and Accounting Law (1999) (CSRC: www.csrc.com.cn). The key regulatory bodies involved in the lawmaking process are the CSRC, the State Economic and Trade Commission, the Ministry of Finance, and the People's Bank of China (Tam 2002). In addition, the Company Charter of every company plays an active role in designing the corporation's governance structure. Those regulations and rules issued by the CSRC also provide important guidelines in practice.

The Company Law was passed by the NPC in 1993 and implemented in 1994. Company Law (1993) recognises two types of company: Limited Liability Companies and Joint Stock Companies. It requires both types of company to establish three statutory and indispensable corporate governance bodies—the new three boards, although some small limited liability companies can be exceptions (Company Law

1993: Article 3). Listed companies have to follow this rule. The Company Law (1993) also introduces two new statutory corporate positions: The Chair of the board of directors and the Chief Executive Officer (CEO). The Company Law (1993) has provided the basic legal arrangements for all aspects of corporate governance. But it is not complete and some of its requirements are out of date and exhibit the characteristics of political administration and planned economy (Tam 2002).

A series of regulations have been issued by the CSRC and/or State Economic and Trade Commission, to catch up with the development of economic entities. For example, the Guidelines for Establishing Independent Directors of Listed Companies (2001) provide guidance with regards to the nomination, retaining, and responsibilities of independent directors in listed companies. The Code of Corporate Governance for Listed Companies (2002) systematically outlines the fundamental principles of corporate governance for listed companies, mechanisms to ensure basic investors' protection, and codes of conduct and ethical standards for directors, supervisors, managers and other senior executives of listed companies. The Measures on the Merger and Acquisition of Listed Companies (2002) and Measures on the Administration of Information Disclosure on Shareholding Changes of Listed Companies (2002) constitute the most fundamental legal requirements regarding various disclosure requirements for listed companies in mergers and acquisitions situations (CSRC 2004). The following sub-sections describe the requirements concerning the three main governance bodies under the current system and the main issues related to this thesis.

2.3.2.2 Shareholder's General Meeting (SGM)

According to the Company Law (1993), the SGM is the supreme sovereignty in corporate governance and has the power to make the final decisions concerning the corporation's strategic planning, shareholders' interests and top personnel arrangements. The SGM should be held at least once per year and extraordinary meetings can be arranged if necessary. The SGM is organised by the Chair of the board of directors and follows the one-share-one-vote policy. Those ordinary proposals can be passed by majority of attendees, while for those special issues listed in the Company Charter to be accepted, approvals from 2/3 of the attending members are required. Generally speaking, the Company Law and Guidelines for Company Charter provide the shareholders with comprehensive decision-making powers at the general meeting as follows:

(1) to examine and approve the reports from the board of directors (BOD) and the supervisory board (BOS); (2) to examine and approve the BOD's plans regarding profit distribution and coverage of company losses; (3) to elect, replace and compensate directors and supervisors; (4) to examine and approve the corporate fiscal financial budget and final account plans; (5) to examine and approve the annual reports; (6) to make resolutions on the increase or reduction of the corporations' registered capital; (7) to decide whether to issue corporate bonds; (8) to make resolutions on corporate mergers, divisions, dissolution, and liquidation; (9) to make resolutions on the amendment of the corporate Charter (10) to decide whether to repurchase the company shares and (11) to make resolutions regarding other significant issues listed by the company Charters and requiring special approval.

While the first five items can be done by majority vote, the last seven, concerning the shareholders' basic interests, have to be passed by 2/3 vote of the attending shareholders (Company Law 1993). These requirements are distinct from those in the West. For example, in the United States, the power to approve corporate profit distribution plans and to determine the directors' remuneration is reserved for the board of directors rather than to the shareholders (Schipani and Liu 2002:34).

2.3.2.3 The Board of Directors

2.3.2.3.1 Board of Directors under the Company Law 1993

Although the SGM is the power centre in corporations under the Company Law, it is not a standing institution (it is held only once or twice a year). Therefore Article 112 requires a corporation to have a board of directors, composed of "no fewer than 5 but no more than 19 directors". The board of directors is employed and authorized by the shareholders' general meeting to take charge of significant management decision making. By statute, the board of directors is accountable to the general meeting and exercises the following authorities:

(i) being responsible for calling meetings of shareholders' general committee, and presenting reports;

(ii) implementing resolutions adopted by the shareholders' general committee;

(iii) determining the company's operating plans and investment programs;

(iv) preparing annual financial budget plans and final accounting plans of the company;

(v) preparing plans for the company's profit distribution and losses coverage;

(vi) making proposals for increasing or reducing registered capital and for issuance of company bonds or shares;

(vii) drafting plans for company share redeeming, acquisition, merger, division or dissolution of the company;

(viii) determining the structure of the company's internal management;

(ix) appointing and removing the general manager (or Chief Executive Officer, hereafter referred to as "CEO") and other members of the management, upon the recommendation of the CEO, deputy general managers of the company and the officer in charge of finance; listening to the reports of management and auditing their work; and determining the remuneration for those officers;

(x) Formulating the company's basic management rules and regulations, making proposals for amendments in Company Charter, and managing the information disclosure (Company Law 1993: Article 112).

The Company Law also states that the tenure of the directors should be prescribed by the Company Charter. Normally, the tenure of a director, both executive and non-executive, should not exceed 3 years except when he/she is re-elected upon the expiration of his/her term (Company Law 1993: Article 115).

2.3.2.3.1 INDEPENDENT DIRECTORS

The Company Law 1993 has no mandatory requirements for appointing outside directors or independent directors in corporations. It was not until 1999 that CSRC started to highlight the importance of outside directors. In the *Measures on Further Promoting Standardized Operations and Deepening the Reform in Overseas-listed Companies* (CSRC 1999), the CSRC required overseas-listed corporations to

"establish and gradually improve the system for external directors and independent directors" and that "outside directors should hold more than half the board seats with at least two independent directors." To make sure that outside directors are performing their duties, the CSRC requires outside directors to have sufficient time and necessary knowledge, and corporations to supply necessary information and materials. Also CSRC granted substantial power to outside directors. For instance, the views of an independent director should be specified in the board resolution; related transactions are not effective without independent directors' approval and signature; over two independent directors may propose for a extraordinary general shareholders' meeting; and "independent directors may directly report to the general shareholders' meeting, the CSRC and other relevant agencies" (CSRC 1999). However, these requirements only apply to overseas-listed companies.

For those domestically-listed companies, the concept was first brought up in the *Guidelines on Company Chapter of Listed Companies* (CSRC 1997a) as an optional article that a listed company may appoint independent directors if necessary. The Guidelines (CSRC 1997a :117) specify who may not hold the position of independent directors, but keep silent on the minimum number or the duties of independent directors. In 2000, the State Committee of Economy and Trade permitted listed SOEs to have independent directors.

A formal and comprehensive guideline about independent directors was enacted in 2001. The Guideline requires listed companies to introduce independent directors to the board of directors (CSRC 2001). It was the first time that the definition, duties, qualifications, requirements and roles of an independent director were clearly stated.

The Guideline also stipulates the procedures of nomination, election and replacement of independent directors. Importantly, it requires a company to provide support to independent directors to facilitate their duties. More specifically, it requires that in every domestically listed company, "at least one of the independent directors should have an accounting background (e.g. academic with senior professional title in accounting or certified public accountants)". Moreover, it requires that at least one third of the board should consist of independent directors by June 30, 2003 (CSRC 2001). An independent director has a duty of good faith ("chengxin") and a duty of diligence and care ("qinmian") to the company and to all the shareholders.

The Guidelines (CSRC 2001) also require independent directors to have enough time (no less than 15 hours per year) and energy (no more than five directorships at the same time) in order to perform the duties effectively. The term of office of an independent director should not exceed 6 years. Apart from carrying the duties as other directors mentioned in Section 2.3.2.3.1, independent directors are required to express independent opinion on major events, such as nominating, appointing, replacing and remunerating directors and senior managers. Several special powers are awarded to independent directors other than those stipulated in the Company Law (1993) or other regulations, such as to approve major related party transactions, to propose to appoint/change the accounting firm, to propose to hire an auditing/consulting firm independently, and to propose for an interim SGM.

All these new regulations demonstrate the need of roles of independent directors (CSRC 2001). However, these guidelines are not very meaningful in China's current legal system (Clarke 2003). The Company Law only speaks of one director duty - a

duty of loyalty ("zhongshi"). It is unclear about whether shareholders could sue for a breach. Also, it is difficult for the CSRC to create a private right of action for shareholders against directors. The CSRC has engaged in a limited number of disciplinary actions against directors. But these actions rely solely on administrative enforcement and thus are of limited value, given the CSRC's resource constraints (Clarke 2003:504).

2.3.2.4 Supervisory Board

Compared to listed firms in the U.S.A and the UK, a unique feature of corporate governance of Chinese listed companies is the existence of the supervisory board. Chinese listed companies are required to institute a supervisory board consisting of both shareholder representatives (selected by the shareholders' general meeting) and company employee representatives, with the proportion of each group determined by the Company Charter. The main power given to the supervisory board is to audit the company's financial report, to supervise directors or managers so they will not violate the Company Law or Charter, and to require them to correct those behaviours that harm shareholders' interests. The supervisory board also reports to shareholders' general meeting and has the right to suggest extraordinary shareholders' general meetings. Its members do not participate in business operation, nor do they get involved in the normal work of directors, but they can sit on board meetings. Supervisors carry on their duties by meetings and can seek external lawyers or certified accountants for assistance. Moreover, they can sue directors or managers independently for their misbehaviours.

2.3.2.5 The Chair and the CEO

According to the Company Law 1993, both the Chair of the Board and the CEO are statutory and indispensable corporate positions in China. As stated in the Company Law, the board of directors shall have a chairman, and may have one or two vice-chairmen. The chairman and vice-chairmen shall be elected by the board of directors through affirmative votes by a majority of the directors (Company Law 1993: Article 113). The chairman is the legal representative of the company and holds the following statutory powers: (i) chairing the shareholders' general meetings and to convene and chair the meetings of the board of directors; (ii) supervising the implementation of resolutions adopted by the board of directors; (iii) signing company shares and bonds (Company Law 1993: Article 114). In addition, the Chair acts as the sole corporate legal representative and exercises some powers of the board of directors under the authorization of the board when it is not in session (Company Law 1993: Article 113 & 120).

The CEO is an agent of the corporation and enjoys the rights conferred by the Company Law and the Company Charter (Schipani and Liu 2002). The CEO is appointed or removed by the board and is accountable to the board. The CEO takes general responsibility of daily operations, management and the implementation of the board resolutions (Company Law 1993: Article 119).

2.3.3. THE CHARACTERISTICS AND PROBLEMS OF CURRENT CORPORATE GOVERNANCE IN CHINA

2.3.3.1 Comparing the Chinese Governance System to the Western Models

As mentioned earlier, the current corporate governance system of Chinese listed companies is intended to learn from the West. But due to the special economic and political environment of China, it tends to contain the features of both that of the Anglo-American model and the German model while having its own characteristics. Table 2.3 outlines the main differences between these models.

2.3.3.1.1 GOVERNANCE BODIES

In terms of governance bodies, a Chinese listed company has a shareholders' general meeting and two boards. The power of the unitary board in the Anglo-American model is split and spread among the three governance bodies in China. For example, in the United States, the power to approve plans of corporate profit distribution and the power to determine the directors and managers are both reserved for the board of directors rather than given to the shareholders.

Table 2.3 Characteristics of Corporate Governance Models

Governance Mechanisms	Anglo-American Model	German-Japan Models	Chinese Model
Governance bodies	Board of directors (BOD)	BOD & Supervisory Board (SB)	Shareholders' general meetings ,BOD & SB
Board Structure	Board with majority of outside directors	Insider dominated	Insider dominated board with appointments influenced by the state
Ownership Structure	Dispersed	Concentrated ownership with cross shareholding	Concentrated ownership with the state as majority shareholder
Managerial Incentives	Executive pay linked to firm performance	Less linked to performance	Not linked to performance
Managerial Labour Market	Active market for senior managers	Less Active Market for managers	Obstacles to development of an active market
External Monitoring Roles	Active monitoring roles of professional organisations and mass media	Monitoring roles performance	Weak or absence of monitoring roles by banks, professional organizations and the mass media
Investors	Active institutional investors, with free-riding and short-term individual investors with little interest in monitoring	Investors, banks and employees participate actively in the control of company; usually long term oriented	Short-term and highly speculative individual or even institutional investors; Insider-controlled,
Company objectives and investor Protection	Primacy of the protection of minority shareholders' rights	Multiple stakeholders' interests represented in company objectives	Ineffective protection of minority shareholders rights; company objectives intervened by government or larger shareholders
Financing Sources	Reliance on securities market	Reliance on bank credit	Reliance on loans from state owned banks

(Source: Adapted from Tam (2002))

At first glance, the Chinese governance structure may appear similar to the two-tier system in Germany and Japan, where corporations are also governed by a board of directors and a supervisory board. However, the two systems are in fact substantially different. For instance, in China, there is no hierarchical relation between the board of directors and the supervisory board. Both of them are appointed and reported to shareholders' general meetings. But under the German-Japanese model, the board of directors is appointed, and may be dismissed, and overseen by the supervisory board

(Schipani and Liu 2002). Also, though being part of a two-tier board structure, the establishment of Chinese supervisory board does not share the social and philosophical considerations that underlie the supervisory board in the German codetermination model of corporate governance[7] (Tam 2002). The supervisory board in China has so far been ineffective in performing its duties (Dahya *et al.* 2002a; Tam 1999, 2002). As a result, the corporate board structure in China seems closer to the Anglo-Saxon one-tier board type (Tam 1999; Tian 2001).

In the U.S.A. or the UK, outside directors play active and decisive roles in the governance of large publicly held corporations. As suggested by Schipani and Liu (2002), the 1999 survey by Organization for Economic Cooperation and Development (OECD) reported that the average percentage of independent directors on the board of directors is 62% in the U.S.A., 34% in the UK. However, there is no mandatory requirement for appointing outside directors according to the Corporate Law 1993 in China. Although the roles of independent directors have been highlighted in recent years, the roles are still not active in China (Orr 2004).

2.3.3.1.2 OWNERSHIP STRUCTURE

Paramount among the differences between Chinese listed firms and their Western counterparts is the large percentage of state ownership and the significant role of the state. In Anglo-American companies a large proportion of corporate shares are held

[7] The German Supervisory Board is prescribed by law for German stock corporations, which is superior to the management board. It appoints, supervises and advises the members of the Management Board and is directly involved in decisions of fundamental importance to the enterprise (German Corporate Governance Code 2006).

by individual investors[8], while in Germany/Japanese companies, it is financial institutions that hold the largest share (Kagawa 2005). However, the majority shareholder in China is typically the State and the situation will probably remain unchanged in the near future (Lin and Zhu 2000). For example, for most listed companies, the top 10 shareholders are normally the state and SOEs. This state-dominated ownership structure has been accused of being responsible for the prevalent problems in corporations, namely "bureaucratic interference", corporate objectives conflicts, non-tradable shares, ambiguous property rights and the absence of an effective ultimate principal (Clarke 2003; Qiang 2003). These problems will be discussed in more detail later.

2.3.3.1.3 INCENTIVE SYSTEM

Another distinction between Chinese listed companies and Western companies is the lack of valid incentives in most Chinese listed companies. In the USA and the UK, directors and executives receive full incentive schemes, ranging from short-term schemes, such as bonus and share grants, to long-term schemes, such as stock options and long-term incentive plans, to link their remuneration to firm performance. However, the pay system of many directors and executives in China is unitary, generally in the form of cash, expect for a few special cases (SRIC 2003). Also, unlike their counterparts in the West criticised for being overpaid, these executives are underpaid, at least as shown in disclosed figures (SRIC 2003; Wu 2002). China's listed companies suffer a lot from adverse selection problems both from the principal

[8] UK shares are less dispersed than U.S.A. shares. According to ONS (2002), the proportion of shares held by individuals in the UK has been on a downward trend. It fell from 54.0 per cent of quoted shares in 1963 to 14.3 percent in 2002.

and the agent (Zhang 2005). Even if the right person were chosen, the low level of compensation, the unitary compensation system, and the lack of a long-term oriented incentive system still cause problems, as will be discussed later.

2.3.3.1.4 INSTITUTIONAL ENVIRONMENT

As argued by Clarke (2003), any system of corporate governance depends on a set of institutions for its implementation. The last five features in Table 2.3 are basically related to the business, social and regulatory institutions under which each system of governance operates.

In the Anglo-American system, well developed banking system and securities market have created a highly liquid capital market to help alleviate the agency problems. Also, their intermediate institutions such as the financial press, mass media and professional firms play an active and important role in monitoring (Clarke 2003; Tam 2002). In Germany and Japan, both the institutional investors and employees participate in the monitoring and control of their firms (Tam 2002).

However, the monitoring from investors is somehow absent in China. The stock market is less liquid due to the non-tradable but dominant state owned shares and legal person shares. Also, despite its majority ownership, the state does not exercise effective control over these companies. Moreover, because of the high rate of saving and the very limited investment instruments available, individual investors in the stock market tend to be highly speculative and less (or not) interested in exercising monitoring (Tam 2002). Other institutions, such as mass media and professional

bodies are either under the state's control or have little incentive to perform their monitoring roles. In a word, although China has adopted the mechanisms the Western corporate governance models, it does not yet have an active market for corporate control and monitoring (Tam 2002).

2.3.3.2 The Problems of Current Corporate Governance in China

Compared to the two previous decades, corporate reform in China has achieved great improvement and progress towards the Modern Enterprise System. However, China is still far from establishing well-developed corporations that can be the basis of its economic development and growth. The main problems of corporate governance are discussed below.

2.3.3.2.1 WEAK INTERNAL GOVERNANCE SYSTEM

One of the main problems in Chinese corporate governance is the weak internal governance in most firms. The Company Law (1993) allocates the power of ultimate control, the power of decision making, the power of monitoring and supervision and the power of management to the shareholders' general meeting, the board of director, the supervisory board and the management team respectively. Although the governing corporate bodies in many corporations have been established, they do not function very well (Schipani and Liu 2002).

The attendance of minority shareholders and outside shareholders to the shareholders' general meetings has been very low and is declining, though the number of inside

attendees is increasing. The proceedings are often very mechanical. While majority shareholders are typically very strong and usually have some control over the management, individual shareholders seldom challenge management or directors and the voting results are usually favourable to the management or the majority shareholders (Clarke 2003). In a word, the shareholders' general meeting is not performing its expected role in China (Schipani and Liu 2002).

The board of directors lacks independence while the supervisory board is inactive or ineffective (Tam 2002). Some listed corporations do not convene regular board of director meetings and some directors do not take the board meeting rules seriously. For those SOE-corporatized companies, the board of directors and the CEO are normally appointed by the State. These former government officials still regard the listed company as part of government (Cha 2001). Also, board members and management members are almost always overlapped; and in particular, the Chair of the board of directors is often also the CEO. In some cases, executives are employed in both the parent corporation and the subsidiary, which greatly strengthens their power over control mechanisms. Boards of supervisors cannot play an effective role because they are not independent and often are unclear whose interest they are representing (Cha 2001). As a result, the control system in Chinese firms is weak over managerial power, and insider control and managerial corruption are prevalent (Hu and Hu 2003; Schipani and Liu 2002).

In summary, due to the over-concentration of ownership, individual investors' dispersion, the weakness of directors and supervisors and legal backup, the aforementioned powers are not well-balanced between the parties. Instead, Chinese

listed companies suffer from serious problem of "large shareholder manipulation" and "insider control" (Lin 2004; Schipani and Liu 2002).

2.3.3.3.2 A HIGHLY CONCENTRATED SHAREHOLDER—THE STATE

Another prominent problem of the current corporate governance system in China is associated with the highly concentrated ownership structure (Lin 2004; Tenev and Zhang 2002). At present, the state is the No. 1 shareholder, holding about 65% of the public companies in China, accounting for over 40% stock share of each company on average (Hu and Hu 2003). This kind of ownership structure has brought many problems.

First, many Chinese listed companies were transformed from old, under-performing SOEs. Once the subsidiary is successfully listed, the parent SOE would use the listed company as a "cash machine". This harms the assets of the listed company and violates the rights and interests of minority shareholders.

Second, this state-dominated ownership structure leads to "bureaucratic interference", corporate objectives conflicts, non-tradable shares, ambiguous property rights and the absence of an effective ultimate principal, as mentioned earlier (Clarke 2003; Qiang 2003). Although in many cases the state has left the day-to-day management in the hands of CEOs and executive directors, there are instances where it actively intervenes in director appointment, decision-making and the setting of policy objectives. In addition, the government agency may impose social objectives on the partially privatized firm, which might conflict with a firm's profitability objectives.

Moreover, the non-tradable state shares and legal person shares make it difficult to form an effective capital market for corporate control. Furthermore, the principal-agent relationship in state-owned/controlled firms is broken down into two other agency relationships: owner (the state)–to–politicians and politicians–to–managers, which greatly increase agency problems (Qiang 2003). To make it worse, as the politicians do not actually have any residual claim rights nor bear the risks over the control and use of state-owned assets, they might not have sufficient incentives for management monitoring. In this sense, state-owned shares lack representatives or owners.

2.3.3.3.3 LACK OF TRANSPARENCY

The lack of decision-making transparency and a balanced decision making mechanism leads to non-rational management and poor quality decisions. This problem is caused by the fact that decision-making power has been highly concentrated in the hands of insiders who tend to make decisions instinctively, with little input from other senior executives or outside directors (Orr 2004)

2.3.3.3.4 LACK OF EFFECTIVE INCENTIVE MACHANISMS

The distortion of the incentive mechanism has been an urgent and critical issue in China. The remuneration system in China is unitary and unmatched with managers' actual contributions (Wu 2002) and does not tie in with the management team's performance. Managers' self-value cannot be realised through a valid and transparent mechanism. Therefore in the absence of effective monitoring, company performance,

to a very large extent, depends on the qualification and conscience of the manager. Unfortunately, not all managers are conscientious. On the contrary, many of them have been self-seeking at the expense of the shareholders, especially those minority shareholders. Due to the lack of an accounting culture in China and the widespread practice of reporting only good news, the organic development of a fair incentive mechanism may have to wait for some time (Shi and Weisert 2002).

2.3.3.3.5 LACK OF EXTERNAL INSTITUTIONAL GOVERNANCE MECHANISMS

The lack of necessary institutional factors is another major problem for Chinese corporate governance. As already discussed, a good corporate governance model requires certain institutional conditions, including a high level of transparency and accountability, protection for minority shareholders, an active market for corporate control, an efficient managerial labour market, professional institutions and an effective legal environment. Although the presence of these conditions in the system does not by itself eliminate unethical and fraudulent activities, their absence certainly raises serious concerns over the system's efficacy to deal with such issues (Tam 2002). However, China has not yet had these institutional conditions, which partly explains the pervasiveness of insider trading, self dealing, financial errors and collusion in market manipulation (Clarke 2003).

In summary, China has been making efforts towards improving corporate governance in listed companies and major progress has been achieved. However, less progress has been made at the institutional level (Orr 2004). The imperfection of corporate governance limits the competitive advantages of SOEs and the success of their reform.

2.4 Compensation and incentives in China

One of the most important components of China's enterprise reform has been the compensation system. As mentioned earlier, the lack of proper incentive mechanisms has been one of the serious problems in listed companies, especially SOEs, in China. This section examines more closely the development of compensation and incentives in China.

2.4.1 THE TRADITIONAL MODEL

After the Communist takeover in 1949, there was a strong ideological opposition to individual material incentives and the emphasis was on collective welfare benefits and non-material incentives (Chow 1992). The government held both the residual claims and control rights of SOEs. The wages of all employees in SOEs were determined by government bodies, with the same applying to directors or managers. In those days the so-called enterprise was nothing but a production plant. It had a director but no "manager" in the sense of business decisions (Zhang 2005). The director (normally the Party secretary) was nothing more than a special worker whose main task was to meet the production plan made by the government. All employees, including directors, were compensated through a centrally set hierarchical wage-fringe benefit system, which had little to do with firm performance (Yueh 2004). The wage level was completely based on an employee's age, seniority and job assignment; there was no link between pay and productivity. In addition, the level for many employees was kept fixed for a long time, sometimes for decades. Under those circumstances, nobody had incentives to improve the economy, perhaps except for the central government

leaders and top bureaucrats because they were virtually the residual claimants (Zhang 1993).

2.4.2 THE CONTRACTING MODEL

In the 1980s, wage reforms were carried out in China as part of the enterprise reform, with job characteristics playing an increasingly important role in determining employee salaries (Yueh 2004). Before 1985, age was the most important determinant of an employee's earnings in state-owned enterprises. By 1990, job levels in the company had become the most significant predictor. Education and training also began to make a difference to people's pay levels. However, income differences were still relatively small, although apparently the internal differences increased in the early 1990s (Yueh 2004).

Performance-based pay began to be increasingly introduced as a part of the wage reforms from 1980s. As discussed in Section 2.3.1, from 1986 to the early 1990s, the dominant policy was the management contract system (MCS). The basic content of the MCS was to set profit sharing rules and delimit decision rights through contracts negotiated by the firm and the governmental agencies. Typically these contracts contained indicators of profit and tax targets, utilization of retained profits, debt repayment, asset appreciation, product and technology innovation, product quality improvement, and enterprise rating (Yueh 2004). In terms of employee wage, the Ministry of Labour promulgated a reform in 1985 by determining that the budget to be allocated for wages should be linked to the economic performance of SOEs and collectively-owned enterprises, which was measured by enterprise profitability or a

combined indicator of economic returns containing unemployment rate, consumer price index and regional growth (Yueh 2004). Enterprises were permitted to set their internal wage structure in 1992 within the confines of the overall wage budget of the government. To some extent, these policies stimulated profit-oriented behaviour in state-owned enterprises (Groves *et al.* 1995; Yueh 2004).

In terms of management autonomy, although still suffering from considerable governmental interventions, the MCS, together with other reform polices such as price liberalization and output plan reduction, gave managers considerable decision rights. In terms of incentives, the MCS provided relatively strong incentives for management to make short-term profits. According to Zhang (1997), there are two kinds of incentives working for management under this MCS. One is formal and explicit, and the other is informal and implicit. The formal and explicit incentive comes from the fact that managers (and workers) can legally claim a considerable share of current profits according to the signed contract. Therefore, the residual and control rights can be better matched at the firm level. This better matching gives the manager better motivation to make profits (Groves *et al.* 1994). However, only a tiny fraction of the retained profit legally accrued to the management team. Also, in reality many enterprises tend to pay equal (or almost equal) bonuses to all employees and there is still much resistance to big pay differences among employees as people still preferred it to group incentive schemes (Lin *et al.* 2005; Warner 1995). Therefore executive remuneration entrenchment practices were relatively limited in those days; but meanwhile, the formal and explicit income gave very limited incentive effects to on management.

One of the side effects of managers' insufficient incentive from a formal and legal perspective is that many of them started to seek informal and implicit incentives, which generate agency problems (Zhang 2005). The informal and implicit incentive comes from the fact that managers can illegally claim more virtual residual and spend money in many ways (often referred to as "insider control"), due to inefficient monitoring by the government. Hiding profits (by manipulating accounts) and stripping assets are the usual and rather 'safe' way for managers to claim more profit than specified in the contract because it is very hard for the state to check that out. Typical forms of hiding profits and stripping assets include setting up independent or subsidiary companies with little government control, making investment in and transferring profit through sale or purchasing prices to these companies, putting all perks into cost calculations, diverting profits to private or quasi-private accounts, inviting relatives and friends for banquets and holidays, purchasing luxury offices, furniture and cars, and so on. However, managers cannot freely pocket the money; therefore they find ways to spend it instead such as drinking expensive wines, feasting, Karaoke, prostitution and gambling (Zhang 2005).

Some researchers argue that this kind of informal and implicit income can motivate managers to make profits because casual observation suggests that managers of better performing firms have a more luxurious life style than those of poor performers. For example, Zhang (2005) claims that it is this kind of illegal expropriation of profits that motivates managers to work hard, given that there is no natural owner to motivate managers and the residual that managers can legally claim is very small. However, this behaviour has negative effects as well. One of the negative effects is that most state enterprises under-report profits, because the majority of reported profits belong

to the state while hidden profits are at the disposal of management. Other downsides might include the declining of managers' moral standards, wasting social resources on unnecessary expenses and loss of many competent managers (when they were found out stripping state assets or committing corruption or taking bribes).

Even if the MCS has improved management motivation to make current profits, the incentives are short-term oriented. The long-term incentive problem has yet to be solved. As Zhang (2005) has observed, managers of SOEs tend to distribute retained profits to employees or invest in quick-return projects rather than investing in long term productivity-enhancing projects and R&D. And sometimes, abnormal short-term profits are made at the expense of long-term productivity (Broadman and Xiao 1997).

The reason for management myopia is that the manager can only enjoy benefits from the firm during his firm tenure, given that there is no personal capital stake. And the manager sometimes cannot be sure whether he will still be in the same position next year because his firm tenure is mainly dependent upon bureaucratic preferences which are little related to firm performance[9]. Zhang (2005) blames management selection for this management myopia. SOE managers are appointed by government bureaucrats rather than capitalists, normally through industrial bureaus. He argued that this had led to problems such as Bureaucrat dominance, and "mediocre" managers.

Adverse selection, according to Zhang (2005), is most serious in China. The reason is two-fold. On the one hand, with no personal stake to signal ability, many people pretend that they are qualified for management. On the other hand, the bureaucrats

[9] Normally the contract lasts 3 or 4 years normally, the government is not bound by the contract in replacing the manager.

have neither incentive nor ability to find and appoint high quality candidates because they do not need to bear the consequences of their selections. Also, the bureaucrats themselves too often base their selections on personal connections (Guanxi) rather than merit.

Officialism[10] is another Chinese characteristic problem. In contrast to the West where most managers focus their career in business, SOE managers too often try to be promoted to become bureaucrats. Because managers are appointed and dismissed by bureaucrats, the latter are always considered superior to the former. As a result, most SOE managers believe that promotion to a bureaucrat is the best reward for managers. Consequently, they often behave more like professional bureaucrats than professional managers and regard the firm as nothing but a platform for promotion to the rank of a bureaucrat (Tenev and Zhang 2002). That explains why they only care for short-term performance.

Because of this selection system, good performers are as likely to be removed from the profitable firms as bad performers, sometimes more likely, because when a firm is highly profitable bureaucrats have every incentive to replace the incumbent with their favourite. As a result, the best way for the incumbent to secure his/her position is making the firm perform satisfactorily but not spectacularly (Zhang 2005). Zhang (2005) found that these arguments are strongly supported by empirical investigations. The phenomenon of "Good managers are short-lived" has attracted much attention among academics and managers (Zhang 2005:25).

[10] Officialism refers to one of the Chinese cultural phenomena that government officials have higher social position and authority and most Chinese people look up to government officials and would try hard to become one of them.

Actually, these phenomena did not only occur under MCS. They still exist nowadays. A most recent example is that the Chair of China National Offshore Oil Corporation was appointed as the Top Official of Hainan Province, transforming from a business leader into one of the top government bureaucrats. As long as the bureaucratic selection system remains, these problems will continue.

2.4.3 THE MODERN CORPORATION MODEL

Having realized that MCS-dominated reform could not solve the incentive problems, especially in the long-term, the government and economists have turned to the modern corporation system in the West in order to learn from it. Thus, SOEs are allowed to be restructured into State-holding listed companies. Accordingly, the compensation system has been reformed to fit the needs of the modern corporation system.

Since 1978, different forms of compensation reform have been experimented with, but as mentioned before, changes in the entrenched compensation practices were relatively limited up to the mid-1990s. But with the establishment of the stock exchanges and the introduction of many foreign investment and joint-ventures in the 1990s, the compensation system is becoming more developed. From 1994-1995, the compensation reform policy finally gave publicly listed companies' virtually complete discretion in setting compensation levels for their employees (Yueh 2004). Two standards were set to guide the wage setting in listed companies: first, the growth rate of total wages must not exceed that of after-tax profitability; second, wage growth per capita should be lower than labour productivity growth rate (Yueh 2004).

Since 1997, a handful of state companies have begun to experiment with salary and bonus schemes that link a manager's earnings to firm performance. The previous six-component wage system (including basic wage, bonuses, benefits and subsidies, overtime wages, supplementary wages and others) was replaced by a two-component wage system, fixed and variable (Yueh 2004). The fixed part includes basic wage, seniority wage, and insurance and housing fund. The variable part includes bonuses depending on individual productivity and firm performance. Most recently, some companies have even initiated trial reforms, by rewarding senior executives with stock options, though these options bear little relationship to traditional Western incentives in which executives are given options to buy company shares at below market price. While this may not necessarily eliminate corrupt managers, it should go a long way towards motivating managers to excel and improve their company's performance, in order to derive their personal benefit.

However, because of the fundamental problems under the MCS system have not been solved, the state share-holding system cannot satisfactorily address the problems of SOEs. As Zhang (2005) has argued, the state share-holding system cannot solve the management selection problem. Managers are still selected by bureaucrats. Although, according to Company Law or later regulations, the managers of listed companies should now be appointed formally by the board of directors, the government still intervenes in this process in corporatized SOEs, and board members are selected from the government or other SOEs themselves. Therefore, managers' Officialism and their short-term behaviours continue to persist.

2.4.4 CHARACTERISTICS OF THE CURRENT EXECUTIVE COMPENSATION SYSTEM IN CHINA

Shanghai Rongzheng Investment Consultancy Co., Ltd (SRIC), the only consultancy firm focusing on executive compensation and management buyout (MBO) issues, has been conducting an annual survey and research on management shareholdings and compensation since 2001. According to their report *White Paper on Chinese Entrepreneur* (SRIC 2003) and also Wu (2002) and Melvin (2001), the current situation of executive compensation in China's listed companies is as follows:

- The level and structure of executive compensation are quite problematic. The majority of listed companies only use cash compensation and the level is relatively very low compared to that in Western countries. For example, the average annual remuneration of managers in Beijing, the highest paid city in 2002, was RMB¥254,000 (i.e. about £15,000), while that in the Qinghai province was only RMB¥75,000 (i.e. £5,000). Long term incentive schemes, e.g. shares or share options, are seldom used. The statistics show that at the end of 2002, 63.66% of the Chairmen of Boards of Directors do not have any share stakes in the company they serve, 65.68% of the CEOs do not hold any shares of their companies, and over 60% of management of listed companies do not hold their company shares (SRIC 2003). Both the amount of their shares and the market value of their shares declined in 2002 compared to that of 2001.

- The linkage of the compensation to firm size and firm performance is becoming stronger. As SRIC (2003) reported, there was no correlation between the salary of the highest paid executive and firm performance or firm size in 2001; while the salary in 2002 was significantly related to earning per share, profit after tax and also company size. So were the fees of independent directors.

- The compensation level and structure differ across industries and regions. As far as industries are concerned, managers in the Construction, Finance and Banking, and Information and Technology are normally paid higher than other industries, while those in the Agriculture, Forestry, Fishery and Farming industries get the lowest pay (SRIC 2003). In terms of regions, Beijing, the Guangdong province and Shanghai are the regions with the highest executive compensation, while those provinces in the West, e.g. Lingxia and Qinghai, receive much lower pay. The market value of executive shareholdings varies across industries and regions as well. For example, CEOs in IT on average hold more company shares than those in other industries. IT is a promising and highly growing industry, and managerial ownership provides better incentive for the managers. The highest average market value of managerial shares is found in the Zhejiang province, an east-coast province, and the lowest in Yunnan, a province in South-west China.

From the above discussion we can see that the incentive system in China requires further reforms. More and more economists, researchers and practitioners are advocating the incorporation of managerial shareholdings, including common shares

or share options, into managerial compensation package. For example, Schipani and Liu (2002) suggest that stock option programs should be implemented nationwide and the legislature should offer guidelines for the content and validity of stock option contracts. However, due to the lack of necessary institutional factors, such as legal sources of managerial shares, supporting accounting methods, an efficient capital market and stock market, an objective and impartial performance appraisal system and the related legal regulations, whether or not this type of incentive can work in China is still questionable. But at least both the government and the enterprises themselves have realized the importance of managerial incentives and are seeking to improve the situation.

2.5 SUMMARY

China has been implemented its economic reforms for decades, which provides the general background for its corporate governance development. Chinese corporate governance has evolved through several stages and has been significantly improved compared to its previous centrally-planned model. However, the nature of China's reform, the immaturity of its capital markets and the special ownership structures of Chinese enterprises have unavoidably led to a corporate governance system with some as-yet unresolved problems.

The salient features of the current business conditions and governance systems in China are: serious government intervention; absence of effective managerial incentives; highly concentrated and state-dominant ownership; ineffectual internal and

external monitoring mechanisms; a thin managerial labour market; lack of relevant laws to enforce property rights; and lack of legal redress.

These inadequate and undeveloped corporate governance practices have impeded business growth and economic development in China. In particular, the lack of effective managerial incentive has become a key and urgent issue both for government policy makers and enterprise practitioners to address. To some degree, resolving the managerial incentive problem is an important determinant of the success of economic reform. This might explain why executive compensation has become an important topic for both researchers and practitioners in China in recent years.

With its entry to the World Trade Organization, China has become an increasingly important player in the world economy. Improving corporate governance has become a key element in order to enhance the competitive advantage of Chinese enterprises and is one of the long term challenges facing China. Prior research in China and elsewhere indicates that corporate governance has a significant impact on firm performance. Evidence suggests that improving performance and creating value can be achieved by paying greater attention to ownership structure and executive compensation (Jensen and Meckling 1976). Good corporate governance in China however will also depend heavily upon the successful reform of government agencies and the legal system.

It might be worth stressing that because China's listed companies face a different institutional environment from Anglo-American companies the common understanding of executive compensation dynamics and management incentives

might not apply in China or at least require some adjustments. Therefore, to help understand the complicated corporate governance of China, interviews were conducted with 10 directors of Chinese listed firms, as a compliment to the quantitative analysis based on secondary data. How the interviews were conducted is introduced in chapter 4 and the results are used to help explain the empirical results of this thesis in the later chapters.

The next chapter reviews agency theory and the literature on corporate governance and executive remuneration and develops research hypotheses of the thesis.

CHAPTER 3 LITERATURE REVIEW, THEORY AND HYPOTHESES DEVELOPMENT

3.1 Introduction

Chapter 2 introduced China's economic reforms, its capital market and stock exchanges, and the evolution of its corporate governance and executive incentive system. That provides a general institutional framework for this study and also indicates that China is a special context to study corporate governance and executive remuneration compared to those in the West. Chapter 3 offers a review of the literature on corporate governance and executive remuneration, from both theoretical and empirical perspectives, and develops research hypotheses for this study.

There are numerous papers that debate about executive remuneration from different theoretical perspectives. Within that debate, agency theory has received most attention in the literature. Although some of the assumptions of the agency model are open to criticism, this theory is undoubtedly the most influential theory in the area of corporate governance and management remuneration. This thesis therefore gives agency theory a central position in reviewing previous research on the determinants of executive remuneration.

This chapter provides an overview of the general agency model of remuneration and the empirical studies on the determinants of executive remuneration. Based on this review and also an understanding of the institutional background of China, the research

hypotheses for this study are developed. These hypotheses relate executive remuneration to board characteristics, ownership structure and market comparison factors. Other factors that have been identified by the literature to have impacts on executive remuneration are also reviewed and this thesis will control for their effects.

The chapter is structured as follows. Section 2 describes and evaluates the literature on agency theory. Section 3 reviews the literature on corporate governance, more specifically executive remuneration, and develops the hypotheses for the thesis. Section 4 reviews the literature on other determinants of executive remuneration which provides the theoretical underpinning for the selection of control variables. Finally, a summary is provided in Section 5.

3.2 Agency theory

3.2.1 ORIGIN OF AGENCY THEORY

The fundamental breakthrough in Information Economics, which has been dominant since the 1960s, is the rejection of the assumptions of perfection information and altruism, thus casting doubt on the classical theory and paving the way for the Principal-Agency theory (Xi and Wu 2000). Berle & Means (1932) first argued in their influential book, "*The Modern Corporation and Private Property*", that the development of modern corporations had changed from 'owner control' to 'manager control', as cited in Xi and Wu (2000). In the late 1960s and early 1970s, economists started to explore risk sharing among individuals or groups and argued that the risk-sharing problem arises when

cooperating parties have different attitudes toward risk (Arrow 1971; Wilson 1968). Based on these earlier works, researcher (Fama 1980; Holmstrom 1979; Jensen and Meckling 1976; Shavell 1979) identified the so-called agency problem and developed formal models for the principal-agent theory.

3.2.2 AGENCY THEORY

In Jensen and Meckling (1976)'s definition, an agency relationship exists in any situation that one or more persons (principal(s)) engage another person (the agent) to perform some service on their behalf, which involves the delegation of some decision making authority to the agent. The principal and agency relationship develops with the separation of ownership and control. Under agency theory, a firm is the nexus of contracts, known as Nexus of Contracts theory (Jensen and Meckling 1976).

In its simplest form, agency theorists assume social life as an endless series of contracts and analyse organizations as such (Perrow 1986). In their view, every person in a firm has a contract with at least one other party. For example, the CEO has contracts with both his /her subordinates and the board of directors. The firm is little more than a nexus of contracts or bilateral agreements. Any party can freely enter a contract relationship and break it if he/she likes. The violation of contracts when possible is not an occasional dilemma but the root problem of organization (Perrow 1986). Contracts and their violation are the basic foundation of agency theory.

According to Jensen and Meckling (1976), a principal-agency relationship is formed when the firm owner delegates managerial authority to the manager. Such relationship is governed by a contract specifying what the agent should do and what the principal should do in return such as compensating the agent. However, the principal-agent relationship is fraught with built-in problems such as cheating, limited information, and bounded rationality in general (Perrow 1986), and conflicts in interests between the parties (Jensen and Meckling 1976). With authority delegation, the principal expects the agent to act in the best interests of the principal, that is, to maximize the principals' utility; while the agent takes it as an opportunity to maximize his/her own utility. This raises the trouble that if both parties are utility maximizers, the agent might not always act in the best interests of the principal. Therefore, agency theory assumes that managers will act opportunistically to further their own interests before shareholders, which generates the so-called agency problem, especially when it is difficult or too expensive for the principal to verify what the agent is actually doing (Jensen and Meckling 1976). There is another problem -- risk sharing, which arises when the principal and agent have different risk preferences. Agency theory is concerned with resolving these two problems associated with agency relationships (Jensen and Meckling 1976).

Jensen and Meckling (1976) demonstrated that a manager has potential conflicts of interest with the outside shareholders unless the manager, owns 100% of the firm. This means that an agency problem generally exists in modern corporations with ownership dispersion. Then how can the financiers be sure that their funds are not expropriated or wasted on unattractive projects? Generally, the principal can sign a contract with the agent that specifies what the manager does with the funds, and how the returns are

divided between them (Shleifer and Vishny 1997). As mentioned by Jensen & Murphy (1990b), if shareholders had complete information regarding CEO's activities and investment opportunities, they could design a complete contract specifying and enforcing the managerial action to be taken in each state of the world. However, due to the complicated and ever-changing environment, it is unrealistic and impossible to wholly describe and foresee all the events in the future. This in turn makes it unrealistic or even impossible to write a complete and very specific contract. Thus, managers tend to have most of the residual control rights and discretion (Shleifer and Vishny 1997).

To protect shareholders' interests, various devices have been proposed, namely incentive alignment and governance mechanisms (Gomez-Mejia and Wiseman 1997). As mentioned by Jensen and Meckling (1976), the principal can design appropriate incentives for the agent to act to increase shareholder wealth, employ monitoring systems to reduce the unwelcome activities of the agent, or, bond the agent to the principal to , which guarantees that he will not take actions adverse to the principal's interests. All these actions involve costs, known as 'Agency Cost', defined as the sum of the cost of monitoring management, bonding the agent to the principal and residual losses (Jensen and Meckling 1976).

3.2.3 DEVELOPMENT OF AGENCY THEORY

Over the last few decades, agency theory has been extensively used in widespread research fields (Eisenhardt 1989). These researches are developed along two streams: the "principal-agent" stream and the "positivist" stream (Gomez-Mejia and Wiseman 1997;

Jensen 1983). The two streams share common assumptions such as self-interest, bounded rationality and risk adverse preference, information as a purchasable commodity, partial goal conflicts and information asymmetry between organisational participants (Eisenhardt 1989). Both streams analyse the contract between the principal and the agent (Eisenhardt 1989).

However, the research focus of the two streams has been different. The principal-agent stream almost exclusively focuses on the contract for controlling agency costs, trying to identify the optimal contract under differing conditions of information asymmetry. On the other hand, the positivist stream focuses on identifying goal-conflicting situations and introducing governance mechanisms to limit the agent's self-serving behaviours (Eisenhardt 1989; Gomez-Mejia and Wiseman 1997). Most positivist researchers have only focused on the special case of the principal-agent relationship between owners and managers of large public corporations (Eisenhardt 1989).

3.2.3.1 The Principal-agent Stream

Principal-agent stream emanated from a managerial finance and managerial economics perspective and largely focuses on modelling the optimal contract, behaviour versus outcome, between the principal and the agent (Eisenhardt 1989). Under the assumptions mentioned in the last paragraph, the essence of this model can be described by two scenarios (Eisenhardt 1989; Harris and Raviv 1979; Shavell 1979). The first scenario is under the assumption of complete information. When the principal has complete

information about agent's efforts, the most efficient contract is based on behaviour since an outcome contract needlessly transfers risk to a risk-averse agent.

In the second scenario, the principal does not have complete information about the agent's effort. The self-interest seeking agent might not act in the principal's interest, and hence might give rise to an agency problem. Formally, the literature emphasises two aspects of the agency problem—moral hazard and adverse selection (Eisenhardt 1989). Adverse selection arises when the agent misrepresents his/her ability or qualification because the principal cannot verify the skills or abilities of the agent either at the time of hiring or after. Moral hazard, also called Shirking, occurs when the agent does not make agreed efforts.

Concerning these unobservable behaviours of the agent, the principal has two options: to hire some mechanisms to discover the agent's behaviour or to transfer the risk to the agent by designing an outcome-based contract, such as incentive alignment (Gomez-Mejia and Wiseman 1997). Thus, the central issue in the optimal contracting problem lies in the trade-off between the cost of measuring the agent's behaviour and that of measuring outcomes and transferring risk to the agent (Beatty and Zajac 1994; Gomez-Mejia and Wiseman 1997; Zajac and Westphal 1997).

Some researchers have extended this simple model in a number of ways. For example, Harris & Raviv (1979) relaxed the assumption of a risk-averse agent. Others extensions include: relaxing the assumption of interest conflicts (Demski 1980), relating the issue to the task programmability by the agent or the time of the principal-agent relationship

(Eisenhardt 1985, 1988; Lambert 1983). These studies have examined the various assumptions underlying traditional agency theory and have theoretically extended agency theory.

However, as commented by Gomez-Mejia and Wiseman (1997), despite the promise of the line of theory, research on contracting as a control mechanism has been less than supportive of agency theory. Also, due to the normative and deterministic nature of this stream, it is less accessible to organisational researchers and therefore its impact on organization studies in general is limited (Beatty and Zajac 1994; Eisenhardt 1989).

3.3.2.2 Positivist Stream

As mentioned above, the positivist stream is based on the same assumptions as the principal-agent stream. However, positivist stream researchers are interested in identifying goal-conflicting circumstances and then introducing governance mechanisms to limit the agent's self-serving behaviour (Eisenhardt 1989). As pointed out by Eisenhardt (1989), some classic work has been very important in this stream, namely Jensen and Meckling (1976), Fama (1980), and Fama and Jensen (1983).

Jensen and Meckling (1976) explored the importance of the ownership structure of modern corporations and explained how managers' equity ownership aligns their interests with those of other owners. By integrating elements from the theory of agency, the theory of property rights and the theory of finance, they developed a theory of the ownership structure of the firm, provided a new definition of the firm and defined the concept of agency costs.

Fama (1980) discussed the role of efficient capital and labour markets as information mechanisms to control the self-serving behaviour of top executives, so that executive remuneration cannot deviate too much from what the market regards as appropriate. Fama and Jensen (1983), instead, introduced the board of directors as a decision controlling system that could be used within large corporations to monitor the opportunism of top executives. Jensen (1984) and Jensen and Ruback (1983) extended these ideas to controversial practices, such as golden parachutes and corporate raiding.

Theoretically, the positivist stream has been most concerned with identifying governance mechanisms that solve agency problems (Eisenhardt 1989). Governance mechanisms identified in this stream can be captured by two propositions. The first proposition, called incentive alignment, is that an outcome-based contract encourages the agent to behave in the interest of the principal. The argument is that an outcome-based contract mitigates the conflicts of self-interests between the agent and the principal by making the rewards for both parties depend on the same outcome. The other proposition is that information systems curb the agent's opportunistic behaviours (Eisenhardt 1989). When the principal knows exactly what the agent is doing, they can control agent opportunism. This is because the agent will be aware that it is not easy to fool the principal. One example here is the establishment of the board of directors (Fama and Jensen 1983).

Positivist agency theory has enriched economics by offering a more complex view of organizations (Jensen 1983). However, it has been criticised by organisational theorists as minimalist (Eisenhardt 1989). For example, Perrow (1986) claims that it addresses no clear problems and Hirsch and Friedman (1986) criticized it as excessively narrow.

Meanwhile, micro-economists (Jensen 1983) condemned it as tautological and lacking rigor. These issues will be discussed in detail later in Section 3.2.4.

3.2.2.3 The Two Streams and Their Empirical Results

As discussed above, the two streams of agency theory research share common assumptions and the same unit of analysis—the contract between the agent and the principal, but they are different in some respect. The principal-agent stream, as a formal theory, involves careful specification of assumptions and logical deduction and mathematical verification. It can be applied to broader general agency relationships. In contrast, the positivist paradigm has focused on a special case of the agency relationship, namely the owner-and-CEO relationship in large corporations. However, these differences are not crucial. Rather, the two streams are complementary: Positivists identify various contracting alternatives, and the principal-agent theory indicates which contract is the most efficient under certain situations (Eisenhardt 1989).

After its introduction, principal-agent theory has been widely used in management and related fields and researchers in different disciplines have undertaken empirical studies of agency theory. Eisenhardt (1989) reviewed and examined mainly those studies undertaken in the 1980s under the two research streams of agency theory. She found that the common approach in studies within the principal-agent stream is to use a subset of agency variables to predict whether the contract is based on behaviour or outcome. Generally speaking, these studies support the principal-agent hypotheses linking contract form to information systems (Conlon and Parks 1988; Eisenhardt 1985, 1988), task

programmability (Eisenhardt 1985), time (Conlon and Parks 1988) and outcome uncertainty and measurement (Conlon and Parks 1988; Eisenhardt 1985). The support rests on research by a variety of research methods including questionnaires, secondary sources, laboratory experiments, and interviews.

In the positivist stream, the common approach is to demonstrate in a specific agent relationship that information systems or outcome-based incentives co-align the agent behaviour with owner preferences. Most studies within this stream have used secondary data from large corporations. The positivist propositions described earlier have been supported by these studies. Therefore, she concluded that agency theory is testable and empirically supported (Eisenhardt 1989).

3.2.4 CONTRIBUTIONS AND CRITICISMS OF AGENCY THEORY

This section discusses the contributions of agency theory and also evaluates its strengths and weaknesses.

3.2.4.1 Contributions

Controversial as it is, agency theory has proved to be an important theory for many decades. Even its critics recognise its contributions to academic thinking. For example, Perrow (1986) admitted that agency theory has re-established the importance of incentives and self-interest in organisational thinking. Gomez-Mejia and Wiseman (1997)

proclaimed that the most significant contribution of agency theory is the articulation of specific mechanisms to help control opportunistic management actions.

Agency theory also makes some other specific contributions to organizational research. One contribution is its treatment of information as a purchasable commodity (Eisenhardt 1989). This gives an important role to formal information systems, such as budgeting and corporate governance systems, namely boards of directors and external auditors. Under agency theory, organizations can invest in information systems to limit agent opportunism. The implication of this in my thesis is that the effectiveness of these governance mechanisms (the board of directors and firm ownership structure), can help explain executive pay. From an agency theory perspective, remuneration should be contingent upon a variety of factors including information systems. Better information systems lead to tighter control on managerial opportunism, which in turn reduces management entrenchment of higher level pay (Jensen and Murphy 1990b).

Another contribution of agency theory is its risk implication. Any organization faces an uncertain future that is not totally under the control of organization members. Agency theory suggests that this outcome uncertainty, viewed as risk/reward trade-offs and coupled with different risk preference, should have an impact on the contracts between principal and agent.

3.2.4.2 Criticisms of Agency Theory

Useful theory as it is, agency theory has also several limitations. Most of the critiques have focused on the validity of the assumptions behind the theory.

The first criticism is about the difficulties in measuring firm performance for the optimal contract. Agency theory assumes that there is a well-defined causal relationship between the manager's actions and firm performance and that the effect of an individual manager's effort can be separated from other factors, both internal and external to the firm. However, it is impossible in reality to fully isolate the outcomes attributed to managerial effort. Specifically, the debate also concerns the relative merits of using accounting-based versus market-based performance measurement (Gomez-Mejia and Balkin 1992; Lambert *et al.* 1985; Sloan 1993).

This captures the essence of the optimal contracting problem: how to balance the cost of information with the risk of the unmonitored agent. Market-based measures may increase the risk borne by executives as they are noisy (subjected to uncontrollable external factors) and thus require paying a risk premium to the agent (Lambert 1993), while the opposite argument is that such linkage increases the possibility that executives behave consistently with the interests of the principal (Finkelstein and Hambrick 1989; Jensen and Murphy 1990b). Accounting earnings are less risky but can be manipulated by the managers. Sloan (1993) suggested to assign relative weights to the two performance measurements so as to minimize the amount of noise. This probably is a better measure; however, it is very difficult to practise.

Secondly, an important assumption of the agency model is that principals implement contracts including incentive remuneration to control the problem of moral hazard. However, the implementation of incentive contracts quite often are under the hands of management themselves and may not serve the interests of shareholders (Forbes and Watson 1993). Indeed, Forbes and Watson argue that incentive contracts, rather than being a monitoring mechanism, may bring new accountability problems. The lack of adequate information disclosure regarding remuneration contracts and information asymmetry adds to this problem.

A third criticism of the agency model challenges its economic 'model of man'. Agency theory assumes managers have different personal goals from the owners and they are potentially opportunistic and shirking motivated by economic self-interest maximization (Jensen and Meckling 1976). This assumption over-simplifies the motives of a human. There are other "models of man" (Donaldson and Davis 1991) that are motivated by wider human motives, such as needs to achieve, to gain intrinsic satisfaction through successfully performing inherently challenging work, to exercise responsibility and authority, or to gain recognition from peers and bosses (McClelland 1961). For example, stewardship theorists argue many managers are loyal stewards whose motives are largely aligned with those of their principals (Donaldson and Davis 1991).

A fourth challenge to the notion of the contract as a control mechanism comes from organizational researchers. These researchers stress the power/political issues related to conflict of interest in corporate governance, especially in the design of executive remuneration (Westphal and Zajac 1995). Organizational researchers criticize the

principal-agent literature for ignoring the political and interpersonal aspects of agent-principal relations (Perrow 1986). They also criticise its narrow focus on contract specification. Agency theory limits discussion to issues of information incompleteness and incentive alignment which only partially reflects the agent monitoring problem (Gomez-Mejia and Wiseman 1997). For example, Holmstrom (1979) argued that mathematical principal-agent models carefully specify contract conditions and lead to deterministic solutions; however, these solutions deviate from the complex organizational realities due to the impossibility of foreseeing all future events, the existence of uncertainty, lack of information, the dynamic nature of principal-agent relationships and the difficulty of regulating monitoring through ways such as behavioural criteria and direct supervision.

Fifthly, agency theory is also criticised for not considering managerial competence (Shen 2003). Standard agency theory just focuses on "moral hazard" and "adverse selection" (Hendry 2002; Ross 1973). It does not recognize deal with the managers' ability problem. However, even if managers are honest or made honest by effective control, they might be limited in their competence to fulfil shareholders' objectives (Hendry 2002). Hendry suggested that there may be situations in which principals should pay more attention to training or mentoring managers in order to improve their performance rather than to supervise them.

Finally, the principal-agent model is criticised for its narrow economics perspective. As Gomez-Mejia and Wiseman (1997) argued, while this theory has offered some important theoretical insights, the heroic assumptions and deterministic nature of many of the

mathematical representations make them too far removed from the realities of organizational life. Therefore, they suggest that management scholars should fill the gaps by extending studies beyond the simple economic terms portrayed in traditional agency views.

Hence, it is clear from the above discussion that the practical application of the agency model confronts many difficulties. In particular, appropriate measures of performance are extremely difficult to formulate; the model may be inappropriate if shareholders lose the power to specify the remuneration contract; many commentators argue that the agency model oversimplifies organizational life and incentives faced by individuals and ignores some important managerial problems other than moral hazard.

However, most criticisms seem to aim at the principal-agent stream for its untenably strict assumptions. It might be justified that the researchers in the positivist stream have looked beyond the contract to issues of direct supervisions (Gomez-Mejia and Wiseman 1997). Also, in terms of the current corporate governance debate, it is clear that shareholders and the general public expect directors' remuneration to be linked in some way to firm performance, and in this respect, the agency model, despite its drawbacks, is a useful framework for examining the setting of executive remuneration.

3.3 Review of empirical literature and hypotheses development

As discussed above, Eisenhardt reviewed the related literature in the1980s and assessed agency theory as "unique, realistic, and empirically testable (1989:72)." In the past two

decades, more empirical studies have been conducted in different disciplines, especially on executive remuneration. Gomez-Mejia and Wiseman (1997) reviewed and classified the previous literature along three dimensions that reflect three basic issues in remuneration design: the criteria for awarding pay, consequences of pay and the mechanisms for linking pay criteria to pay consequences. According to them, there are two remuneration mechanisms: incentive alignment and monitoring (Gomez-Mejia and Wiseman 1997).

Under agency theory, managers may engage in self-interest serving rather than shareholder-wealth maximising behaviour. In terms of top management pay, CEOs and executive directors have incentives to award themselves high levels of remuneration. So either or both of these mechanisms are developed in order to curb the opportunistic actions of professional managers.

Monitoring systems should be complementary to incentive alignment and may result in a negative relation between governance systems and incentive remuneration. Finkelstein and Hambrick argued that "alternative monitoring mechanisms (e.g., direct board monitoring, CEO remuneration, the market for corporate control, market remuneration) act as substitutes for one another" (Finkelstein and Hambrick 1996:259). This is an equally plausible argument (Ezzamel 2005). But this also leads to some confusion in explaining the empirical findings. However, this issue has not been empirically addressed until recently (Gomez-Mejia and Wiseman 1997).

This section will review these recent studies of the impact of governance systems on executive remuneration. The internal governance mechanisms this project will focus on are the board of directors and the ownership structure. Based on the theory discussed above and the literature surveyed, research hypotheses to be tested in this thesis will be developed.

3.3.1. BOARD CHARACTERISTICS AND EXECUTIVE REMUNERATION

From the principal-agent perspective, the board of directors has a pivotal role to play in the governance of the corporation. It is well recognised that, the 'expert board' will enforce its 'ratification and monitoring' of top management through its power to 'hire, fire, and compensate' top managers (Fama 1980; Fama and Jensen 1983). The board of directors also has the capacity to approve or veto major actions proposed by the CEO. Having a board is one of the legal requirements for incorporation. Although the debate on the efficacy of the board of directors is still going on, the critical and central importance of boards of directors as internal governance mechanisms is beyond doubt (Ezzamel 2005; Jensen 1993). As a consequence, the board of directors has been the subject of academic research and the interest in it has been rising in recent years (Ezzamel 2005; Johnson *et al.* 1996; Zahra and Pearce 1989).

Ezzamel (2005) classified research on the board of directors along four dimensions: the composition and dynamics of the board (Shen and Cannella Jr 2002; Zajac and Westphal 1996); board characteristics and decision making (Hermalin and Weisbach 1998); board characteristics and organisation performance (Dalton *et al.* 1999; Yermack 1996); and

board characteristics and CEO remuneration (Boyd 1994; Hadlock and Lumer 1997). The literature on issues of board characteristics and executive remuneration is reviewed in more detail to support the hypotheses developed in this thesis.

3.3.1.1 Board Size and Executive Remuneration

According to agency theory, an effective board of directors can monitor executives' entrenchment behaviour and design more appropriate remuneration packages. Boyd (1994) found that board control explains a significant part of CEO remuneration and suggested that the board of directors is a key internal governance mechanism. According to resources dependency theory, larger boards can be used to form environmental links to obtain greater amounts of critical resources for the organisation (Dalton *et al.* 1999). In this sense, a board with larger size should control and monitor executives more effectively and lead to a more sensitive link between executive pay and firm performance. This argument is supported by Rui *et al.* (2003), the only study that has tested the relationship between executive remuneration and board size in China. Rui *et al.* (2003) reported a negative and significant relation between CEO pay and board size, opposite to what they hypothesized.

However, Jensen (1993) and Lipton and Lorsch (1992) argue that large boards are less effective compared to small boards. Based on some anecdotal evidence from the practices of a few large organisations and also more systematic evidence, Jensen (1993) argued that smaller boards of directors have successfully performed their jobs: hiring, firing and compensating the CEO and providing high-level council. He attributes board failure to

board culture, information problems, boards' lack of expertise compared to CEOs, lack of legal incentives, lack of management and board member equity holdings, and board oversize. Both Jensen (1993) and Lipton and Lorsch (1992) argued that boards with more than seven or eight membership are less likely to function effectively and are easier for the CEO to control. This is because the oversize of board is normally due to the inclusion of too many insider members. These insider directors cannot criticize openly and monitor CEOs effectively because they want to avoid "animosity and retribution" from the CEO (Jensen 1993:865). Therefore, to enhance effective board monitoring, Jensen (1993) suggested that the CEO should be the only insider board member while remaining the communication channel between directors and other senior executives.

High levels of remuneration and low sensitivity of pay-performance have been offered as evidence of ineffective board control. Yermack (1996) found that the pay-performance relationship for CEOs decreased with board size, suggesting that small boards give CEOs larger incentives and force them to bear more risk than do large boards. Cole *et al.* (1999) found that CEO remuneration is higher when the board is larger as a board with a larger size makes it more difficult for directors to organize in opposition to the CEO. These studies seem to suggest that board effectiveness is negatively related to board size.

Thus, the above literature suggests a relationship between board size and the extent of sensitivity between executive remuneration and firm performance, but the direction of the relationship is not clear. This gives rise to the following non-directional hypotheses:

Hypothesis 1a: Exeucutive remuneration is related to the size of the board of directors.

Hypothesis 1b: Executive pay-performance sensitivity is related to the size of the board of directors.

3.3.1.2 Board Structure and Executive Remuneration

Given that each CEO and other senior executives usually have seats on the board, and also that internal directors are likely to be more responsive to the CEO's desires than to protecting shareholders (Jensen 1993), the effectiveness of the board depends on the independent non-executive directors (Core *et al.* 1999; Fama and Jensen 1983; John and Senbet 1998; Weisbach 1988). A series of UK governance reports view the employment of non-executives on the board as a governance mechanism that could help in reducing agency cost (Cadbury 1992; Greenbury 1995). The results of Dahya *et al.* (2002b) support the argument that the Cadbury recommendations of appointing non-executive directors have improved the quality of board oversight in the United Kingdom. Mehran (1995) found that the use of equity-based remuneration was positively related to the number of outsiders on the board; see also Core *et al.* (1999) and Rupp and Smith (2002), who support a link between outside director's effectiveness and pay-performance sensitivity.

Whether non-executive directors promote shareholders' interests is open to debate (Jensen 1993). There have been some claims that the proportion of non-executive directors will be negatively associated with top management pay, which is supported by the prediction of agency theory.

Although Core *et al.*(1999) and Boyd (1994) argued that insider directors are not pawns of CEOs, reporting a negative relation between CEO remuneration and the percentage of inside directors on the board, this argument is only confirmed in the sense that the insiders do not side with CEOs or become intimidated by them to make decisions that favour CEOs. In reality, however it is rare that the insider directors can really keep at arm's length from the CEOs. Therefore, the dominant view in the literature is that the presence of non-executives on the board is an important governance mechanism.

In China, some non-executive directors are appointed by government and other institutions, the controlling shareholders. Consequently, it is difficult to tell whether a 'non-executive' director is independent. Rui *et al.* (2003), proxying non-executive directors as non-paid directors, found no relationship between CEO pay and the proportion of non-paid directors over the board; while Lin *et al.* (2005) found a significantly negative relationship in the individual fixed effect model but not in the firm fixed effect model. I consider independent directors as a category different from non-executive or non-paid directors. Independent directors are introduced as outside directors representing minority shareholders. Given that almost every study of governance tests for non-executives, it is necessary to retest whether independent directors have a monitoring effects on executive remuneration. These arguments lead to the following hypotheses:

Hypothesis 2a: Executive remuneration is negatively related to the proportion of independent directors.

Hypothesis 2b: Executive pay-performance sensitivity is positively related to the proportion of independent directors.

3.3.1.3 CEO-chairman duality and executive remuneration

Jensen (1993) argues that Chairman-CEO duality gives the CEO too much power over the decision-making process, and scope to pursue personal interests at the expense of shareholders. According to Jensen (1993), when the CEO also holds the position of chairman of the board, internal control systems fail, as the board cannot effectively perform its core control functions.

The separation of the two roles of the chairman of the board and CEO has been commended as good corporate governance (Cadbury 1992). However, some empirical studies show no support for the recommendation, such as Dahya *et al.* (2002b) who have suggested that splitting the responsibilities of the CEO and the chairman of the board did not improve the quality of board oversight in the United Kingdom.

Prior research examining the impact of duality on firm performance or CEO remuneration has offered some empirical evidence of a positive relationship between CEO-chairman duality and CEO remuneration, see Brickley *et al.* (1997), Cole *et al.* (1999), Cyert *et al.* (2002) and Sridharan (1996), although Ryan and Wiggins (2001), Conyon (1997b) and Main and Johnson (1993) found no significant effects of CEO-chairman duality on CEO pay.

Rui *et al.* (2003), the only existent study on the relation between CEO pay and CEO-chairman duality in China, found a negative relation between the two, but their result was

not robust across their models. Their finding is interesting as it conflicts with most of the literature and motivates further investigation of this relation in China.

Given that China's corporate governance is still weak and that many companies suffer from insider control (Cha 2001), giving a person both the roles of the CEO and the chairman enhances the possibility of power concentration, weak supervision and insider control, which in turn leads to more likelihood of incurring executive entrenchment by overpaying themselves and not linking pay to performance. The above discussion motivates the following hypotheses:

Hypothesis 3a: Executive remuneration is positively related to CEO-Chairman duality.

Hypothesis 3b: Executive pay-performance sensitivity is negatively related to CEO-Chairman duality.

3.3.1.4. Interlocking Directorship

In addition to board size and board structure, both Core *et al.* (1999) and Hallock (1997) found that CEO pay at a given company increases when boards are "interlocking"[11]. One possible interpretation is that there is a *quid pro quo* between such directors and the CEO, which leads to greater remuneration. Another interpretation could be that the CEO of the given company is very successful and thus has sufficient bargaining power to get both higher remuneration and a very friendly board of directors (Hermalin and Weisbach 1998). This is an interesting issue. However, it is not common for a CEO or other

[11] A director is interlocked if an inside officer of the firm serves on the board of that outsider director's company (Hallock 1997).

executives to take a director position in another listed company in China; therefore this thesis will not model the 'interlocking' effect.

3.3.2 OWNERSHIP STRUCTURE AND EXECUTIVE REMUNERATION

In addition to the board of directors, firm ownership structure may affect monitoring and impact remuneration. For example, the dispersal of ownership may dilute monitoring and affect remuneration (Westphal and Zajac 1994; Zajac and Westphal 1995). Under the assumption of self-interest seeking individuals, more atomistic shareholders will exercise less monitoring, especially when they have to bear the cost of monitoring while sharing its benefits with others. This is because small shareholders have less stake in the firm and because it is more difficult to coordinate their actions in curtailing self-serving behaviours of top management (Shleifer and Vishny 1997).

Empirical research has used ownership concentration as a proxy for the intensity of monitoring (Boyd 1994; Goldberg and Idson 1995; Wright *et al.* 1996) and the results are supportive of a negative relation between ownership concentration and managerial opportunistic behaviour. As reviewed by Gomez-Mejia and Wiseman (1997), greater ownership concentration is related to (1) a tighter linkage between executive pay and firm performance (Boyd 1994; Mehran 1995); (2) less reliance on firm size to set executive pay (Gomez-Mejia *et al.* 1987); (3) lower agency costs in executive remuneration (Goldberg and Idson 1995); (4) fewer mergers and acquisitions for justifying higher pay or diversifying the employment risk for managers (Kroll *et al.* 1990); (5) more risk taking (Wright *et al.* 1996); (6) weaker CEO power and influence over the board of directors

(Tosi and Gomez-Mejia 1989); and also other variables that are not very closely related to this study, such as greater possibility of managerial turnover for poor performance and less financial manipulation.

More specifically, in terms of the relationships between ownership concentration and executive remuneration, the literature usually addresses two questions: (1) the level of executive remuneration and (2) pay-performance sensitivity in the presence of a blockholder (Holderness 2003a). While the findings are consistent in terms of the role played by external blockholders in monitoring the remuneration of top executives, they are mixed on the impact of managerial ownership on executive remuneration.

3.3.2.1 External Blockholding and Executive Remuneration

The literature suggests that external blockholders, specially institutional investors, are likely to constrain executive discretion and tend to be associated with firms with long-term orientation (Gomez-Mejia and Wiseman 1997), e.g., high R&D investments (Baysinger *et al.* 1991; Kosnik and Shapiro 1997). There are some theoretical reasons why institutional investors are more active in monitoring than individual shareholders. First, investing "other people's money", they have a legal fiduciary obligation to be proactive. Second, their high aggregate ownership makes it difficult for them to "vote with their feet" in response to poor firm performance, as doing so may result in lowering the share price. Third, institutional investors, with the economy of scale and more interaction with other firms, have the opportunity and ability to govern and judge remuneration policy (Black 1992). Furthermore, already owning significant stakes in

most firms, institutional investors might face difficulty in finding appropriate substitute investments, and this provides an incentive for them to monitor executives (David *et al.* 1998; Kochhar and David 1996).

The empirical studies on the relationship between external blockholding and executive remuneration have offered supportive evidence for the above arguments. David *et al.* (1998) have reported that institutional investors have a direct impact on CEO pay policy, by decreasing excessive pay or fostering long-term incentives, but they also argue that the effect depends on the nature of their relationships with firms, such as "pressure-resistant" or "pressure-sensitive". Hartzell and Starks (2003) support the findings of David *et al.* (1998) with a sample of almost 2000 firms during the period 1991-1997.

Mehran (1995) found that firms with larger percentages of their shares held by outside blockholders used less equity-based remuneration, suggesting that monitoring by outside blockholders may be a substitute for incentive pay for executives. Hambrick and Finkelstein (1995) reported that companies with a large external shareholder paid their CEOs less than those with no significant external owners.

Mayers and Smith (1992) used data for the remuneration of CEOs of privately-held insurance companies to consider differences in remuneration for stock versus mutual life insurance companies [12]. Based on differences in corporate control across the two organizational forms, they argued that remuneration of mutual insurance companies

[12] Whereas a privately-held company, in most cases, is owned by its founders, management or a group of private investors; the base of the ownership a mutual life insurance company is made of its customers. Therefore, the ownership of the former is normally highly concentrated, while that of the latter disperses.

should be less sensitive to firm performance than remuneration for stock insurers. They did not separately analyse the pay-to-performance link for the public and private stock companies. However, Ke *et al.* (1999) argued that significant differences in ownership concentration should be associated with different pay-to-performance sensitivities. Therefore, they used similar data to examine CEO remuneration in the property-liability insurance industry across different ownership concentration levels, which were proxied by the private versus public distinction. Their results showed that there is a significant positive association between return on assets and the levels of remuneration for publicly-held insurers but not for privately-held insurers.

Mayers and Smith (1992) and Ke *et al.* (1999) used a very small sample covering only one specific industry. Their conclusions might not be generalisable to other industries. Also, they failed to consider other differences between the two types of insurers. Despite these limitations, their studies contribute to the literature on the pay-to-performance sensitivity by demonstrating the importance of share ownership concentration as a determinant of the optimal structure of executive remuneration.

Bertrand & Mullainathan (2001) and Firth *et al.* (1999) also support the view that blockholders play a monitoring role of CEO pay. Using a sample of HongKong companies, Firth *et al.* (1999) found that high institutional ownership restricts the magnitude of top management remuneration though it has no effect on changes in pay which might be because directors and the CEO increase their cash remuneration when their large shares have suffered negative returns.

From the above review of the literature, also as indicated by Holderness (2003b), the findings are consistent in terms of the role for external blockholders in monitoring executive remuneration. However, despite the consistency of the above findings, they offer little insight into how the monitoring effects of external block-ownership work in China, given its vastly different socio-economic and political contexts.

3.3.2.1.1 STATE OWNERSHIP AND EXECUTIVE REMUNERATION

As discussed in Chapter 2, one of the distinct features of Chinese listed companies is the dominance of state ownership and the diversity of owners, such as the state, domestic legal persons, foreigners, private legal persons and individuals (Xu and Wang 1999). The thesis will explore the possible effect of these different types of share blockholders on executive remuneration.

Previous research on China suggests that state ownership contributes to higher executive pay (Lin *et al.* 2005), poor operating efficiency, inefficient monitoring and more acute agency problems (Chen 2001; Xu and Wang 1999; Zou and Xiao 2005). Berkman *et al.* (2002) attributed this finding to the owner-manager incentive conflicts caused by the separation of the voting and cash flow rights in state shareholdings and the insufficient incentives of bureaucrats to monitor due to the absence of a direct link between their rewards and the financial performance of the companies they oversee. The ineffective monitoring in turn encourages management entrenchment and higher executive pay irrespective of firm performance, thus promoting the argument that higher state ownership leads to higher HPD pay and less pay-performance sensitivity.

However, state controlled companies might also pay executives less. First, government bureaucrats overseeing Chinese listed companies are paid low civil service salaries and thus may exert downward pressure on executive remuneration to keep rewards in line with equivalent pay in the government hierarchy (Zou and Xiao 2005). Moreover, Firth *et al.* (2006) argued that fear of social unrest may exert pressure on the government to ensure that executive pay is not significantly detached from the pay of other employees, encouraging the use of performance-related pay as a way of justifying executive pay. They found no significant relationship between CEO pay level and government control status, but reported that firms controlled by SOEs have incentive pay schemes for executives based on operating income but not on share returns. Rui *et al.* (2003) found that firms controlled by government paid less to CEOs. Hence, state ownership seems to have an influence on executive pay, though the direction is not clear. This gives rise to the following non-directional hypotheses:

Hypothesis 4a: Executive remuneration is related to the proportion of state ownership.

Hypothesis 4b: Executive pay-performance sensitivity is related to the proportion of state ownership.

3.3.2.1.2 LEGAL PERSON OWNERSHIP AND EXECUTIVE REMUNERATION

Previous evidence also suggests that agency problems tend to be less severe for firms with a high level of legal person shares (even when they are held by SOEs) compared to firms with high levels of state ownership (Zou and Xiao 2005). This may be because

legal persons have voting and cash flow rights and thus have a stronger incentive to monitor more closely managerial inertia compared to government bureaucrats.

As indicated in Chapter 2, legal person (institutional) shares in China include domestic legal person shares, foreign legal person shares and private legal person shares and the roles played by each category might vary. For example, given that the ultimate controllers of domestic legal person shares are normally the government and that legal person shares are also non-tradable, it could be argued that the impact of legal person and state ownership will be similar. Also, it could be argued that foreign owners, staking their money on a company in China have an incentive to more closely monitor the management of the firms they invest in (Chhibber and Majumdar 1999; Hovey 2002), encouraging them to hire highly qualified executives and link pay to performance (Firth *et al.* 2006). Therefore, firms with more foreign ownership or more private legal ownership might pay more to their executives and have a stronger pay-performance link.

Only Firth *et al.* (2006) and Rui *et al.* (2003) have examined this possible link between different types of legal person ownership and executive remuneration in China. To test the impact of different ownership types on the pay-performance sensitivity, Firth *et al.* (2006) found that the type of dominant shareholders is critical in linking CEO pay to performance: firms with a dominant SOE shareholder base their CEO pay on operating income, while those with a private or foreign shareholder favour the use of shareholder's wealth. They also found large private shareholders and foreign shareholders and their interaction to be positively related to CEO pay level, but the results are not robust across different firm performance measures.

Both studies proxied ownership variables as dummies. It would be interesting to test the relation between different legal ownership and executive remuneration using continuous variables. Given the highly consistent findings in the Western literature, higher institutional (legal person) ownership tends to be associated with lower executive remuneration and stronger pay- performance-sensitivity, this thesis develops the following hypotheses:

Hypothesis 5a: Executive remuneration is negatively related to the proportion of legal person ownership.

Hypothesis 5b: Executive pay-performance sensitivity is positively related to the proportion of legal person ownership.

The thesis tests for the possible different roles played by different identities of the legal persons by using various proxies of legal person ownership.

3.3.2.2 Managerial Ownership and Executive Remuneration

Jensen & Meckling (1976) suggest that the cost of deviating from value-maximization to stockholders declines as management's ownership of stock rises. As managers' stakes rise, they bear a larger proportion of these costs and are, therefore, less likely to squander corporate wealth. Thus, an executive's stock ownership can act as a governance mechanism over management entrenchment. However, the empirical findings in the literature are mixed.

Holderness and Sheehan (1988) investigated the relationship of managerial shares and managerial remuneration and found that top executives with high ownership received higher salaries and bonuses compared to those in firms similar sized but diffusely held firms. Mehran (1995:173) reported that executive cash remuneration in large firms may become less important when managers hold significant equity stakes in the firms since the majority of their income would come from their equity stakes. Using a sample of 153 randomly-selected manufacturing firms in 1979–1980, his results provided evidence supporting advocates of incentive remuneration, and also suggested that it is the form rather than the level of remuneration that motivates managers to increase firm value. His findings show a negative relation between the percentage of executives' equity-based remuneration and their shareholdings.

However, Jensen & Murphy (1990b) analysed performance pay and top-management incentives for over 2000 CEOs in three samples over five decades, and found that the relation between CEO wealth and shareholder wealth is small and has fallen over the 50 years: "Median CEO inside stockholdings for the 120 largest US firms fell by an order of magnitude from 0.3% in 1938 to 0.03% in 1984...The pay-performance of sensitivity for top-quartile CEOs fell by an order of magnitude from 17.5 cents per $1000 in 1934-1938 to 1.9 cents per $1000 in 1974-1986 (Jensen and Murphy 1990b: 262)".

Hadlock & Lumer (1997) and Holderness *et al.* (1999) both used time-series ownership data and found an increase in pay-performance sensitivity in a sample of large industrial firms from the 1930s to the 1990s with an increase in managerial ownership, and concluded that managerial ownership was not a substitute for pay-performance

remuneration. These studies, therefore, show a *positive* relationship between pay-performance sensitivity and managerial ownership.

Hambrick & Finkelstein (1995) argued that CEO remuneration in management-controlled firms and in owner-managed and externally controlled firms is influenced by different determinants. The conflicting results indicated by the previous research suggest that the agency relationship between owners and executives is very complex (Hambrick and Finkelstein 1995) and has led Holderness (2003b) to suggest it as an area ripe for future investigations.

No study has attempted to examine this issue in China. Lin *et al.* (2005) ignored this issue in China on the basis that stock options or stock ownership are still rare among Chinese executive, less than 0.01%. However, given its importance in the Western literature, and given the heated debate about introducing managerial ownership in Chinese listed companies (SRIC 2003), this thesis empirically investigates the possible impact of this variable on the setting of executive remuneration. The following hypotheses are drawn from the agency perspective to be tested empirically:

Hypothesis 6a: Executive cash remuneration is negatively related to the proportion of managerial ownership.

Hypothesis 6b: Executive pay-performance sensitivity is positively related to the proportion of managerial ownership.

3.3.3 MARKET COMPARISON FACTORS AND EXECUTIVE PAY

Ezzamel and Watson (1998; 2002) reported that market pay comparisons factors, both internal and external, are important in explaining both CEO and other directors' pay awards in the UK. Their studies shed light on an important but under-explored research area on executive remuneration, which provides a motivation to extend their work to China's context. The section reviews the studies on the market comparison factors and develops related hypotheses.

3.3.3.1 External market comparison factors and executive pay

Marginal productivity theory (Roberts 1959) argues that market forces, demand and supply relationship, determine executive remuneration. Agency theory also suggests that market forces offer an upper boundary for executive compensation (Gomez-Mejia and Wiseman 1997). Market competition restrains the entrenchment of managers who are concerned about their reputation and long-term career and helps keep levels of compensation in line with the market rate (Agrawal and Walkling 1994; Fama 1980). Despite the importance of the market in setting executive remuneration, knowledge about the use of "competitive market going rates" is surprisingly sparse (Gomez-Mejia and Wiseman 1997).

Some researchers have empirically tested the relationship between market pay comparison factors and executive pay in the UK and their results provide support for the significant effects of external comparison pay level on executive pay. "The market going

rate" can be regarded as the effect of the participation constraint in a principal agent model (Smith and Szymanski 1995), which must be paid by a firm in order to retain their executives from being bid away by another firm. Moreover, Ezzamel and Watson (1998) argued that the substantial costs related to executive recruitment provide the financial incentive for firms to keep their executives by offering competitive remuneration. Furthermore, from a social comparison perspective, board members refer to their own pay when judging the appropriate pay for their executives (Ezzamel and Watson 1998; O'Reilly *et al.* 1988), which also brings executive pay towards the market pay level, especially when directors are executives of other companies.

Smith and Szymanski (1995) used the average level of executive cash pay as the external benchmark pay level, Cosh and Hughes (1997) measured the benchmark pay level as the pay expected given the estimated size pay relationship and Ezzamel and Watson (1998) created three proxies for the comparison level of executive pay and found similar results. The results of all these studies lead to a robust conclusion: the deviation of executive pay from the market pay level has a significant explanatory power over the subsequent adjustments of executive pay. However, these three studies were conducted in the UK, covering 52 large quoted companies, the UK electrical engineering industry, and 223 non-financial companies respectively. No study has tested the relation between the market pay level and executive pay in contexts other than the UK.

As discussed in Chapter 2, China, a transitionally planned economy, is in a process of transformation with emerging elements of a market economy. It offers an interesting context to investigate the extent to which 'competitive market going rate' works on the

dynamics of executive pay in a non-developed economy. Chinese listed companies are operating in a very different institutional environment, but they also exhibit some characteristics similar to their counterparts in the UK. The Chinese managerial labour market has started to grow. For example, in Chinese listed companies executive contracts are renewed and renegotiated based on a typically three years' duration (CSRC 2002), rather than "Die Fan Wan" (life-long employment) before, and the reappointments are up to both parties: the executives/directors and the company. Therefore, it is also necessary for a Chinese listed company to pay their executives at least the market rate in order to keep them.

However, it has been claimed that the appointment of directors is highly influenced or manipulated by the government or the largest shareholders (Bai *et al.* 2006), and therefore such necessity for Chinese companies to pay their executives the 'going market rate' might not exist or might be not as strong as in the West. Given that the market elements are enhancing while the planned and controlled elements are weakening in China (Cha 2001), and also the empirical results in the Western literature, this thesis retests the following hypothesis:

Hypothesis 7a: Executive pay will be adjusted towards external market pay level, i.e. subsequent-period executive pay changes are negatively related to pay anomalies

Ezzamel and Watson (1998; 2002) further investigated the issue by examining whether there was an asymmetric adjustment to prior period pay anomalies between relatively overpaid executives and relatively underpaid executives. Their results supported the

prediction of asymmetric adjustment, which leads to the "bidding up" of CEO pay. Their findings agreed with Gomez-Mejia and Wiseman's (1997) argument that the notion of "going rate" in the market is firmly abused among remuneration practitioners. The explanation for this "bidding-up" is that executives tend to compare themselves to those who are slightly better or more expert and thus better paid (O'Reilly *et al.* 1988); and also that from the perspective of agency theory, an agent, especially when he has the power over the board, will try to negotiate his pay up when underpaid but will try to keep the status when he/she is overpaid. The above discussion leads to Hypothesis 7b:

Hypothesis 7b: The strength of the relationship between the time t+1 executive pay changes and their time t pay anomalies will be significantly greater for executives who were underpaid relative to the market pay level than for executives who were relatively overpaid.

3.3.3.2 Internal Comparison Factors and Executive Pay

Another criterion that involves 'comparison' in explaining executive remuneration is provided by social comparison theory (O'Reilly *et al.* 1988). Unlike market forces, this theory is concerned with conscious decision processes for setting executive remuneration. O'Reilly *et al.* (1988) observed that board members refer to their own pay when setting the executives'. Their empirical results supported the observation: CEO pay rose as the average salary of outside directors increased. This motivated Ezzamel & Watson (2002) to investigate the effects of internal pay comparison factors on executive pay, in addition to external ones.

Based on equity theory, signalling theory and these previous studies guided by social comparison theory (Gomez-Mejia 1994; O'Reilly *et al.* 1988), Ezzamel & Watson (2002) analysed the determinants of, and the relations between, the cash pay awards of CEOs and other board members with a sample of large UK companies over the period of 1992-1995. They found that both external labour market and internal (i.e. within board) pay comparisons were important in explaining both CEO and other directors' pay awards[13]. The arguments are that comparability in pay awards to all members of the board is essential for the firm to observe justice and fairness in pay and to maintain team cohesion and equality (Ezzamel and Watson 2002).

Given that the Chinese government give priority to social stability (Zou and Xiao 2005) and the ideology of the society is collective development and the equity among people, comparability and equality among management members in pay adjustment should be essential for Chinese listed companies. Therefore, the above discussion suggests the desirability of re-testing the following hypothesis in China:

Hypothesis 8: Internal pay level has a significant effect on executive pay: executive pay adjustment is positively related to the pay adjustment of their peers within the firm.

Ezzamel & Watson (2002) also investigated the relationship between CEO pay changes and the extent to which the other board members appear to be under or overpaid relative to their market pay level. Their results suggest that the "bidding-up" of CEO pay due to asymmetric adjustment to prior pay anomalies is most likely to occur when the other

[13] Their results also further supported the findings of 'bidding up' of CEO pay discussed above.

board members were themselves relatively overpaid. Given the weak governance system in Chinese listed companies and the close and complex relationship between top management team members, this phenomenon may also occur in China. Therefore, this thesis tests the following hypothesis:

Hypothesis 9: 'Bidding-up' of Highest Paid Directors' pay will be most apparent in those firms where the rest of management are relatively overpaid compared to the external comparison pay level.

3.4 Other determinants of executive remuneration- control variables

As described in the empirical literature reviewed above, research on executive remuneration is generally divided between two categories: incentive alignment, where contracts use some outcome performance criteria, and monitoring, where direct supervision links with behavioural or process criteria. However, the mixed and ambiguous results of these studies have led to a variety of alternative explanations for executive remuneration (Gomez-Mejia and Wiseman 1997). For example, Gomez-Mejia and Wiseman (1997) and Jensen & Murphy (1990a) suggest that researchers should examine factors outside the agency framework to explain CEO's remuneration and consider what and how different criteria should be controlled for and considered in explaining executive remuneration. Accordingly, it is important to integrate agency theory with other paradigms or theories to empirically test the explanatory value of alternative paradigms compared to agency-based models.

Later studies following this suggestion have started to offer a variety of alternative paradigms for explaining CEO pay, such as marginal productivity theory, information-processing theory, resource dependence theory, managerial discretion theory, and social comparison theory (Barkema and Gomez-Mejia 1998). Some of these studies explicitly integrate agency notions with other formulations. This section discusses the executive pay determinants other than those already discussed above. These determinants include firm performance, firm size, individual characteristics, capital structure, firm risks, diversification etc. (Gomez-Mejia & Wiseman, 1997; Firth *et al.*, 1999). Even though they are not the focus of this study, these factors will be included as control variables.

3.4.1 FIRM PERFORMANCE

The most explored topic in the literature on executive remuneration is the relationship between executive remuneration and firm performance, a central hypothesis motivated by principal-agent theory (Gibbons and Murphy 1990; Gregg *et al.* 1993; Jensen and Murphy 1990a; Murphy 1985; Veliyath 1999). As discussed in Section 3.2, agency theory emphasises that managers are self-serving and stresses the design of optimal remuneration contracts to elicit appropriate effort by senior management when the objective functions of the two parties potentially diverge (Fama and Jensen 1983; Jensen and Meckling 1976). The aim is to motivate the agent to act in the owners' best interest, given asymmetry of information (usually moral hazard), by linking executive remuneration closely to firm performance. Thus, executives are compensated for their contribution to the firm (Gomez-Mejia and Wiseman 1997). As Murphy (1990) argued, performance-related-pay schemes not only can reduce the costs associated with

managerial non-performance, they can also reduce the need for direct monitoring of executives.

Based on the discussion above, there should be a positive relationship between executive remuneration and firm performance. There is ample evidence supporting this principal-agent perspective prediction (Antle and Smith 1986; Boschen and Smith 1995; Boyd 1994; Bushman and Smith 2001; Jensen and Murphy 1990b; Miller 1995; Murphy 1985; Riahi-Belkaoui and Pavlik 1993; Sloan 1993).

However, some studies show that there are important determinants of pay than performance, such as size (Boyd 1994; Garen 1994). Some studies even found that results change with different measurements of performance (Boschen *et al.* 2003; Miller 1995), different statistical techniques (Riahi-Belkaoui and Pavlik 1993) or different time periods (Gregg *et al.* 1993). For example, Gregg *et al.* (1993) examined the relationship between salary and bonus of the highest paid director in a sample of 288 UK listed companies and found that there was a statistically significant relationship between remuneration and performance for the period 1983 to 1988, but this relationship disappeared over the recessionary period 1989 to 1991.

Despite the divergent results of previous research, the overwhelming evidence indicates that firm performance plays an important role in the executive remuneration setting (Kaplan 1994). As the pay-performance relation has been thoroughly explored by previous studies, this thesis will not focus on it, but nonetheless, will include it as an important control variable. A positive relationship is expected.

3.4.2 FIRM SIZE

Firm size has been another important factor in explaining executive remuneration. Given that CEOs of larger firms have increased responsibility and must expend more effort and require more expertise, it is not surprising that the relationship between firm size and CEO remuneration is one of the most solidly documented findings in the literature (Boyd 1994; Ciscel and Carroll 1980; Cordeiro and Veliyath 2003; Finkelstein and Hambrick 1989; Jensen and Murphy 1990b; Lambert *et al.* 1991; Riahi-Belkaoui and Pavlik 1993; Roberts 1959).

A meta analysis by Tosi *et al.* (2000) showed that firm size accounts for more than 40% of the variance in total CEO pay. Kostiuk (1990) analysed the effects of firm size with several data sets and argued that the positive effect of firm size on executive remuneration is relatively stable over time and across countries. Some UK-based studies also report similar findings, e.g. Gregg *et al.* (1993).

Although the empirical results are quite consistent, debates continue concerning the explanation of this result, especially between managerialists and those who believe in human capital theory. On the one hand, managerialists argue that, given the apparent propensity for 'management-controlled firms', executive pay is based on firm size rather than profit. Greater size offers managers more power and prestige and less pay and employment risk, and also justifies higher pay (Lambert *et al.* 1991; Roberts 1959). On the other hand, human capital proponents argue that bigger firms require more managerial knowledge and skills and therefore tend to pay more (Monti-Belkaoui and Riahi-Belkaoui

1993). Other explanations include that bigger firms have higher ability to pay more and that bigger firm have more hierarchical pay levels (Finkelstein and Hambrick 1988; Finkelstein and Hambrick 1989).

Some authors even argued that these findings might be an artefact of measurement due to the restricted samples they represented. Therefore, Gomez-Mejia and Wiseman (1997) have suggested that researchers should look at the dynamics in firm size, firm performance and CEO remuneration over time. If compensation changes with the changes in size and not performance during the reign of a CEO, the managerial viewpoint will be supported (Gomez-Mejia and Wiseman 1997).

It is not the purpose for this thesis to resolve the debates. However, this thesis does include firm size as a control variable. A positive relation between firm size and executive remuneration is expected. In addition to the aforementioned significant results between firm size and executive pay, controlling for firm size is also important for my study on market comparison factors.

Ezzamel and Watson (2002) observed that remuneration committees prefer to choose objective external market pay comparisons based on firm size because it is easier for them to legitimize to shareholders and other outside stakeholders both their own and other board members' pay awards. The argument is that it is difficult, or too costly, to obtain information on the supply and demand factors (such as relative workloads, responsibilities, and managerial quality) and therefore firm size is an easily observable proxy (Ezzamel and Watson 2002). Thus, the analyses of outside professional pay

consultants typically brought in to advise remuneration committees largely consists of the production of comparison levels of pay across firms in different size bands (Baker *et al.* 1988; Ezzamel and Watson 2002).

3.4.3 FIRM DIVERSIFICATION

Various aspects of the firm's strategic posture have been posited to impact executive or managerial remuneration (Balkin and Gomez-Mejia 1990; Barkema and Gomez-Mejia 1998; Gomez-Mejia 1992; Veliyath *et al.* 1994). Most of these studies expect a positive relation between total diversification and CEO remuneration subject to the common understanding that firm's overall diversification increases the complexity of the CEO's job (Cordeiro and Veliyath 2003; Finkelstein and Hambrick 1989). First, operating in different industries requires an understanding of several product markets and determining resources allocation priorities (Rose and Shepard 1997). Second, multiple product lines entail more knowledgeable and experienced managers, because of more diversity in customers, competitors, product life cycles and competitive strategies (Rumelt 1974). As a result, executives need to exercise greater effort and in turn deserve more remuneration as a reward for managing this added complexity.

Riahi-Belkaoui and Pavlik (1993) have distinguished between two types of diversification, related and unrelated diversification, and they used a path analysis on a sample including 216 companies from 28 industries. They found that diversification of both types is positively related to CEO remuneration. Given the above discussion of the

effect of diversification on executive remuneration, this study will incorporate it as a control variable.

3.4.4 RISK

Risk is a key concept under agency theory. One assumption of the theory is that managers are risk-averse (Jensen and Meckling 1976), therefore, it is reasonable to postulate that managers who work for firms facing higher risks require additional remuneration for the risk and insecurity they bear and they might not like their pay to be tied to firm performance which brings them more risk.

Garen (1994) tested a model that explained the variance in pay-performance sensitivity across risk settings and argued that CEO pay-performance sensitivity varies inversely with firm risk. He also used his findings to challenge the results of Jensen and Murphy (1990b) who found low pay-performance sensitivity, by arguing that this was partly due to variance across agency settings.

Miller *et al.* (2002) further supported this argument. They compared the effects of firm risk on pay design across different levels (high, moderate and low) and types of risk (market-driven risk and firm-specific risk) and concluded that CEO pay changed according to the degree of risk facing a firm, and that the effects of firm-specific risk are stronger than those of market-driven risk. They found a positive association between market risk and total remuneration and a curvilinear relationship between firm-specific risk and total pay with a ceiling effect.

Therefore, the literature provides a generally consistent prediction that executive pay is positively related to firm risk (Bloom and Milkovich 1998; Gray and Cannella 1997; Murphy 2000). This thesis will control for the risk effect.

3.4.5 MANAGERIAL HUMAN CAPITAL ATTRIBUTES

In contrast to performance and external comparisons made above, human capital theory (Agarwal 1981) postulates that individual human capital (managerial abilities) explains the remuneration level. As Agarwal (1981:39) put it, the amount of human capital possessed by executives influences their productivity and thus should influence their remuneration. The explanatory power of human capital has been supported by some empirical studies (McKnight and Tomkins 2004; Milbourn 2003; Murphy 1986; Tosi and Gomez-Mejia 1989). Murphy (1985) argued that the omission of human capital variables constitutes a severe omitted variable problem and this might be one of the causes for the lack of a positive linkage between pay and firm performance in cross-sectional regressions.

Given that individual performance may be unobservable, due to the difficulty in separating out the effects of individual effort, remuneration tends to be based on input factors as indicators of an individual's performance, such as age, tenure, and executive education background. Although this study cannot control for the effects of human capital, a brief literature review is provided as follows.

Age

The significant effects of age on executive pay is supported by some empirical studies (Ingham and Thompson 1995; Kostiuk 1990; McKnight and Tomkins 2004). Ingham and Thompson found that CEO age and CEO age squared both had a positive influence on remuneration (1995). McKnight and Tomkins (2004) examined both the direct and indirect effects of chief executive officer tenure and age on CEO pay in UK organizations and found that CEO age weakened the relationship between the level of CEO salary and size of the organization.

Tenure

Individuals receive lower remuneration in their early years on the job as they acquire firm specific human capital, in the expectation that they will receive higher remuneration in the future. Some studies have reported a greater pay- performance decoupling the longer the tenure of the executive (Murphy 1986; Tosi and Gomez-Mejia 1989). However, the explanations for the findings are quite divergent. The "learning" model (Murphy 1986) suggests that a manager's human capital is revealed over time and the principal can evaluate and trust the manager more correctly and adjust remuneration to reflect these more precise estimates of human capital, and thus there is less need to tie executive pay to firm performance. Tosi and Gomez-Mejia (1989) offered an opposite explanation, arguing that managers become more entrenched over time, thus leading to less pay-performance sensitivity.

Other studies (McKnight and Tomkins 2004; Milbourn 2003) suggest that CEO tenure has a positive and meaningful impact on estimated CEO pay sensitivities. For example, McKnight and Tomkins (2004) found that the elasticity between salary and sales increased with CEO tenure. Hambrick and Finkelstein (1995), instead, suggested a curvilinear relationship in externally controlled firms. Cordeiro and Veliyath (2003) proposed an inverted-U shaped relationship with CEO pay, which supports the premise that increasing CEO tenure is good to a certain point, but beyond that it begins to diminish the CEO efficacy (2003:62).

It is still hard to figure out a clear effect of tenure on executive pay or to tease out the different forces driving a certain result. It would be ideal to be able to control for the effects of executive human capital characteristics, but this thesis cannot do so due to data unavailability. However, the first difference model allows me to control for these effects.

3.5 Summary

This chapter has critically reviewed agency theory, the theoretical and empirical studies on executive remuneration under that theory and some other explanations of executive remuneration.

Agency theory assumes that managers are self-interest seeking and that there are goal conflicts between managers and shareholders, and therefore argues that executive remuneration should be related to firm performance in order to align directors' and

shareholders' interests. However, the majority of empirical studies only find a weak statistical relationship between directors' remuneration and firm performance. Moreover, agency theory has been criticised for several limitations, such as over-simplifying the 'model of man', ignoring the complicated political and interpersonal aspects of the principal-agent relations, and failing to provide sensible practical implications. Despite this, agency theory has received and continues to receive the focus of attention in the literature. This thesis uses agency theory to guide the hypothesis development; however, it is aware that other theories of directors' remuneration may contribute to a better understanding of the observed levels and changes in directors' remuneration.

Theory and empirical research have come a long way in explaining executive remuneration, providing us with rich and useful insights. However, the field is still beset with debates between the various traditions seeking to provide explanations and prescriptions for executive remuneration practices. For example, studies based on the same theoretical framework might lead to different empirical results, and similar empirical results can be explained from different theoretical perspectives. Therefore, there is a lot more to explore in this area.

This thesis examines the impact of corporate governance and market comparison factors on executive remuneration in China. Based on the review of literature and the institutional background of China, several hypotheses have been developed. As outlined in Table 3.1[14], these hypotheses relate executive pay, pay changes and executive pay-

[14] In Chapter 8, there is another table, outlining the hypotheses and related results.

performance sensitivity to board size, board composition, board leadership structure, state ownership, legal person ownership, managerial ownership and the market comparison factors, both internal and external.

Table 3.1 Summary of Hypotheses (Hs) and Sections to Present the Related Results

Hs	Variables		Predicted sign	Section(s) of Empirical Analysis			
	Dependent	Independent		HPD		REST	
1a	Executive pay	Board size	?	6.2.1		6.3.1.1	
1b	Executive pay-performance sensitivity		?	6.2.4		6.3.2	
2a	Executive pay	Proportion of independent directors	-	6.2.1		6.3.1.1	
2b	Executive pay-performance sensitivity		+	6.2.4		6.3.2	
3a	Executive pay	CEO-chairman duality	+	6.2.1		6.3.1.1	
3b	Executive pay-performance sensitivity		-	6.2.4		6.3.2	
4a	Executive pay	State ownership	?	6.2.2		6.3.1.2	
4b	Executive pay-performance sensitivity		?	6.2.4		6.3.2	
5a	Executive pay	Institutional ownership	-	6.2.2		6.3.1.2	
5b	Executive pay-performance sensitivity		+	6.2.4		6.3.2	
6a	Executive pay	Managerial ownership	-	6.2.2		6.3.1.2	
6b	Executive pay-performance sensitivity		+	6.2.4		6.3.2	
7a	Executive pay changes	External pay anomalies	-	Replicated: 7.3.1.1	Extended: 7.4.1.	Replicated: 7.3.1.2	Extended: 7.4.3
7b	The adjustment of executive pay over previous pay anomalies are stronger for underpaid executives than for overpaid executives		$C_u<C_o<0$	Replicated: 7.3.1.1	Extended: 7.4.1.	Replicated: 7.3.1.2	Extended: 7.4.3
8	Executive pay changes	Internal pay comparison	+	Replicated: 7.3.2.1	Extended: 6.2.5; 6.4; & 7.4.2	Replicated: 7.3.2.2	Extended: 6.3.3; & 7.4.3
9	'Bidding-up' HPD pay adjustment will be most apparent in firms where the rest of management is relatively overpaid		Cu.i<0 Co.i>0	Replicated: 7.3.2.1	Extended: 7.4.2	Replicated: 7.3.2.2	Extended: 7.4.3

Note: For the predicted signs, '+' stands for that 'there is a positive relation between the dependent variable and the independent variable; '-' means 'negative', while '?' means that there is a relation, but the sign is not decisive

The next chapter introduces the research methods, key analytical techniques, sample, data and other method related issues.

CHAPTER 4 RESEARCH DESIGN AND METHODS

4.1 Introduction

Chapter 3 provided a review of agency theory and literature on corporate governance and developed several research hypotheses. These hypotheses examine the relationship between executive remuneration, corporate governance mechanisms and market comparison factors. This chapter discusses research methods used to fulfil the research objective and test these hypotheses.

To address research questions on how executive remuneration is determined, two basic approaches can be used—quantitative and/or qualitative methodology. With few exceptions, e.g. McNulty & Pettigrew (1999) and Perkins and Hendry (2005), research on executive remuneration uses quantitative methods. There is no one best strategy for all research but the research method(s) should fit specific research objectives. As can be seen from McNulty & Pettigrew (1999), qualitative research methods can generate excellent insights into process and informal dynamics of governance and executive pay. However, it is difficult to obtain the necessary access to CEOs and directors. And also, the topic of executive remuneration is very sensitive, and frequently it is quite difficult to get information different from that publicly available. Therefore, this thesis adopts a quantitative approach as the main research method and this serves my research objectives identified in Chapter 1. In addition, to help with the understanding of the complicated governance background in China and to gain insiders' insights into corporate governance and executive remuneration, I conduct several interviews with directors of Chinese listed firms.

To test the research hypotheses, a panel data set of 417 Chinese listed companies is used. The main data covers a three year period, from 2001 to 2003. Data are analysed with multivariate techniques. The data analysis begins by following most of the literature on executive remuneration in treating the data as pooled cross-sectional data with Ordinary Least Squares (OLS) regressions. Given that OLS fails to control for those unobservable firm specific factors that might affect executive remuneration, this thesis also tests for the importance of unobserved firm effects by employing panel data techniques, such as first difference, fixed effects and random effects models, to examine their impact on the OLS results. These panel data techniques are known to be good at controlling for unobserved firm effects and suffer less from the missing variable problem (Greene 2003; Wooldridge 2002a). As OLS is widely used in accounting research, this thesis does not provide a detailed introduction of it. However, panel data techniques are relatively new, and hence I first introduce these techniques briefly.

This chapter is divided into 6 sections. Section 2 briefly introduces panel data and the main methods to analyse it. Section 3 develops the models that will be used to test the hypotheses. Section 4 explains sample selection, data collection, and the measurement of variables. Section 5 discusses the related statistical problems and methods to deal with them. Section 6 describes the research method of interviews. The final section summarises the chapter.

4.2 Panel data analysis

4.2.1 PANEL DATA

In a panel data set, variables of interest are observed both across cases (e.g. countries, individuals, and in this thesis, firms) and over several time periods. For example, the data set analysed in this thesis cover 417 firms over 3 years. It is not suitable to employ time series techniques to analyze these data sets since the time period is not sufficiently long. Equally, these data sets might not qualify for analysis using cross-section techniques because a simple pooling of the data would require the untenably strong assumption that all observations were homogenous (Wooldridge 2002b). Therefore, this kind of data is better treated as panel data.

Panel data techniques have a number of advantages. Particularly in the study of executive remuneration, OLS with cross sectional data cannot capture the time-course of changes in remuneration (Murphy 1985). In contrast, although time series studies can capture the time effects, they are unable to recognise the contribution of individual effects (Greene 2003). By combining the two dimensions, a panel data approach offers greater insights into the dynamics of behaviour between firms and over time (Baltagi 2001; Greene 2003; Wooldridge 2002b). Also, the power of the estimators to detect effects can be enhanced for the same limited companies or years by increasing the number of cases since there are n x t observations. Moreover, panel data sets may also alleviate the problem of multicollinearity as the explanatory variables vary in two dimensions – across the firms and over time. Furthermore, panel data techniques allow for the use of more sophisticated models with less restrictive assumptions. The

advantage of panel data techniques lies in their ability to distinguish between residual heterogeneity associated with changes over time (time effects) and across firms (firm effects) (Stock and Watson 2003; Wooldridge 2002a). This ensures a better identification of the factors leading to changes in corporate governance and remuneration.

Last but not least, panel data techniques can also alleviate the missing variable problem (Greene 2003; Wooldridge 2002b). Most previous research on executive remuneration is based on cross-sectional analysis of remuneration and performance and other factors, such as entrepreneurial ability, managerial responsibility, firm size, and past performance (Murphy 1985). These cross-sectional models are inherently subject to a serious omitted variables problem (Ciscel and Carroll 1980; Murphy 1985). With Panel data, we can control for factors that cannot be controlled for with cross-sectional data. These include factors that vary between firms but are constant within-firms over time or vary within-firms over time but are constant between-firms; could cause omitted variable bias if not modelled; are unobserved or unmeasured and therefore cannot be included in the regression using multiple regression techniques. Murphy (1985) estimated models of executive remuneration with both cross-sectional techniques and panel data techniques. He found that the results were dramatically different in sign and magnitude. He therefore argued that previous cross-sectional estimates were biased and misleading and that it was important to allow the regression intercepts to vary across cases (Murphy 1985).

As discussed above, panel data analysis has advantages over cross sectional OLS analysis, however, panel data techniques require data to have sufficient changes over a

number of years (Stock and Watson 2003; Wooldridge 2002a). Therefore, they are not efficient in examining the individual effect of time-constant variables.

4.2.2 FIXED EFFECTS MODELS VERSUS RANDOM EFFECTS MODEL

With panel data, the models can be estimated based on fixed and random effects methods. Different methods may give different estimates, given the models' different treatment of the error structure, ε_{it} (Baltagi 2001; Hausman 1978; Wooldridge 2002b). The fixed effects model is the same as the dummy variable model. It is easily estimated using OLS with a set of additive dummies. This is possible if the number of observations is only a few thousand (Greene 2003). In our case the observations are less than a thousand. Compared with the first difference method with pooled OLS, the fixed effects estimator is efficient when the idiosyncratic errors are serially uncorrelated and homoskedastic (Wooldridge 2002b). The fixed effects model allows the unobserved individual effects to be correlated with the included variables.

If individual effects are strictly uncorrelated with the explanatory variables, then it might be appropriate to model the individual specific constant terms as randomly distributed across cross-section units, called random effects model. Random effects model could be appropriate if sampled cross-sectional units were drawn from a large population. The payoff of this form is the reduction of the number of parameters to be estimated, while the cost is that the estimates might be inconsistent, should the assumptions turn out to be inappropriate (Greene 2003:294). In the case of the random effects model, generalised least squares (GLS) are used to account for the possible correlation between the unobserved differences and the error term.

The choice between the fixed effects and the random effects models can be based on some specification tests. However, there are *a priori* reasons for choosing between the random effects and the fixed effects models. As discussed above, the random effects model assumes that the unobservable differences are uncorrelated with the explanatory variables; while the fixed effects model is less restrictive as it does not require such an assumption (Greene 2003; Wooldridge 2002b). The individual intercept terms automatically control for all unobserved differences regardless of whether or not these differences are associated with the likelihood of corporate governance changes. Generality of the inferences that can be drawn from the estimated coefficients is also cited in the literature as a possible consideration in the choice between the fixed effect and the random effect models (Kennedy 1995). If inferences drawn are to apply only to the sampled observations, the fixed effects model will serve the purpose; while the use of the random effects model is recommended if it is to draw inferences about the entire population (Kennedy 1995).

A Hausman test is the generally accepted specification test to serve this purpose. It checks a more efficient model against a less efficient but consistent model to make sure that the more efficient model also gives consistent results (Hausman 1978). Statistically, it is always reasonable to estimate fixed effects with panel data as the fixed effects models always give consistent results; but they may not be the most efficient models to run (Stock and Watson 2003). Random effects models can provide better p-values as they are more efficient estimators; but they are consistent only under the null hypothesis of the Hausman test. Therefore, this thesis will follow Stock and Watson's suggestion by first running random effects and using the Hausman test to see whether it is statistically justifiable to do so. If this null hypothesis is rejected, the fixed effects

estimates should be preferred. In that case, the thesis's econometric strategy would stress the importance of idiosyncratic firm effects, to control for any unobserved time invariant firm factors (Benito and Conyon 1999).

4.3 Modelling specification

The choice of the econometric specification depends on the way the problem is conceived and the characteristics of the data set (Wooldridge 2002b). The aim of this thesis is to model how the executive pay level and dynamics are driven, especially focusing on the impacts of corporate governance changes and the external and internal comparison factors of executive pay. In this section, the econometric models are developed to test the hypotheses specified in Chapter 3. To make the model specification compact, the detailed definitions and measurements of the related variables are provided separately in Section 4.4.3.

A central issue in the principal-agent empirical literature is to test whether there is a positive link between executive pay and corporate performance (Gomez-Mejia and Wiseman 1997; Gregg *et al.* 1993; Jensen and Murphy 1990b; Murphy 1998; Murphy 1985). The rationale for this was discussed in chapter 3. To briefly recap, agency models typically assume risk-neutral shareholders (principals) who delegate decision making authority to risk-adverse managers (agents) (Jensen and Meckling 1976). Given information asymmetry (usually in the form of moral hazard) and goal conflicts, between shareholders and managers, shareholders attempt to design optimal remuneration contracts to bring forth appropriate effort by senior management. One

such solution is to reward agents according to their performance (Conyon 1997a; Conyon *et al.* 1995; Jensen and Murphy 1990b).

In addition, other factors may be important in shaping executive pay such as firm size, firm diversification, capital structure, industrial differences, location and firm age (see Chapter 3). Although these factors are not the focus of this thesis, they are included in the models of this study as control variables.

The literature also suggests that corporate governance variables are important in shaping executive pay (Conyon 1997a; Conyon and Peck 1998; Cordeiro and Veliyath 2003; Core *et al.* 1999; Jensen 1993). In practice, the institutional design of the board, its associated committees and the ownership structure all play an important role in potentially resolving the agency problems, because the appropriate design can perform a cost-efficient monitoring function. This thesis models executive pay levels and dynamics, focusing on the impact of board structure and ownership types, but also controlling for other variables (e.g., firm size). Hypotheses 1a, 2a, 3a, 4a, 5a and 6a are tested using the following model:

$$LnPay_{it} = \beta_0 + \beta_1 Performance_{it} + \beta_2 LnSales_{it} + [\beta_3 Boardsize_{it} + \beta_4 Proind_{it} + \beta_5 Duality_{it} + \beta_6 StateOwn_{it} + \beta_7 LegalOwn_{it} + \beta_8 PrivateOwn_{it} + \beta_9 ForeignOwn_{it} \beta_{10} ManageOwn_{it}] + \sum \beta_c Control_{cit} + \sum \delta_t D_t + \varepsilon_{it} \quad (1)$$

where: i = 1, 2, …, N (1 to 417 companies); t =1, 2, …, T

$LnPay_{it}$ is the log of reported pay of highest paid director (**HPDpay**) and that of the rest of management team (**RESTpay**) respectively. These are the dependent variables.

Independent variables are:

$Performance_{it}$ is firm performance of company i in year t. **$LnSales_{it}$** is the total sales of company i in year t. These two variables are not the focal variables of this thesis, but given their importance in the literature, they are presented separately from the other control variables.

$Boardsize_{it}$, **Proind** $_{it}$ and **$Duality_{it}$** are board characteristics of firm i: board size, board composition, and leadership structure respectively in year t. **$StateOwn_{it}$** is state ownership. **$LegalOwn_{it}$**, is the proportion of shares held by state-controlled domestic companies. **$PrivateOwn_{it}$** is the proportion of shares owned by domestic private companies. **$ForeignOwn_{it}$** is the proportion of shares owned by foreign investors. **$ManageOwn_{it}$** is managerial ownership, held either by the whole management team or by the board at time t. These eight governance variables are the focus of this thesis, which will also be collectively referred to by the title GOVERN, shown as **$GOVERN_{git}$** in the equations hereafter, to make the equations succinct and more legible. Therefore, Model (1) can be rewritten as:

$$LnPay_{it} = \beta_0 + \beta_1 Performance_{it} + \beta_2 LnSales_{it} + \sum\beta_g GOVERN_{git} +$$
$$\sum B_c CONTROL_{cit} + \sum\delta_t D_t + \varepsilon_{it},$$

Where $\sum \beta_g GOVERN_{git} = [\beta_3 Boardsize_{it} + \beta_4 Proind_{it} + \beta_5 Duality_{it} + \beta_6 StateOwn_{it} + \beta_7 LegalOwn_{it} + \beta_8 PrivateOwn_{it} + \beta_9 ForeignOwn_{it} + \beta_{10} ManageOwn_{it}]$; therefore, g = 3 to 10 for coefficients of the eight governance variables.

$\mathbf{CONTROL}_{cit}$ is a vector of other control variables (e.g., supervisory board size, industry, risk, diversification, capital structure, firm listing years and firm location). c indexes the control variables.

$\mathbf{D}_t$ is the set of dummy variables for time.

The definitions and measures of these variables are discussed in detail in Section 4.4.3 of this chapter. Since there are a variety of proxies for the variables, the model can be extended into several sub-models.

The βs are the parameters to be estimated (see Table 4.1 *Definition of Variables* for the expected signs). Also, most UK research on top pay determination assumes that there is no time series heterogeneity in the determination of top pay (Benito and Conyon 1999). However, this might not be the case. For example, Gregg *et al.* (1993) found that top pay and performance relationship varied during their sample period 1983-1991. In light of this, the thesis include T-1 year dummies D_t for all years but the latest year 2003, to filter macro-economic shocks from the estimating equation and to allow for separate per-period effects in the modelling, while δ_t is the coefficient for the year dummies.

Equation (1) considers the direct effects of corporate governance mechanisms on executive pay levels. The thesis is also interested in their indirect impact, that is, whether a certain governance mechanism makes the link between executive pay and firm performance stronger (Hypotheses 1b, 2b, 3b, 4b, 5b and 6b). To test these hypotheses, I incorporate into Equation (1) the interaction terms between the governance variables and performance:

$$LnPay_{it} = \beta_0 + \beta_1 Performance_{it} + \beta_2 LnSales_{it} + \sum \beta_g GOVERN_{git} + Performance_{it} \times \sum \beta_{g+8} GOVERN_{git} + \sum B_c CONTROL_{cit} + \sum \delta_t D_t + \varepsilon_{it} \quad (2)$$

The indexes are the same as in Model 1, expect for the eight additional interaction variables. Whereas main effects of governance variables have coefficients β_3 to β_{10}, the corresponding interaction terms (performance x governance variables) have coefficients β_{11} to β_{18}. For example, whereas g=3 is the index for the simple effect of Boardsize, the index for (Performance x Boardsize) is g=11 (=3+8); Proind is g=4, (Performance x Proind) is g=12, and so on.

The signs of $\sum \beta_g$ (β_3, β_4, β_5, β_6, β_7, β_8, β_9, β_{10}), together with those of $\sum \beta_{g+8}$ (β_{11}, β_{12}, β_{13} β_{14}, β_{15}, β_{16}, β_{17}, β_{18}), will indicate the extent to which a governance mechanism has an impact on the pay-performance link.

To shed further light on the pay performance sensitivity, a first difference model is developed to estimates the change in executive pay:

$$\Delta LnPay_{it} = Lnpay_{it} - Lnpay_{it-1} = \alpha + \beta_1 \Delta Performance_{it} + \beta_2 \Delta LnSales_{it} + \sum_g GOVERN_{git} + \sum B_c CONTROL_{cit} + \sum \delta_t D_t + \varepsilon_{it} \quad (3)$$

$\mathbf{\Delta LnPay_{it} = (Lnpay_{it} - Lnpay_{it-1})}$ denotes the reported log change in HPD pay or REST pay in firm i from time t-1 to t. $\mathbf{\Delta Performance_{it}}$ is the changes in firm performance of company i from year t-1 to year t. $\mathbf{\Delta LnSales_{it}}$ is the logarithmic change in sales from year t-1 to year t; other variables are as in Equations (2) and (3).

Ezzamel and Watson (1998; 2002) found that the external market pay level and within-board pay partially explain the dynamics of executive pay settings. This thesis extends Model (3) to examine the extent to which the findings of Ezzamel and Watson (1998; 2002) hold in the Chinese context. The traditional agency model is first run as a benchmark model, which only includes firm size, performance and year dummies as explanatory variables. I first followed Ezzamel and Watson (1998; 2002) by proxying the external market and internal market pay level as the estimated pay by firm size and performance. Therefore, to test Hypothesis 7a, the following model is specified.

$$\Delta LnPay_{it} = \alpha + \beta_1 \Delta Performance_{it} + \beta_2 \Delta LnSales_{it} + \beta_3 (LnPay_{it-1} - LnPay^*_{it-1}) + \sum \delta_t D_t + \varepsilon_{it} \quad (4)$$

where $\mathbf{LnPay^*_{it-1}}$ is the predicted market level pay for firm i at time t-1, estimated from the regression: $LnPay_{it-1} = b_0 + b_1 Performance_{it-1} + b_2 LnSales_{it-1}$.

$\mathbf{(LnPay_{it-1} - LnPay^*_{it-1})}$ is therefore the pay anomaly experienced by executives in firm i in time t-1, which is hypothesised to have consequences for pay changes in time t; others are the same as before. To support Hypothesis 7a, β_3, the coefficient of pay anomaly variable should be negative and significant.

To test Hypothesis 7b, I split the pay anomalies variable into two and rewrite Equation (4) into Equation (5):

$$\Delta LnPay_{it} = \alpha + \beta_1 \Delta Performance_{it} + \beta_2 \Delta LnSales_{it} + \beta_{3o} (LnPay_{it-1} - LnPay^*_{it-1}) + \beta_{3u} (LnPay_{it-1} - LnPay^*_{it-1}) + \sum \delta_t D_t + \varepsilon_{it} \quad (5)$$

While others remain the same as those in Model (4), $\boldsymbol{\beta_{3u}}$ **(LnPay$_{it-1}$ – LnPay*$_{it-1}$)** is the adjustment process for the 'underpaid' executives; i.e., where $LnPay_{it-1} - LnPay^*_{it-1}) < 0$; $\boldsymbol{\beta_{3o}}$ **(Ln Pay$_{it-1}$ – Ln Pay*$_{it-1}$)** is the adjustment process for the 'overpaid' executives, i.e., where $(LnPay_{it-1} - LnPay^*_{it-1}) > 0$[15]. Hypothesis 7b is supported if $\beta_{3u} < \beta_{3o} < 0$, i.e. there is a bigger adjustment for underpaid executives.

Hypothesis 8 captures Ezzamel and Watson's (2002) idea about the internal pay comparison effect that executives: when compare their pay to the market pay level, they are more likely to compare their pay to the pay level of their colleagues within the management team. This hypothesis is tested with Equation (6):

$$\Delta LnHPDpay_{it} = \beta_0 + \beta_1 \Delta Performance_{it} + \beta_2 \Delta LnSales_{it} + \beta_3 (LnHPDPay_{it-1} - LnHPDPay^*_{it-1}) + \beta_4 \Delta LnRESTpay_{it} + \sum \delta_t D_t + \varepsilon_{it} \quad (6)$$

where **ΔLnHPDpay$_{it}$** = ($LnHPDpay_{it}$-$LnHPDpay_{it-1}$) is the reported log change in HPD pay in firm i between time t-1 and t; **(LnHPDPay$_{it-1}$ – LnHPDPay*$_{it-1}$)** is the pay anomaly experienced by HPDs at time t-1; **(LnRESTpay$_{it}$ – LnRESTpay$_{it-1}$)** is the change in log REST pay between time t-1 and t; and other variables remain the same as before.

This thesis also follows Ezzamel and Watson (2002) by adding another variable for the internal comparison factor, the REST pay anomaly (the residuals of REST pay estimate model), and thus create Equation (7):

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[15] Equation (5) is equal to the following equation: $\Delta LnPay_{it} = \beta_0 + \beta_1 \Delta Performance_{it} + \beta_2 \Delta LnSales_{it} + \beta_{3o} D_o (LnPay_{it-1} - LnPay^*_{it-1}) + \beta_{3u} D_u (LnPay_{it-1} - LnPay^*_{it-1}) + \sum \delta_t D_t + \varepsilon_{it}$,
where D_u is a dummy variable = 1 if the executive was underpaid at time t-1 (i.e. $LnPay_{it-1} - LnPay^*_{it-1} < 0$) and 0 otherwise. Similarly D_o is a dummy variable = 1 if the executive was overpaid at time t-1 (i.e. $LnPay_{it-1} - LnPay^*_{it-1} > 0$) and 0 otherwise.

$$\Delta LnHPDpay_{it} = \beta_0 + \beta_1 \Delta Performance_{it} + \beta_2 \Delta LnSales_{it} + \beta_3 (LnHPDPay_{it-1} - LnHPDPay^*_{it-1}) + \beta_4 \Delta LnRESTpay_{it} + \beta_5 (LnRESTpay_{it-1} - LnRESTpay^*_{it-1}) + \sum \delta_t D_t + \varepsilon_{it} \quad (7)$$

where others are the same as those in Equation (6), **($LnRESTpay_{it} - LnRESTpay^*_{it}$)** is the pay anomalies experienced by the rest of the management team at time t. A negative sign is predicted for β_5.

Hypothesis 9 predicts that the 'bidding-up' pay adjustment for HPD pay is greater where the rest of management team is relatively overpaid. To test this hypothesis, a dummy variable is created, which has a value of one if the rest of management were overpaid in the previous period and zero otherwise (OVERREST). This is then multiplied by the HPD prior period under and overpayment anomaly variables, which results in creating two new interaction terms whose estimated coefficients represent the differential impact that relatively overpaid management teams have on the HPD pay adjustment to prior pay anomalies. To support Hypothesis 9, it is required that the coefficient on the underpaid interaction term is significantly less than zero and that of the overpaid greater than zero.

$$\Delta LnHPDpay_{it} = \beta_0 + \beta_1 \Delta Performance_{it} + \beta_2 \Delta LnSales_{it} + \beta_{3o} (LnHPDPay_{it-1} - LnHPDPay^*_{it-1}) + \beta_{3u} (LnHPDPay_{it-1} - LnHPDPay^*_{it-1}) + \beta_4 \Delta LnRESTpay_{it} + \beta_5 (LnRESTpay_{it-1} - LnRESTpay^*_{it-1}) + \beta_{6o} (LnHDPPay_{it-1} - LnHDPPay^*_{it-1}) \times OVERREST_{it-1} + \beta_{6u} (LnHDPPay_{it-1} - LnHDPPay^*_{it-1}) \times OVERREST_{it-1} + \sum \delta_t D_t + \varepsilon_{it} \quad (8)$$

$OVERREST_{it-1} = 1$ if $(RESTpay_{it-1} - RESTpay^*_{it-1}) > 0$, otherwise 0.

This thesis also retests Hypothesis 9 by re-estimating Equation (7) separately for the two sub-samples: firms with overpaid managements and those with underpaid managements.

The above discussion explains the process of retesting Ezzamel and Watson (1998; 2002) models. As discussed in Chapter 1, this thesis also seeks to extend their work by exploring the effects on their results of including more governance variables into the models. What makes the following models different from theirs are: first, the pay level models used to estimate internal and external pay comparison levels take account of the effects of governance variables and other control variables, i.e. $LnPay^*_{it}$ is redefined; second, governance variables and other variables are included in the models, unless the empirical evidence later suggests that these variables have no significant effects. Therefore, Equations (4) - (8) can be re-estimated by the following counterparts, Equations (4*) to (8*):

$$\Delta LnPay_{it} = \beta_0 + \beta_1 \Delta Performance_{it} + \beta_2 \Delta LnSales_{it} + \beta_3 (LnPay_{it-1} - LnPay^{*'}_{it-1}) + \sum \beta_g GOVERN_{git} + \sum B_c CONTROL_{cit} + \sum \delta_t D_t + \varepsilon_{it} \quad (4^*)$$

where now $\mathbf{LnPay^{**}_{it-1}}$ is the predicted market-level pay for firm i at time t-1, estimated from Equation (1) at time t-1:

$LnPay^{**}_{it-1} = b_0 + b_1 Performance_{it-1} + b_2 LnSales_{it-1} + \sum \beta_g GOVERN_{g\ it-1} + \sum \beta_c CONTROL_{cit-1} + \varepsilon_{it}$

$(LnPay_{it-1} - LnPay^{*'}_{it-1})$ is therefore the estimated pay anomaly experienced by executives in firm i in time t-1. Apart from the adding of the governance variables, others in Equation (4*) are the same as those in Equation (4).

Equation 5*:

$$\Delta LnPay_{it} = \beta_0 + \beta_1 \Delta Performance_{it} + \beta_2 \Delta LnSales_{it} + \beta_{3o} (LnPay_{it-1} - LnPay^{**}_{it-1}) + \beta_{3u} (LnPay_{it-1} - LnPay^{**}_{it-1}) + \sum \beta_g GOVERN_{git} + \sum B_c CONTROL_{cit} + \sum \delta_t D_t + \varepsilon_{it}$$

With $LnPay^{**}_{it-1}$ computed as in Equation 4*.

The same principle applies to create Equations 6*, 7* and 8*.

Equation (6*):

$$\Delta LnHPDpay_{it} = \beta_0 + \beta_1 \Delta Performance_{it} + \beta_2 \Delta LnSales_{it} + \sum \beta_g GOVERN_{git} + \beta_{11} (LnHPDPay_{it-1} - LnHPDPay^{**}_{it-1}) + \beta_{12} \Delta LnRESTpay_{it} + \sum B_c CONTROL_{cit} + \sum \delta_t D_t + \varepsilon_{it}$$

Equation (7*):

$$\Delta LnHPDpay_{it} = \beta_0 + \beta_1 \Delta Performance_{it} + \beta_2 \Delta LnSales_{it} + \beta_3 (LnHPDPay_{it-1} - LnHPDPay^{**}_{it-1}) + \beta_4 \Delta LnRESTpay_{it} + \beta_5 (LnRESTpay_{it-1} - LnRESTpay^{**}_{it-1}) + \sum B_c CONTROL_{cit} + \sum \delta_t D_t + \varepsilon_{it}$$

Equation (8*):

$$\Delta LnHPDpay_{it} = \beta_0 + \beta_1 \Delta Performance_{it} + \beta_2 \Delta LnSales_{it} + \beta_{3o} (LnHPDPay_{it-1} - LnHPDPay^{**}_{it-1}) + \beta_{3u} (LnHPDPay_{it-1} - LnHPDPay^{**}_{it-1}) + \beta_4 \Delta LnRESTpay_{it} + \beta_5 (LnRESTpay_{it-1} - LnRESTpay^{**}_{it-1}) + \beta_{6o} (LnHDPPay_{it} - LnHDPPay^{**}_{it}) \times OVERREST_{it-1} + \sum \beta_g GOVERN_{git} + \beta_{6u} (LnHDPPay_{it} - LnHDPPay^{**}_{it}) \times OVERREST_{it-1} + \sum B_c CONTROL_{cit} + \sum \delta_t D_t + \varepsilon_{it}$$

$OVERREST_{it-1} = 1$ if $(RESTpay_{it-1} - RESTpay^{**}_{it-1}) > 0$, otherwise 0.

It should be noted that for Equations (6) to (8), and also (6*) to (8*) are written for HPD pay. Models will also be run for REST pay, where these equations will be adjusted, such as using $\Delta LnRESTpay_{it}$ as dependent variables and changing the relevant bits on the right hand side of the equations. Also, Hypothesis 8 can also be initially tested in the pay level models by including the internal comparison factor into the Equation (1):

$$LnPay_{it} = \beta_0 + \beta_1 Performance_{it} + \beta_2 LnSales_{it} + \sum \beta_g GOVERN_{git} + \beta_{11} LnRESTpay_{it} + \sum B_c CONTROL_{cit} + \sum \delta_t D_t + \varepsilon_{it} \quad (9)$$

where other variables are the same as those in Equation (1), $LnRESTpay_{it}$ is the log of REST pay at time t. I hypothesise $\beta_{11} > 0$.

4.4 Sample, data and measures of variables

4.4.1 SAMPLE

One of the advantages of quantitative research methods is the generalisability of results. However, to achieve generalisable results, the sample should be large enough (Pallant 2003). Different authors tend to provide different guidelines in terms of the number of cases or subjects needed for multiple regression models. For example, Stevens (1996:72) recommends that about 15 subjects per predictor are needed for a reliable equation. Tabachnick and Fidell (1996:132) give a formula for calculating sample size requirements, taking into account the number of independent variables to be used: $N > 50 + 8m$ (where m equals the number of independent variables). More cases are needed if the dependent variable is skewed (Pallant 2003:136).

In 2003, there were around 1300 companies listed on the Shanghai and Shenzhen Stock Exchanges. The final sample of this study consists of 417 Chinese listed companies. These companies are selected from these two stock exchanges on the basis of two conditions: first, the company must have 3 continuous years of data for the period 2001 to 2003 (in 2001 companies were required to disclose the total pay for the three HPDs); second, the company must not be a financial company as financial firms in China have different corporate governance rules. These criteria resulted in the selection of 420 companies, of which three were excluded because they reported negative sales figures as a result of re-structuring. Hence, the sample on which I conduct my analysis consists of 417 listed Chinese companies over 3 years, 1251 firm-year observations. I also include the data for 1999 and 2000 in order to allow for lagging some variables without loss in sample size[16]. This sample should be adequately large according to the above rules. Also, although it would be better to obtain sufficient time series observations to employ the method of 'mean group estimator', it is impossible to do so due to the information disclosure situation.

4.4.2 DATA COLLECTION

The information disclosure of executive pay in China is relatively poor compared to that in the UK and USA. Chinese companies began to disclose directors and executive pay in 1998. But the degree of the disclosure is inconsistent in the following years. Only in 1998 did most Chinese listed companies disclose executive pay individually. In 1999 and 2000, most companies disclosed only the pay intervals and the number of

[16]To test for the impact of survivorship bias on the results, Chen and Ezzamel (2006) reran the models with a second sample with the first restriction removed, which result in a sample of 2821 form observations over 2001-2003. The details of the results are presented in a working paper, Chen and Ezzamel (2006), and are briefly reflected in the data analysis chapter.

management members whose pay level fell in the interval. Since 2001, most companies have reported the remuneration of the three highest paid directors in aggregate and payment for the whole management team. Only cash payments are reported. This is why I select 2001-2003 as my sample period. Also, the listed companies only reported the sum of salary and bonus, excluding any other forms of remuneration like benefits. Hence it is not possible to conduct analysis on the non cash pay components, nor is it possible to do the analysis for individual directors, except in 1998.

The data are derived from two sources. The financial data and some of the corporate governance data were extracted from Sinofin database developed by Sinofin Information Services, while most information about firm characteristics were coded manually from annual reports, downloaded from the website: www.jrj.com, in order to ensure the consistency of data coding. The Sinofin database provides some information on executive remuneration and corporate governance annually for all publicly traded firms in the two stock exchanges in China since 1998. To check the reliability of Sinofin data, 20 companies of the sample were randomly selected and checked against the original annual reports. Also, in the descriptive analysis, for every variable, the largest 5 values and the smallest 5 values were identified and checked with the original report for accuracy, and any data errors found were corrected (2 data entry errors were corrected). Three data points were excluded, having negative values in Sales, due to re-structuring rather than data errors, as mentioned in the sample selection.

4.4.3 VARIABLES AND MEASURES

4.4.3.1 Dependent Variable

The dependent variable in the regression model is **executive remuneration**. As mentioned earlier, a breakdown of the Chinese data on components of executive pay is not possible. Fortunately, the published data still allows consideration of two different measures of executive remuneration: (1) highest paid director (HPD)'s pay (HPDpay), measured by the average pay of the three HPDs (i.e., total cash pay for the three HPDs divided by three), and (2) the pay for the rest of management team members other than the three HPDs (REST pay), measured by the total cash payments for the top management team as whole (including all directors, supervisors and very senior managers) minus the aggregate cash payments for the three HPDs [17].

4.4.3.2 Independent Variables

The key independent variables selected for this thesis are the external and internal comparison factors, board characteristics and ownership structure. The main sets of parameters forming the focus of the study are proxied by a variety of variables (see Table 4.1 for details).

[17] This definition of REST pay does not take account of differences in board size or the numbers of management team. However, there are problems of using the average of REST pay due to the fact that some directors in China are not paid. The thesis duplicated some of the analyses in Chapter 6 using average REST pay. The results are not materially different from the reported results. Taking Model 1c_Rest as an example, the results are similar, except that in the average REST pay model, the lnboardsize and Super_size swap significance, and the ownership variables become more significant. The $\overline{R}s^2$ are similar.

4.4.3.2.1 BOARD CHARACTERISTICS

In the literature, board characteristics are normally described by four dimensions: board size, leadership structure, composition of the board and interlocking directorship (Ezzamel 2005). Interlocking directors are very rare in the current sample and therefore are not included in this study.

Following the literature, **board size** is measured as the number of the directors on the board of each firm, both executive and non-executive directors. On the one hand, more directors mean more resources, thus better firm performance will be expected (Dalton and Daily 1999); on the other hand, bigger board size will also lead to higher cost and less efficiency due to communication problems (Jensen 1993; Lipton and Lorsch 1992), a result which also has some empirical support (Core *et al.* 1999; Yermack 1996). This thesis leaves the predicted sign of this variable undecided.

Board composition is proxied as the proportion of the number of independent directors over board size.

Board leadership structure, also known as **CEO-Chairman duality**, is proxied by a dummy variable which equals to 1 if the Chairman also serves as the CEO, and 0 otherwise (Duality1). Duality2 is another dummy with 1 when the CEO is not the Chairman, but the Vice Chairman or a director, and 0 otherwise.

4.4.3.2.2 OWNERSHIP STRUCTURE

Ownership structure is described as the proportion of shares held by members of the board, institutional investors, and the state over total shares of the company, and also as the degree of ownership concentration among ordinary shareholders.

State ownership, as in Hovey *et al.* (2003), is measured as the percentage of state shares to total shares (State_share). State ownership is not divided further by national, regional or local levels as these are all parts of government.

Institutional ownership, also called **Legal person ownership** in China, is measured as the percentage of ordinary shares held by institutional/corporate investors other than directors. Legal person shares are normally subscribed when a firm goes IPO. Institutional ownership in China includes stated-controlled legal person ownership (Legal_share), foreign ownership (Foreign_share), and private legal person ownership (Private_share), measured as the percentage of shares held by state controlled or owned companies, foreign companies, and private domestic companies to total company shares, respectively. In addition to treating these three variables individually, the thesis also tests for the different combinations of them to see their effects on executive pay.

Managerial ownership, as in Wei (2000), is proxied as total director shares (Director_share) and top management shares (tot_man_share), measured by the percentage of shares held by the board of directors and that by top management respectively over total shares. Top management comprises directors, supervisory board members and the senior management team including the CEO, Vice GMs, Chief

Financial Officer, Chief Engineering Officer, and the secretary of the board, whose shareholdings are disclosed in the Annual Reports.

4.4.3.2.3 EXTERNAL AND INTERNAL MARKET PAY LEVEL

Ezzamel and Watson (1998) constructed three proxies for CEO pay market comparison levels: the within-sample firm size and performance estimate, the Times 1000 sector-size-adjusted estimate, and the Times 1000 sector-average level of pay. They found that the three measures were highly correlated and the first two produced similar results, while the third had less explanatory power. Ezzamel and Watson (2002) estimated the comparison level of pay as the predicted pay level in time t derived from an OLS regression of the pay variables on the t-1 firm size (log of sales). Building on these two studies, this thesis first follows Ezzamel & Watson (1998) by proxying the **external pay comparison factor** as the predicted pay level of an OLS regression model of HPD pay and REST pay on performance and firm size. The pay anomaly experienced by each HPD and REST management in time t is calculated as the residual of the estimated model. Then, the thesis proxies the external pay comparison factor as the predicted pay level of an OLS regression model of HPD pay and REST pay on performance, firm size, governance variables, and some control variables (equation (1)), to investigate the possible effects of the inclusion of governance variables on their models.

Similar to Ezzamel and Watson (2002), the **internal pay comparison level** is measured by the total pay of the rest of management members excluding the three HPDs.

4.4.3.3 Controlled Variables

4.4.3.3.1 Firm Performance

Performance-related-pay schemes can reduce not only the costs associated with managerial non-performance, but also the need for direct monitoring of executives (Boyd 1994; Bushman and Smith 2001; Miller 1995). Executive incentives are typically measured as the change in executive rewards brought about by a change in company performance (Conyon and Sadler 2001). Although most prior, cross-sectional, research produced mixed results (Zhou 1999), research overwhelmingly suggests a positive relationship between the two (Kaplan 1994). Results may be sensitive to different measures of performance (Boschen *et al.* 2003) and different time periods (Gregg *et al.* 1993).

In the literature, the predominant measures of firm performance fit into two key categories: accounting-based measures and market-based measures. Accounting measures (e.g. return on assets or net assets, earnings per share and return on equity) represent the impact of many factors, including the past successes of advice given by the board to the management team, and these are the traditional mainstay of corporate performance measures (Conyon *et al.* 1995). Accounting measures are free from general economy-wide shocks and can shield the executive from noise induced by market-wide factors that are out of their control (Conyon *et al.* 2000b). This thesis follows Xi and Wu (2000) in using return on assets (ROTA) as the main measure of firm performance, which is widely used in the literature and the data is available in China.

However, accounting measures are backward and inward looking, and subject to managerial manipulation. In contrast, market-based measures (e.g., Tobin's Q, market to book ratio and shareholder's return) emphasize the expected future earnings of the firm and so are forward-looking indicators (Conyon *et al.* 2000b). However, using Tobin's Q involves calculating the replacement cost of assets and the market value of debt, but a large part of the debt of listed Chinese companies has no market value, raising concern over the reliability of Tobin's Q. Also, the majority of shares of Chinese companies held by the state and legal persons are non-tradable and can only be transferred between parties through negotiation subject to approval from the CSRC, normally at a price based on the value of net assets per share plus a margin for traders' profit and expenses. Simply using the product of share price and total number of shares will overstate the market value of a company (Zou *et al.* 2003). Therefore, this paper follows Zou *et al.* (2003) by using adjusted market value (Adjusted_mv), calculated as the sum of the product of market value of tradable shares and the product of non-tradable shares and net assets per share. Therefore, Tobin's Q is measured as the ratio of adjusted market value of the firm over total assets. However, given the weak market efficiency in Chinese stock markets (Dahya *et al.* 2002a), the imperfection of China's Stock Market and the fact that many firms only list part of their assets (Xi and Wu 2000), it may not be efficient to link pay to stock market factors alone as market-related performance measures might be very noisy. Thus, accounting performance may be more reliable.

The timing of firm performance is potentially important (Conyon and Leech 1994; Gregg *et al.* 1993). Some literature has used lagged return variables (Ezzamel and Watson 1998, 2002; Gregg *et al.* 1993; Jensen and Murphy 1990b). The use of lagged

performance variables helps reduce the potential ambiguity of mutual causality that may be caused by the endogeneity of executive remuneration and firm performance (Gregg *et al.* 1993; Jensen and Murphy 1990b), and might also better reflect the actual timing of the impact of company performance on executive remuneration as directors' pay is typically determined the year before. Ezzamel and Watson (1998) argued that this is clearly an empirical issue. Hence, this thesis estimates the models using both non-lagged and lagged performance variables, the strategy used by Jensen and Murphy (1990b), Conyon (1997a) and Ezzamel and Watson (1998).

The relation between executive pay and firm performance has been well explored in the literature. Thus, this study does not focus on this issue but includes firm performance as a control variable. A positive relationship is expected.

4.4.3.3.2 FIRM SIZE

Most empirical studies report a highly significant positive relationship between firm size and the level of executive remuneration (Kostiuk 1990; Tosi *et al.* 2000). Firm size is usually measured in three ways: 1) total sales; 2) market capitalization (= number of shares x share price), and 3) number of employees (O'Reilly *et al.* 1988). Sales is used here as the main proxy for firm size. Total asset and market capitalisation are used as alternative proxies for robustness checks. A positive sign is expected for the relationship between executive pay level and firm size.

4.4.3.3.3 OWNERSHIP CONCENTRATION

The literature proxies ownership concentration by a variety of measures: an arbitrary cut-off of 5% or more held by a single shareholder; the proportion of shares owned by the five largest shareholders, or the Herfindahl index (Gomez-Mejia and Wiseman 1997), see below. A distinctive feature of Chinese listed companies is that the majority of company shares are owned by the state, on average over 50%. For example, Xu and Wang (1999) found that the five largest shareholders accounted for 58 percent of the outstanding shares in 1995; hence using a 5% cut-off may not be meaningful in the Chinese context. Instead, this thesis uses the Herfindahl index of the biggest 10 shareholders of the firm (Herfindahl_10), calculated as the sum of the square of the proportion of shareholdings of the 10 largest shareholders ($H_{10}= \sum S_i^2$, where S_i refers to the percentage of the shareholding of the i^{th} biggest shareholder, i=1, 2, …, 10). The Herfindahl index of the biggest 5 shareholders of the firm (Herfindahl_5) is used as an alternative proxy for robustness checks.

4.4.3.3.4 SUPERVISORY BOARD SIZE

As discussed in Chapter 2, Chinese listed companies have a two-tier board structure. The supervisory board is expected to supervise the board and top management, and therefore should have a monitoring effect on executive remuneration. However, previous literature on other topics seems to suggest that the supervisory board in China does not function as expected (Cha 2001; Dahya *et al.* 2002a). No previous study has tested the relation between the size of supervisory board and executive remuneration.

This thesis includes the size of supervisory board (Super_size) as a control variable, measured by the number of supervisors. A negative sign is expected.

4.4.3.3.5 CAPITAL STRUCTURE

Different capital structures imply different levels of financial risk and prompt different extent of supervision from the creditors (usually banks), which consequently affect management remuneration decisions consequently. The higher risk arising from increases in the debt ratio could lead risk adverse executive to expect more pay (Garen 1994). However, as debt increases, creditors may begin to exercise more supervision over the firm, making it difficult for management to entrench by overpaying themselves. Therefore, the sign of the relation between debt ratio and executive pay could be either positive or negative. This thesis controls for the effect of capital structure, proxied by the book value of total debt divided by the book value of total assets (Debt).

4.4.3.3.6 DIVERSIFICATION

Various aspects of firm strategic posture have been posited to impact executive remuneration (Balkin and Gomez-Mejia 1990; Veliyath *et al.* 1994). Firm diversification increases the complexity of the CEO's job, and therefore increases the pay expectation of CEO (Finkelstein and Hambrick 1989). Thus, this thesis incorporates diversification as a control variable.

There are various measures of diversification, among which the most popular two are product count measures and Herfindahl-type measures. Riahi-Belkaoui & Pavlik (1993)

preferred the product count method. They argued that the SIC-based measures and the categorical measures are less subjective and continuous measures of diversification that reflect diversification differences more accurately between firms. They also called for future studies to use other measures of diversification such as Herfindahl-type measures (Riahi-Belkaoui and Pavlik 1993). The data only allows the measure of diversification by the number of industries a firm's principle income comes from (No_indus). Operating in different industries requires greater managerial expertise in managing multiple product lines and understanding complex product markets and entails more tricky resource allocation priorities (Rose and Shepard 1997). A positive sign is expected.

4.4.3.3.7 INDUSTRIAL EFFECT

Given that the pay levels vary across industries in China (SRIC 2003), as discussed in Section 2.4.4 in Chapter 2, it is necessary to control for industrial effects. This thesis follows the Shan ghai Stock Exchange (SSE) in categorising listed companies into thirteen industries: agriculture /forestry /fishing /farming, manufacturing, finance and insurance, information and technology, power and utility, mining, transportation and warehousing, media and culture, wholesaling and retailing, real estate, social service, construction, and mixed industry. Twelve dummies are constructed: whenever the company belongs to a certain industry, it is represented by 1, otherwise 0. As discussed in Chapter 2, executives in construction, finance and banking, and IT are paid higher; therefore a positive sign is expected for dummies for construction, finance and banking, and IT. Executives in agriculture /forestry /fishing /farming are paid less and therefore the dummy variable for them should have a negative sign.

4.4.3.3.8 LOCATION

Location might affect executive pay. Compared to other parts of China, Shanghai, Beijing and Shenzhen have more industrial concentration, information availability, technological advantages, and a more active managerial labour market as well as higher cost of living (Melvin 2001; SRIC 2003). I use a dummy variable, 1 for companies located in Shanghai, Beijing and Shenzhen and 0 otherwise, to control for location. A positive sign is expected.

4.4.3.3.9 FIRM AGE

The number of years a firm has been listed on the stock market after IPOs (yearafterIPO) is used to control for the effects of firm age, as in Shi (2005). When a firm is first listed, it attracts a lot attention from the investors and the media, which play an important role in monitoring the firm's top management. The longer the firm has been listed in the stock exchange, people pay less attention to the firm; hence the executives might feel less constrained in entrenching higher remuneration. In this sense, a positive effect of firm age is expected.

Table 4.1 Definition of Variables

Variables :	Definition/ Measurement	Predict-sign
Executive remuneration	**Highest paid director (HPD) remuneration**= the average cash remuneration of the pay for the top 3 highest-paid director (**HPDpay**)	
	Pay for the rest of management= The disclosed total pay for the top management team- pay for the 3 Highest paid directors **(RESTpay)**	
External comparison factors	Market rate of executive remuneration pay—estimates of OLS regression model with sample	positive
Internal comparison factors	-REST pay -REST pay anomalies	
Ownership structure	State ownership **(State_share)**=State shares/total shares	?
	Domestic legal person ownership **(legal_share)**= shares owned by state-owned enterprise/total shares	negative
	Private legal person ownership **(Private_share)**= shares owned by domestic private companies/total shares	negative
	Legal person ownership**(legalshare)**=Private_share+legal_share	negative
	Foreign ownership =foreign held shares/total shares	negative
	Ownership concentration: **Herfedalh_10**= $\sum Si^2$, where Si refers to the shareholdings of the ilargest shareholders in the company, i=1,2,...,10)	negative
	Managerial ownership- Total directors' shares/total shares **(Director_share) or** Total management share/total shares **(tot_man_share)**	negative
Board Structure	Proportion of non-executive directors over board size **(Proind)**	Negative
Board Size	No. of members of the board of Directors **(Boardsize)**	Positive
Duality	**Duality1** =1 if the Chairman also serves as the CEO, 0 if otherwise **Duality2** =1 if the CEO also serves as the Vice Chairman or a board member	Positive
supervisory board Size	The number of supervisors **(Size_super)**	negative
Corporate Performance	**1**)Return on total assets **(ROTA)** =Profit before interest and tax /total assets; **2**) Profit before interest, tax and dividend (Bitdprofit) **3**) Adjusted Market value **(Adjusted_mv)**= share price* tradable shares+ net asset per share* non-tradable shares **4**) Tobin's Q=Adjusted_mv/total assets	Positive
Firm Size	1)Sales 2) Adjusted Market value	positive
Location	Dummy:1 if located in Shanghai, Beijing, or Shenzhen, otherwise 0	positive
Industry differential	Industry dummies: coded 1 if a firm belongs to a certain industry, 0 otherwise	?
Debt ratio	Book value of total debt/total assets **(Debt)**	?
Diversification	The No. of industries from which the principal income of the firm is generated **(No_indus)**	positive
Firm age	The number of years the firm has been listed after IPO **(YearafterIPO)**	?
Note: Some of the variables might require data transformation. In the later analysis, the prefix 'RY' of a variable means that the variable is rank-transformed, 'Ln' means Napierian Log-transformed., 'Sq' means square transformed, while 'Ch' means the change in the variables.		

4.4.3.3.10 YEAR DUMMIES

Year dummies are constructed to allow for macroeconomic shocks. With the time dummies, some effects that are constant across firms but change over time can be ruled out, such as inflation and the economic situation.

It should be noted that some of the variables, such as those that are constant over time, are excluded in fixed effects models, because their effects should have already been ruled out.

4.5 Some data analytical issues

4.5.1 THREE STEPS OF ANALYSES

Data are analysed in three steps: descriptive statistics, bi-variate correlation analysis and multivariate analysis.

Analysing descriptive statistics enables an understanding of the nature of the variables and their underlying statistical distribution (Pallant 2003) and can also help to identify and compare differences between Chinese data with those of the West. Bi-variate correlations help identify the potential problem of multi-colinearity and the initial relations between variables. Familiar multivariate techniques, namely ordinary least squares regression (OLS), first difference models and fixed/random effects models, are employed to further analyse the data and test the research hypotheses. Regression

models are estimated independently for the highest paid directors and the rest of the management team.

Previous research on executive remuneration is mostly conducted with cross-sectional data using OLS. However, OLS has been criticised for missing variables problems and more recently, researchers have started to use panel data to control for unobservable individual effects. This thesis follows the procedures used by Himmelberg *et al.* (1999) by first using OLS to study the observable determinants of executive pay with the pooled data and then to examine the unobserved heterogeneity in the contracting environment across firms with panel data by using fixed/random effects models. The Hausman test is run to decide whether a fixed or random effects model is the appropriate way to treat the error structure, ε_{it} (Baltagi 2001; Hausman 1978; Wooldridge 2002b). The random effects model estimates are more efficient under the null of the Hausman test. However, if the null hypothesis is rejected, the random effects estimates are inconsistent and the consistent fixed effects estimates are preferable.

It should be noted that because fixed effects model controls for firm effects, the variables of firm characteristics, which are constant over time, can be eliminated from the model. Also, Himmelberg *et al.* (1999) found that some significant results in their OLS models disappeared in their fixed effects models, which they explained might be due to the lack of variation in their ownership variables. Due to the nature of my data, similar discrepancies in the results might be found across different estimate models in this thesis.

Also, as is well known, OLS regression is built on series of assumptions, such as linearity, normality, homogeneity, independence, errors in variables, model specification, influence and collinearity (Stock and Watson 2003; Wooldridge 2002b). Therefore, statistical tests and visual displays are used to check for regression diagnostics after OLS models are run and deal with them if such problems are identified.

Finally, some further analyses are run to test how robust the models are, by using different proxies or different analytical methods.

4.5.2 DEALING WITH STATISTICAL PROBLEMS

Given that executive remuneration determining is a complicated matter and there are normally many variables involved, research on this issue is very likely to suffer from statistical problems such as non-normality, omitted variables, multi-colinearity and outliers. In addition, Ciscel & Carroll (1980) identified three frequent problems in examining executive remuneration: heteroscedasticity, simultaneous equations bias and measurement error in the data. This thesis considers these problems seriously and dealing with them using available techniques.

To reduce the omitted variables problem, my OLS models try to control for the determinants identified in the literature. Also, as discussed in Section 4.2.1, the use of panel data analysis, e.g. fixed effects model, is likely to significantly reduce the omitted variables problem.

Moreover, regressions assume that the errors should be normally distributed and constant. Normality of residuals assures valid hypothesis testing. After I run a regression, tests are be undertaken to check for the normality of residuals, such as Shapiro-Wilk W test, Jarque-Bera, and Shapiro-Francia. Given that it is difficult for a large data set to be judged as normally distributed by these tests (Ezzamel and Mar-Molinero 1990), I check graphically residuals using kernal density plot, QQ plot or histogram with normal curve etc. With a large N, a minor and trivial deviation from normality is practically acceptable (Chen *et al.* 2006), though often reported as statistical significant.

The existence of heteroskedasticity does not bias the estimates of the coefficients themselves; however, tests for the significance of variables might be unreliable as the ordinary least squares estimate is inefficient in the existence of such a problem (Wooldridge 2002b). The Breusch-Pagan / Cook-Weisberg test or a plot of residuals versus fitted values (rvfplot) can be used to detect heteroskedasticity. If there is a problem of heteroscedasticity, it may be corrected by using robust standard error schemes discussed in MacKinnon and White (1985). Long and Ervin (2000) recommend the "hc3" correction.

Multicollinearity occurs because two (or more) variables are correlated. When this happens, the individual p-values can be misleading (a p-value can be high, even though the variable is important) and the confidence intervals on the regression coefficients will be very wide (Belsley *et al.* 1980). To avoid this problem, I not only run the bi-variate correlation analysis to initially identify the possible sources of multicollinearity, but also calculate the Variance Inflation Factors (VIFs) after each

regression. This is to further identify any multicollinearity problem caused by the dependence of one variable on several variables together[18]. A bi-variate correlation coefficient greater than 0.8 (Studenmund 2006; Tabachnick and Fidell 1989) or a VIF greater than 10 (Mason and Perreault 1991) are thought to signal harmful collinearity. If this happens, I drop one or more highly correlated variables, if one of the variables is not logically essential to my models or if one variable has substitute explanatory power for the other one, to reduce or eliminate multicollinearity. Also factor analyses might be used to prefix the models by reducing the number of variables, if necessary, into a few more compact but fairly independent factors. Alternatively, some of these variables may need to be combined.

Maximum likelihood estimators are calculated in order to deal with problems of data non-normality. Due the nature of this study, financial ratios are quite heavily used and financial ratios are normally heavily skewed or have large kurtosis, which violate the assumptions underlying multivariate techniques (Ezzamel *et al.* 1987; Kane and Meade 1998). It is therefore customary to transform this data to bring it closer to the distributional assumptions of the multivariate models (Ezzamel *et al.* 1987; Kane and Meade 1998). The most widely used transformation methods in the literature include, but are not limited to, the log, square and root transformation. Another interesting method that has been used with success in examining financial ratios is to transform the data into ranks[19] (Conover and Iman 1981; Kane and Meade 1998). In many cases,

[18] VIFs can tell how well each independent (X_i) variable is predicted from the other independent variables. VIF=1/Tolerance, where Tolerance = 1- R_i^2 , which in turn is R^2 for the regression of X_i predicted by the other independent variables. When those R^2 and VIF values are high for Xi, the model fit is affected by multicollinearity (Belsley *et al.* 1980).

[19] Such rank transformation has the following desirable properties: it always has zero skew and a very slight negative kurtosis; there is no need to remove outliers as the most extreme outlier just becomes Rank 1 or N; unlike other algebraic transformations of data, which need to be carefully adjusted for each new variable, the ranking of independent variables is a single transformation for all problematic

the goal is to achieve approximate distributions by means of a relatively simple transformation (Smith 1972). As logarithmic, square and root transformation are more widely used in regression analysis, and also to maintain the comparability to previous results, this thesis gives these methods priority wherever data transformation is needed. If these methods do not serve the goal, rank transformation is employed.

In addition to the non-normal distributions, financial ratios tend to exhibit some large outliers (Ezzamel and Mar-Molinero 1990). It is well acknowledged that outliers can affect the precision of parameter estimates (Hamilton 2004) and therefore they require special attention. The thesis first calculates the summary statistics for the full data set. Those observations with extreme values are identified, those values that fall outside the three standard deviations limit from the mean, which are usually recognised as extreme outliers in the literature (Ezzamel and Mar-Molinero 1990). Rather than simply removing the extreme values (as this would end up with a loss of large data points), I check back with the original annual reports to avoid wrongly entered and mis-reported data. Except for those data entry errors, which would be corrected, the remaining observations with high leverage (an observation with an extreme value on predictor variable) are paid special attention. If I do not have compelling reasons to simply delete these cases, these cases would be kept in the regressions. Extra checks are made to see how much these points affect the estimates of the models. After regression models are run, leverage-versus-residuals square plots are used to identify influential outliers. Corrections are made, wherever necessary, either by excluding outliers or using robust regression models, which are better in dealing with outliers by giving different weights to the observations, see Hamilton (2004). Robust regression

distributions. Also, experience has indicated that ranks themselves provide scores that are difficult to improve upon for general all-round use (Conover and Iman 1981; Kane and Meade 1998).

methods are better than OLS efficiency in the face of non-normal, heavy-tailed error distributions (Hamilton 2004).

Simultaneous equations bias has been less-discussed in the executive remuneration literature, but it is a serious problem. Ciscel & Carroll (1980) identified the simultaneous equations bias problem between the two most popular explanatory variables: Sales (proxy for firm size) and Profit. They argued that the significance of sales as an explanatory variable of executive remuneration is compatible with the assumption that increasing sales tends to increase profit and the assumption that a firm's manager seeks to increase sales as a proxy for firm size (Ciscel and Carroll 1980). Also, performance and executive pay might be jointly determined (Gregg *et al.* 1993). Simple ordinary regression models do not allow us to sort out these scenarios since they require adding another equation for substitute effects. The thesis uses alternative measures to proxy variables, and also uses lagged terms, with the purpose that this would reduce the ambiguous causality (Conyon 1997a). Furthermore, the thesis runs two-staged least squares (models 2SLS) regressions with instrumental factors and compares the results to those of OLS with the Hausman tests. If the results are significantly different, then there is an endogeneity problem and thus the results of 2SLS are more consistent and reliable (Wooldridge 2002b).

Moreover, as mentioned in the literature review, the incentives alignments and the effectiveness of corporate governance mechanisms can have both complementary and substitute effects (Ezzamel 2005; Gomez-Mejia and Wiseman 1997; Thorburn 1997). More specifically, for example, a more independent board tends to closely link executive remuneration to firm performance thus leading to a higher proportion of

stock-related pay. However, it is equally sensible to argue that the more independent the board is, the less the need for incentive alignment thus leading to less stock-related pay. This has to be borne in mind when interpreting the empirical results.

Furthermore, OLS regression assumes that the residuals are independent. However, since the current data include the same companies over time, the OLS standard errors might be affected by a lack of independence (Peterson 2006). Following Peterson's suggestion, this thesis re-estimates the models using the "cluster" option in Stata to correct for this problem (Chen *et al.* 2006), and compares the results with the OLS robust standard errors estimate.

Ciscel & Carroll (1980) also identified another problem in the executive remuneration research- possible measurement error in the data. Since most researchers make use of published data, rather than collecting their own observations, serious measurement errors may exist. Since the most important variables in the thesis are clearly defined and data have been carefully checked by the author manually, it is hoped that the measurement error can be largely alleviated.

Finally, model specification error can occur when relevant variables are omitted or irrelevant variables are included, which can substantially affect the estimate of regression coefficients. Therefore, this thesis adopts two methods to detect specification errors: Linktest[20] and Ovtest[21]. Both tests test for the null hypothesis that

[20] The Linkest test is based on the idea that if a regression is properly specified, one should not be able to find any additional independent variables that are significant by chance.
[21] Ovtest performs a regression specification error test (RESET), using powers of the fitted values for omitted variables.

the model has no specification errors. When the null hypothesis is rejected, the models have to be reconsidered.

4.6 Interviews

The few qualitative studies undertaken in the area of corporate governance, e.g. McNulty & Pettigrew (1999), Pettigrew and McNulty (1995) and Perkins and Hendry (2005), show that qualitative research methods can generate helpful insights into the processes and informal dynamics in the board room on corporate governance and executive pay. This thesis conducted a pilot study comprising in-depth interviews with 10 board members. Some questions were about determination of executive remuneration and the related findings are used to supplement the findings from quantitative analysis in the later Chapters. This section describes how these interviews were conducted.

4.6.1 THE SAMPLE

The interviews were conducted in China during the summer of 2004. The information about the interviewees is provided in Table 4.2. To preserve anonymity, the names of the interviewees and their companies are not disclosed. Instead, the interviewees are named as ED1, ED2,... etc. for those who are executive directors, and ID1, ID2,...etc. if the interviewees are independent directors.

As in similar studies involving boards (Perkins and Hendry 2005), a degree of opportunism was unavoidably exercised in forming my sample. Some of these

directors were introduced by my friends, while a few were introduced by some of the people I interviewed earlier. Altogether, I interviewed 5 executive and 5 non-executive directors. Although this may appear a small sample, their backgrounds are quite varied. First, the independent directors have multiple office holdings, consequently the number of firms represented is 19 (16 listed firms and 3 firms that were preparing for IPOs). Second, as 'network stars' (Pettigrew 1992), these directors have various channels for gathering knowledge about corporate governance issues in other firms and in China, more generally. As mentioned earlier, only a few studies have used interviews to collect data on executive pay issues probably due to the difficulty of gaining access to the busy directors and because of the sensitivity of the topic. Perkins and Hendry (2005) only managed to interview seven individuals, while Pettigrew and McNulty (1995) interviewed 20 (part-time board members).

Table 4.2 Information about Interviewees

Code	Location of interview	Registered capitalization (in RMB 000,000's)	Position	Tenure (Number of years)		Number of Directorship
				with the firm	with the board	
ED1	Office, Zhangzhou	150	Vice CEO, director, and Board secretary	16	7	1
ED2	Reception, Xiamen	371	Director; CEO	6	6	1
ED3	Office, Beijing	905	Board secretary, Finance director	6	2	1
ED4	Office, Zhangzhou	140	Vice CEO, Director	17	1	1
ED5	Office, Zhangzhou	361	Vice-Chairman	1	1	1
ID1	Home, Xiamen	150; 361	Professor in Accounting	2	2	3
ID2	Office, Beijing	n/a	ID; Consultant	1	1	1
ID3	Office, Beijing	480, 2196 589	Professor in Accounting;	4 3 2	4 3 2	5
ID4	Tea house Beijing	391;	Professor in Accounting; Consultant	1 2 2	1 2 2	3
ID5	Tea house Beijing	218; 539	PhD in Accounting; CPA	2 1	2 1	2

4.6.2 SEMI-STRUCTURED INTERVIEWS

To retain flexibility in data gathering, semi-structured interviews were used, which allow respondents to reveal their perceptions concerning the range of factors they deem to be relevant to the question asked (Perkins and Hendry 2005). An outline for interviews (Appendix 1) was prepared in advance, to guide through the interview and reduce the risk of 'an early exit from the interview' (Roberts and Stiles 1999:38). Semi-structured interviews allow the respondents to talk around the questions and to develop any points they believed were important to them as directors or in terms of wider corporate governance concerns (Perkins and Hendry 2005). The main themes of the interviews are to understand better the current situation of corporate governance generally, to find out how executive remuneration is determined, and to explore how the independent directors and board sub-committees, if established, function in Chinese listed firms. For details please refer to the outline for interviews.

4.6.3 THE PROCEDURES

I contacted each interviewee in advance to secure participation and arrange the time and place for each interview. This also provided an opportunity for me to warn the participant of the interview questions beforehand, as executive remuneration is a sensitive topic. I also assured them of the confidentiality of their identity and the information they would reveal.

All the interviews were conducted face-to-face by me in the interviewees' offices, except that two were held in a tea house and one in the reception room of the

interviewee's company. Each interview took from 40 to 60 minutes. A tape recorder was used with the permission of interviewees, who all gave their consent for the use of the tape recorder. For every interview, I first introduced myself and thanked the respondent for his/her participation, followed by briefly introducing my research and the purpose of the interviews.

The interviews began with introductory questions about the participants and their companies, followed by a series of open-ended questions related to the board of directors and executive remuneration. These questions allowed the participants to reveal their thoughts as freely as possible, thus the information given was not biased in a certain direction. Once no more new responses emerged in relation to a particular a question, I asked the participant if there was anything he would like to add or comment, which had not been covered in the interview. Finally, I ended the interviews by thanking the participants for their time, contribution and co-operation.

After conducting the interviews, I transcribed them from the tapes. Interview transcripts were then analysed to identify emergent themes. The answers for each question from each interviewee were grouped together. The transcripts were revisited several times to ensure that all related information was grasped. These grouped answers were then compared, contrasted and evaluated, in order to grasp a common understanding of a certain question (theme). This process was iterated several times with greater precision, until a clear evident grasp was achieved. Importantly, the manner of analysis took into account the fact that the interviews are not the main source of data for this thesis. This study is essentially a quantitative empirical study based on publicly available data. The interviews were intended to help in providing a

better understanding of the results obtained from the quantitative empirical analyses. Therefore, only those interview findings relating to the setting of executive remuneration are used in this thesis, mainly to supplement and explain the empirical findings in Chapter 8.

4.7 Summary

This chapter first discusses the advantages and characteristics of panel data, especially compared to cross-sectional data. Most previous studies on executive remuneration used cross-sectional data, were subject to missing variables problem and failed to identify individual effects and time effects on the setting of executive pay. Panel data can alleviate these problems. Panel data methods - fixed effect and random effect methods- and how to choose between them ar e introduced afterwards. Also, the chapter identifies the requirements of data variation by fixed effects models and notes that this might make this technique unable to identify the effects of certain time-invariant variables. Hence, it is suggested that the results of OLS regression of the pooled data should be used.

The chapter then develops several multi-regression models to test the research hypotheses. The models specified are in the form of panel data; however, they are also applicable to OLS pooled models. These models are run with a panel data set consisting of 417 Chinese listed firms over 2001-2003. Multi-regression models are run on each of HPD pay and REST pay. The thesis also retests the models developed by Ezzamel and Watson (1998; 2002) with Chinese data and also seeks to extend their models by including governance variables.

Studies on executive remuneration, especially when using a large number of variables and financial ratios, are likely to suffer from some statistical problems such as non-normality, omitted variables, multi-colinearity, outliers, heteroskadasticity, measurement errors and specification errors. This thesis considers these issues carefully.

Finally, the issues related to the interview research methods are introduced. Although interviews are not the main methods of data collection in this thesis, the insiders' views of corporate governance in China are precious and should be very useful in better understanding the empirical results.

To sum up, this chapter has covered the analytical techniques, sample selection, data collection, model specification, the procedures of the statistical analyses, potential statistical problems and their possible solutions that are employed by this thesis. The results of data analyses will be presented and discussed in the following chapters. Interview results will be used to help understand the results of empirical analyses.

The next chapter deals with the initial analyses and presents the results of descriptive statistics and bi-variate analysis.

CHAPTER 5 INITIAL ANALYSIS

5.1 Introduction

Chapter 4 provided a profile of research design and methods, including statistical techniques, sample selection, data, modelling, variables, potential problems and methods to tackle these problems. As suggested in Chapter 4, data are analysed in three steps: descriptive analysis, bi-variate analysis and multivariate analysis. This chapter presents and discusses descriptive and bi-variate analyses.

Following the sampling process mentioned in Chapter 4, 417 companies were left in the Chinese sample, each having complete data for the highest paid directors' pay (HPDs) covering the three years from 2001 to 2003. Therefore, there are 1251 firm observations, though other variables may have some missing values. Data for 1999 and 2000 were also included in order to lag variables, but most firms do not have data for the pay variables in these two years. Data analysis was conducted using the STATA statistical software package, and the Excel spreadsheet was used for data housekeeping and cleaning.

Before testing the hypotheses, descriptive analyses of important variables were conducted. Then bi-variate correlations were run to identify the preliminary associations between variables. These initial analyses are useful in understanding the characteristics and nature of the data and in checking the variables for any violation of the assumptions underlying the multivariate statistical techniques applied to test the

research hypotheses. A series of multiple regression models were run to further investigate the data and to test the hypotheses, the results of which are reported in Chapters 6 & 7.

This chapter reports the results of initial analyses and is organised as follows. Section 2 reports descriptive statistics of each variable and introduces data transformation wherever appropriate. Section 3 examines the correlation matrix of the variables and identifies the bi-variate correlation between variables. Section 4 summarises the main findings from the initial statistics.

5.2 Descriptive analysis of the key variables

The variables used in this thesis are grouped into 4 categories — executive compensation, characteristics of the board of directors, ownership structure and control variables. Continuous variables will be initially analysed by examining their mean, median, standard deviation, range, skewness and kurtosis; while categorical variables will be presented with their frequencies and dispersion.

5.2.1 EXECUTIVE COMPENSATION

As discussed in Chapter 4, the empirical analysis of the determination of executive remuneration is based on different measures: the average pay of the three highest paid directors (HPDs) (**HPDpay**) and the total remuneration of the rest of management other than the three highest paid directors **(RESTpay).** Table 5.1 presents the

summary statistics of these two pay variables and also the total remuneration of the management team as a whole (**Tot_man_pay**), over the period of 2001 to 2003.

Table 5.1 Descriptive Statistics of Executive Pay Variables

Panel A Descriptive statistics with raw data of executive pay (pay and sd. in RMB 000's)									
Variables	**year**	**N**	**mean**	**Median**	**Sd**	**min**	**max**	**skew**	**kurtosis**
HPDpay	2001	417	102.9	73.3	103.6	3.4	1271.1	4.50	42.33
	2002	417	126.6	98.5	105.8	7.7	747.3	2.12	8.89
	2003	417	152.7	123.3	127.0	9.8	820.8	2.08	8.86
	Pooled	1251	127.4	98.7	114.4	3.4	1271.1	2.71	16.19
RESTpay	2001	406	591.7	410.0	581.6	14.0	5344.5	2.92	16.96
	2002	411	745.7	531.3	712.3	32.5	5819.9	2.66	13.53
	2003	415	870.2	595.5	880.3	16.9	9441.8	3.57	26.45
	Pooled	1232	736.9	516.0	744.2	14.0	9441.8	3.37	24.48
Tot_man_pay	2001	406	901.4	662.0	818.8	87.6	6971.7	2.57	13.32
	2002	411	1126.2	871.0	973.7	117.6	7225.3	2.48	11.89
	2003	415	1328.3	1006.9	1194.2	46.7	11900.0	3.04	19.77
	Pooled	1232	1120.2	841.2	1022.9	46.7	11900.0	2.92	18.51
Panel B Descriptive statistics with log transformed executive pay									
Variables	**year**	**N**	**mean**	**Median**	**sd**	**min**	**max**	**skew**	**kurtosis**
LnHPDpay	2001	417	11.19	11.20	0.85	8.15	14.06	-0.14	3.10
	2002	417	11.45	11.50	0.79	8.95	13.52	-0.15	2.90
	2003	417	11.63	11.72	0.81	9.19	13.62	-0.26	2.94
	Pooled	1251	11.42	11.50	0.84	8.15	14.06	-0.20	2.99
LnRESTpay	2001	406	12.92	12.92	0.88	9.55	15.49	-0.12	3.01
	2002	411	13.17	13.18	0.86	10.39	15.58	-0.09	2.91
	2003	415	13.29	13.30	0.92	9.74	16.06	-0.36	3.63
	Total	1232	13.13	13.15	0.90	9.55	16.06	-0.18	3.16
Lntot_man_pay	2001	406	13.39	13.40	0.81	11.38	15.76	0.06	2.55
	2002	411	13.64	13.68	0.77	11.68	15.79	0.01	2.76
	2003	415	13.78	13.82	0.81	10.75	16.29	-0.18	3.13
	Pooled	1232	13.61	13.64	0.81	10.75	16.29	-0.04	2.77

Panel C Growth Rate of Executive pay						
Growth Rate	**HPDpay**		**RESTpay**		**Tot man Pay**	
	mean	**Median**	**mean**	**Median**	**mean**	**Median**
2001	-	-	-	-	-	-
2002	0.23	0.34	0.26	0.30	0.25	0.32
2003	0.21	0.25	0.17	0.12	0.18	0.16
Annual growth Rate	0.22	0.30	0.21	0.21	0.21	0.23

*For the definitions of the variables, please refer to Table 4.1 in Page152, same hereafter.

As shown in Panel A of Table 5.1, over the period, the mean of HPD pay is RMB ¥127,400 (about £8,493, assuming £1 ≈ RMB ¥15), which suggests that on average,

the managers in China are paid very much less than their western counterparts. For, example Ezzamel and Watson (2002) observed that the average cash compensation for the CEOs in their sampled firms in the UK was £387,000 in 1995, more than 45 times of that of their counterparts in China; Conyon and Murphy (2000) reported that the average total remuneration of a CEO was £589,000 in the UK, and £3,565,000 in the USA, in 1997 in their sampled firms.

Table 5.1 also shows that all the pay variables, both their mean and median, experienced continuous increase every year over the period. Panel C in Table 5.1 illustrates the growth rates of the three pay variables over the period. It is shown that the mean and median of HPD pay both increased, but the median grows at a much higher rate than the mean. The annual growth rate of the mean of HPD pay is about 22% (30% for the median) and on average a HPD was paid RMB ¥102,900 (about £6,860) in 2001, compared to RMB ¥152.7 thousand (about £10,180) in 2003 - an increase of 53%. The growth rates for the mean of Tot_man_pay and REST pay are similar to that of HPD pay, although the growth rates of their median are lower. For instance, over the period 2001-2003, the median of REST pay rose by 21% every year, compared to 30% of HPD pay. The growth rate of Chinese executive pay seems to be much higher than that identified in the West. For example, in the Ezzamel and Watson (2002) sample, the growth rate of CEO cash remuneration was about 17%, and that for the other board members is 5.9%. Also, Ezzamel and Watson (2002) observed in their sample that CEO pay increased about 3 times faster than the pay for other board members; such big difference is not observed in this thesis. Instead, in Chinese firms, the annual growth rate of the mean of HPD pay and that of the mean of REST pay are similar, at 22% and 21% respectively, though in terms of the median, HPD pay grows

faster than REST pay, at 30% and 21% respectively. This result suggests that the adjustment of cash payments for HPDs and that for the REST are quite even in Chinese firms. It should be noted that it is difficult to strictly compare HPD pay in the current study to Western HPD/CEO pay because the HPD pay here (the average pay of the aggregate pay of the three highest paid directors) does not show the pay dynamics between the highest paid director and the second highest paid director. This thesis acknowledges this limitation in the analysis due to data unavailability. However, given that Chinese firms emphasise the equality and stability among peers and employees (Warner 1995), the larger pay gap between the highest paid and the second highest paid directors attributed to tournament theory dynamics in the West is less likely to exist in China[22] and therefore is less likely to affect the validity of the current analysis.

Panal A also shows that each of the three pay variables exhibits wide ranges. For instance, the average of HPD pay ranged from the RMB ¥3,400 to RMB ¥1,271,100 (excluding firms where directors obtained no pay from the firm). The large standard deviations (114,400) for all the pay variables also demonstrate that there is a wide spread of pay levels across time and between firms in our sample.

[22] Only in 1998 did most Chinese listed companies disclose individual managerial pay, and the data of my manually coded 100 firms shows that the gaps between the payments for the highest paid director, the second highest paid director, and the third highest paid director are not anywhere near to the differences reported in Western literature (e.g. Ezzamel and Watson 2002). The geometric mean of the ratio of the second highest paid over the highest paid is around 90%; so is the ratio of the third highest paid over the second highest paid. Also, pay levels of the three highest paid directors are very highly correlated: the bi-variate correlation coefficients are all above 0.958.

Also, high levels of skewness (the third central moment) and kurtosis (the fourth moment)[23] occur in the pay variables. For example, as the mean is much greater than the median, HPD pay is skewed to the right with a few firms having very large values. The values of skewness and kurtosis are 2.71 and 16.19 respectively for the whole sample. Since these high skewness and kurtosis values might cause problems in regressions, and because executive pay is usually log transformed in the literature (Conyon 1997b; Conyon *et al.* 2001; Ezzamel and Watson 2002; Gomez-Mejia *et al.* 2003), I transformed these pay variables by taking the Napierian logarithm of the raw values for later regression analyses. Panel B in Table 5.1 shows that the transformation has improved the distribution of pay values, with the value of skewness reduced to nearly zero and that of kurtosis reduced to around 3, suggesting that the distribution is now approximately normal.

5.2.2 CHARACTERISTICS OF BOARD OF DIRECTORS

Table 5.2 reports the descriptive statistics of the size, composition and leadership structure of the board of directors for the sampled 417 companies. To reflect the effects of the corporate governance reform on these variables, the statistics reported cover a five year period 1999-2003. As shown, the mean size of the board of directors across the years is 9.8 (ranging from 4 to 19), varying very little from year to year. The median board size remains the same, 9, for each year. These figures are reasonable as it is stated by Company Law (1993) in China that the number of directors should range from 5 to 19. Only 2 firm observations fall out of this range by having only 4 directors in their firms.

[23] Stata uses Bock's definition of kurtosis: Kurtosis $=(x-\bar{x})^4/x^2$ (note this formula does not subtract 3), and as a result a normal distribution would have a kurtosis of 3 according to this definition.

Table 5.2 Descriptive Statistics of Board Characteristics

Panel A Board size and Proportion of Independent directors									
Varaibles	**year**	**N**	**Mean**	**Median**	**sd**	**min**	**max**	**skewness**	**kurtosis**
Boardsize	1999	414	9.7	9	2.67	4	19	0.79	3.67
	2000	416	9.6	9	2.55	5	19	0.70	3.61
	2001	416	9.6	9	2.55	4	19	0.71	3.69
	2002	417	10.0	9	2.40	5	19	0.96	4.46
	2003	417	9.8	9	2.15	5	19	0.80	4.11
	Pooled	2080	9.8	9	2.47	4	19	0.78	3.92
No_inddir	1999	413	0.1	0	0.39	0	3	6.41	44.41
	2000	416	0.1	0	0.52	0	3	3.94	17.98
	2001	417	0.6	0	1.05	0	5	1.46	4.09
	2002	417	2.3	2	0.80	0	6	0.46	6.22
	2003	417	3.1	3	0.86	0	7	0.38	5.50
	Pooled	2080	1.3	0	1.45	0	7	0.67	2.27
Proind	1999	412	0.0	0	0.04	0	0.33	6.93	52.88
	2000	416	0.0	0	0.05	0	0.33	4.12	20.11
	2001	416	0.1	0	0.11	0	0.50	1.47	4.07
	2002	417	0.2	0.22	0.08	0	0.67	0.09	5.41
	2003	417	0.3	0.33	0.06	0	0.57	-1.20	8.88
	Pooled	2078	0.1	0	0.15	0	0.67	0.53	1.75

Panel B Board leadership structure					
Duality	**Type**	**CEO-Chairman Duality1**	**Duality2**	**None-duality**	**Total**
1999	Freq.	82	264	32	378
	Percent	21.69	69.84	8.47	100
2000	Freq.	60	294	38	392
	Percent	15.31	75	9.69	100
2001	Freq.	46	320	36	402
	Percent	11.44	79.6	8.96	100
2002	Freq.	42	321	39	402
	Percent	10.45	79.85	9.7	100
2003	Freq.	46	304	57	407
	Percent	11.3	74.69	14	99.99
Pooled	Freq.	276	1,503	202	1981
	Percent	13.93	75.87	10.2	100

On average, there are fewer than 2 independent directors in each firm. However, as shown in Table 5.2, the mean of the number of independent directors has been increasing every year, from nearly 0 in 1999 to 3.1 in 2003. Given the stability of the overall board size (see the previous paragraph), the number of internal directors must be decreasing. The proportion of independent directors over board size ranges from

0% to 67%, with the average of 10%, confirming the well-acknowledged argument that the boards of the Chinese companies are still insider dominated, see Chapter 2. The situation is changing over the period as more outside directors have been recruited. By 2003, the proportion of independent directors has increased to 30%, with a median of 33%.

These changes show the increased compliance in recent years with the aforementioned governance requirement in China. As introduced in Chapter 2, CSRC (2001) recommended that at least a third of the members on the board of directors of listed companies should be independent directors by June 2003. Many companies have a few independent directors but they make up a minority of the board. The Company Law (1993) stipulates that the shareholders' general meeting is responsible for selecting and removing directors, but it does not indicate who is to nominate directors. Typically, independent directors are well-known to the executive directors (who recommend their appointment) and therefore may lack true independence from the executive directors (Cha 2001). As mentioned in Chapter 2, although the appointment of independent directors has been stressed in recent years, their roles are not effective in China yet (Orr 2004).

In terms of leadership structure, about 14% of the firm observations (excluding missing values) have the same person serving as the Chairman of the board and the CEO. As shown in Panel B Table 5.2 and also in Figure 5.1 the percentage of firms with CEO-Chairman duality has decreased over the 5 years, dropping from 21.7% in 1999 to 11.3% in 2003 with a slight convex in 2002. This proportion is getting close to the figures reported in the western literature. It is also evident that another kind of

duality is particularly prevalent, where the CEO is also the Vice Chairman of the board of directors or a board member. In about 76% of the sampled firms, the CEOs also serve as Vice Chairmen or board members. I surmise that some CEOs tend to shift to those board positions that are less explicit than the Chairman but can still ensure them to be able to influence the board. Therefore, if we judge whether a board is independent or not from its management by whether a CEO also serves on the board, only about 10% of Chinese listed companies have boards of directors' independent from their CEOs. However, in 2003, the proportion of both firms with Duality1 and those with Duality2 decreased while the clear separation of CEO and board role suddenly increased, which might be due to the effects of CSRC's recommendation and the global trend of corporate governance reforms of establishing board independence. It is believed that by splitting the roles of the Chairman and the CEO into two persons the board independence would be strengthened (Cadbury 1992; Jensen 1993).

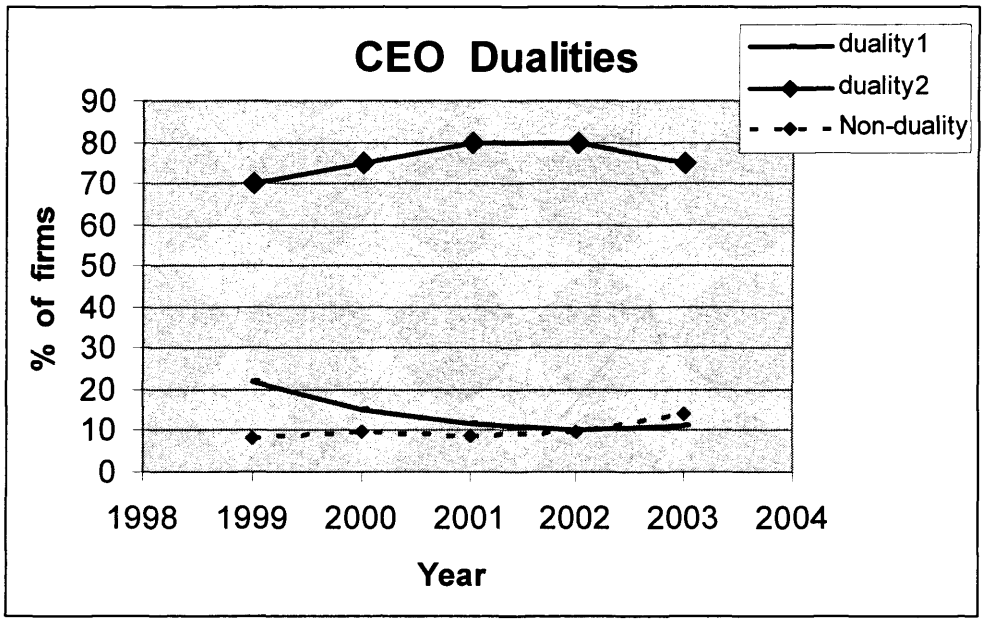

Figure 5.1 CEO Dualities over time

The findings are consistent with previous literature that formal governance structures of boards of directors in China are less common or less transparent than those in the USA and the UK (Schipani and Liu 2002; Tam 2002). The descriptive statistics in this sample show that the duality of CEO and board roles, as Chairman or Vice chairman, is common and that the boards of directors in China are insider dominated and are less independent from management.

5.2.3 OWNERSHIP STRUCTURE

Table 5.3 summarises the descriptive statistics of ownership structure of the sampled firms from 1999 to 2003. It shows clearly that the Chinese government is still the major shareholder of listed companies. On average, of all the sampled firms over the 5 years, the state owned about 32% of total shares (about 42% if only those firms without state ownership are excluded), rising to around 49% if the shares owned by SOEs are included. This confirms that the state is the dominating shareholder in the Chinese stock markets (Lin 2004; Schipani and Liu 2002). But these ratios have been declining over time, as illustrated in Table 5.3 and Figure 5.2, reflecting the government's efforts to reduce its intervention in enterprises.

On average, state-controlled legal persons (legal_share) own about 17% of the shares of sampled listed companies, private legal persons (private_share) hold about 9%, while foreign ownership is nearly 1% (however, this figure raises to 20.5% if those firms with zero foreign ownership are excluded). Given the fact that state shares and legal person shares are not freely tradable on the security markets, these results suggest that the Chinese stock markets are lacking in liquidity and may find it difficult

to operate efficiently (Cha 2001; Lin 2004). Given that the kurtosis of foreign ownership is very high (about 35) and that the usual transformations, such as the square root and the log, cannot improve the distribution markedly, a rank transform of foreign-ownership is introduced for regression analyses in later chapters. Also, because only 94 observations (out of 2085) have foreign ownership, I also introduce a dummy variable (coded 1 if a firm has foreign ownership, 0 otherwise) as an alternative proxy for foreign ownership to examine its effect.

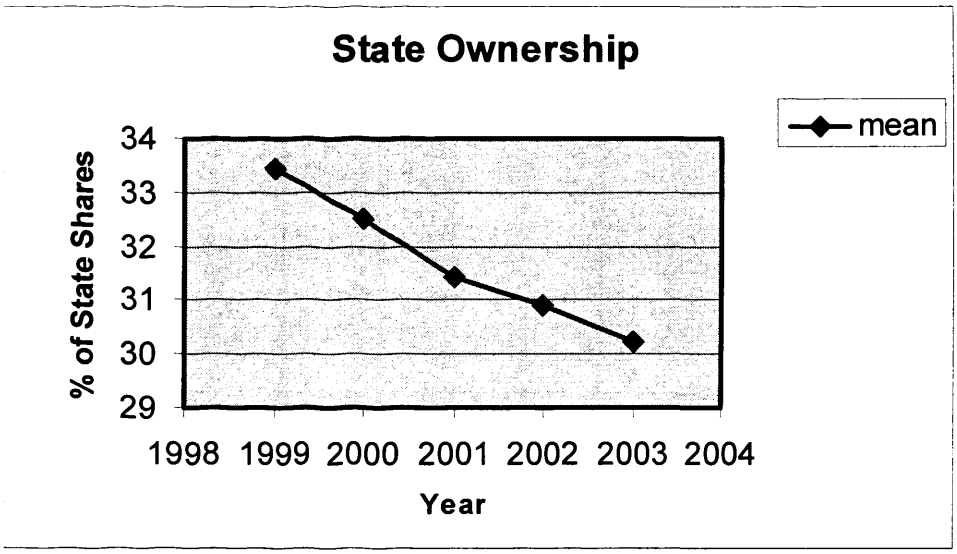

Figure 5.2 Percentage of state-ownership over time

Managerial ownership in the sample is very small, 0.00037% on average, which includes the shares owned by directors, members of supervisory board and other senior managers. The board of directors owns about 2/3 of the total management shares (0.00025% of total shares). Prima facie, it seems doubtful that this small amount of shares would provide sufficient incentive to executives to align their interests with those of the shareholders. Again, these two variables are highly skewed and need to be rank transformed.

Table 5.3 Descriptive statistics of Ownership Structure (for the definitions of the variables, please refer to Table 4.1 in page 152, same hereafter).

Ownership (%)	year	N	mean	Median	sd	min	max	skewness	kurtosis
State_Share	1999	417	33.44	35.84	26.92	0	88.58	0.03	1.56
	2000	417	32.51	34.94	26.56	0	88.58	0.07	1.58
	2001	417	31.44	33.20	25.97	0	88.58	0.09	1.60
	2002	417	30.89	33.10	25.82	0	88.58	0.11	1.59
	2003	417	30.23	31.54	25.48	0	84.98	0.13	1.60
	Pooled	2085	31.70	33.36	26.16	0	88.58	0.09	1.59
Legal_Share	1999	417	17.05	1.73	23.64	0	76.02	1.15	2.86
	2000	417	16.85	2.37	23.21	0	76.02	1.15	2.86
	2001	417	16.73	2.75	23.02	0	75.00	1.15	2.88
	2002	417	16.72	2.41	23.10	0	75.00	1.14	2.83
	2003	417	16.95	2.97	22.89	0	74.95	1.09	2.73
	Pooled	2085	16.86	2.41	23.15	0	76.02	1.14	2.84
Foreign_Share	1999	417	0.94	0	4.69	0	38.24	5.32	31.85
	2000	417	0.99	0	4.74	0	38.24	5.20	30.68
	2001	417	0.91	0	4.75	0	42.17	5.73	37.50
	2002	417	0.91	0	4.75	0	42.17	5.74	37.55
	2003	417	0.87	0	4.53	0	38.09	5.71	37.16
	Pooled	2085	0.93	0	4.69	0	42.17	5.54	34.95
Private_Share	1999	417	8.66	0	14.15	0	72.90	2.04	6.93
	2000	417	8.88	0	14.44	0	72.90	1.99	6.73
	2001	417	8.75	0	14.48	0	72.90	2.03	6.89
	2002	417	8.94	0	14.44	0	72.90	1.94	6.45
	2003	417	9.00	0	14.89	0	72.90	2.04	6.93
	Pooled	2085	8.84	0	14.47	0	72.90	2.01	6.80
Management Share	1999	417	0.00067	0.00018	0.00538	0	0.109	19.68	396.52
	2000	417	0.00036	0.00015	0.00071	0	0.007	5.66	44.70
	2001	417	0.00031	0.00013	0.00066	0	0.006	5.67	44.08
	2002	417	0.00031	0.00010	0.00081	0	0.009	6.83	58.47
	2003	417	0.00021	0.00008	0.00051	0	0.007	8.11	95.73
	Pooled	2085	0.00037	0.00012	0.00249	0	0.109	40.30	1757.17
Directors' Share	1999	417	0.00050	0.00010	0.00464	0	0.094	19.84	401.10
	2000	417	0.00023	0.00009	0.00051	0	0.007	7.16	75.20
	2001	417	0.00020	0.00007	0.00048	0	0.006	7.19	72.34
	2002	417	0.00018	0.00006	0.00061	0	0.009	10.22	125.63
	2003	417	0.00012	0.00003	0.00039	0	0.007	13.25	223.31
	Pooled	2085	0.00025	0.00007	0.00213	0	0.094	41.61	1834.72
Herfindahl_10	1999	417	0.26	0.23	0.16	0.002	0.78	0.56	2.36
	2000	417	0.25	0.21	0.16	0.003	0.78	0.63	2.52
	2001	417	0.23	0.20	0.15	0.011	0.72	0.62	2.41
	2002	417	0.23	0.19	0.14	0.006	0.72	0.68	2.57
	2003	417	0.22	0.18	0.14	0.006	0.72	0.78	2.72
	Pooled	2085	0.24	0.20	0.15	0.002	0.78	0.66	2.53

The Herfindahl_10, the sum of the square of the percentage shareholding of the largest 10 shareholders, shows that ownership concentration has a wide range, from 0.2% to 78%, and a mean of 24% over the five years. The mean has been slowly

decreasing over time, suggesting that ownership structure of listed firms is slowly getting more dispersed. However, compared to the West, the ownership structure in Chinese companies is still highly concentrated (Cha 2001; Lin 2004).

5.2.4 CONTROL VARIABLES

Both adjusted market value and sales, shown in Table 5.4, have a wide range, reducing concern that the sample might exhibit a firm size bias. The average adjusted market value is RMB ¥1,790 million with standard deviation of 1,710 million. Sales range from RMB ¥21.5 million to RMB ¥36,700 million with standard deviation of 2,780 million. Log-transformations are used to deal with the high skewness and kurtosis of sales and adjusted market value.

Corporate performance can be measured by return on total asset (ROTA), Tobin's Q, Adjusted_mv and price-earning ratio (PEratio) respectively. As discussed in Chapter 4, market related performance indicators cannot reflect the reality of performance in a less efficient market like China; therefore ROTA will be the main measure while other performance measures will be used in supplementary analyses to test for robustness. The average ROTA over the five years is 0.7%, ranging from -998% to 27%, while the mean of Tobin's Q is 1.137, ranging from -0.34 to 21.13. The boxplot of ROTA (Figure 5.3) shows that most observations cluster around 0, with fat tails of very big negative numbers and extreme outliers, which might affect the regression effects of ROTA. Also about 40 out of the 2085 observations show negative profit, i.e., that some firms made losses in certain years. To avoid significant data loss that will result from using traditional forms of data transformation or deleting outliers, a

rank transformation of the values of ROTA (RYrota) is used for the multivariate analysis in Chapter 6 and Chapter 7. However, the thesis also investigates the impact of the deletion of some extreme outliers on the results.

Table 5.4 Performance and Firm size

Variables	year	N	mean	Median	sd	min	max	skewness	kurtosis
Tobin's Q	1999	417	1.130	0.99	0.66	0.21	6.63	3.37	24.94
	2000	417	1.492	1.30	0.83	0.13	7.73	2.34	13.87
	2001	417	1.216	1.07	0.62	0.00	4.43	1.84	8.47
	2002	416	1.020	0.86	1.11	-0.34	21.13	14.51	261.33
	2003	417	0.829	0.71	0.62	0.14	9.60	7.99	103.33
	Pooled	2084	1.137	0.96	0.82	-0.34	21.13	8.88	183.35
Return on total assets	1999	417	0.038	0.05	0.08	-0.75	0.27	-4.33	34.48
	2000	417	0.029	0.04	0.10	-1.07	0.21	-6.13	59.53
	2001	417	0.000	0.03	0.28	-3.99	0.14	-11.36	143.77
	2002	417	-0.037	0.02	0.60	-9.98	0.18	-13.92	210.74
	2003	417	0.005	0.02	0.12	-1.56	0.20	-8.25	95.26
	Pooled	2085	0.007	0.03	0.31	-9.98	0.27	-23.05	652.33
Adjusted_mv (in RMB 000,000's)	1999	417	1390	1050	1370	163.0	17100	5.43	49.98
	2000	417	2080	1590	1710	126.0	18900	3.73	27.96
	2001	417	1950	1510	1630	0.3	14800	2.98	16.59
	2002	416	1740	1280	1590	-70	13500	3.12	16.55
	2003	417	1770	1160	2100	96.6	16100	3.60	18.95
	Pooled	2084	1790	1310	1710	-70	18900	3.68	23.55
Sales (in RMB 000,000's)	1999	417	1670	1040	2320	139.0	27000	5.54	47.11
	2000	417	1900	1220	2380	147.0	27000	5.00	40.62
	2001	417	2110	1390	2560	108.0	27400	4.49	32.99
	2002	417	2320	1480	2930	42.0	31400	4.55	33.62
	2003	417	2630	1630	3470	21.5	36700	4.76	35.38
	Pooled	2085	2130	1320	2780	21.5	36700	4.97	39.97
Bitdprofit (in RMB 000,000's)	1999	417	83.3	58	160	-981	1550	2.67	30.83
	2000	417	94.6	61.5	192	-716	1930	3.91	32.55
	2001	417	70.8	48.6	233	-2270	2120	-0.23	45.69
	2002	417	66.6	42.8	273	-3410	1990	-3.33	73.14
	2003	417	99.6	43	311	-1470	2990	3.98	32.49
	Pooled	2085	83	51.3	240	-3410	2990	1.26	55.47
Total assets (in RMB 000,000's)	1999	417	1670	1040	2320	139	27000	5.54	47.11
	2000	417	1900	1220	2380	147	27000	5.00	40.62
	2001	417	2110	1390	2560	108	27400	4.49	32.99
	2002	417	2320	1480	2930	42	31400	4.55	33.62
	2003	417	2630	1630	3470	21.5	36700	4.76	35.38
	Pooled	2085	2130	1320	2780	21.5	36700	4.97	39.97

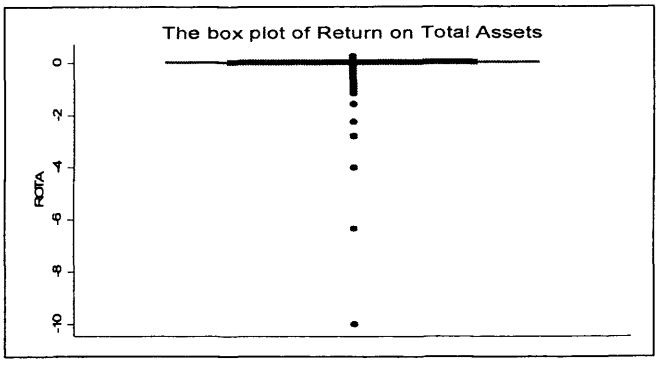

Figure 5.3 Box plot of Return on Total Assets (Note that the outliers are so large that the 'box' and the whiskers of the boxplot are squashed into the dark horizontal line)

Other firm characteristics such as capital structure, diversification (number of industries), how long a firm has been listed in the stock exchanges after IPOs (years of listing), industries and location are presented in Table 5.5. On average, the debt ratio is 0.52, with a standard deviation of 0.68 and a range from 0.01 to 23.80. This variable is also rank transformed because of the presence of extreme outliers and high skewness and kurtosis (Kane and Meade 1998). In terms of diversification, firms in the sample are involved in about 3 main businesses, ranging from 1 to 23. The mean of the number of years of listing is 6.13, ranging from 0 to 17, which is reasonable given that Chinese stock market came into existence in early 90s.

The remaining control variables are dummies such as location, industries and years, presented in Panel B Table 5.5. In terms of location, 30.5% of the total sampled firms are located in Beijing, Shanghai or Shenzhen. As expected, the two-way table (Panel B in Table 5.5) shown that, with the pooled data of 2001-2003, HPDs in Beijing, Shanghai and Shenzhen (RMB ¥165,900) are paid RMB ¥55,300 more than those in other places (¥110,600) and an independent measures t-test shows that the difference is significant at the 1% level ($t(1249) = -8.1$, $p<0.001$).

Table 5.5 Other control variables

Panel A Listing years, Diversification and Debt Ratio									
Variables	**year**	**N**	**mean**	**median**	**sd**	**min**	**max**	**skewness**	**kurtosis**
Listing years	Pooled	2085	6.13	6	2.76	0	17	0.07	2.50
No of Industries	1999	411	2.30	2	1.62	1	11	1.62	6.28
	2000	411	2.68	2	1.83	1	14	1.91	9.71
	2001	415	3.02	3	1.78	1	11	1.06	4.57
	2002	396	3.36	3	2.15	1	23	2.86	21.82
	2003	417	2.96	3	1.82	1	10	1.08	4.18
	Pooled	2050	2.86	3	1.87	1	23	1.86	11.99
Debt	1999	417	0.45	0.43	0.20	0.02	1.99	1.34	10.29
	2000	417	0.47	0.46	0.23	0.01	2.36	2.68	21.73
	2001	417	0.50	0.47	0.36	0.03	4.52	6.79	64.47
	2002	417	0.57	0.50	0.76	0.07	10.38	9.57	107.01
	2003	417	0.61	0.52	1.22	0.06	23.80	16.85	315.58
	Pooled	2085	0.52	0.48	0.68	0.01	23.80	22.75	704.06

Panel B Industries and Location						
Variables	**Categories**	**Code**	**No. Of Firms**	**Percent**	**Percentage of full sample[24]**	**HPD pay RMB 000's, (Mean, 2001-2003)**
Industries	Agriculture Forestry Fishing and farming	1	4	1.0%	2.2%	63.0
	Construction	2	7	1.7%	1.8%	130.2
	Information and Technology	3	40	9.6%	6.3%	157.2
	Integrated	4	38	9.1%	9.4%	152.2
	Manufacturing	5	181	43.4%	53.2%	107.8
	Mining	6	25	6.0%	1.7%	114.2
	Public Services	7	17	4.1%	2.6%	135.9
	Real Estate	8	18	4.3%	3.6%	204.1
	Textile	9	15	3.6%	4.8%	126.5
	Transportation	10	13	3.1%	4.3%	129.4
	Utilities	11	17	4.1%	4.2%	105.8
	Wholesaling and Retailing	12	42	10.1%	5.9%	146.8
	Banking and Finance	13	0	0	0	0
Location	Other places	0	290	69.5%	77.5%	110.6
	Beijing, Shenzhen, and Shanghai	1	127	30.5%	22.5%	165.9

As listed in Panel B Table 5.5, the sample firms cover all of the13 industries categorised by the Guide of Industrial Classification issued by CSRC in 2001, except the financial industry. It is shown that those HPDs in Real Estate, Information and

[24] There were 1246 A-share listed firms in 2003 in the full sample, the sample that allowed firms to enter and exit during the period, see footnote 15 in page 142. This sample equals to the whole population of A-share listed firms excluding those in financial industry.

Technology, and integrated industries are paid more than those in Manufacturing, Utilities, and Agriculture, Forestry, Fishing, and Farming. These results initially support the related arguments in Chapter 3 about the inclusion of these variables as control variables.

5.3 Correlation analysis

To check some of the assumptions of multi-regression analysis, namely multi-colinearity, and also in order to initially identify the relationships between variables, Table 5.6 presents the correlation matrix for all the dependent and independent variables. HPD pay has positive and significant correlations with: REST pay, Board size, board structure, foreign ownership, managerial ownership, firm size (total sales and adjusted market value), accounting performance (ROTA), diversification, location, debt ratio and the years after IPOs. It also exhibits negative and significant correlations with the following: state ownership, ownership concentration (measured by Herfindah10), market performance (PE ratios and Tobin's Q). Supervisory board size, CEO duality, stated controlled legal ownership, and private legal ownership has negative but non significant correlations with HPD pay. Therefore, in terms of HPD pay, Hypotheses 1a, 4a and 8 are supported by the results of preliminary bi-variate analyses: executive pay is positively related to board size, state ownership and REST pay. Hypotheses 2a, 3a, 5a, and 6a relating executive pay to board composition (the proportion of independent directors), CEO-chairman duality and institutional ownership and managerial ownership are not supported. Indeed, the directions of correlation between HPD pay and board composition, foreign ownership and managerial ownership are contradictory to what are predicted.

Similarly, REST pay is positively correlated with HPD pay, board size, board structure, foreign ownership, managerial ownership, firm size (total sales and adjusted market value), accounting performance (ROTA), diversification, location, debt ratio and the years after IPOs. Also, REST pay exhibits negative and significant correlation with ownership concentration (measured by Herfindah10) and market performance (PE ratios and Tobin's Q), as HPD pay does. CEO duality and private legal ownership have no significant correlation with REST pay. However, in contrast to HPD pay, REST pay is negatively correlated to state-controlled legal person ownership, and positively correlated to supervisory board size at the significance levels of the 1% and 5% levels respectively, while the correlation between REST pay and state ownership becomes positive but not significant. Therefore, in terms of REST pay, Hypotheses 1a and 8 are supported by the preliminary bi-variate results. Hypotheses 5a concerning state-control legal person ownership is supported, but not in terms of private legal person ownership or foreign ownership. Other hypotheses are not supported.

These correlation coefficients provide some preliminary evidence of the explanatory power of the independent variables. However, bivariate correlation results are not fully meaningful because they do not take into account any effects other than the two variables being calculated and assume that other factors do not have explanatory power; while the literature has already demonstrated that the there are many other factors that jointly determine executive pay. The regression analyses in the next two chapters will deal with this issue.

Table 5.6 Pearson Correlation Matrix

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1HPDpay	1																					
2RESTpay	0.74***	1																				
3Boardsiz	0.07**	0.16***	1																			
4Size_sup	-0.04	0.06**	0.3***	1																		
5Proind	0.27***	0.22***	0	-0.03	1																	
6Duality1	0.02	-0.01	0.03	-0.01	-0.08***	1																
7Duality2	0	0.01	0.03*	0.02	0.01	-0.71***	1															
8State_sh	-0.07**	0.03	0.04*	0.13***	-0.06***	-0.02	0.03	1														
9Leg_sh	-0.04	-0.09***	-0.07***	-0.07***	0	-0.01	0	-0.69***	1													
10Prv_sh	0	-0.04	0.02	-0.03	0.02	-0.03	0.02	-0.33***	-0.23***	1												
11Forg_sh	0.2***	0.11***	-0.01	-0.06***	0.03	0.05**	-0.01	-0.16***	0.08***	-0.09***	1											
12Tottopsh	0.2***	0.2***	-0.03	-0.02	-0.04**	0	0	-0.05**	0.03	0	0.11***	1										
13Dirshare	0.17***	0.14***	-0.02	-0.02	-0.04*	0	0.01	-0.05**	0.03	-0.01	0.11***	0.99***	1									
14Herf_10	-0.11***	-0.05**	-0.05**	-0.02*	-0.08***	-0.06***	0.06***	0.53***	0.03	-0.43***	-0.09***	-0.05**	-0.05**	1								
15Sales	0.33***	0.38***	0.16***	0.09***	0.16***	-0.06*	0.03	0.11***	-0.1***	-0.09***	-0.09*	0	-0.01	0.12***	1							
16Adj_mv	0.29***	0.33***	0.19***	0.12***	0.03	-0.01	0.03*	0.07***	-0.09***	-0.12***	0.04*	-0.01	-0.01	0.09***	0.68***	1						
17Rota	0.06**	0.06**	0.01	0.03	-0.07***	0	0.06***	0.02	0.01	-0.07***	-0.01	0.01	0.01	0.05**	0.05**	0.08***	1					
18Peratio	-0.14***	-0.13***	-0.05**	-0.03	-0.02	-0.06**	0.05**	-0.02	0.03	0.01	0.03	-0.01	-0.01	0.03	-0.08***	-0.07***	-0.34***	1				
19Tobins'Q	-0.15***	-0.17***	-0.07***	-0.11***	-0.21***	0.01	-0.01	-0.16***	0.06***	0.1***	-0.01	0.01	0.01	-0.12***	-0.23***	-0.03	-0.42***	0.07***	1			
20No_ind	0.1***	0.1***	0.05**	-0.01	0.09***	0.01	0.01	-0.1***	0.06***	0.02	0	0.02	0.02	-0.09***	0.05**	0.01	-0.05**	0.03	-0.03	1		
21Location	0.24***	0.27***	0.02	-0.05**	0.09*	-0.07***	0.09***	0.05**	-0.06***	-0.05**	0.16***	0.02*	0.02*	0.01	0.07***	0.07***	-0.01	0.05**	-0.06***	0.09***	1	
22RYDebt	0.07***	0.07**	0	0.02	0.01	-0.02	-0.05**	0.01	-0.11***	0.15***	-0.02	0.04*	-0.04**	-0.15***	0.08***	-0.17***	-0.17***	0.07***	-0.25***	0.05**	0.13***	1
23Yaftipo	0.3***	0.2***	0.02	0.02*	0.44***	-0.07***	0.06***	-0.13***	-0.14***	0.14***	0.06***	-0.01	0	-0.32***	0.1***	0.1***	-0.07***	0.08***	-0.05**	0.11***	0.34***	0.16***

Note:1) ***signifies the significance level of 1%, ** 5% and * for 1%;

2) For the definitions of the variables, see Table 4.1 in Page 152.

The correlation matrix also reports the correlations between the independent variables. The results indicate that no serious problems of correlation exist between the independent variables, except that directors' ownership is very highly correlated to management team ownership, with a correlation coefficient of 0.99, which suggests that these two variables might cause problems if they were put in the same regression models; therefore only directors' ownership will be included for later analyses. These two variables should have substitute explanatory power anyway due to their extremely high correlation. The highest correlation coefficients for the remaining variables are 0.74 between HPD pay and REST pay, followed by -0.71 between duality1 and duality2, and -0.69 between state ownership and legal person ownership, 0.68 between adjusted market value and sales. These highly correlated variables will be observed carefully in the regression models, although they are not problematic for the regression model according to the rule of thumb cut-off point of a correlation coefficient of 0.8 (Studenmund 2006; Tabachnick and Fidell 1989). The other correlations are relatively low and are unlikely to cause problems of multicollinearity.

However, it should be noted that the use of simple correlation coefficients as an indicator of the extent of multicollinearity is limited because in multiple regressions groups of independent variables, acting together, might cause multicollinearity without any single simple correlation coefficient being higher than the cut-off point (Studenmund 2006). Therefore, to make sure that multicollinearity is adequately checked,, further tests will be conducted by estimating the variance inflation factors (VIF) after performing regressions.

5.4 Summary

This chapter has reported the initial data analyses of a sample of 417 Chinese non-financial firms listed on the Shanghai and the Shenzhen stock exchanges over a period from 2001 to 2003. These 417 firms come from 12 different industries and cover a wide range of firm size.

Descriptive statistics are calculated to reveal the basic nature of the data. Presented in Section 5.2, the statistics show that many of the variables are not normally distributed. Although this is a common phenomenon for data related to financial ratios, certain kinds of data transformation are needed. Where traditional methods of transformation, such as the square root or the log, cannot satisfactorily solve the non-normality problem, rank transformation has been adopted. Though the method is less widely used, rank transform not only reduces the data loss problem, it also improves the distributions and hence increases the explanatory power and stability of the regression models (Kane and Meade 1998).

The descriptive statistics also show the pattern of changes in the data. For example, both the tables and scatter plots show that all the pay variables have been growing over the years. Moreover, the initial results reflect some of the effects of corporate governance reform in China, such as the decline of state ownership and the increase in the proportion of independent directors. The boards of directors of the sampled Chinese listed firms were working towards required independence from the executive managers, at least as shown by the reduction of CEO dualities and the increase of the

proportion of independent directors. However, by the end of the sample period, the boards of directors were still insider dominated.

Correlation analyses were also conducted to explore the bi-variate associations between the dependent variables and the independent variables. The results report mixed support for the research hypotheses. However, these bi-variate analyses are preliminary in identifying relationships between variables; further analyses will be done by controlling the effects of other variables in later chapters.

The correlations were also calculated between independent variables to identify potential problems of multicollinearity. Some ownership variables such as state ownership and legal person ownership, and also total management ownership and directors' ownership, are highly correlated. This suggests that special attention should be paid to their dynamics when they are put together into a regression model in the next chapters.

Chapter 6 will present and discuss the results of the multivariate analyses of executive pay level models.

CHAPTER 6 MULTIVARIATE RESULTS-PAY LEVEL MODELS

6.1 Introduction

Chapter 5 reported the descriptive statistics of the variables used in this thesis and described the results of the initial correlation analyses. Chapters 6 and 7 present and discuss the results of multiple regression models that have been run to test the hypotheses developed on the determinants of executive pay in Chapter 3. The results of pay level models are presented in this chapter, while those for the pay change models are presented in chapter 7. These two chapters focus on reporting the empirical results. A more detailed discussion relating the results to research hypotheses and the literature is provided in Chapter 8.

As discussed in Chapter 1, this thesis is interested in identifying the country specific factors that impact executive pay, both for the highest paid director (HPD) and the rest of management team members (REST), which in the case of China includes directors, senior managers and members of the supervisory board. The thesis first looks at the models for HPD pay. The results suggest that my focus variables, board characteristics and ownership structure both have significant power in explaining HPD pay levels. More specifically, the proportion of independent directors to board size, the duality of CEO and chairman roles, legal person ownership and managerial ownership all have positive and significant effects on HPD pay levels. The size of supervisory board and ownership concentration negatively impact HPD pay; whereas state ownership seems to have no significant effects on HPD pay. Most of the control variables contribute significantly to the explanatory power of the models.

The thesis then examines the REST pay models. The results show that a number of common factors explain both the pay of HPDs and that of the REST. The effects of corporate governance are similar except the significance levels for some of the variables can be different. What is interesting is that the internal comparison factor plays an important role in terms of setting executive pay. A series of tests are conducted for the regression diagnostics and also to test the robustness of the results. These tests suggest that the models in this thesis are robust.

This chapter is structured as follows. The next section reports the results of the HPD pay models and their robustness tests. Section 3 presents the empirical analyses of the REST pay level models. Section 4 discusses the effect of internal comparison factors on HPD pay. Section 5 sums up the results and concludes the chapter.

6.2 HPD pay level models

Chapter 3 has developed a number of research hypotheses for empirical testing. The models run in this chapter relate to the following hypotheses:

Hypothesis 1a: Executive remuneration is related to the size of the board of directors (positive or negative).
Hypothesis 1b: Executive pay-performance sensitivity is related to the size of the board of directors (positive or negative).

Hypothesis 2a: Executive remuneration is negatively related to the proportion of non-executive directors.
Hypothesis 2b: Executive pay-performance sensitivity is positively related to the proportion of non-executive directors.

Hypothesis 3a: Executive remuneration is positively related to CEO-Chairman duality.
Hypothesis 3b: Executive pay-performance sensitivity is negatively related to CEO-Chairman duality.

Hypothesis 4a Executive remuneration is related to the proportion of state ownership (positive or negative)
Hypothesis 4b: Executive pay-performance sensitivity is related to the proportion of state ownership (positive or negative)

Hypothesis 5a: Executive remuneration is negatively related to the proportion of legal person ownership
Hypothesis 5b: Executive pay-performance sensitivity is positively related to the proportion of legal person ownership

Hypothesis 6a: Executive remuneration is positively related to the proportion of managerial ownership.
Hypothesis 6b: Executive pay performance sensitivity is negatively related to the proportion of managerial ownership.

Hypotheses 1a, 2a, 3a, 4a, 5a, 6a deal with the determinants of executive remuneration levels, which are proxied by cash pay for the HPD (HPDpay) and that for the REST (RESTpay). The results of regression analyses on HPD pay are reported in Table 6.1 and are discussed in this section, while the next section will present the models for REST pay. This chapter also initially tests Hypothesis 8 concerning the internal comparison effects on executive pay in the pay level models.

As shown in Table 6.1, several models were run to test the effects of explanatory variables on HPD pay. The values of the F-ratios show all four models to be significant at the 1% level. Model 1a, which only includes the log of sales, the rank of

return on total assets and year dummies as independent variables, shows that the traditional agency models largely identified in the literature can explain 23.6% of the variance in HPD pay in China. Model 2b, which adds all the control variables, which explains 38.1% of the variance in HPD pay. Model 1c, which is Model 1b plus corporate governance variables, has a better overall explanatory power than Model 1b, with $\overline{R}^2$ improved from 0.381 to 0.420. The West-test shows that the improvement is significant (F (11, 1140) = 7.33, p<0.001). Model 1d adds the interaction terms between corporate governance variables and performance and the results show that most of these variables have no significant explanatory power over HPD pay and do not significantly increase the overall explanatory power of the model (F(8, 1132) = 1.12, p = 0.344). As the interaction terms in Model 1d affect the individual coefficients, Model 1c is used to as the main model to discuss the individual effects of the explanatory variables in more detail below. The results were run with the sample of 417 companies in 2001-2003, after addressing possible issues related to regression diagnostics, such as outliers, normality of residuals, homoscedasticity, multi-collinearity and model specification.

6.2.1 BOARD CHARACTERISTICS

Board size - The coefficient and t-statistics in Model 1c in Table 6.1 show no significant effect of the log of board size on HPD pay. However, when those firms with a board size larger than 15 were excluded (58 observations), both raw data boardsize and lnboardsize show a positive and significant impact on HPD pay at the 5% level[25]. I retested this relationship for the whole sample by including a dummy for

[25] In the case of lnboardsize, t-statistics is 2.39, the adjusted R-square increases to 0.426.

board size (Dboardsize), coded 1 for a board size between 5 to 15 and 0 otherwise, and found that Dboardsize has a significant positive impact on the level of HPD pay at the 5% level. These findings suggest that there might be a non-linear relationship between board size and HPD pay. To test for this, the thesis retested Model 1c by replacing lnBoardsize with Boardsize and Boardsize squared and found the coefficients for both variables to be significant at 1%, with a positive sign for Boardsize and a negative sign for Boardsize squared, suggesting that there is an inverse U-shaped relationship between board size and HPD pay[26]. This finding is inconsistent with Rui *et al.* (2003) who found a negative relation between CEO pay and board size. My result suggests that, below a certain size (approximately 11)[27], larger boards are less efficient in controlling HPDs' pay levels, therefore supporting Hypothesis 1a and Boyd (1994), who found a significant explanatory power of board control over CEO pay. This result partly agrees with Yermack (1996), Core *et al.* (1999) and Jensen (1993) *etc.* in that larger boards appear to be less effective. However, the nonlinear relation between board size and HPD pay also suggests that beyond a certain point (board size=11), an increase in board size would lead to a more effective board in controlling HPD pay. This finding seems to support the argument of Dalton *et al.* (1999) that the relation between board size and board effectiveness is complex and is determined by some other factors such as board independence.

Board composition - The coefficients for the proportion of independent directors over board size (Proind) are positive and significant at the 1% level, with and without controlling for industry effects. Thus, the higher the proportion of independent directors the higher is HPD pay, which is inconsistent with Hypothesis 2a and the

[26] Boardsize (cf=0.153, t=2.93), Boardsize squared (cf=-0.007, t=-3.18). When Boardsize and Boardsize square were put in the model individually, neither variable was found to be significant.
[27] By simple application of calculus, pay maximizes when board size is 0.153/ (2*0.007), i.e. 11.

findings in Rui *et al.* (2003) and Lin *et al.* (2005). At the first sight, this result seems to suggest the lack of governance efficiency of Chinese independent directors. However, given the special institutional situations in China, the result could be interpreted differently. A detailed discussion about this issue will be provided in Chapter 8.

Table 6.1 HPD pay level models (Dependent variable: LnHPDpay)

Variables	Model 1a	Model 1b	Model 1c	Model 1d	Model 1e
LnRESTpay					0.576***
					(25.58)
lnBoardsize			0.08	0.143	-0.103
			(0.91)	(0.81)	(-1.39)
Size_super			-0.039**	-0.041***	-0.055***
			(-2.53)	(-2.63)	(-4.84)
Proind			0.705***	0.186	0.246
			(3.07)	(0.59)	(1.3)
Duality1			0.318***	0.288**	0.29***
			(3.43)	(2.24)	(3.95)
Duality2			0.227***	0.218***	0.222***
			(3)	(2.89)	(3.84)
State_share			0.002	0	0.002
			(1.04)	(-0.13)	(0.94)
Legal_share			0.003*	0	0.004**
			(1.73)	(0.13)	(2.16)
RYprivate_share			0.003*	0	0.002
			(1.68)	(0.02)	(1.48)
RYForeign_share			0.001***	0	0.001
			(2.78)	(0.3)	(1.49)
RYDirector_Share			0.001***	0	0**
			(5.56)	(1.37)	(2.35)
Herfindah_10			-0.362*	-0.414*	-0.251
			(-1.73)	(-1.93)	(-1.45)
lnSales	0.245***	0.138***	0.144***	0.143***	0.042**
	(15.09)	(6.09)	(6.34)	(6.17)	(2.36)
RYRota	0.001***	0.002***	0.001***	-0.001	0.001***
	(5.48)	(7.94)	(6.85)	(-0.39)	(6.39)
lnAdjusted_mv		0.198***	0.197***	0.198***	0.09***
		(5.51)	(5.66)	(5.65)	(3.15)
No_indus		0.032***	0.024**	0.022**	0.01
		(3.08)	(2.37)	(2.22)	(1.41)
Location		0.221***	0.17***	0.172***	-0.018
		(4.97)	(3.55)	(3.54)	(-0.45)
RYDEBT		0.001***	0.001***	0.001***	0.001***
		(4.22)	(3.91)	(3.87)	(3.52)
YearsafterIPO		0.048***	0.051***	0.049***	0.042***

Variables	Model 1a	Model 1b	Model 1c	Model 1d	Model 1e
		(5.24)	(4.97)	(4.75)	(5.35)
lnBoardsize*RYrota				0	
				(-0.24)	
Proind*RYRota				0.003**	
				(2.15)	
Duality1*RYRota				0	
				(0.21)	
State*RYRota				0	
				(1.04)	
Legal*RYRota				0	
				(1.17)	
Private*RYRota				0	
				(1.04)	
Ryforeign*RYRota				0	
				(0.98)	
RYDirectorshare*RYRota				0*	
				(1.69)	
Industry dummies	No	Yes	Yes	Yes	yes
Year dummies	Yes	Yes	Yes	Yes	yes
_cons	6.416***	3.791***	2.647***	3.106***	0.49
	(19.4)	(7.21)	(4.58)	(4.45)	(1.0)
No. of obs. (N)	1236	1211	1172	1172	1154
F-ratio	92.6***	43.2***	31.4***	25.2***	74.69***
$\overline{R}^2$	0.236	0.381	0.420	0.421	0.655

- MacKinnon & White (1985) HC3 heteroskedasticity-consistent t-statistics in parenthesis
- Significance level: *<=0.10, **<=0.05, ***<=0.01
- Coefficient 0 means less than 0.001
- Ns are different due to the missing values in the newly added variables
- For the definitions of the variables, please refer to Table 4.1 in Page155, same hereafter.

Board leadership - The coefficients for duality1 (CEO and Chairman) and duality2 (CEO being also a Vice Chairman or a member of the board) are both positive and significant at the 1% level, suggesting that directors in firms with either of these two types of duality are paid more compared to those without. This finding is inconsistent with Cheung *et al.* (2005), who observed a negative relationship between CEO duality and CEO cash compensation, and Conyon (1997a), who found that separating the roles of chairman and CEO did not play significant roles in shaping director's pay. But this finding supports Hypothesis 3a and the majority of previous findings (Core *et al.* 1999; Cyert *et al.* 2002; Sridharan 1996). This positive relationship can be

explained by the argument that when governance is weak, the CEOs, being also the Chairmen, are in a powerful position to entrench the companies by overpaying themselves (Core *et al.* 1999; Jensen 1993). It could also be because having two roles in one means more responsibilities and higher demand on the CEO's capability and efforts, from a human capital perspective, which in turn entitles the CEO to be paid more.

Supervisory Board Size-The size of supervisory board has a negative and significant impact on HPD pay, which suggests that more supervisors bring more monitoring and constraints on executive pay. This runs counter to the findings of previous studies that have found that the supervisory board was a non-functioning mechanism in China (Cha 2001; Xiao *et al.* 2004).

6.2.2 OWNERSHIP STRUCTURE

State ownership – The coefficient for state ownership is negative but non significant, no matter whether it is measured by the proportion of shares held by just the state share (state_share), state-controlled legal persons, or the sum of the two. Therefore Hypothesis 4a is not supported. The non-significant result is quite similar to the sparse literature that has examined the impact of state ownership on executive remuneration (Firth *et al.* 2006; Lin *et al.* 2005). However, Lin *et al.* (2005) reported a significant positive relation between state ownership and executive remuneration, but the significance only existed when their data was analyzed using firm fixed effects models, not when analyzed by individual fixed effects models. My results also support some other previous studies on other related topics, such as Gul and Zhao

(2000) and Hovey *et al.* (2003), who found that state ownership did not have significant power in explaining variations in firm performance. The non-significant relationship might be due to the offsetting effects I discussed when developing the hypothesis in Chapter 3. On the one hand, firms with a higher proportion of state shares are more likely to experience pressure from the State to keep down executive compensation in order to maintain equivalent pay levels between executives and bureaucrats in the government hierarchy and to avoid social unrest (Firth *et al.* 2006). On the other hand, firms with higher state ownership are more likely to suffer from management entrenchment and overpay their executives due to inefficient monitoring by the main shareholder—the state (Berkman *et al.* 2002; Zou and Xiao 2005).

Legal person ownership – After controlling for other factors, state-controlled legal person's share (legal_share) and private legal person's share (private_share) are both positive and significantly related to HPD pay at the 10% level. I also combined these two variables into one variable, domestic legal person share, and tested its effect; the results remained broadly similar. Foreign ownership has a positive and significant coefficient at the 1% level[28], indicating that firms with larger proportions of foreign shares pay their directors more, possibly because foreign investors exert pressure to hire better quality executives and to do so requires a higher rate of pay (Firth *et al.* 2006). Therefore, my findings show that companies with larger shares held by institutions pay their directors more, which is counter to the prediction of agency theory that external blockholding will lead to closer monitoring of executives' actions and lower compensation (Mehran 1995). Hypothesis 5a is therefore not supported.

[28] The raw data of the proportion of foreign shares is highly skewed, with a kurtosis of 31. Square root and log transformation did not improve the distribution much; hence rank transformation was employed. The overall results were similar for the raw data and the different transformations I employed.

Contrary to what is predicted in Hypothesis 5a, firms with more legal person shares seem to pay HPDs more. I retested the hypothesis by substituting the three individual categories of legal shares with institutional shares (the sum of the three), and the coefficient is positively significant at 1%, with other variables unaffected.

Managerial ownership - The coefficients for total directors' shareholdings are positive and significant at the 1% level, suggesting that the larger the board ownership the higher the HPD pay. The finding does not support hypothesis 6a and is not consistent with the incentive alignment predicted by agency theory. It also suggests that managerial share ownership is not a complementary element to cash compensation in Chinese listed firms. This result is opposite to that reported by Goldberg and Idson (1995), but is consistent with the findings of Holderness and Sheehan (1988), Chung and Pruitt (1996) and Cheung *et al.* (2005). If this is not caused by the proportion of shares held by managers being too small to have any incentive effect, this result might suggest that the more shares managers have, the more likely they are in a position to entrench the company and extract higher pay. Cheung *et al.* (2005) found that this positive relationship did not result from a positive link between managerial ownership and performance, in contrast to Chung and Pruitt (1996), and therefore they suggested that entrenched managers may be using their ownership rights to extract higher salaries for themselves. This could hold, especially in the presence of information asymmetry between managers and outside investors, which is more likely to be the case in small firms.

Ownership concentration- In terms of ownership concentration (Herfindalh_10), it has a negative impact on HPD pay at the 10% level. This negative relation is as

expected and is consistent with previous literature and agency theory (Goldberg and Idson 1995; Gomez-Mejia and Wiseman 1997; Shleifer and Vishny 1997). Under agency theory, individuals are self-interest seeking. Therefore, the fewer shares shareholders hold, the less likely they are to monitor the firm, especially when they have to bear the cost of monitoring while sharing its benefits with others (Shleifer and Vishny 1997). When the shares are concentrated in a few shareholders' hands, it is more likely for these larger shareholders to exercise effective monitoring. First, being large stakeholders, they are more motivated to monitor; second, they are likely to have the capability to monitor, especially if they are institutional investors. As a consequence, it is more difficult for the management team in firms with concentrated ownership to entrench the firm by overpaying themselves.

6.2.3 CONTROL VARIABLES

Firm performance – As discussed in Chapter 4, firm performance can be measured by accounting performance and market performance both commonly used in the literature (Clarkson 1995; Firth *et al.* 1999). Model 1c presented in Table 6.1 was run with accounting performance-return on total asset (ROTA). However, the model was also tested with other accounting measures and market related measures (Tobin's Q and Price-Earning Ratio). The different accounting measures provide consistent results. The coefficient of the rank transformation of return on total asset (b=0.001) is significant at 1% (see Table 6.1), a result that holds for the other accounting performance proxy: profit before interest, tax and dividend (Bitdprofit)[29]. This finding

[29]The coefficient for the rank-transformed Bitdprofit is positive at the 1% significant level. The $\overline{R}^2$ of the model is 0.420, similar to that in Model 1c.

is consistent with the prediction of agency theory (Jensen and Meckling 1976) and previous literature (Lin *et al.* 2005; Rui *et al.* 2003).

However, the results are different when market performance measures are used. When price-earning ratios (PEratio) are included, the coefficient between the rank transformed PEratio and HPD pay is negative and significant at the 1% level, and also the coefficient of state_share becomes positive and significant at the 5% level, while all the legal person ownership proxies become positive and significant at the 1% level. No_indus is not significant. When Tobin's Q is used as a proxy, either in its raw form or as log or rank transformation, the coefficients are not significant. When firm size is measured as the adjusted market value of the firm, the coefficients for the log of Tobin's Q or the rank of Tobin's Q (RYTobin'sQ) become negatively significant at the 1% level. The correlation between lnSales and lnTobin'sQ is -0.52, suggesting that the market does not favour large-sized firms. Given the possibility that the market price does not reflect the reality of firm performance in China (Qiang 2003), I consider that the robust results with accounting performance measures are more meaningful than those with the market related measures.

Firm Size – The log of sales (LnSales) is significantly positively correlated with HPD pay, a result that is robust to the use of different proxies (adjusted market value or total assets) for the other variables and different model specifications, and this is consistent with most previous literature (Boyd 1994; Cordeiro and Veliyath 2003; Jensen and Murphy 1990a; Kostiuk 1990; Lambert *et al.* 1991) which also found a positive relationship between firm size and executive compensation, see also a meta analysis by Tosi *et al.* (2000). The coefficient 0.14 between LnSales and LnHPDpay

in Model 1c suggests that if firm A is 1% bigger than firm B, the HPD in firm A will be paid approximately 0.14% more[30].

Capital Structure - The coefficient for capital structure (measured by either total debt over total assets or equity) is positively significant at 1%. Because raw data had high skewness and kurtosis, rank and cubic root transformations were used (Kane and Meade 1998), and the results for the transformed variables are similar. Thus, as firms become more geared, they become more exposed to financial risk, and therefore they need to pay risk-adverse executives more.

Location – The coefficient of the Location dummy is significant and positive at the 1% level; thus companies located in Beijing, Shanghai and Shenzhen pay their HPD more. This result is consistent with the report of *White Paper on Chinese Entrepreneurs (*WPCE) (SRIC 2003) that executive pay is much higher in these bigger cities. This result could be due to the relatively greater scope for competitive job opportunities for executives and also the higher cost of living in these three cities compared to the rest of China, an argument that is analogous to a "London weighting" for salaries in the UK.

Diversification – The effect of number of industries on HPD is positive and significant at the 5% level, implying that greater firm diversification results in greater complexity for which executives should be rewarded with higher pay. However, it is contradictory to the argument that due to the lower risk of executive unemployment in

[30] The precise value is $(1.01)^{0.14}$-1=0.1394%

more diversified firms (Amihud and Lev 1981), executives would not be offered higher pay.

Firm age – The number of years a company has been listed since its IPO (YearafterIPO) has a positive and significant impact on HPD pay at the 1% level, indicating that the longer the firm has been listed the more the HPD is paid. Newly listed firms attract more monitoring from regulators, investors, and the media, suggesting more caution in offering higher pay to executives. Also, the longer a company has been listed, the more likely it is that its HPD has been employed by the company for a time long enough for him/her to consolidate his/her power-base amongst his peers, his subordinates and the market, and hence commands more pay. However, due to data limitations, this thesis is not able to examine the impact of HPD tenure on pay to clarify the precise nature of the mechanism here.

Industry differential – The inclusion of industry dummies marginally improves the explanatory power of the models. Overall, compared to those working in wholesaling and retailing industries HPDs serving in integrated industry and transportation are paid more, while those working in manufacturing and utilities tend to be paid less. HPDs working in, integrated, IT, transportation and construction industries receive higher pay compared to those in manufacturing industry.

Year Dummies - The significance levels of year dummies for 2001 and 2002 vary a little across different models, but the negative sign holds, suggesting that as expected, HPDs were rewarded more in 2003, compared to 2001 and 2002. The signs of the

coefficients are consistent with the trend shown by the descriptive statistics that on average, the HPD pay has gone up every year as one might expect.

6.2.4 INTERACTION TERMS

The results of Model 1d (which adds interaction terms between governance variables and firm performance to Model 1c) in Table 6.1 are related to Hypotheses 1b, 2b, 3b, 4b, 5b, 6b concerning whether the existence of a certain governance mechanism increases pay-performance sensitivity. The $\overline{R}^2$ of Model 1d is 0.421, compared to 0.420 in Model 1c. The result of a Wald test (F (8, 1132) = 1.12, p = 0.344) shows that adding the interaction terms does not significantly improve the overall explanatory power of Model 1c. Only two of the interaction terms have a weakly significant impact.

The interaction term between RYRota and the proportion of independent directors is positive and significant at the 5% level. This provides some support for Hypothesis 2b that a higher proportion of independent directors leads to a stronger pay-performance link. The interaction term between RYrota and RYDirectorshare is positive and significant at 10%, suggesting that firms with higher director shares have stronger executive pay-performance link. Therefore, Hypothesis 2b and 6b are supported, though weakly. Other interaction terms have no significant impact, therefore Hypothesis 1b, 3b, 4b, 5b are not supported. The board size and ownership structure seem not to affect the pay-performance sensitivity. These results are inconsistent with those reported in Firth *et al.* (2006), who found that firms whose controlling shareholders were legal persons used more incentive pay schemes. However, their

finding only held when firm performance was measured by operating income, not in the case of shareholders' wealth. Also, Firth *et al.* (2006) used dummy variable for legal person ownership. The different definitions might account for the different findings in my study from theirs. These findings will be further discussed in Chapter 8.

6.2.5 INTERNAL COMPARISON EFFECTS

One of the research aims of this thesis is to examine the internal comparison effects on executive pay. To test for these effects, the level of the pay for the rest of the management members other than the three highest paid directors (REST pay) was introduced into Model 1c to produce Model 1e. As shown in Model 1e in Table 6.1, the inclusion of REST pay significantly improves the explanatory power of the model. The $\overline{R}^2$ increases from 0.420 (Model 1c) in Model 1c to 0.655. The coefficient of the log of REST pay is significant at 1%, with a t-value of 25.58. However, some of the other independent variables become less significant or even not significant. For example, the coefficient of sales and that for managerial shares become significant at 5%, rather than 1% in Model 1c, while location and firm diversification become non-significant even at the 10% level. This instability in the model gives rise to the suspicion of the presence of an endogeneity problem caused by the possibility that HPD pay and the rest of the management pay are simultaneously determined by the other independent variables. To deal with this issue, I partial out the effect of these variables before putting the level of REST pay into the model, which will be discussed Section 6.4.

6.2.6 REGRESSION DIAGNOSTICS AND ROBUSTNESS TESTS

6.2.6.1 Regression Diagnostics

After running Model 1c originally, a series of checks were conducted for regression diagnostics. First, some outliers were identified with the help of the leverage versus residual-squared plot (lvr2plot) and the model was re-estimated by deleting the few outliers (5 firms in this case); this resulted in $\overline{R}^2$ improving from 0.394 to 0.42, without any substantial changes in the effects of the explanatory variables.

The Breusch-Pagan / Cook-Weisberg test was run to test for possible heteroskedasticity and a slight heteroskedastisity problem was identified (χ (1) = 5.15, p= 0.023). MacKinnon and White (1985) hc3 correction was therefore used to address this problem as suggested by Long and Ervin (2000). The residuals versus fitted values plot (Figure 6.1) shows that the variance of residuals is quite homogenous after the correction.

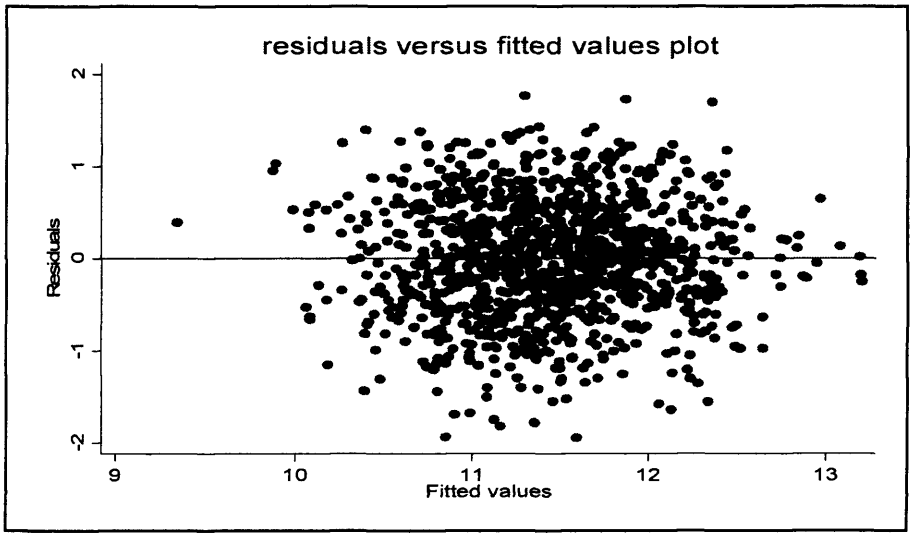

Figure 6.1 Residuals versus Fitted Values Plot of Model 1c

A Shapiro-Wilk W test was run to test for the normality of the residuals of the final model 1c, the results (W = 0.998, p = 0.103) suggest that the residuals of the model are normally distributed. The Shapiro-Francia W' test provided similar results (W=0.999, p=0.169)[31].

Also, to ensure that there is no multicolineality problem, variance inflation factors (VIF) were calculated after every regression. I did not find any evidence of problematic collinearity in the models, as the VIFs for all the models (except model 1d due to the use of interaction terms) are all less than 10, given that "a maximum VIF greater than 10 is thought to signal harmful collinearity" (Mason and Perreault 1991). For example, the highest VIF in Model 1c is 8.11 and the mean is 2.24, as shown in Table 6.2. However, to ensure that the inclusion of state ownership and legal person ownership (the two variables with high bi-variate correlation coefficient 0.69 and the maximum VIFs) in the same model does not bias the results, I re-estimated the model by putting these two variables in the models individually and retested the above models. The results show that this is not a problem (in none of the models is the coefficient of state ownership significant, while legal person ownership is positive at 10% level, the results for other variables remain similar). This thesis also included Duality1 and Duality2 (correlation coefficient =0.71, see Chapter 5) both separately and as a combined variables, and found the results no significantly different from earlier results.

[31] The null hypothesis for both these tests is that the distribution is normal.

Table 6.2 Table of VIFs for Model 1c

Variable	VIF	1/VIF
State_share	8.11	0.123340
Legal_share	6.37	0.157015
Year2001	3.92	0.255229
Manufacture	3.78	0.264683
Proind	2.84	0.352264
Private_share	2.80	0.356687
Herfindah~10	2.69	0.371766
LnAdjusted_mv	2.59	0.386495
lnSales	2.51	0.398786
IT	2.00	0.501002
Integrated	1.99	0.502238
Duality2	1.97	0.507472
Duality1	1.96	0.510282
YearafterIPO	1.83	0.547899
Mining	1.80	0.556063
RYDebt	1.69	0.593420
Utilities	1.67	0.598209
Year2002	1.65	0.606654
Realestate	1.60	0.623574
Publicservices	1.58	0.631402
Location	1.46	0.686968
RYrota	1.45	0.690647
Transportation	1.45	0.691724
Textile	1.43	0.701011
Construction	1.27	0.788016
lnBoardsize	1.22	0.821442
Size_super	1.22	0.821845
RYDirector_share	1.18	0.849813
Agri_for_fish_farm	1.16	0.863233
RYforeign_share	1.16	0.863744
No_indus	1.10	0.910558
Mean VIF	2.24	

Moreover, scatter-plots of the residuals against predictors were also used to check for nonlinearity after estimating linear regression models. Some adjustments were made to the model if there was a problem. For example, having spotted a non-linear pattern of the relationship between board size and HPD pay, I used lnboardsize in the model

instead of board size, and then replaced lnboardsize with boardsize and boardsize^2 to check for the possibility of a downturn effect. A link test for model specification and a Ramsey RESET test for omitted variables were performed. Basically, these tests are set to test for the Null Hypotheses that there is no specification error/omitted variables in the model. Both tests failed to reject H_0 (p-value= 0.87 and p-value=0.34 respectively). Therefore, Model 1c seems to be correctly specified.

6.2.6.2 Endogeneity

Finally, it has been argued that if there is an endogeneity issue in an OLS model, the estimates would be inconsistent, as some of the effects of the error would be wrongly attributed to the regressors (Wonnacott and Wonnacott 1970), therefore it is important to investigate this issue in my OLS models. Though most of the variables used in the thesis are exogenous, there are two possible sources of endogeneity related to the relationship between firm performance and executive pay that might cause bias in the estimates. The first source is related to the argument that both pay level and firm performance might be simultaneously determined by the other independent variables in the model, as previous literature has reported some significant results for the effects of corporate governance on firm performance (Brickley *et al.* 1994; Holderness *et al.* 1999; Shleifer and Vishny 1997). This is less worrying as no serious multicollinearity problem has been found in the model. The other source arises from the ambiguous causal relationship between executive pay and firm performance, as mentioned in Chapter 3. Although the results discussed above provide strong evidence that HPD pay is positively related to firm performance, one could argue that those HPDs who are paid more might exert more efforts so that their firms perform better. Therefore,

the alternative interpretation is that pay is a reward for better performance; or it is an incentive to entice managers to perform.

To address the endogeneity problem, a two-stage least-square (2SLS) is adopted to re-estimate the model. However, as argued by Wooldridge (2002b), the 2SLS estimate is less efficient than OLS when the explanatory variables are exogenous due to the presence of very large standard errors, therefore, it is useful to have a test for endogeneity of an explanatory variable first to see whether 2SLS is even necessary. I followed the procedures suggested by Wooldridge (2002b) and first tested whether firm performance is an endogenous variable using 2SLS method. To assist the discussion below, Model 1c, Equation (1), is recalled:

$$\begin{aligned}\text{LnHPDpay}_{it} = {} & \beta_0 + \beta_1 \text{Performance}_{it} + \beta_2 \text{LnSales}_{it} + \beta_3 \text{Boardsize}_{it} + \beta_4 \text{ProNed}_{it} + \beta_5 \\ & \text{Duality}_{it} + \beta_6 \text{StateOwn}_{it} + \beta_7 \text{LegalOwn}_{it} + \beta_8 \text{PrivateOwn}_{it} + \beta_9 \\ & \text{ForeignOwn}_{it} + \beta_{10}\text{ManageOwn}_{it} + \sum\beta_c \text{Control}_{cit} + \sum\delta_t D_t + \varepsilon_{it} \\ & \text{for } i = 1, 2, \ldots, N; \; t = 1, 2, \ldots, T \end{aligned} \quad (6.1)$$

ε_{it} is the error term. To test whether firm performance is endogenous or not, I identified last year's firm performance ($\text{performance}_{it-1}$) as an instrumental variable (IV) since it fulfils the properties of an IV: $\text{performance}_{it-1}$ is exogenous in equation (6.1) as the HPD pay and the governance mechanism this year would not affect the performance of last year and that it is correlated with this year's performance (the correlation coefficient for RYrota and RYrota_1 is 0.71, significant at <0.001 level) (Wooldridge 2002b). Therefore, a reduced form of the equation of a suspected endogenous variable can be written as followed:

$$Performance_{it} = \beta_0 + \beta_1 Performance_{it-1} + \beta_2 LnSales_{it} + \beta_3 Boardsize_{it} + \beta_4 ProNed_{it} + \beta_5 Duality_{it} + \beta_6 StateOwn_{it} + \beta_7 LegalOwn_{it} + \beta_8 PrivateOwn_{it} + \beta_9 ForeignOwn_{it} \beta_{10} ManageOwn_{it} + \sum \beta_c Control_{cit} + \sum \delta_t D_t + u_{it} \quad \text{For } i = 1, 2, \ldots, N; t = 1, 2, \ldots, T \quad (6.2)$$

$Performance_{it-1}$ is the firm performance in year t-1, while the other variables are the same as in equation (6.1). Therefore, if the residuals of the two equations, u_{it} and ε_{it}, are correlated, firm performance is endogenous in Model 1c, and OLS estimates would be biased and thus a 2SLS should be preferred; otherwise, 2SLS would not be necessary (Wooldridge 2002b). The results show that the correlation between u_{it} and ε_{it} (both heteroskedasitcity robust) is not significant (coef= -0.031, p =0.288) and thus there is no worrisome endogeneity problem for in the original estimation of the models used here[32]. Therefore, the OLS regress is consistent and preferred.

6.2.6.3 Fixed Effects Models

As planned in Chapter 4, I further estimated the effects of the main dependent variables with panel data techniques—fixed effects model and random effects model – to control for unobserved and time-constant firm effects. The Hausman test was run to decide whether a fixed or random effects model is more appropriate to treat the error structure (Baltagi 2001; Hausman 1978). The estimates with random effects model are more efficient under the null hypothesis of the Hausman test. But if the null hypothesis is rejected, random effects estimates are inconsistent and fixed effects

[32] I retested HPD pay level Model 1c using both 2SLS and OLS method and ran a Hausman test afterwards, the result of the Hausman test shows that the estimates by these two methods are not significantly different at the 5% level (χ^2 (1)=3.15, p = 0.08).

estimates which are consistent should be used. Because fixed effects regression requires variation in independent variables over time, those variables which are constant over time should be excluded: location, firm age, and industry dummies. Year dummies were retained in order to control for time effects (e.g. macroeconomic impacts).

The results of the Hausman test (χ^2 (18) = 52.81, $p < 0.0001$) show that random effects model is inconsistent; therefore the fixed effects model is used. The results of the fixed effects model show that firm effects are significant (F (410, 743) =8.01, $p < 0.0001$) indicating that fixed effects models are more efficient than OLS models with pooled data. The results show that within-firm variations of the model can explain 33.6% of HPD pay variation (R^2_{within} =0.336). The coefficients for Sales, ROTA, and Adjusted_mv remain positive and significant at the 1% level while year dummies have negative and significant coefficients at 1%, similar to the results in Model 1c, showing a significant and positive relation with HPD pay at the 5% level, the other governance variables are all non-significant. These results are different from those in Model 1c, in which board structure, supervisory board size, duality dummies, foreign ownership, legal ownership, private legal ownership and ownership concentration all have significant impacts.

The discrepancies in results between fixed effects models and cross-sectional OLS models are similar to those found in Himmelberg *et al.* (1999). By comparing the results of OLS models and panel data models, they found that a large fraction of the cross-sectional variation in managerial ownership is explained by unobserved firm heterogeneity and that, after controlling both for observed firm characteristics and

firm fixed effects, the significant relationship between managerial ownership and firm performance found in OLS models become non-significant. They also explained that the non-significant result might be due to the lack of variation in the ownership data.

The governance variables used in this thesis also vary very little over time (most of the within-variable correlations between years are greater than 0.8, especially those for the ownership variables[33]). Insufficient variation in a variable can adversely affect statistical power, resulting in Type II errors (failing to reject a null hypothesis when the null hypothesis is false), a point that has been made in connection with fixed effect panel models (Greene 2003; Stock and Watson 2003). This might explain the divergence between the results of the fixed effects model and those of Model 1c. As the purpose of this thesis is to identify the individual effect of these governance variables, OLS models are used as main models, though the firm specific effects should also be borne in mind.

6.2.6.4 Other Robustness Tests

I substituted other commonly used firm performance measures (such as net earnings per shares and return on equity separately) for return on total assets or adjusted market value for total sales as firm size, and debt equity ratio for total debt over total asset ratio as a capital structure measure, and Herfindahl_5 for Herfindahl_10 as ownership concentration measures. The results remain robust to the use of these different proxies. I repeated the analysis using lagged independent variables and the results remain

[33] The variations in the levels of state ownership, legal ownership, private legal ownership and foreign ownership between years are less than 2%, which is not difficult to understand, given state shares and legal person shares are not freely tradable in China, as introduced in Chapter 2.

broadly consistent with those shown in Table 6.1 except that the $\overline{R}^2$ of the lagged models is slightly lower (0.379 when lagging all independent variables and 0.398 when only lnSales and RYrota were lagged, compared to 0.420 in Model 1c without lagging), and the coefficient for Herfindalh_10 loses its significance, though the sign remains unchanged.

Also, the 417 sample firms were selected from those firms that have the continuous data for HPD pay from 2001 to 2003; thus my results might suffer from survivorship bias. However, Chen and Ezzamel (2006) have tested for this issue and their results showed that the survivorship bias does not cause serious problem in this case[34]. In addition, to correct for the possible autocorrelation of OLS standard errors, Model 1c was re-estimated with Stata's "cluster" option selected. The results are not substantially different from the OLS robust standard errors estimates. Only the significance levels of a few variables vary: Duality2 and foreign ownership change from 1% to 5%, while the coefficient for the legal person ownership becomes non-significant, which was marginally significant at 10% in the reported Model 1c without the "cluster" option. Actually, except for a higher $\overline{R}^2$, the results with the "cluster" option are very similar to the results estimated with the full sample in Chen and Ezzamel (2006).

Because of the rapidly changing nature of the Chinese economy, I repeated the analysis on a yearly basis to explore the possibility of model change over time. While

[34] Chen and Ezzamel (2006) ran the models with a larger sample of 2819 observations from 2001 to 2003 (compared to 417* 3=1251 previously), which allowed firms to enter and exit the dataset. Their results were more or less the same as those reported in my fixed 417 sample, except that: taking model 1c as an example, legal ownership was not-significant; herfindahl_10 was negatively significant at 1%; No_indus and RYdebt both were less significant, at 10% and 5% respectively; and $\overline{R}^2$ reduced to 31.8%, compared to 0.420 for the original 417 sample. As they explained, these differences might be due to the more noisy data in the larger sample as firms were born or died during the period.

the explanatory power of the general model across the years is quite similar, ranging from 0.411 to 0.435, with 2001 having the highest $\overline{R}^2$, only the effects for duality1, RYDirectorshare, LnSales, RYRota and lnAdjusted_mv remain consistently the same. The significance levels for other factors vary across years, suggesting that the importance of determinants of executive remuneration fluctuates, though slightly, over time. However, this lower significance might just be caused by the smaller sample size, which automatically reduces power.

6.3 The rest of management pay models

As mentioned in Chapter 1, the research interest of this thesis lies not only in examining the setting and dynamics of the HPD pay, but also in investigating the determination and dynamics of the pay of other management members. To fulfill this research interest, I ran similar regression models on the rest of management pay, such as Model 1c and Model 1d by substituting HPD pay with the total pay for the rest of board and management other than the highest paid directors. Therefore Model 1c-Rest and Model 1d-Rest is simply the RESTpay version of Model 1c and Model 1d (Model 1c plus the interaction terms).

To investigate the possible effects of the internal comparison factor, several models were run by including the HPD pay variables into Model 1c-Rest respectively, first the log transformation of absolute pay level of HPD pay (Model 1e-Rest), then the residual of Model 1c (Resid_HPD) which takes out the simultaneous determination effects of other factors (Model 1f-Rest), and finally both Resid_HPD and the square

term of Resid_HPD (Model 1g-Rest) to detect the non-linear function of Resid_HPD.

The empirical results of these models are presented in Table 6.3.

Table 6.3 REST Pay Level Models (Dependent variable: lnRESTpay, 2001-2003)

Variables	Model1c-Rest	Model1d-Rest	Model1e-Rest	Model1f-Rest	Model 1g-Rest
lnHPDpay			0.7***		
			(24.64)		
Resid_HPD				0.7***	0.726***
				(24.64)	(26.92)
Resid_HPDsq					0.121***
					(3.19)
lnBoardsize	0.306***	0.44**	0.195**	0.252***	0.276***
	(2.91)	(2.33)	(2.42)	(3.11)	(3.42)
Size_super	0.021	0.02	0.056***	0.029**	0.025**
	(1.2)	(1.16)	(4.51)	(2.32)	(2.03)
Proind	0.818***	0.654*	0.298	0.792***	0.766***
	(3.32)	(1.89)	(1.47)	(3.91)	(3.74)
Duality1	0.039	0.155	-0.154**	0.068	0.092
	(0.4)	(1.08)	(-1.98)	(0.86)	(1.17)
Duality2	-0.022	-0.03	-0.164***	-0.005	0.026
	(-0.29)	(-0.38)	(-2.73)	(-0.07)	(0.43)
State_share	0.001	-0.002	-0.001	0	0
	(0.27)	(-0.59)	(-0.54)	(0.14)	(0.05)
Legal_share	0	-0.002	-0.003*	-0.001	-0.001
	(-0.02)	(-0.5)	(-1.74)	(-0.57)	(-0.63)
Private_share	0.001	0.001	-0.001	0.001	0.001
	(0.57)	(0.17)	(-0.7)	(0.46)	(0.55)
RYforeign_share	0.001*	-0.002	0	0.001***	0.001***
	(1.77)	(-1.56)	(0.88)	(2.67)	(2.69)
RYdirector_share	0.001***	0.001**	0***	0.001***	0.001***
	(5.32)	(2)	(2.95)	(7.54)	(7.51)
Herfindahl_10	-0.232	-0.244	0.071	-0.182	-0.182
	(-0.99)	(-1.04)	(0.37)	(-0.94)	(-0.96)
Lnboard*RYrota		0			
		(-0.62)			
Proind*RYrota		0.001			
		(0.77)			
Duality1*RYrota		-0.001			
		(-1.28)			
State*RYrota		0			
		(1.01)			
Legal*RYrota		0			
		(0.66)			
Private*RYrota		0			
		(-0.56)			
RYforeign*RYrota		0**			
		(2.43)			
RYDirect*RYrota		0			
		(0.81)			
lnSales	0.158***	0.16***	0.069***	0.17***	0.172***

Variables	Model1c-Rest	Model1d-Rest	Model1e-Rest	Model1f-Rest	Model 1g-Rest
	(5.63)	(5.61)	(3.37)	(8.44)	(8.5)
RYrota	0.001***	-0.001	0	0.001***	0.001***
	(3.22)	(-0.56)	(-1.57)	(4.46)	(3.96)
lnAdjusted_mv	0.211***	0.205***	0.046	0.184***	0.18***
	(4.51)	(4.39)	(1.43)	(5.73)	(5.74)
No_indus	0.022*	0.02*	0.006	0.023***	0.024***
	(1.81)	(1.65)	(0.73)	(2.64)	(2.8)
Location	0.332***	0.329***	0.22***	0.339***	0.348***
	(6.51)	(6.37)	(5.17)	(8.07)	(8.34)
RYDebt	0.001**	0.001**	0	0.001***	0***
	(2.21)	(2.22)	(-0.25)	(2.99)	(2.82)
YearafterIPO	0.016	0.017	-0.018**	0.018**	0.018**
	(1.42)	(1.49)	(-2.05)	(2.2)	(2.18)
Industries	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes
_cons	3.708***	4.201***	2.121***	3.974***	3.939***
	(5.08)	(4.66)	(3.85)	(7.35)	(7.31)
No. of obs.	1161	1161	1158	1158	1158
F-ratio	26.11***	20.49***	63.57***	63.57***	69.37***
$\overline{R}^2$	0.384	0.385	0.644	0.644	0.651

- MacKinnon & White (1985) HC3 heteroskedasticity-consistent t-statistics in parenthesis
- Significance level: *<=0.10, **<=0.05, ***<=0.01
- Coefficient 0 means <0.001
- No. of observations are different due to some missing values of new introduced variables

6.3.1 MODEL 1C-REST

Model 1c-Rest is based on Equation 6.1, but using the log of REST pay as dependent variable.

$$LnRESTpay_{it} = \beta_0 + \beta_1 Performance_{it} + \beta_2 LnSales_{it} + \beta_3 Boardsize_{it} + \beta_4 ProNed_{it} + \beta_5 Duality_{it} + \beta_6 StateOwn_{it} + \beta_7 LegalOwn_{it} + \beta_8 PrivateOwn_{it} + \beta_9 ForeignOwn_{it} + \beta_{10} ManageOwn_{it} + \sum \beta_c Control_{cit} + \sum \delta_t D_t + \varepsilon_{it}$$

For i = 1, 2, ..., N; t = 1, 2, ..., T (6.3)

By comparing the results of Model 1c-REST with those of Model 1c, the differences, if any, between the determination of HPD pay and that of the rest of management pay can be identified.

6.3.1.1 Board Characteristics

As can be seen from Table 6.3, the effect of board structure (Proind) on REST pay is similar to that on HPD pay: REST pay is positively related to the proportion of independent directors, at the 1% significant level. The coefficient of lnboardsize has a positive and significant impact on REST pay at 1%, which is different from that in Model 1c (the coefficient of lnboardsize in Model 1c is not significant)[35]. Supervisory board size has a positive, but not significant, impact. Duality1 has a positive coefficient with REST pay while Duality2 has a negative coefficient, but neither is significant, and these non-significant results are robust both when Duality1 and Duality2 are entered into the model separately, and when they are combined and entered as a single variable (Duality12).

6.3.1.2 Ownership Structure

The impact of managerial ownership on REST pay is similar to that on HPD pay: director ownership has a positive relation with REST pay at 1%. However, the coefficient of foreign ownership is only significant at the 10% level (instead of 1% as in Model 1c) though the sign remains positive. Other ownership variables, state ownership, legal person ownership, and private legal ownership and Herfindah_10, have no significant effects on REST pay.

[35] Replacing lnboardsize with boardsize and boardsize^2 gives similar significant results to what is obtained when testing for HPD pay, the coefficients and t-statistics for the two variables are 0.191 (3.44) and -0.008 (-2.94) respectively, suggesting that there is a downturn of the association between board size and executive pay.

6.3.1.3 Control Variables

The effects of firm performance, size, market value, diversification, location dummy, and debt ratio remain as those on HPD pay. LnSales, ROTA, Adjusted_mv, No_indus, location and the debt ratio all have significant and positive impact on REST pay. The significance level for debt ratio is weaker in terms of REST pay, at the 5% level compared to 1% in Model 1c. Firm age (YearafterIPO) still has a positive, but non-significant coefficient. This difference can be explained by the argument that HPDs are the figure heads answering for the successes or failures of the firm, so the correlation of their pay and firm risks is stronger. Both the coefficients for the two year dummies are negative, confirming the increase of pay over the years, but neither of them is significant. The industrial dummies also have significant explanatory power. Generally speaking, compared to firms in the wholesaling and retailing industry, those firms in IT, Transportation and Real Estate industries reward higher pay to their management; while those in Utilities, Manufacturing, Mining and Agriculture, Forestry, Fishing and Farming pay less.

6.3.1.4 Further Checks

Robustness tests and regression diagnostics were also undertaken to test the fit of the Model 1c-Rest. First, analyses were done with and without outlier observations (3 firms are identified as outliers by leverage versus residuals squared plots), the results are robust, with no substantial changes in $\overline{R}^2$ with or without outliers (0.381 and 0.384 respectively). The results reported in Table 6.3 are those with outliers excluded.

Both the Breusch-Pagan / Cook-Weisberg test (χ (1) = 0.01, p = 0.912) and the residuals versus fitted values plot show that there is no serious heteroskedasticity in Model 1c-Rest. However, even if there were a small degree of heteroskedasticity, it would have been addressed by the robust and MacKinnon and White (1985) hc3 correction when the model was estimated. Although the residuals of model 1c-Rest fail to satisfy the Shapiro-Wilk W test (W=0.996, p=0.008) or Shapiro-Francia W' test (W'=0.997, p= 0.02) for normality, the high W-value (W'=0.996) and also the skewness and kurtosis (skewness=-0.214 and kurtosis=2.94) show that departure from normality is only minor and not practically significant, as shown in the kernel density plot of the residuals in Figure 6.2. After all, few large datasets are likely to be judged to be normally distributed by a sensitive test such as the Shapiro-Wilk W test. With large N this test can detect very small departures from normality, though these small departures in a large data set might not be practically significant (Chen *et al.* 2006; Ezzamel and Mar-Molinero 1990).

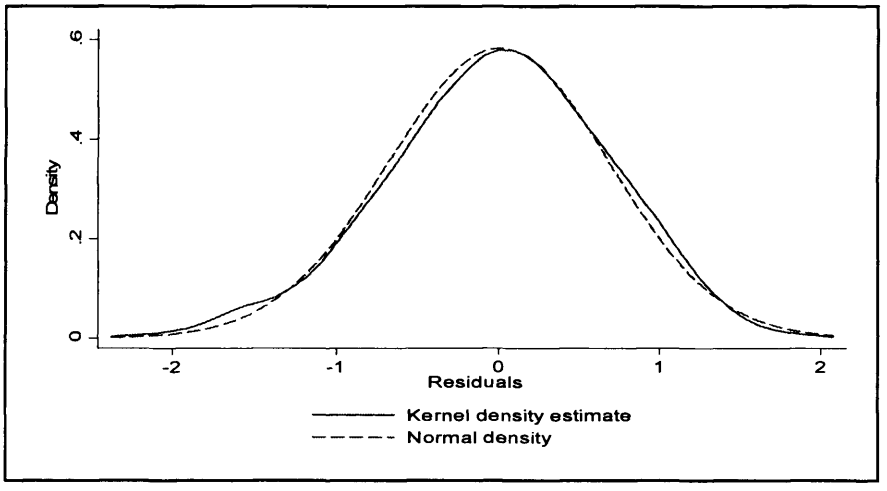

Figure 6.2 the distribution of residuals of Model 1c-Rest

The calculation of variance inflation factors (VIFs) suggests that multicollinearity is not problematic: the highest VIFs are 8.35 for State_share and 6.43 for Legal_share. I retested the model by including these two variables individually and estimated their effects separately. Separately, the effects of these two variables are still not significant and the results of the other variables remain similar, which confirms that even including these variables in the same model does not bias the estimation. Finally, Model 1c-Rest stands the specification tests: both the Link test (p-value=0.649) and the Ramsey RESET test (p-value=0.31) could not reject the null hypothesis that the model is correctly specified.

6.3.2 INTERACTION TERMS

Model 1d-Rest adds the interaction terms between the governance mechanisms and firm performance to Model 1c-Rest. The results, in Table 6.3, show that the inclusion of the interaction terms does not bring a significant increase in the ΔR^2 ($F(8, 1121) = 1.21$, $p = 0.287$): The $\overline{R}^2$ of Model 1d-Rest is 0.385, compared to 0.384 in Model 1c-Rest. Only the interaction term between RYrota and RYforeign_share is positively correlated with rest management pay at the 5% level. Firms with higher foreign ownership or state ownership are more likely to use performance-based pay schemes when setting pay for rest management members other than the HPDs. None of the other interaction terms has a significant effect. Therefore, in terms of REST pay, only Hypothesis 5b is supported, while none of the Hypotheses 1b, 2b, 3b, 4b, and 6b is supported.

6.3.3 INTERNAL COMPARISON EFFECTS ON REST PAY

In this section, I discuss the effects of HPD pay on REST pay to explore how the internal comparison pay level impacts executive pay. Three models have been run, all based on Model 1c-Rest. Model 1e-Rest is Model 1c-Rest with HPDpay included as an independent variable. Model 1f-Rest replaces HPDpay with the residuals of Model 1c of HPD pay level (Resid_HPD), which partials out the effects of the observed common factors of HPD pay and REST pay. Model 1g-Rest adds the square term of Resid_HPD to explore the possibility of a non-linear relationship between Resid_HPD and REST pay.

6.3.3.1 Model 1e-Rest

Model 1e-Rest incorporates the internal comparison factor- HPD pay level into model 1c-Rest. The results reported in Table 6.3 show that the overall explanatory power of the model is substantially improved: $\overline{R}^2$ increases to 0.644 compared to 0.384 in Model 1c-Rest and this ΔR^2 is significant ($F(1, 1125) = 607.01$, $p < 0.001$). LnHPDpay has a significantly positive coefficient with REST pay at 1% ($t = 24.64$, $P<0.001$). Therefore, Hypothesis 8 is supported: HPD has a significant impact on REST pay. The coefficient of 0.7 implies that an increase of 1% in HPD pay will lead to an increase of about 0.7% in REST pay. However, as shown in the table, the inclusion of lnHPDpay substantially affects the results of other variables due to the fact that HPD pay and REST pay are simultaneously determined by the other explanatory factors in the model so that the impact of individual variables in Model 1e-Rest could be misleading. To address this problem, I separated the effects of the

explanatory factors by taking out the effects of the other factors on HPD pay by using the residuals from Model 1c (Resid_HPD) rather than the HPD pay in Model 1f-Rest. Thus, endogenous variable HPD pay is replaced by the exogenous variable -- Resid_HPD, and the results are discussed below.

6.3.3.2 Model 1f-Rest

The results of Model 1f-Rest, also reported in Table 6.3, show that the overall explanatory power of Model 1f-Rest remains the same as that of Model 1e-Rest ($\overline{R}^2$ =0.644), so do the coefficients and t-statistics of the internal comparison factor (here the residual of HPD pay Model 1c). Therefore, even the filtered HPD pay level has a positive and significant relationship with REST pay.

The increase in the explanatory power of Model 1f-Rest over Model 1c-rest can be explained by two factors contained in Resid_HPD. The first factor is the benchmark effect of the internal comparison factor, HPD pay, which is likely to be compatible with business practices. The directors, when setting the pay for other senior managers in the firm, are likely to want to observe social equity and comparability among the management team in order to reduce internal conflicts. The other factor relates to those variables which might have been missed out in other models but are caught in the residuals of Model 1c, such as immeasurable firm specific factors. Therefore introducing Resid_HPD into the model increases the overall explanatory power. The other 34.6% of variance of REST pay, which cannot be explained by Model 1f-Rest, might be due to executive individual effects and other measurement errors.

The effects of most of the other factors in the Model 1f-Rest remain similar to Model 1c-Rest except that some variables become more significant. For example, foreign ownership, No_indus and RYDebt are all now significant at the 1% level instead of 10%, 10% and 5% respectively in Model 1c-Rest; the previous non-significant effects of supervisory board size and the number of years after IPO now become significant at the 5% level.

As mentioned before, robustness tests and regression diagnostics were conducted for every regression model. The specification tests for Model 1f-Rest detected that there might be a model specification problem as the Ramsey RESET test (using powers of the fitted values of lnRESTpay) rejects the H_0 that the model has no omitted variables ($F(3, 1122) = 5.52$, $p = 0.0009$). As the modeling of other variables seemed to pose no problems in Model 1c-Rest, the specification errors might be caused by the newly included variable- Resid_HPD. There might be a nonlinear association between lnRESTpay and Resid_HPD. Therefore, I tested for this possibility by adding the square term of Resid_HPD (Resid_HPDsq) to Model 1f-Rest and created Model 1g-Rest.

6.3.3.3 Model 1g-Rest

As shown in Table 6.3, the overall explanatory power of Model 1g-Rest over REST pay is $\overline{R}^2=0.651$, compared to $\overline{R}^2=0.644$ in Model 1f-Rest. The coefficients for both Resid_HPD and Resid_HPDsq are positive and significant at 1%, with bigger t-statistics for Resid_HPD (t=26.92) and smaller t for Resid_HPDsq (t=3.19), suggesting that there is a positive association between REST pay and Resid_HPD and

there is a U-shaped association between the two. Compared to Model 1f-Rest, there is a significant marginal contribution from the additional variable Resid_HPDsq: F (1, 1124) = 10.2, $p<0.001$. Also, Model 1c-Rest passed both the Link test ($p=0.58$) and the Ramsey RESET omitted variable test ($p = 0.138$). Therefore Model 1g-Rest is a better fit than Model 1f-Rest. The results for other variables are similar to those in Model 1f-Rest, except that the year dummy Year2001 becomes significant at 10%.

6.4 The effect of internal comparison factors on HPD pay

Model 1e in Section 6.2.5 exhibits a significant relationship between REST pay and HPD pay, however, due to the simultaneous determining problem, the individual coefficients of the model are biased. Also, the results in Section 6.3.3 show that HPD pay has a significant impact on REST pay as well. Therefore, the internal comparison effects might be reciprocal. This section further discusses the effects of the internal comparison factor on HPD pay taking out the endogenous effect of REST pay. To distinguish from the models for REST pay, the models run in this section are named Model le-HPD (the same as Model 1e in Table 6.1), Model 1f-HPD, and Model 1g-HPD and the results are reported in Table 6.4.

6.4.1 MODEL 1E-HPD AND MODEL 1F-HPD

As discussed in Section 6.2.5, Model 1e-HPD use the log of REST pay as a proxy of the internal comparison factor. The endogeneity of REST pay leads to inaccurate estimates of the individual effects of the independent variables. Therefore, Model 1f-HPD avoids this problem by using the residuals of Model 1c-Rest (Resid_REST). The

results in Table 6.4 indicate that the overall explanatory power of Model 1f-HPD is equal to that of Model 1e-HPD. Again, the inclusion of Resid_REST significantly increases the explanatory power of Model 1c, $\overline{R}^2$ increases to 0.655 from 0.420 in Model 1c. Resid_REST is positively and significantly related to HPD pay at 1% (t=25.58), which implies that HPD pay increases with REST pay.

As shown in Table 6.4, since Resid_REST is independent from any other explanatory variables, the estimates of other variables are less affected; therefore, the results of other variables in Model 1f-HPD are not very different from those in Model 1c, except that the significance of some variables becomes stronger: the coefficient for supervisory board size and that for No_indus are now significant at the1% level, instead of 5% in Model 1c; while those for Legal_share and Herfindalh_10 are significant at 5% instead of 10%, and those for both year dummies become significant at 5%, while in Model 1c only Year2001 is significant at 10%. The signs of all the coefficients remain unchanged.

6.4.2 MODEL 1G-HPD

Similar to Model 1g-Rest, Model 1g-HPD adds the squared term of Resid_REST (Resid_RESTsq) to Model 1f-HPD, which brings a significant increase in the explanatory power of Model 1g-HPD ($\overline{R}^2$ =0.665) compared to Model 1f-HPD ($\overline{R}^2$ =0.655) (F(1, 1120) = 25.04, p< 0.0001). The coefficients of Resid_REST and Resid_RESTsq are both positive and significant at 1%. Therefore, HPD pay is positively associated with REST pay and the association between the two variables is

non-linear: there is a U-shape in the association. The results of other variables are similar to Model 1f-HPD and therefore are not repeated.

The results of Model 1e-HPD to Model 1g-HPD suggest that in terms of HPD pay, Hypothesis 8 is supported. There is a positive relationship between REST pay and HPD pay, with a U-shaped element. This finding is consistent with previous findings in Ezzamel and Watson (2002) and O'Reilly *et al.* (1988) in that when the board of directors set executive pay, they refer to the pay situations within the firm. This issue will be further discussed in Chapter 8 after I test Hypothesis 8 with pay change models in Chapter 7.

Table 6.4 HPD pay level models (Dependent variable=LnHPDpay, 2001-2003)

Variables	Model 1e-HPD	Model 1f-HPD	Model 1g-HPD
LnRESTpay	0.576***		
	(25.58)		
Resid_REST		0.576***	0.6***
		(25.58)	(28.08)
Resid_RESTsq			0.119***
			(5.00)
lnBoardsize	-0.103	0.075	0.071
	(-1.39)	(1.01)	(0.98)
Size_super	-0.055***	-0.043***	-0.042***
	(-4.84)	(-3.79)	(-3.74)
Proind	0.246	0.719***	0.736***
	(1.3)	(3.8)	(3.91)
Duality1	0.29***	0.315***	0.323***
	(3.95)	(4.3)	(4.55)
Duality2	0.222***	0.211***	0.23***
	(3.84)	(3.64)	(4.03)
State_share	0.002	0.002	0.002
	(0.94)	(0.99)	(1.05)
Legal_share	0.004**	0.003**	0.004**
	(2.16)	(1.99)	(2.05)
Private_share	0.002	0.003*	0.003**
	(1.48)	(1.9)	(2.09)
RYforeign_share	0.001	0.001**	0.001***
	(1.49)	(2.52)	(2.62)
RYDirector_share	0**	0.001***	0.001***
	(2.35)	(6.88)	(6.88)
Herfindah_10	-0.251	-0.372**	-0.402**
	(-1.45)	(-2.14)	(-2.31)
lnSales	0.042**	0.139***	0.14***
	(2.36)	(8.02)	(8.08)
RYrota	0.001***	0.001***	0.001***
	(6.39)	(9.01)	(8.71)
lnAdjusted_mv	0.09***	0.198***	0.197***
	(3.15)	(6.98)	(7.18)
No_indus	0.01	0.023***	0.023***
	(1.41)	(3.13)	(3.22)
Location	-0.018	0.173***	0.182***
	(-0.45)	(4.32)	(4.56)
RYDebt	0.001***	0.001***	0.001***
	(3.52)	(5.26)	(5.25)
YearafterIPO	0.042***	0.051***	0.051***
	(5.35)	(6.49)	(6.51)
Indus dummies	yes	yes	yes
Year dummies	yes	yes	yes
_cons	0.49	2.802***	2.703***
	(1.0)	(5.88)	(5.74)
No. of obs.	1154	1154	1154
F-ratio	74.69***	74.69***	80.23***
$\overline{R}^2$	0.655	0.655	0.665

- MacKinnon & White (1985) HC3 heteroskedastisity-consistent t-statistics in parenthesis
- If a coefficient is 0, it means that the coefficient is small than 0.001.
- Significance level: *<=0.10, **<=0.05, ***<=0.01

6.5 Discussion and conclusion

This chapter has presented and discussed the empirical results of the impact of corporate governance on the pay level of executives in Chinese listed companies, using a sample of 417 firms listed on the Shanghai and Shenzhen Stock Exchanges over a period from 2001-2003. Multiple regressions were run separately for HPD pay and the pay for the rest of management as dependent variables. Although there are some nuances, I found that HPD pay and REST pay are determined by some common factors.

In terms of the board of directors, the results consistently show that there is an inverse U-shaped association between executive pay and the size of the board of directors. This is an interesting result as it does not support agency theory, nor does it support the argument of previous studies drawn from resource dependence theory (Dalton *et al.* 1999). However, my findings support the argument of Dalton *et al.* (1999) that the effect of board size is complicated and is moderated by other factors such as board independence, board roles and firm size. Further research is needed in order to thoroughly understand the relationship between board size, board effectiveness and executive pay. The results also show that both HPD pay and REST pay are positively related to the proportion of independent directors, which runs counter to the prediction of agency theory. It seems that in China's context, independent directors are inefficient in monitoring top management, which supports previous studies (Peng 2004). As discussed in Chapter 2, independent directors lack the legal backup, formal incentives, and sometimes the ability to performance the duties expected (Cha 2001). However, given that Chinese executives are known as generally underpaid, the results

might be instead interpreted as that the independent directors help to bring executive pay to the level that the executives deserve. Consistent with Agency theory, I found a positive relationship between CEO and chairman duality and HPD pay, but duality has a lesser impact on rest of management pay.

In the case of ownership structure, the results show that state ownership has no significant impact on executive pay which seems to be consistent with the literature that reports on the inefficiency of state ownership (Chen 2001). I also found positive and significant relations between HPD pay and the proportion of domestic legal person ownership, foreign ownership and managerial ownership, results which do not support agency theory. But the impact of legal ownership is less significant when considering REST pay. While the impact of managerial ownership is complex in the western literature, the monitoring effect of institutional ownership is quite consistent. Given the quite consistent result in the literature on China of a positive effect of institutional ownership on firm performance, caution should be exercised in interpreting my result. Instead of management entrenchment, it might just be because those firms with higher institutional ownership are more likely to employ more competent directors and therefore pay them more (Firth *et al.* 2006). Unfortunately, the data does not allow me to further explore this issue.

Moreover, the results show a significant impact of the internal comparison factor. The inclusion of the internal comparison factor substantially improves the explanatory power of the models. HPD pay and REST pay have a positive and significant relationship, even after the effects of other factors are partialed out. Therefore, a *quid*

pro quo arrangement between directors and management is suspected and should be further investigated in the pay change models.

To sum up, the results suggest that some corporate governance mechanisms have a significant impact on executive pay; however, these effects are not all consistent with the hypotheses. Hypotheses 1a, 3a, 2b, and 8 are supported, which suggest that board size, CEO-chairman duality and the internal comparison factors all have significant impacts on executive pay, and that higher proportion of independent directors lead to stronger executive pay-performance sensitivity. Hypothesis 5b and 6b receives partial support that higher foreign ownership and managerial ownership leads to stronger executive pay-performance linkage, but other legal person ownership types have no such effect. Hypotheses 1b, 3b, 4a, and 4b receive no support, which indicate that board size, CEO-chairman duality and state ownership have no significant impacts on executive pay-performance sensitivity and that state ownership does not impact executive pay significantly either. In addition, this thesis provides contradictory evidence for Hypotheses 2a, 5a and 6a: the proportion of independent directors, institutional ownership and managerial ownership are all positively related to executive pay. These findings are further discussed in Chapter 8.

It should be noted that executive individual characteristics are not captured due to data limitation, which might have an important impact on executive pay. Further, although the significant effects of internal comparisons were identified, the causal process is difficult to detect.

Next chapter presents and discusses the results of the executive pay change models.

CHAPTER 7 MULTIVARIATE ANALYSES - PAY CHANGE MODELS

7.1 Introduction

Chapter 6 presented the results of the multivariate models of executive pay levels. This chapter reports the results of the first difference models, which explain the determinants of changes in pay. As discussed in Chapter 4, first difference models help control for special conditions that apply to specific companies which otherwise are either difficult or impossible to identify or measure (Wooldridge 2002a).

Similar to the analysis in Chapter 6, I estimate the first difference models separately for HPD pay and REST pay. Again, the results show that there are common factors determining pay adjustments for both HPDs and the rest of management team. However, the relative importance of these factors differs between HPD pay adjustment and REST pay adjustment.

This chapter also replicates and extends the models of Ezzamel and Watson (1998; 2002) in the Chinese context, to test Hypotheses 7a, 7b, 8 and 9. The thesis first follows their design by using the traditional principal-agent executive pay estimate as the external and internal benchmarking pay levels. The results support the hypotheses that both external and internal comparison factors are important in explaining executive pay adjustments, although there are also differences in the way they impact in my sample compared to the Ezzamel and Watson's UK sample. The thesis then

extends the Ezzamel and Watson models by introducing the effects of corporate governance and other control factors. The results of the pay level models in Chapter 6 have shown that the inclusion of governance variables and control variables significantly increased the overall explanatory power of the models. The more variance of executive pay can be explained by the estimate model, the less noisy the estimation of the pay anomalies (the residuals of the estimate model) will be, which in turn will better reflect the effects of pay comparison factors. My results show that the models with extensions have higher overall explanatory power compared with the models that duplicate Ezzamel and Watson (1998; 2002).

The remainder of this chapter is structured as follows. Section 2 discusses the results for the HPD and REST pay change models. Section 3 presents the results of modeling the external and internal comparison effects following Ezzamel and Watson (1998; 2002). Section 4 introduces extensions to Ezzamel and Watson models and discusses the impact of the extensions. Finally, Section 5 contains discussion and a conclusion.

7.2 First difference models of executive pay

Table 7.1 reports the results for the pay dynamics models, taking the changes in the (natural) log of HPD pay and of REST pay as the dependent variables. Model 2a only includes the year dummies and the variables most commonly assumed by the literature to affect executive pay: the change in log of sales (ChlnSales), the changes in the rank of return on total assets (ChRYRota), and the change in log of adjusted market value (ChlnAdjusted_mv). Model 2b adds to Model 2a the lagged variables of board characteristics (LnBoardsize_1, Size_super_1, Duality1_1) and ownership

structures (State_share_1, Legal_share_1, RYforeign_sha_1, RYDirectorshare_1 and Herfindahl_10_1). Model 2c adds to Model 2b other lagged control variables in the pay level models, namely No_indus_1, Location, RYDebt_1, Yearaftipo_1 and industry dummies. Model 2a-Rest, 2b-Rest, and 2c-Rest are the same models as Model 2a, 2b, and 2c but with the changes in REST pay as the dependent variable. Year dummies are included in all the models to control for macroeconomic effects. The results show that all these models are statistically significant at the 1% level except for Model 2c-Rest (at 5%).

7.2.1 HPD PAY CHANGES

As can be seen from Table 7.1, Model 2a explains just below 5.9% of the variance in the changes in HPD pay. All the explanatory variables and the constant are positive and significant at the 1% level. Changes in Sales, changes in return on total assets and changes in market value all have explanatory power over HPD pay changes. The positive signs of the coefficients for year dummies show that the magnitude of change in HPD pay in 2003 is smaller than that of 2001 and 2002. This model returns slightly better results, in terms of variance explained, compared to the counterpart models used by Ezzamel and Watson (1998; 2002) and Firth *et al.* (2006) which explained only 1%-3% of the variance in CEO pay changes. The positive relationship between pay changes and the change of performance is consistent with agency theory in that shareholders attempt to align managers' interests with theirs by tying managers' reward to firm performance (Jensen and Meckling 1976).

Table 7.1 Executive Pay Change Models (Dependent Variable: HPD pay Changes REST Pay Changes)

Variables	HPD PAY			REST PAY		
	Model 2a	Model 2b	Model 2c	Model 2a-Rest	Model 2b-Rest	Model 2c-Rest
ChlnSales	0.154***	0.153***	0.158***	0.087	0.082	0.055
	(3.16)	(3.19)	(3.19)	(1.57)	(1.52)	(1.08)
ChRYRota	0.001***	0.001***	0.001***	0*	0	0
	(3.15)	(2.75)	(2.89)	(1.67)	(1.4)	(1.45)
ChlnAdjusted_mv	0.125***	0.126**	0.111**	0.183***	0.19***	0.189***
	(2.67)	(2.35)	(2.19)	(2.88)	(2.7)	(2.68)
LnBoardsize_1		-0.031	-0.046		-0.099	-0.155*
		(-0.45)	(-0.63)		(-1.21)	(-1.85)
Size_super_1		-0.013	-0.013		-0.006	0
		(-1.13)	(-1.01)		(-0.45)	(-0.01)
Proind_1		-0.024	0.037		0.33	0.273
		(-0.13)	(0.19)		(1.46)	(1.28)
Duality1_1		-0.13**	-0.127**		-0.082	-0.059
		(-2.33)	(-2.14)		(-1.29)	(-0.9)
State_share_1		-0.001	-0.001		0.001	0.001
		(-0.6)	(-0.56)		(0.31)	(0.35)
Legal_share_1		-0.001	-0.001		0	0.001
		(-0.36)	(-0.37)		(0.11)	(0.23)
Private_share_1		0	0.001		0.001	0.002
		(0.32)	(0.38)		(0.39)	(0.75)
RYForeign_share_1		-0.001**	-0.001		0	0
		(-2.14)	(-1.41)		(0.41)	(0.25)
RYDirectorshare_1		0**	0**		0	0
		(-2.35)	(-2.51)		(-0.91)	(-0.2)
Herfindahl_10_1		0.181	0.193		0.019	0.117
		(1.06)	(1.05)		(0.09)	(0.49)
No_indus_1			-0.005			-0.009
			(-0.66)			(-0.96)
Location			-0.009			-0.061
			(-0.2)			(-1.29)
RYDebt_1			0			0
			(-0.77)			(0.87)
YearafterIPO_1			-0.002			0.008
			(-0.23)			(0.73)
Industry dummies	No	No	Yes	No	No	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
_cons	0.168***	0.548***	0.619**	0.128***	0.252	0.263
	(7.53)	(2.8)	(2.48)	(4.75)	(0.93)	(0.85)
N	878	844	821	858	825	802
F-ratio	9.37***	3.96***	2.25***	6.09***	2.39***	1.68**
$\overline{R}^2$	0.059	0.068	0.062	0.034	0.035	0.024

- MacKinnon & White (1985) hc3 heteroskedasticity-corrected and robust standard error t-statistics in parentheses
- Significance levels: * for p≤0.10; ** for p≤0.05; *** for p≤0.01
- Coefficient 0 means <0.001
- Ns are different across models due to some missing values in the newly introduced variables

The results of Model 2b show that most of the governance variables have no significant impact on changes in HPD pay except that foreign ownership, director ownership and CEO-Chairman duality are all negatively and significantly related to the change in HPD pay at the 5% level. This suggests that HPD pay increases less in firms with CEO-chairman duality, and those with larger proportions of shares held by foreign investors or directors. The $\overline{R}^2$ increases from 0.059 in Model 2a to 0.068 in Model 2b and a Wald test shows that this increase in $\overline{R}^2$ is significant and these governance variables taken together have statistically significant additional explanatory power: F (10, 828) = 2.24, p = 0.014. The lack of significance for the ownership variables might be due to the lack of variation in their data, as discussed in Chapter 6. The results for other variables are not substantially different from those of Model 2a except that the significance level for changes in Adjusted_mv is 5% and that for both year dummies is 10%.

The results in Model 2c show that none of the additional control variables has a significant impact on explaining HPD pay dynamics and that the inclusion of these variables slightly decreases the explanatory power of the model. Overall, Model 2c explains only 6.21% of changes in HPD pay. The signs and significance levels of the variables are similar to those in Model 2a except that the coefficient for foreign ownership becomes non-significant.

7.2.2 REST PAY CHANGES

Table 7.1 also reports the results for the first models of REST pay. As mentioned earlier, Model 2a-Rest, Model 2b-Rest and Model 2c-Rest are just the REST pay

change version of Model 2a, Model 2b and Model 2c. Although all these models are significant as indicated by the F-ratios, their overall explanatory power is much lower than their counterpart models for HPD pay changes. For instance, the $\overline{R}^2$ of Model 2a-Rest is only 0.034, compared with 0.058 in Model 2a. The inclusion of the governance variables and other variables does not significantly affect the results. On the contrary, the inclusion of these variables reduces the overall explanatory power of the model: the $\overline{R}^2$ of Model 2c-Rest is only 0.024 and only significant at the 5% level. Most of the variables are not significant except for board size in Model 2c-Rest, which has a negative impact on the change in REST pay, but is only significant at the 10% level, suggesting that REST pay increases more in firms with smaller boards of directors.

Across the models, the coefficient for ChlnAdjusted_mv is positive and significant at 1%. The changes in Sales and in return on total assets have no significant impact on REST pay changes, which indicates that REST pay changes are not related to the changes in either size or return on total assets[36], except in Model 2a-Rest where the coefficient for ChRYRota is positively significant at 10%. This finding is different from that for HPD pay changes. Again, both year dummies are positive and significant.

[36] The results reported in Table 8.1 are after the standard heteroskedasticity and robust corrections. In the OLS model, Chlnsales and ChRYrota are significant at 5% and 10% respectively, but the results are not robust to heteroskedasticity corrections.

7.3 Replicating the Ezzamel and Watson models (1998; 2002)

Ezzamel and Watson (1998; 2002) were among the first to empirically test the influence of external labour market and within-board pay comparisons upon the pay awards of the CEO and other board members. They demonstrated a significant increase in the explanatory power of the models estimated by including the pay comparison factors. As mentioned in Chapter 1, one of the aims of this thesis is to retest and extend the models developed by Ezzamel and Watson (1998; 2002) using my Chinese sample, to see whether the models they developed in the UK can be equally applied to the transitional economy of China. This section replicates the models of Ezzamel and Watson (1998; 2002), by estimating the comparison pay levels using the traditional agency pay models, i.e. Model 1a and Model 1a–Rest in this case, regressions of HPD and REST pay on firm size and firm performance (see Chapter 6). Then the next section will examine whether and to what extent the inclusion of governance variables affects the findings. For these reasons, the following analyses rely heavily on Ezzamel and Watson (1998; 2002).

7.3.1 THE IMPACT OF EXTERNAL PAY COMPARISON FACTORS

The thesis imports the concept of external pay comparison from Ezzamel and Watson (1998; 2002) and examines its effects on executive pay dynamics in China. Hypothesis 7a states that executive remuneration is positively related to the external market pay level: pay anomalies explain subsequent-period pay changes; while Hypothesis 7b presumes that the strength of the pay adjustments towards the external market pay level is greater for those underpaid executives than for those overpaid

ones. The empirical results are reported in Table 7.2, which are the results after 'robust hc3' corrections and with two outlier firms excluded[37].

7.3.1.1 External Comparison Factors and HPD Pay Changes

To indicate the difference that the pay anomaly variables make upon the ability to explain changes in HPD pay, the traditional principal-agency pay change model was used as a benchmark, reported as Model 3a (=Model 2a), which has been discussed above and is only able to explain a small proportion of the variance in HPD pay changes, $\overline{R}^2 = 0.059$. Building on Model 3a, Models 3b, 3c, 3d and 3e incorporate pay anomaly variables. Following Ezzamel and Watson (1998; 2002), I first proxy pay anomaly as the previous year's residuals of the within-sample firm size and performance estimate in Model 1a, i.e., the traditional agency executive pay level model. Later, in Section 7.4, all these will be retested using Model 1c (Model 1a plus governance variables and control variables, see Chapter 6). To support Hypothesis 7a and 7b, pay anomalies should have a negative sign and also the magnitude of the coefficient for underpaid anomalies should be greater than that for the overpaid anomalies.

[37] For every model run, a leverage-versus-residuals plot was produced to identify possible outliers. The results reported are after outlier firms were excluded. However, except for those specially mentioned cases in my analyses, the results reported, other than the adjusted R-squared, are not significantly different from those with outlier firms included.

Table 7.2 External Comparison Factors and Executive Pay Changes (Dependent variable: HPD pay changes and REST pay changes)

	HPD PAY						REST PAY				
Variable	**Model 3a**	**Model 3b**	**Model 3c**	**Model 3d**	**Model 3e**	**Variable**	**Model 3a-Rest**	**Model 3b-Rest**	**Model 3c-Rest**	**Model 3d-Rest**	**Model 3e-Rest**
ChInSales	0.154***	0.172***	0.171***	0.171***	0.169***	**ChInSales**	0.087	0.115*	0.099*	0.082	0.083
	(3.16)	(3.95)	(3.93)	(3.89)	(3.76)		(1.57)	(1.65)	(1.66)	(1.43)	
ChRYRota	0.001***	0.001***	0.001***	0.001***	0.001***	**ChRYRota**	0*	0*	0*	0*	0
	(3.15)	(3.24)	(3.24)	(3.27)	(3.3)		(1.67)	(1.65)	(1.73)	(1.93)	(1.64)
ChInAdj_mv	0.125***	0.102**	0.102**	0.103**	0.108**	**ChInAdj_mv**	0.183***	0.185***	0.183***	0.193***	0.181***
	(2.67)	(2.38)	(2.38)	(2.41)	(2.48)		(2.88)	(3.12)	(3)	(3.32)	(2.85)
Re_HPDa_1		-0.245***				**Re_RESTa_1**		-0.110**			
		(-10.12)						(-2.23)			
OverHPDa_1			-0.237***	-0.134		**OverRESTa_1**			-0.04	-0.129	
			(-5.84)	(-1.19)					(-0.48)	(-1.55)	
UnderHPDa_1			-0.251***	-0.218**		**UnderRESTa_1**			-0.215***	-0.042**	
			(-5.53)	(-1.97)					(-3.64)	(-2.04)	
OverHPDa^2_1				-0.089	-0.209***	**OverRESTa^2_1**				0.013	0.001
				(-1.09)	(-8.25)					(0.29)	(0.01)
UnderHPDa^2_1				-0.028	-0.149***	**UnderRESTa^2_1**				0.017	-0.076
				(-0.42)	(-5.68)					(0.27)	(-1.24)
Year dummy	Yes	Yes	Yes	Yes	Yes	**Year dummy**	Yes	Yes	Yes	Yes	Yes
_cons	0.168***	0.162***	0.158***	0.152***	0.17***	**_cons**	0.128***	0.124***	0.08*	0.109***	0.012**
	(7.53)	(7.72)	(5.88)	(4.59)	(7.67)		(4.75)	(4.50)	(1.77)	(2.75)	(2.53)
N	878	878	878	878	878	**N**	858	851	851	851	851
Equation F	9.37	25.28	22.97	17.95	23.33	**Equation F**	6.08	6.20	6.55	5.94	4.03
F-ratio	0	0	0	0	0	**F-ratio**	0	0	0	0	0.0002
$\overline{R}^2$	0.059	0.193	0.193	0.193	0.182	$\overline{R}^2$	0.034	0.066	0.067	0.071	0.046

- MacKinnon & White (1985) hc3 heteroskedasticity-corrected and robust standard error t-statistics in parentheses
- Significance levels: * for p≤0.10; ** for p≤0.05; *** for p≤0.01
- Coefficient 0 means <0.001
- Ns are different due to some missing values in the newly introduced variable(s)

As shown in Table 7.2, the explanatory power of the models with respect to pay changes is greatly improved by the inclusion of the pay anomaly variable(s). Model 3b includes pay anomalies experienced by HPD in the previous year (Re_HPDa_1), which increases the $\overline{R}^2$ from 0.059 in Model 3a to 0.193. This change in R^2 is significant ($F(1, 871) = 102.4$, $p < 0.0001$). The pay anomaly variable has a significant and negative impact on changes in HPD pay, which is consistent with the prediction of Hypothesis 7a and the findings of Ezzamel and Watson (1998; 2002) that external comparison does play an important role in determining executive pay adjustments. Moreover, the significant results justify the attempt to further test whether the adjustments in HPD pay are different with respect to whether a HPD is underpaid or overpaid in the previous year compared to the market level.

Model 3c is designed to serve this purpose, splitting the pay anomaly variable into two variables: one for overpaid HPDs (OverHPDa_1), equal to pay anomalies if anomalies are greater than 0, otherwise 0; and the other for underpaid HPDs (UnderHPDa_1), coded as pay anomalies if pay anomalies are less than 0 and 0 otherwise. The estimated coefficients of the two variables are both significant and negative as anticipated by Hypothesis 7a. Hence prior period pay anomalies have a significant impact upon subsequent pay awards to both underpaid HPDs and overpaid HPDs. However, the difference between the magnitude of the two coefficients of UnderHPDa_1 (Cu = -0.251) and OverHPDa_1 (Co = -0.237) is not significant ($F = 0.03$, $p = 0.853$). Moreover, splitting the pay anomaly variable into two does not improve the overall explanatory power of the model. Thus these results support Hypothesis 7a, but not Hypothesis 7b.

To further investigate this issue, Model 3d follows Ezzamel and Watson by adding the square terms of the original pay anomaly variables, OverHPDasq_1 and UnderHPDasq_1, to Model 3d. However, contrary to the finding in Ezzamel and Watson (1998; 2002), the addition of the squared terms does not lead to an increase in the explanatory power of the model. For the four variables, only the linear term UnderHPDa_1 has a negative and significant coefficient at 5%, which is different from the findings of Ezzamel and Watson (1998) who reported that only the square term of underpaid anomaly is significant. However, the lack of statistical significance for the other three variables might be because of the high correlations between the pay anomaly variables and their squared terms in Model 3d estimates (Ezzamel and Watson 2002): Pearson correlation coefficient (r) equals to 0.91 and 0.92 respectively; and the VIFs for these four variables are between 7.47 and 10.10, high enough to cause bias in the estimates (Studenmund 2006). Therefore, Model 3e uses only the two square-termed pay anomaly variables and the results show that again both terms significantly impact HPD pay changes and the coefficient for OverHPDsq_1 (b= -0.209, t=-8.25) is larger than UnderHPDasq_1 (b= -0.149, t=-5.68), but the difference is not significant either (F=2.47, p=0.12). The $\overline{R}^2$ (=0.182) shows that using the square terms does not improve the overall explanatory power of Model 3d.

These findings suggest that there is no significant difference in the extent of adjustments made to overpaid HPDs compared with underpaid HPDs. Thus, Hypothesis 7b is not supported in terms of HPD pay. This result is consistent with the findings of Ezzamel and Watson (1998) in their models when HPD pay was proxied by total cash compensation, but is not consistent with their findings when their HPD pay was proxied by HPD salary only or the findings of Ezzamel and Watson (2002)

who found that pay adjustment to underpaid executives and that to overpaid ones are asymmetric.

Therefore, as suggested by these results, the external pay comparison factor also plays an important role in the HPD pay adjustment process in Chinese listed firms, but the asymmetric adjustments that were observed in the UK context by Ezzamel and Watson (1998; 2002) are absent in my sample.

As can be seen in Table 7.2, the results for other variables are quite consistent across the models and are similar to what has been discussed in Model 2a in the previous section. It should be borne in mind that the benchmark HPD pay model in this thesis uses return on total assets as the performance measurements, different from shareholders' return used in Ezzamel and Watson (1998; 2002), due to data unavailability. To what extent this may account for the discrepant results between my results and theirs remains unresolved.

7.3.1.2 External Comparison Factors and REST Pay Changes

Table 7.2 also reports the results of the models investigating the effects of external benchmarking over the REST pay changes. Model 3a-Rest (the same as Model 2a-Rest) is also used for benchmarking purpose. Model 3b-Rest, Model 3c-Rest, 3d-Rest and 3e-Rest are the counterparts of Model 3c, 3d and 3e, using the changes in REST pay as the dependent variable.

The results of Model 3b-Rest show that prior pay anomaly is negatively related to REST pay changes at the 5% level and its inclusion brings significant improvement in the explanatory power of the model, $\overline{R}^2$ increasing from 0.034 to 0.066 ($F = 23.1$, $p < 0.001$). Model 3c-Rest, which splits the prior pay anomaly into underpaid anomaly (UnderRESTa_1) and overpaid anomaly (OverRESTa_1), has a similar explanatory power upon subsequent REST pay adjustment ($\overline{R}^2$=0.067) to Model 3b-Rest. Both variables have negative coefficients, but only the one for UnderRESTa_1 is significant at the 1% level, which indicates that the rest of management only experienced subsequent pay adjustment when they were underpaid in the previous year, but there seems to be no significant effect for those who were paid over the market level. However, the Wald test shows that the differences between the coefficient for UnderRESTa_1 is not significantly different from that for OverRESTa_1 ($F(1, 843) = 1.93$, $p= 0.165$). Therefore, in the case of REST pay, again Hypothesis 7a is supported, but Hypothesis 7b is not, despite suggestive evidence.

Model 3d-Rest explains 7.1% of the variance in REST pay changes. For the four pay anomaly variables, only the coefficient of the underpaid term is robustly significant at the 5% level, while the remaining three coefficients are not significant. The Wald test ($F=0.09$, $p=0.91$) shows that these two square terms have no significant contribution to the overall explanatory power of the model. In Model 3e-Rest the two linear terms were dropped. The results show that neither of the coefficients for pay anomaly squared terms is significant and that the $\overline{R}^2$ of Model 3e-Rest is smaller than those of Model 3c-Rest and Model 3d-Rest. These results show that there are no 'bidding-up' adjustments in executive pay in terms of the rest of management team. Thus, the

results of Model 3d-Rest, 3e-Rest further support Hypothesis 7a, but not Hypothesis 7b.

As can be seen from Table 7.2, in all the REST pay change models, ChlnAdjusved_mv and year2002 have a positive impact upon REST pay changes, which are robustly significant at the 1% level across the models; while the effects of ChRYRota are weakly significant at 10% in most of the Models and ChlnSales only show weak significance in Model 3b-Rest and Model 3c-Rest but not in Models 3d-Rest and 3e-Rest. In Model 3e-rest, the coefficients for ChlnSales and ChRYRota are both non-significant. These results indicate that REST pay changes are not that closely related to the changes in firm sales and the rank of return on total assets, but are closely related to changes in the market value of the firm. As REST pay is under-explored in the literature, I cannot compare my results with other studies. Ezzamel and Watson (2002) looked at the determination of other directors' remuneration, and found no significant relations between other directors' remuneration and firm sales or relative return.

7.3.2 THE IMPACT OF INTERNAL COMPARISON FACTORS

Table 7.3 reports the results of the models to test Hypotheses 8 and 9 concerning the internal comparison effects on the executive pay adjustment. Hypothesis 8 assumes that the board of directors will adjust pay awards to all the management members and therefore their pay changes will be related to each other. Hypothesis 9 proposes that the 'bidding up' of executive pay is most apparent in firms where the other

management members are relatively generously paid with respect to the external comparison level of pay.

7.3.2.1 Internal Comparison Factors and HPD Pay Changes

As mentioned earlier, the results of the specification tests (Linktest and Ramsey Reset test) for these three models suggest that Model 3e is a better fit than Models 3c and 3d[38]. Also, in order to maintain consistency with Ezzamel and Watson (2002), Model 3e, with the squared terms, is used as a basic model for Models 3f-3i, which will test the interrelationship between HPD pay changes and REST pay changes.

Model 3f adds the pay anomalies of the rest of the management team (Re_RESTa_1), the residuals of Model 1a-Rest, to Model 3e to test whether the prior pay anomalies of the rest of management affect subsequent pay adjustments in HPD pay. The results show that the REST pay anomaly variable has a positive association with HPD pay changes at the 5% level and the inclusion of this variable brings a significant increase in the $\overline{R}^2$ of the model, from 0.182 to 0.208 ($F(1, 846) = 28.9$, $p < 0.001$). The results of other factors remain similar to Model 3e[39]. The Linktest ($p = 0.227$) and Ramsey Reset test ($p=0.348$) suggest that Model 3f has no specification errors.

[38] The Linktest ($p<0.002$) and the Ramsey Reset test ($p=0.002$) of Model 3c both show that there are specification errors in the model; and the same applies to Model 3d (the Linktest ($p=0.010$) and Ramsey Reset test ($p=0.002$); while Model 3e passes both tests (Linktest ($p= 0.170$), and Ramsey Reset test ($p=0.098$).

[39] I also retest Model 3e by replacing Re_restpay_1 with two variables, overrest_1 for the rest of management teams that are overpaid and underrest_1 for those underpaid. Both variables have a positive association with HPD pay changes, but only the coefficient for overrest_1 is significant at 10%.

Model 3g introduces the actual change in the rest of management pay into the model (ChlnRESTpay), which significantly increases the overall explanatory power of the model (F (1, 836) =138.3, p<0.001): the $\overline{R}^2$ improved from 0.208 in Model 3f to 0.409. The results show that both Re_RESTa_1 and ChlnRESTpay are positively related to HPD pay changes at the 1% level, suggesting that the board of directors, when adjusting HPD pay, not only takes into account the situation of the pay status of the rest of management related to the market level, but also tries to keep the changes in HPD pay in the same direction as that of REST pay, though not definitely at the same rate. From the coefficient for ChlnRESTpay (0.425), the increase of HPDpay is nearly equal to the square root of the increase of RESTpay. These findings are consistent with Ezzamel and Watson (2002) and support Hypotheses 8. The results related to most of the other variables remain unaffected, except that the coefficients for ChlnAdjusted_mv and year2002 both become non-significant.

Model 3h further tests Hypothesis 8 by using a new variable, the change in the other board members pay at time t relative to the estimated external comparison pay level at time t-1 (**REST_RESTpre$_t$** = LnRESTpay$_t$ – LnREST*pay$_{t-1}$), which is supposed to be statistically equivalent to the aggregate of the two new variables introduced by Model 3f and 3g (see Ezzamel and Watson (2002)). The results show that Model 3h is less powerful in explaining HPD pay changes: $\overline{R}^2$ of Model 3h is 0.325 compared to 0.409 in Model 3g, which is different from the findings of Ezzamel and Watson (2002) who reported that the two models have equivalent explanatory power over CEO pay changes. A Wald test (F=94.39, p<0.0001) shows that the coefficient for Re_RESTa_1 (0.080) is significantly different from that for ChlnRESTpay (0.425), which indicates that the extent to which the two variables affect HPD pay changes are

different. This might answer the question why combining the two variables into one reduces the overall explanatory power of the model. Also, the size of the estimated coefficient for REST-RESTpre is not significantly different from the mean of the coefficients on the two variables included in Model 3g, which was also noted by Ezzamel and Watson (2002).

Table 7.3 Internal Comparison Factors and HPD Pay Changes

Variables	Model 3e	Model 3f	Model 3g	Model 3h	Model 3i
ChInSales	0.169***	0.151***	0.123***	0.164***	0.132***
	(3.76)	(3.26)	(3.06)	(3.95)	(3.09)
ChRYRota	0.001***	0.001***	0.001***	0.001***	0.001***
	(3.3)	(3.37)	(3.05)	(2.93)	(3.15)
ChInAdjusted_mv	0.108**	0.098**	0.012	0.061	0.068
	(2.48)	(2.32)	(0.26)	(1.24)	(1.35)
OverHPDasq_1	-0.209***	-0.225***	-0.205***	-0.319***	-0.31***
	(-8.25)	(-8.04)	(-6.86)	(-8.32)	(-4.1)
UnderHPDasq_1	-0.149***	-0.178***	-0.154***	-0.213***	-0.2***
	(-5.68)	(-6.33)	(-5.81)	(-9.18)	(-7.17)
Re_RESTa_1		0.051**	0.08**		
		(2.21)	(2.21)		
ChInRESTpay			0.425***		
			(11.89)		
REST-RESTpre				0.237***	0.232***
				(11.55)	(10.76)
OverHPDasq_1*OverRESTa_1					-0.007
					(-0.12)
UnderHPDasq_1*OverRESTa_1					-0.358**
					(-2.55)
Year dummies	Yes	Yes	Yes	Yes	Yes
_cons	0.17***	0.163***	0.101***	-0.35***	-0.332***
	(7.67)	(7.38)	(5.15)	(-7.88)	(-6.94)
N	878	856	844	845	845
Equation F	23.33	20.65	37.29	31.22	23.13
$\bar{R}^2$	0.182	0.208	0.409	0.325	0.326

- MacKinnon & White (1985) hc3 heteroskedasticity-corrected and robust standard error t-statistics in parentheses
- Significance levels: * for p≤0.10; ** for p≤0.05; *** for p≤0.01
- Coefficient 0 means <0.001
- Ns are different across models due to some missing values in the newly introduced variables

Model 3i is designed to test Hypothesis 9 which states that in instances where the rest of the management team are generously overpaid relative to their external market pay level, there will be a greater element of bidding-up in HPD pay adjustment to prior

period pay anomalies. It adds two interaction terms with the HPD pay anomalies, OverHPDasq_1 and UnderHPDasq_1, for the case where the rest management pay are paid more than the comparison level of pay, OverRESTa_1, which are signified as OverHPDasq_1*OverRESTa_1 and UnderHPDasq_1*OverRESTa_1 in Table 7.3. The results show that both OverHPDasq_1 and UnderHPDasq_1 have a negative and significant coefficient at the 1% level. The coefficient for the overpaid interaction term is not significant, while the coefficient on the underpaid interaction term is negative and significant at the 5% level, which indicates that those underpaid HPDs in firms where the rest of management are relatively overpaid receive stronger pay adjustment towards the market level in the subsequent year, while those overpaid HPDs do not appear to have received a subsequent pay decrease or increase. This finding is consistent with the results of Ezzamel and Watson (2002) that there is a greater 'bidding-up' in HPD pay in firms where REST management are relatively overpaid. Therefore, Hypothesis 9 is supported.

7.3.2.2 Internal Comparison Factors and REST Pay Changes

Ezzamel and Watson (1998; 2002) explored the relationship between CEO pay changes and the relative pay for the other board members by examining the relationship between the effects of the relative pay for CEO on the pay changes of other board members. This thesis aims to extend their work by exploring the relationship between REST pay changes and the relative pay for HPDs. The results are reported in Table 7.4. As above, Model 3f-Rest to 3i-Rest are the counterpart models of Model 3f to 3i but using REST pay changes as the dependent variable. However, for the REST pay change models, Model 3c-Rest is used as the basic model

for further analyses because the square terms of REST pay anomalies are not significant in the case of REST pay changes.

Model 3f-Rest adds to Model 3c-Rest the pay anomaly of HPD pay (Re_HPDa_1), which has a negative but non-significant association with REST pay changes and does not improve the overall explanatory power of Model 3c-Rest, with $\overline{R}^2$ =0.066. Model 3g-Rest is Model 3f-Rest plus the log of actual change of HPD pay, which significantly increases the $\overline{R}^2$ to 0.275 (F (1, 841) =132.2, p<0.001). Both HPD pay anomalies (Re_HPDa_1) and HPD pay change have a positive and significant impact on REST pay changes at the 1% level, indicating that the board of directors, when adjusting REST pay, not only takes into account the situation of the pay status of HPDs related to the market level, but also tries to keep the adjustment of REST pay in line with the adjustment of HPD pay. And again, as found in the HPD pay change models in the previous section, the coefficient for the actual change of HPD pay is greater than that for the HPD pay anomaly variable and the difference is significant at 1% as indicated by a Wald test (F(1, 841)=36.17, p<0.001). This suggests that when adjusting the REST pay, the board refers more to the actual adjustment of HPD pay to keep peace inside the board. These results support Hypothesis 8.

Table 7.4 Internal Comparison Factors and REST Pay Changes

Variables	Model 3c-Rest	Model 3f-Rest	Model 3g-Rest	Model 3h-Rest	Model 3i-Rest
ChlnSales	-0.061	0.099	0.017	0.062	0.011
	(-0.79)	(1.63)	(0.3)	(0.93)	(0.24)
ChRYRota	0.125***	0*	0	0	0
	(3.4)	(1.72)	(0.32)	(1.06)	(1.29)
ChlnAdjusted_mv	-0.061	0.182***	0.036**	0.175***	0.184***
	(-0.79)	(2.97)	(2.1)	(2.67)	(3.48)
OverRESTa_1	0.125***	-0.037	-0.073	-0.103	0.002
	(3.4)	(-0.41)	(-0.61)	(-0.58)	(0.02)
UnderRESTa_1	-0.061	-0.201***	-0.304***	-0.47***	-0.465***
	(-0.79)	(-2.6)	(-3.57)	(-5.92)	(-6.81)
Re_HPDa_1		-0.014	0.167***		
		(-0.3)	(3.22)		
ChlnHPDpay			0.563***		
			(11.5)		
HPD-HPDapre				0.298***	0.349***
				(5.97)	(8.12)
OverRESTa*OverHPDa_1					-0.318***
					(-3.43)
UnderRESTa*OverHPDa_1					-0.762
					(-0.59)
Year dummy	Yes	Yes	Yes	Yes	Yes
_cons	0.08*	0.082*	-0.022	-0.015	0.006
	(1.77)	(1.81)	(-0.42)	(-0.22)	(0.13)
N	851	851	851	851	851
Equation F	6.55	6.58	21.58	11.05	13.68
$\overline{R}^2$	0.067	0.066	0.275	0.174	0.215

- MacKinnon & White (1985) HC3 heteroskedasticity-corrected and robust standard error t-statistics in parentheses
- Significance levels: * for p≤0.10; ** for p≤0.05; *** for p≤0.01
- Coefficient 0 means <0.001

Model 3h-Rest further tests Hypotheses 8 by using a new variable, the change in HPD pay to time t relative to the estimated external comparison pay level at time t-1 (**HPD_HPDpre**= LnHPDpay – LnHPD*pay_{t-1}), which is supposed to be statistically equivalent to the aggregate of the two new variables introduced by Model 3f-Rest and 3g-Rest (see Ezzamel and Watson (2002)). REST-RESTpre also has a positive and highly significant impact as the two separate variables. However, as with Model 3h to 3g, I found that Model 3h-Rest, compared to Model 3g-Rest, has less power in explaining REST pay changes: the $\overline{R}^2$ of Model 3h-Rest is only 0.174 compared to 0.275 in Model 3g-Rest. The reduction of the explanatory power of the model might

lie in the different extent in which the two variables impact the HPD pay changes: as can be seen from Table 7.4, the size of coefficient (0.167) for Re_HPDa_1 is much smaller than for ChlnHPDpay (0.563) and the difference is significant ($F(2, 841) = 67.3$, $p<0.001$).

Model 3i-Rest adds two interaction terms with the REST pay anomalies, OverRESTa_1 and UnderRESTa_1, and for the case where HPDs are paid more than the comparison level, OverHPDa_1. These variables are called OverRESTa_1* OverHPDa_1 and UnderRESTa_1* OverHPDa_1 in Table 7.4. The results show that only the coefficient on the overpaid interaction term is negative and significant at the 1% level. These results indicate that those firms where HPDs are relatively overpaid are more likely to adjust overpaid REST pay downwards in the subsequent year, while whether the HPDs are overpaid or underpaid does not appear to have a significant impact on the pay adjustment for those underpaid REST managements. This result is interesting. It might suggest that the rest of management fail to bargain their pay terms favorably compared to powerful HPDs who can manage to overpay themselves. Therefore, in the case of REST pay, Hypothesis 9 is not supported either.

7.4 Extension of Ezzamel and Watson (1998; 2002)

Section 7.3 has presented the results of the models duplicating the work of Ezzamel and Watson (1998; 2002) to test internal and external comparison effects. As mentioned earlier, the thesis also intends to extend their work by investigating how the inclusion of the governance variables impacts upon the results or their models. I

wish to revisit the question of how exactly to define pay anomalies on which the framework of Ezzamel and Watson (1998; 2002) rests.

It is evident from the discussions of the results of HPD pay models in Chapter 6 that the explanatory power of Model 1c, which includes corporate governance variables and other control variables, is higher than that of the traditional agency model, Model 1a. It would be interesting to explore the extent to which the use of a different external benchmark pay model provides different results for the effects of external and internal comparison factors on subsequent pay adjustments. The better the estimated power of the external benchmark pay model is, the less noisy the pay anomalies will be as they are defined as the residuals of the model. To undertake this task, I proxied HPD pay anomalies as the residuals of Model 1c and reran the tests of the models already discussed in Section 7.3. The results are reported in Table 7.5.

7.4.1 EXTERNAL COMPARISON FACTORS AND AN EXTENSION TO HPD PAY CHANGES

As reported in Section 7.2, Model 2c, which includes other control variables, has less explanatory power over HPD pay changes than Model 2b; therefore, the models for testing the effects of internal and external comparison factors over HPD pay adjustments will be based on Model 2b.

Table 7.5 Extension of Ezzamel and Watson (1998; 2002) Models—HPD Pay Changes

Variables	External comparison factors				Internal comparison factors						
	Model 3a	Model 3c	Model 3d	Model 3e	Model 3f	Model 3g	Model 3h	Model 3i	Model 3i'	Model 3h-O	Model 3h-U
ChInSales	0.153***	0.162***	0.159***	0.157***	0.159***	0.126***	0.141***	0.136***	0.125***	0.089**	0.171***
	(3.19)	(3.87)	(3.79)	(3.7)	(3.72)	(3.71)	(3.78)	(3.61)	(4.67)	(2.31)	(3.45)
ChRYRota	0.001***	0.001***	0.001***	0.001***	0.001***	0***	0.001***	0.001***	0***	0.001**	0**
	(2.75)	(3.19)	(3.22)	(3.22)	(3.18)	(2.93)	(3.23)	(3.07)	(3.3)	(2.15)	(1.99)
ChInAdj-Mv	0.126**	0.117**	0.118**	0.118**	0.102**	0.016	0.061	0.052	0.036	-0.017	0.052
	(2.35)	(2.48)	(2.48)	(2.48)	(2.31)	(0.33)	(1.2)	(1.05)	(0.88)	(-0.26)	(0.68)
InBoardsiz~1	-0.031	-0.036	-0.041	-0.046	-0.057	-0.006	-0.009	-0.028	0.016	-0.081	0.12
	(-0.45)	(-0.56)	(-0.64)	(-0.72)	(-0.88)	(-0.09)	(-0.14)	(-0.45)	(0.28)	(-0.96)	(1.34)
Size_super_1	-0.013	-0.015	-0.017	-0.018	-0.014	-0.013	-0.018*	-0.014	-0.013	0.004	-0.032**
	(-1.13)	(-1.4)	(-1.55)	(-1.64)	(-1.25)	(-1.31)	(-1.87)	(-1.39)	(-1.31)	(0.29)	(-2.44)
Proind_1	-0.024	0.02	0.037	0.052	0.022	-0.081	-0.003	-0.018	-0.04	0.154	-0.295
	(-0.13)	(0.12)	(0.22)	(0.31)	(0.13)	(-0.54)	(-0.02)	(-0.11)	(-0.29)	(0.69)	(-1.33)
Duality1_1	-0.13**	-0.12**	-0.12**	-0.121**	-0.114**	-0.084*	-0.101**	-0.098**	-0.082**	-0.11*	-0.083
	(-2.33)	(-2.38)	(-2.39)	(-2.39)	(-2.27)	(-1.89)	(-2.17)	(-2.14)	(-2.05)	(-1.68)	(-1.41)
State_share_1	-0.001	-0.001	0	0	0	0	0	0	0	-0.002	0.001
	(-0.6)	(-0.33)	(-0.22)	(-0.17)	(-0.2)	(-0.24)	(-0.22)	(-0.14)	(-0.3)	(-0.72)	(0.49)
Legal_share_1	-0.001	0	0	0	0	0	0	0	0	0	0
	(-0.36)	(-0.02)	(0.05)	(0.08)	(0.18)	(0.28)	(0.24)	(0.31)	(0.36)	(0.07)	(0.26)
Private_share _1	0	0.001	0.001	0.001	0.001	0	0.001	0.001	0.001	0	0.001
	(0.32)	(0.41)	(0.47)	(0.52)	(0.78)	(0.37)	(0.55)	(0.8)	(0.54)	(0.01)	(0.64)
RYforeign_1	-0.001**	0	0	0	0	0	-0.001*	0	0	-0.001	0
	(-2.14)	(-1.31)	(-1.38)	(-1.47)	(-1.37)	(-1.36)	(-1.74)	(-1.51)	(-1.46)	(-1.28)	(-0.64)
RYDirector_share_1	0**	0***	0**	0**	0**	0**	0**	0**	0**	0***	0
	(-2.35)	(-2.7)	(-2.58)	(-2.49)	(-2.26)	(-2.13)	(-2.47)	(-2.23)	(-2.26)	(-2.73)	(-0.25)
Herfindahl_10_1	0.181	0.12	0.097	0.087	0.122	0.045	0.017	0.043	0.051	0.191	-0.132
	(1.06)	(0.72)	(0.59)	(0.53)	(0.74)	(0.3)	(0.11)	(0.28)	(0.38)	(0.84)	(-0.67)
Overpaid_1		-0.189***	-0.103								
		(-3.91)	(-0.77)								
Underpaid_1		-0.402***	-0.18*								
		(-8.12)	(-1.69)								

Variables	External comparison factors				Internal comparison factors						
	Model 3a	Model 3c	Model 3d	Model 3e	Model 3f	Model 3g	Model 3h	Model 3i	Model 3i'	Model 3h-O	Model 3h-U
Overpaidsq_1			-0.127	-0.244***	-0.255***	-0.297***	-0.426***	-0.44***	-0.488***	-0.338***	-0.49***
			(-1.11)	(-6.29)	(-5.74)	(-7.56)	(-10.92)	(-6.64)	(-3.65)	(-8.53)	(-2.79)
Underpaidsq_1			-0.165***	-0.277***	-0.282***	-0.269***	-0.344***	-0.333***	-0.279***	-0.529***	-0.295***
			(-2.65)	(-8.33)	(-9.7)	(-8.3)	(-10.71)	(-10.65)	(-12.45)	(-4.13)	(-10.08)
re_RESTpay_1					0.026	0.142***					
					(0.98)	(5.85)					
ChInRESTpay						0.438***					
						(12.51)					
ChREST_REST pre							0.281***	0.267***	0.369***	0.388***	0.333***
							(13.38)	(12.41)	(16.34)	(9.3)	(9.47)
Overpaidsq *OREST_1								0.035			
								(0.56)			
Underpaidsq *OREST_1								-0.284***			
								(-2.68)			
Overpaidsq *DRESTO									0.155		
									(1.12)		
Underpaidsq *DRESTO									-0.249***		
									(-3.15)		
DRESTO									-0.294***		
									(-8.4)		
year2001	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_cons	0.548***	0.413**	0.448**	0.48***	0.462**	0.324*	0.408**	0.402**	0.433***	0.34	0.223
	(2.8)	(2.31)	(2.52)	(2.71)	(2.58)	(1.93)	(2.43)	(2.35)	(2.72)	(1.36)	(0.97)
N	844	821	821	821	804	797	809	795	798	389	406
F	3.96	12.52	12.1	11.84	12.54	21.69	20.61	28.34	21.97	11.98	13.93
$\overline{R}^2$	0.068	0.240	0.248	0.244	0.271	0.472	0.412	0.408	0.447	0.448	0.441

- MacKinnon & White (1985) HC3 heteroskedasticity-corrected and robust standard error t-statistics in parentheses
- Significance levels: * for p≤0.10; ** for p≤0.05; *** for p≤0.01
- Coefficient 0 means <0.001
- Ns are different across models due to some missing values in the newly introduced variables

The models developed here are similar to those discussed previously except that these new models include the corporate governance variables and the external and internal benchmark pay models are Model 1c and Model 1c-Rest, rather than Model 1a and 1a-Rest respectively. The following discussion will focus on whether this difference in definition of the 'market rate' affects the results relating to the effects of internal and external comparison factors on HPD pay changes.

As can be seen in Table 7.5, Model 3c adds to Model 2b the prior HPD pay anomalies of overpaid HPDs and underpaid HPDs, which I name Overpaid_1 and Underpaid_1 in order to distinguish Model 3c used here from that used in the previous section. These two variables are both negative and significant at the 1% level, with a sizeable and significant increase in $\overline{R}^2$ from 0.068 in Model 2b to 0.240 (and the F-ratio of the model improves from 3.96 in Model 2b to 12.5). This result is similar to that of its counterpart model in the previous section; Hypothesis 7a is therefore supported. What is different is that there is a significant difference between the two coefficients of pay anomalies (Wald test: F (1, 803) =6.58, p=0.01). The one for underpaid HPDs (cf_u =-0.402) is greater in magnitude than that for overpaid HPDs (cf_o =-0.189), indicating that there is an asymmetric pay adjustment related to prior pay anomalies for underpaid HPDs compared to overpaid HPDs. The extent of adjustment is greater for underpaid HPDs. Therefore, with the extension model, the finding is consistent with Ezzamel and Watson (2002) and Hypothesis 7b is therefore supported.

These findings are further supported by the results of Model 3d in which only the coefficients for underpaid anomalies and its squared term are significant at the 10% and 1% level respectively. The coefficients for overpaid terms are not significant. Due

to the multicolinearity between the four pay anomaly variables, the statistical significance is lower and also the allocation of coefficients might be biased. However, the coefficients for underpaid HPDs seem to be greater, though not by much, compared to their counterparts for overpaid HPDs. When the linear forms of pay anomalies are dropped, see Model 2f, both the squared terms are significant, and the magnitude of the coefficient for Underpaidsq_1 is slightly greater than that for Overpaidsq_1, although the difference is not significant ($F(1,803) = 0.34$, $p=0.559$).

It is worth noting that in all these models, the results for the other variables are stable. ChlnSales and ChRYRota has a positive association with HPD pay changes at 1%, ChalnAdjusted_mv also have a positive impact, but at 5%, while Duality1_1 and RYtotdirshare_1 have a negative association with HPD pay changes at the 5% level. Other variables do not have significant impacts. The model specification tests (Linktest and Ovtest) show that Model 3d and Model 3e are better fitted than Model 3c, indicating that there is a nonlinear effect of the pay anomalies over HPD pay changes.

7.4.2 INTERNAL COMPARISON FACTORS AND AN EXTENSION TO HPD PAY CHANGES

The extended version of Model 3f to Model 3h-U, as reported in Table 7.5, are also rerun, to examine how the different definition of pay anomalies affects the previous findings about the relationship between HPD pay changes and the relative pay of the rest of management.

Model 3f adds the REST pay anomalies (Re_RESTpay_1), the residuals of Model 1c-Rest in Chapter 6, to Model 3e to test whether the prior pay anomalies of the rest of management affect the subsequent pay adjustment of HPD pay. The result shows that the pay anomaly variable has no significant association with HPD pay changes, although the inclusion of this variable does bring a significant increase in the $\overline{R}^2$ of the model, from 0.244 to 0.271 ($F(1,784) = 30.62$, $p<0.001$), which is different to the original Model 3f in Section 7.3.2 where the pay anomaly variable has significant impact at 5%[40]. However, in Model 3g, both the REST pay anomaly and actual change of REST pay are positively related to HPD pay changes at the 1% level. The $\overline{R}^2$ is significantly improved from 0.271 in Model 3f to 0.472 in Model 3g ($F(1, 777) = 156.4$, $p<0.001$). The size of coefficient (0.142) for Re_RESTpay_1 is much smaller than that ChlnRESTpay (0.438) and the difference is significant (Wald test: $F(1,777) = 54.21$, $p<0.001$). The results of Model 3h are also not substantially different from their counterpart models in Section 7.3.2 which do not take into account governance variables: HPD pay changes is positively related to the difference between REST pay and previous REST pay market level. Therefore, Hypothesis 8 is consistently supported.

Model 3i is designed to test whether the status of the rest of management being underpaid or overpaid compared to the market level affects the pay adjustment of HPDs related to their market level. Again, the result shows that only the underpaid interaction term is negative and significant at 1%, which indicates that the 'bidding-up' is more severe when the rest of management is overpaid. I also produced a model

[40] I also retested Model 3f by splitting Re_restpay_1 into two variables, Overrest_1 for the rest of management teams that are overpaid and underrest_1 for those underpaid. With the results for other variables remaining similar, the coefficient for overrest_1 is positive and significant at 10%, while the one for Underrest_1 is negative but not significant.

with a dummy variable (DRESTO), coded 1 when the rest of management is overpaid, and 0 otherwise, and two interaction terms between each of the HPD pay anomalies and this dummy variable, reported as Model 3i' in Table 7.5. The results show that the dummy variable has a negative and a significant impact at the 1% level. For the two interaction terms, only the one for underpaid HPDs has a significant and negative impact at 1%, the one for overpaid HPDs has a positive but non significant impact. These results indicate that when the rest of management are overpaid, those underpaid HPDs experience a greater pay increase in the subsequent year; however, those overpaid do not seem to experience a significant pay decrease down to the market rate. Therefore, there is a greater bidding-up in HPD pay in those firms whose managements other than HPDs are overpaid compared to the market rate. In this case, Hypothesis 9 is supported.

I also tested Hypothesis 9 in an alternative way. I separately estimated Model 3h for the two sub-samples: firms with relatively under and overpaid rest of management, and the results are reported as Model 3h-O and 3h-U. The estimates included are less restrictive than the estimates in Model 3i and 3i', since the coefficients on all the variables were allowed to vary across the two sub-samples (Ezzamel and Watson 2002). These estimates show the differences in the slope coefficients relating to the HPDs' pay anomalies. The results show that in the both samples, both HPD pay anomalies have a significant and negative impact, which is different from Ezzamel and Watson (2002) who found that in the sample of underpaid boards, the coefficient for the overpaid CEO anomaly is not significant. However, I also found that in the overpaid sample, the absolute magnitude of the coefficient for Underpaidsq_1 is larger than that for Overpaidsq_1, and vice versa in the underpaid sample. These

estimates indicate that HPDs with relatively overpaid managements experience a significant element of bidding-up in their pay which is related to their prior period payment anomalies whilst CEOs with relatively underpaid management experience a significant element of 'bidding down'. However, these differences in the size of coefficient are not significant, as shown by Wald tests[41].

7.4.3 EXTENSION OF EZZAMEL &WATSON (2002)-REST PAY CHANGES

Similarly, I reran the extension models for REST pay changes, to see whether using different comparison pay level models changes the results. In the case of REST pay changes, I used Model 2a-Rest, chosen to be the basic model for further analyses, because the inclusion of the governance variables and other variables in Model 2b-Rest and Model 2c-Rest does not contribute much explanatory power to the rest pay change models. The rest pay anomalies here are proxied as the residuals of Model 1c-Rest (traditional agency model plus governance variables and other control variables). The results are reported in Table 7.6.

[41] For overpaid sample: F (1, 370) = 1.84, p = 0.176; for the underpaid sample: F(1, 390) = 1.49, p = 0.223. Also, When robust regressions are run, which are better capable of dealing with outliers, the difference in the overpaid sub-sample is significant (F=6.42, p=0.0117), while the one in the underpaid sample is not. This indicates that pay for overpaid managements is related to greater bidding up of HPD pay adjustment. However, this relationship is not robust to heteroskedasticity correction.

Table 7.6 Extension of Ezzamel and Watson (1998; 2002) Models—REST Pay Changes

bles	External Comparison Factors				Variables	Internal Comparison Factors			
	Model 3b-Rest	Model 3c-Rest	Model 3d-Rest	Model 3e-Rest		Model 3f-Rest	Model 3g-Rest	Model 3h-Rest	Model 3i-Rest
ales	0.063	0.062	0.062	0.064	ChInSales	0.062	-0.03	0.003	-0.013
	(1.32)	(1.28)	(1.26)	(1.29)		(1.28)	(-0.77)	(0.08)	(-0.33)
Rota	0*	0*	0*	0*	ChRYRota	0*	0	0	0
	(1.73)	(1.75)	(1.73)	(1.68)		(1.74)	(0.07)	(0.58)	(0.55)
dj-mv	0.184***	0.182***	0.177***	0.177***	ChInAdj-mv	0.182***	0.122*	0.14*	0.168**
	(2.81)	(2.77)	(2.67)	(2.79)		(2.73)	(1.78)	(1.88)	(2.34)
STpay_1	-0.232***				OverREST_1	-0.203***	-0.302***	-0.437***	-0.245***
	(-7.76)					(-2.74)	(-4.51)	(-7.43)	(-2.87)
EST_1		-0.185***	0.173		UnderREST_1	-0.283***	-0.332***	-0.414***	-0.475***
		(-3.09)	(0.88)			(-4.76)	(-6.48)	(-7.75)	(-8.45)
REST_1		-0.273***	-0.421***		re_HPDpay_1	0.024	0.258***		
		(-4.71)	(-2.74)			(0.58)	(6.44)		
ESTsq_1			-0.296	-0.213***	ChInHPDpay		0.606***		
			(-1.64)	(-3.94)			(13.48)		
RESTsq_1			0.077	-0.186***	HPD_HPDpre			0.403***	0.437***
			(0.75)	(-4.45)				(11.19)	(12.04)
					OREST*OHPD_1				-0.253***
									(-2.94)
					UREST*OHPD_1				1.075***
									(3.4)
01	Yes	Yes	Yes	Yes	year2001	Yes	Yes	Yes	Yes
	0.137***	0.113***	0.058	0.136***	_cons	0.115***	0.034	0.083**	0.063*
	(5.05)	(3.08)	(1.24)	(4.47)		(3.08)	(0.97)	(2.37)	(1.73)
	802	802	802	802	N	802	802	802	798[42]
ion F	15.34	12.94	10.89	10.35	Equation F	11.31	31.31	25.49	24.37
	0.122	0.122	0.125	0.117	$\overline{R}^2$	0.121	0.364	0.289	0.295

MacKinnon & White (1985) HC3 heteroskedasticity-corrected and robust standard error t-statistics in parentheses
Significance levels: * for p≤0.10; ** for p≤0.05; *** for p≤0.01
Coefficient 0 means <0.001

Comparing the results in Table 7.6 with those in Table 7.2 and Table 7.4 that replicated the original Ezzamel and Watson models, I found that there is no substantial difference in the results of Model 3b-Rest: the REST pay anomaly variable has a significant and negative impact. In terms of Model 3c-Rest, the results for the

[42] These results are after deleting two outliers (firms with both high leverage and high residuals). With outliers included, both variables have no robust significant results. When the first outlier was deleted, only the UrestOHPD_1 has a positive and significant coefficient at 1%. Due to the high sensitivity of the results to some particular firms, I ran a robust regression with the same variables, and the results are quite similar to those with two outliers excluded.

two REST pay anomaly variables are different. In the extended model, both overpaid and underpaid REST pay anomalies have negative and significant coefficients; but there is no significant difference between the two coefficients (Wald test: F (3,791) =0.74, p=0.39), which does not support the 'bidding up' hypothesis. Therefore, Hypothesis 7a is supported, while Hypothesis 7b is not. The results of both versions of Model 3d-Rest are quite similar: only the linear term of underpaid anomaly variable has a significant coefficient; however, due to the high multicolinearity of the four variables, no safe conclusion can be drawn. When the two linear terms are dropped in Model 3e-Rest, both squared terms are significant at the 1% level, and again there is no significant difference between the two coefficients. Therefore, when the extended models are used and in terms of REST pay changes, it can only be concluded that the external comparison factor does play a significant role in the subsequent pay adjustments. There is no consistent evidence that there is an asymmetric adjustment between underpaid management and overpaid management. Therefore, Hypothesis 7a is supported while Hypothesis 7b is not supported in case of REST pay change models when the governance effects are included in proxying pay comparison rate.

In terms of the effects of the internal comparison factors, the results of the extended version are quite similar to those of the replicated version. For instance, in Model 3f-Rest, the coefficient for HPD pay anomaly variable is not significant by itself in both versions. But when the actual changes of HPD pay are also included, as in the Model 3g-Rest, both the coefficient for HPD pay anomalies (re_HPDpay) and that for the actually changes in HPD pay (ChlnHPDpay) variable become significant at 1%, and the magnitude of the former (0.258) is much smaller than that of the latter (0.606).

Also, as shown in Model 3h-Rest in Table 7.6 and in Table 7.4, the actual changes of HPD pay related to the estimate market level in the previous period have a consistently positive and significant impact on REST pay changes. These results seem to suggest consistently that in China's case, although REST pay is adjusted to be in line with the anticipated changes in the market rates for the HPDs, more efforts are made to keep the adjustment of REST pay in line with the actual changes of HPDs rather than HPDs' previous pay anomalies compared to the market rate. These results support Hypothesis 8.

However, in terms of Model 3i-Rest, the results of the two versions are different. In the replicated version in Table 7.4, only the overpaid interaction has a negative and significant coefficient at the 1% level, which supports Hypothesis 9. However, in the extended model, the underpaid interaction is also significant at the 1% level and with a positive sign. These findings are counter to Ezzamel and Watson (2002) and do not support Hypothesis 9.

It is worth noting that although both overpaid and underpaid REST pay anomalies are significant in the models in Table 7.6; it is not until Model 3i-Rest that the difference in their coefficient magnitudes is statistically significant (Wald test: F (=3.76, p=0.056). Another interesting finding is that the overall explanatory power of the extended models are consistently stronger than their counterpart models replicating the work by Ezzamel and Watson (1998; 2002). This may be due to the less noisy proxy of executive pay anomalies estimated by those models that include corporate governance variables and other control variables and thus have better explanatory power than those traditional agency models used by Ezzamel and Watson.

7.5 Discussion and conclusion

Chapter 6 presented and discussed the results for the pay level estimate models. The results showed that corporate governance variables have significant explanatory power over the pay level of HPDs and the rest of management. This chapter reports the results of the pay changes models.

In contrast to the pay level models, the first difference models do not show much support for the significant impact of governance variables. Duality, foreign ownership and director ownership all negatively impact on the change in HPD pay; but the impacts disappear in the case of REST pay changes, although in one of the models, board size shows a weak negative effect on REST pay changes. Without taking account of the effects comparison factors, the pay first difference models can only explain between 3% and 7% of executive pay changes.

Ezzamel and Watson (1998; 2002) introduced the external and internal comparison factors into CEO pay change models and their models significantly increase the overall explanatory power. The thesis retested their models in the Chinese context. The results show that the previous pay anomalies from the market level have significant explanatory power over subsequent HPD and REST pay adjustments, which supports Hypothesis 7a. However, except for the HPD extended model, this thesis does not find that the adjustment for underpaid executives is greater than those for overpaid ones; therefore, Hypothesis 7b is not consistently supported. But in both HPD and REST pay changes, the explanatory power of the cash compensation models was significantly improved by the addition of the pay anomaly variables. These

results show that market factors that have been reported to affect the decisions of listed companies in terms of executive pay adjustments in the West also seem to function in transitional economies like China.

Concerning the internal comparison factors, the results of this thesis also show support for Ezzamel and Watson (2002) in that the board of directors, when adjusting HPD pay, not only take into account the situation of the pay status of RESTpay related to the market level, but also try to keep the percentage adjustment of HPD pay in line with that of REST pay. These findings support Hypothesis 8, that executive pay is adjusted according to the internal comparison pay level, and are consistent with Ezzamel and Watson (2002). However, in contrast to what were found in Ezzamel and Watson (2002), the explanatory power of pay changes of related to external market level is not as strong as its two separate elements: the actual percentage changes of other management members and their prior pay anomalies. In both HPD and REST cases, the percentage changes of their within-firm peers seem to affect the pay adjustments decision to a greater extent. Actually, in some models, which only include the pay anomalies experienced by the peer in previous period as the internal comparison factor, the pay anomaly variable of within firm peers itself does not have a significant effect over executive pay changes.

Hypothesis 9 assumes that in instances where the rest of management is overpaid relative to their peers in the market, there is a greater element of bidding-up in respect of the HPD pay, which is supported by the empirical results of the HPD pay change models. This finding is consistent with Ezzamel and Watson (2002). However, in the

case of the rest of management, this thesis does not find similar greater 'bidding-up' adjustment to REST pay in firm where HPDs are relatively overpaid

Also, although firm performance is not a focused variable in the thesis, the results of these first difference models show that there is a robust positive association between the changes of HPD pay and the changes in firm size and performance, which supports agency theory. The finding is different from Firth *et al.* (2006) who only found very weak pay-performance relation in some of their pay change models. However, in terms of REST pay changes, excepting the adjusted market value, the relation between REST pay changes and changes in firm size and return on total assets are rather weak, which suggests that the determination of pay changes is different between HPDs and the rest of management.

To sum up, this chapter runs several regression models on HPD pay changes and REST pay changes. There are some common factors that explain the pay adjustments of executive pay in Chinese listed firms: the changes in market values of the firm, the pay anomalies related to the external pay market level (both of themselves or their within-firm peers) and the pay percentage changes of their within-firm peers. It is quite clear from the results that in the Chinese context, social comparisons are very important in the pay dynamic process. However, there are some differences in the pay adjustment of HPD pay and that of REST pay. Generally speaking, while firm size, firm performance, and corporate governance are all important in explaining the pay awards of HPDs, they do not seem to impact REST pay as much. Also, the explanatory powers of those HPD pay changes are much better than their counterparts for REST pay. In terms of the effects of comparison factors, the extended models

appear to have consistently higher overall explanatory power than those models that simply duplicated the work of Ezzamel and Watson (1998; 2002), which might be because of the additional explanatory power of the corporate governance variables and other control variables included.

The next chapter will discuss the results presented in this chapter, together with those in Chapter 5 and 6, at a general level and will link these empirical results to research hypotheses, previous literature and the interview findings.

CHAPTER 8 DISCUSSION AND INTERPRETATION OF RESULTS

8.1 Introduction

Chapter 7 presented the results of executive pay change models, thus completing the empirical analyses as planned in Chapter 4. This chapter summarizes the results of Chapters 5, 6 and 7 and seeks to interpret these results by linking them to the research hypotheses, the previous literature reviewed in Chapter 3, and the specific institutional background in China introduced in Chapter 2. The relevant results of the interviews are used in this chapter to supplement and help explain the empirical results.

Generally, the results show that the focal variables of this thesis - board characteristics, ownership structure and market comparison factors - all impact significantly on executive remuneration, although support for the research hypotheses is mixed. The hypotheses were developed from the previous literature which was mainly conducted in the West, and were based on agency theory. The mixed supports suggested that the effects of corporate governance mechanisms on executive pay in China differ from those in the Western economies, which may be due to the special institutional factors in China. This chapter provides a detailed discussion of these issues.

This chapter is structured as follows. Section 2 summarises in a tabular form the main findings related to the research hypotheses. Section 3 discusses the results concerning

the impact of board characteristics on executive remuneration. Section 4 examines the results relating to ownership structure. Section 5 covers the findings concerning market comparison effects. Section 6 concludes the chapter.

8.2 Hypotheses and findings

As explained in Chapter 3, nine groups of hypotheses were developed relating to board characteristics, ownership structure and market comparison factors. This section summarises these hypotheses and the empirical results related to them in Table 8.1.

As indicated in Table 8.1, my empirical results support the hypotheses concerning the relationship between executive remuneration and board size (Hypothesis 1a), CEO-Chairman duality (Hypothesis 3a), external comparison (Hypothesis 7a) and internal comparison factors (Hypothesis 8). They also show support for Hypotheses 2b, concerning executive pay-performance sensitivity and the proportion of independent directors, and Hypotheses 6b on the relation between managerial ownership and executive pay-performance sensitivity. Hypothesis 7b and Hypothesis 9 relating to the 'bidding-up' adjustment of executive pay was not consistently supported. Hypotheses 1b, 2a, 3b, 4a, 4b, 5a, and 6a are not supported; In fact, the results show contrary evidence for Hypothesis 2a, 5a and 6a. These findings are discussed in detail below.

Table 8.1 Summary of Hypotheses (Hs) and Findings

Hs	Variables		Predicted sign	Empirical Results			
	Dependent	Independent		HPD		REST	
1a	Executive pay	Board size	?	Supported		Supported	
1b	Executive pay-performance sensitivity		?	Not supported		Not supported	
2a	Executive pay	Proportion of independent directors	-	+ Contrary evidence		Contrary evidence	
2b	Executive pay-performance sensitivity		+	Supported		Not supported	
3a	Executive pay	CEO-chairman duality	+	+ Supported		Not supported	
3b	Executive pay-performance sensitivity		-	Not supported		Not supported	
4a	Executive pay	State ownership	?	Not supported		Not supported	
4b	Executive pay-performance sensitivity		?	Not supported		Not supported	
5a	Executive pay	Institutional ownership	-	Contrary evidence		Not supported	
5b	Executive pay-performance sensitivity		+	Not supported		Partly supported	
6a	Executive pay	Managerial ownership	-	Contrary evidence		Contrary evidence	
6b	Executive pay-performance sensitivity		+	+ Supported		Not supported	
7a	Executive pay changes	External pay anomalies	-	Replicated: Supported	Extended: Supported	Replicated: Supported	Extended: Supported
7b	The adjustment of executive pay over previous pay anomalies are stronger for underpaid executives than for overpaid executives		$C_U<C_O<0$	Replicated: Not supported	Extended: Supported	Replicated: Not Supported	Extended: Not supported
8	Executive pay changes	Internal pay comparison	+	Replicated: Supported	Extended: Supported	Replicated: Supported	Extended: Supported
9	'Bidding-up' HPD pay adjustment will be most apparent in firms where the rest of management is relatively overpaid		$C_{Ui}< 0$ $C_{Oi}>0$	Replicated: Supported	Extended: Supported	Replicated: Not supported	Extended: Not supported

Note
1) For the predicted signs, '+' stands for that 'there is a positive relation between the dependent variable and the independent variable; '-' means 'negative', while '?' means that there is a relation, but the sign is not decisive
2) The results are divided into three categories: 'Supported' means that the result is consistent with the prediction at the at least 10% level; 'Not supported' means that there is no significant result; and 'Contrary evidence' means that 'the relation is significant, but the sign of the relation is contrary to what is predicted'.

8.3 Board characteristics and executive remuneration

As discussed in Chapter 3, the board of directors plays a crucial role in the internal governance of a corporation (Ezzamel 2005; Jensen 1993). From the principal-agent

perspective, an expert board ratifies and monitors top management through its power to "hire, fire and compensate" top managers (Fama 1980; Fama and Jensen 1983), and improves the governance and performance of the firm. This thesis examines the relationship between executive remuneration and board characteristics, proxied by board size, composition and leadership structure.

8.3.1. BOARD SIZE AND EXECUTIVE REMUNERATION

According to agency theory, an effective board of directors can monitor executives' entrenchment behaviour and design more appropriate remuneration packages. Consequently, board control should be able to explain a significant part of executive pay (Boyd 1994). High remuneration levels and low sensitivity of pay-performance have been offered as evidence of ineffective board control. However, the empirical evidence concerning the relationship between board effectiveness and board size has been mixed. Dalton *et al.* (1999) argue, from the perspective of resources dependency theory, that larger boards have more resources and man-power and hence should control and monitor executives more effectively and lead to a more sensitive link between executive pay and firm performance. Rui *et al.* (2003) supports this argument by providing evidence of a negative relationship between board size and executive remuneration in China. However, Jensen (1993) and Lipton and Lorsch (1992) argue that large boards are less effective compared to small boards, due to ineffective group behaviours and/or communications, which is supported by Yermack (1996) and Cole *et al.* (1999). Yermack (1996) reported a negative relationship between board size and executive pay-performance, while Cole *et al.* (1999) observed a positive relationship between CEO remuneration and board size.

Given the unclear direction in the literature of a relationship between board size and executive remuneration and firm performance suggested by the literature, this thesis hypothesized that board size has a significant impact on executive remuneration (Hypothesis 1a) and executive pay-performance sensitivity (Hypothesis 1b), but left the sign of the impact to be decided by empirical analysis. The empirical results showed that there is no significant impact of board size on executive pay-performance sensitivity, i.e. Hypothesis 1b is not supported, which is inconsistent with Yermack (1996), who argued that larger boards lead to weaker CEO pay-performance linkage.

My empirical results also showed that there is an inverse U-shaped association between HPD pay and board size, suggesting that executive pay initially increases with board size, but after the board reaches a certain critical size, executive pay starts to decrease as board size increases further. These findings were consistent for both HPD pay and REST pay. This finding is not predicted by agency theory but does support the argument of Dalton *et al.* (1999) that the effect of board size is complex and is moderated by other factors such as board independence, board roles and firm size. The results presented in this thesis may also go some way to reconciling the conflicting findings in the literature, since it is possible to observe either a positive, negative or no relationship between board size and effective monitoring, depending on which part of the inverted U the researcher samples most heavily.

In Chinese listed firms, below a certain critical board size, an increase of board size brings less effective executive monitoring, which supports the findings in Cole *et al.* (1999) and Jensen (1993). As shown in Chapter 5, currently, there are typically around 9 members on the board of directors in Chinese listed firms; therefore, it is

more likely that an increase in board size might lead to higher executive pay, i.e., the first part of inverted U-shaped association between board size and executive pay. This argument is supported by the empirical results presented in Chapter 6 which show that, when those observation with board size larger than 15 are deleted, there is a positive linear relation between board size and executive pay. If the increase in board size in recent years is due to the appointment of independent directors as required by regulations, this might suggest that the newly appointed independent directors have not improved the monitoring of executive remuneration. The ineffectiveness in monitoring might be due to the lack of independence or inability of the independent directors (Cha 2001), or because of ineffective group behaviours with more members on the board (Jensen 1993). However, when board size further increases, executive pay starts to decrease, which is consistent with the findings in Rui *et al.* (2003). This might be because the more resources the larger board has, the more it compensates for the downside effect of being oversized and thus, a much larger board can exercise more monitoring, as suggested in resources dependent theory (Dalton *et al.* 1999).

The first difference models in Chapter 7 did not return significant results concerning the impact of board size on executive pay change, which might be due to the lack of variation in board size over the years. Also, the empirical results showed that board size seems to have no significant impact on the pay-performance relationship in my sample, which is not consistent with Yermack (1996), who argued that larger boards lead to weaker CEO pay-performance linkage, and does not support Hypothesis 1b.

My interpretation of the pay level results related to board size can be taken as an attempt to understand how boards work in China. The inconsistent results in the

literature and in this thesis indicate that the relation between board size and executive remuneration is complex. Further research is needed in order to better understand the relationship between board size, board effectiveness and executive pay.

8.3.2 BOARD COMPOSITION AND EXECUTIVE REMUNERATION

As indicated in Chapter 3, previous literature (Core *et al.* 1999; Dahya *et al.* 2002b; Fama and Jensen 1983) and a series of governance reports (Cadbury 1992; Greenbury 1995) suggest that employing non-executives on the board is a good governance mechanism that can help reduce agency cost. Hypotheses 2a and 2b aim to test whether independent directors have monitoring effects on executive remuneration in China. If independent directors are effective in monitoring management, boards with a higher proportion of independent directors will pay lower executive remuneration (Hypothesis 2a) and the firm will exhibit stronger executive pay-performance sensitivity (Hypothesis 2a). In the pay level model, I found that both HPD pay and REST pay are positively related to the proportion of independent directors. This finding runs counter to Hypothesis 2a. Also, I found no significant impact of the proportion of independent directors on HPD and REST pay changes. The findings seem to suggest that in China's context, independent directors are inefficient in monitoring top management, which supports the findings of previous studies (Peng 2004). Peng (2004) found that only affiliated outside directors have a positive impact on sales growth (but not on return of equity), while non-associated directors (i.e., independent directors) have no influence on firm performance.

However, I found that higher proportions of independent directors are related to stronger HPD pay-performance sensitivity, which is consistent with Mehran (1995) and Rupp and Smith (2002), who also found a positive link between outside director's effectiveness and pay-performance sensitivity. This relationship, however, does not hold in the case of REST pay-performance sensitivity.

My results are different from those of similar studies, in particular the work of Lin *et al.* (2005) and Rui *et al.* (2003). Rui *et al.* (2003), found no relationship between CEO pay and the proportion of non-paid directors (the proxy for non-executive directors) of the board. Meanwhile, Lin *et al.* (2005) found a significantly negative relationship in their individual fixed effects models but not in their firm fixed effects models. However, because I used independent directors as a category distinct from non-executive or non-paid directors, my results are not exactly comparable with these two previous studies. These results suggest that the relation between board composition and executive pay in China requires further investigation.

The above discussion shows that the results related to the monitoring of executive pay by independent directors are conflicting. Hiring more independent directors has increased executive pay, but also results in tying HPD pay more strongly to firm performance. In China, CEOs and other senior executives usually have seats on the board and make up about two thirds of the board, as reported in Chapter 5. These findings are supported by my interviews. All the firms interviewed had 3 independent directors, as the minimum number required, except for one that had 5 (board size=11), which was regarded by the interviewee himself as unusually many for Chinese firms. Although Core *et al.* (1999) and Boyd (1994) argued that insider directors are not

pawns of CEOs, reporting a negative relationship between CEO remuneration and the percentage of inside directors on the board, they admitted that this argument makes sense only when that the insiders do not side with or become intimidated by CEOs. In reality, however it is rare that the insider directors can really keep at arm's length from the CEOs. This is especially so in China. As one interviewee said, "Most insider directors are promoted by the chairman or the CEO, and therefore are likely to be more responsive to the chairman or the CEO's desires than to protecting shareholders to avoid animosity and retribution from the CEO." This is quite similar to the argument made by Jensen (1993). In this case, the monitoring effectiveness of the board depends largely on the independent non-executive directors.

However, as suggested by previous literature and also by the interviews, independent directors lack genuine independence and have not been performing their jobs well (Cha 2001). Given this, the results of this thesis related to the impact of independent directors can be interpreted as follows: due to the lack of independence of the so-called independent directors, these directors fail to govern executive pay levels; however, they do manage to link executive pay more strongly to firm performance, in order to justify high executive pay to the public.

Equally, given the fact that most executives in China are underpaid (SRIC 2003), as discussed in Chapter 2, it could be argued that the appointment of independent directors helps to bring executive pay up to a more reasonable level and make it more appropriate, by linking pay to performance. If this is the case, this thesis provides evidence of the positive role played by independent directors, which is in contrast to

previous literature (Cha 2001; Peng 2004; Rui *et al.* 2003) that criticises the ineffectiveness of independent directors in China.

Both possibilities find some support from the interview results. Almost all the independent directors interviewed stated that the insider directors, especially the Chairman and the CEO, can over-rule them on board decisions. Two interviewees explicitly said that the fate of independent directors currently depends on the quality of the management team of the firm they served, due to the lack of legal protection of and support for independent directors' rights. According to them, as a conscientious independent director, if you were hired by a company where the governance system is weak and the management team is entrenched, you have two choices: either to quit (thus avoiding the responsibilities for possible fraud or scandals) or to stick to your guns, which will result in offending the management and the independent directors getting sacked in the end. However, even in this case, all the independent directors interviewed said that they insisted that executive pay should be linked to firm performance and that the management normally agrees because it would be hard to say no and to explain to the public. Also, three independent directors stated that not all management are bad and that they were happy with the behaviour of their current management teams. They said these management teams work hard to improve firm performance, and in that case, the independent directors were happy with the fact that they were paid at a very high rate.

8.3.3 CEO-CHAIRMAN DUALITY AND EXECUTIVE REMUNERATION

Hypothesis 3a states that executive remuneration is positively related to CEO-Chairman duality. Some studies, such as Dahya *et al.* (2002b), Ryan and Wiggins (2001), Conyon (1997b) and Main and Johnson (1993), found no significant effects of CEO-chairman duality on CEO pay or quality of board oversight. Rui *et al.* (2003) even found a negative relationship between CEO-chairman duality and CEO pay. However, the majority of research examining the impact of duality on firm performance or CEO remuneration find evidence of a positive relationship between CEO-chairman duality and CEO remuneration, such as Brickley *et al.* (1997), Cole *et al.* (1999), Cyert *et al.* (2002) and Sridharan (1996). My empirical results also show a positive relationship between CEO and chairman duality and HPD remuneration. The first difference models showed that the HPD pay change is negatively related to CEO-Chairman duality. Duality has no significant impact over REST pay, REST pay changes or executive (HPD and REST) pay-performance sensitivity. These results suggest that in firms with CEO-chairman duality, top managers are paid more compared to those in firms without duality. There is no tendency for firms with duality to link pay to performance. Hypothesis 3b is not supported, but Hypothesis 3a is. These results are different from those in Rui *et al.* (2003), who found a negative relationship between the two, but their finding was not robust across their models.

My results are consistent with agency theory and the majority of the literature on this issue. As argued by Jensen (1993), Chairman-CEO duality gives the CEO too much power over the decision-making process, and scope to pursue personal interests at the expense of shareholders' interests. This is especially true in China, where the problem

of insider control in listed companies is prevalent (Cha 2001; Clarke 2003). When the CEO also holds the position of chairman of the board, internal control systems are more likely to fail, because the board cannot effectively perform its key control functions (Jensen 1993), which in turn leads to more likelihood of incurring executive entrenchment by overpaying themselves and not linking their pay to firm performance.

8.4 Ownership structure and executive remuneration

This thesis also examines how ownership structure may affect monitoring and impact remuneration. Although many studies have examined the monitoring effect of ownership structure and show quite consistent results concerning the negative relationship between external institutional ownership and executive remuneration (Holderness 2003b), these findings provide little insight into the effect of ownership structure in China. Chinese listed firms are diverse in terms of types of owners and listed locations, as discussed in Chapter 2. This thesis examines the impact of the proportion of shares held by different types of owners on executive remuneration, including state ownership, institutional ownership and managerial ownership.

8.4.1 STATE OWNERSHIP AND EXECUTIVE REMUNERATION

State ownership has been the most important and dominant ownership type in Chinese listed firms, as shown in the descriptive results in Chapter 2: on average, the state controls about 48% of the shares. However, there is sparse evidence to support the argument that the state plays a positive role in either improving the monitoring of management or enhancing firm performance, as mentioned in Chapter 3. In terms of

executive pay, on the one hand, state ownership has been reported as contributing to higher executive pay and less pay-performance sensitivity (Berkman *et al.* 2002; Lin *et al.* 2005) due to inefficient monitoring and more acute agency problems (Chen 2001; Xu and Wang 1999; Zou and Xiao 2005). However, on the other hand, state controlled companies experience pressure to keep executive pay in line with government civil service salaries at similar positions in the hierarchy (Zou and Xiao 2005), and to ensure that executive pay does not significantly deviate from the pay of other employees, in order to avoid social instability. Therefore, state ownership might be expected to lead to lower executive pay and stronger pay–performance sensitivity (as a way of justifying executive pay) (Firth *et al.* 2006).

Based on the previous literature, this thesis argues that state ownership impacts executive pay and pay-performance sensitivity, but leaves the direction of the impacts indeterminate. The empirical results in this thesis show that state ownership has no significant impact on executive pay and on executive pay-performance sensitivity and therefore neither Hypothesis 4a nor Hypothesis 4b is supported. The results are robust to different proxies of state ownership and are consistent in the cases of HPD pay and REST pay. These results are consistent with Firth *et al.* (2006) in terms of the non-significant relation between CEO pay level and state ownership, but are inconsistent in that Firth *et al.* (2006) reported a stronger likelihood of using incentive pay schemes in firms controlled by SOEs. However, they only reported a significant relationship when firm performance was measured by operating income, not when firm performance was measured by share returns.

Although this issue might need more investigation, the non-significant results in this thesis are quite consistent with the results of the majority of previous literature on related topics that report on the inefficiency of state ownership (Chen 2001; Gul and Zhao 2000; Hovey *et al.* 2003). Gul and Zhao (2000) and Hovey *et al.* (2003) interpreted their non-significant results by arguing that state ownership did not explain much of the variations in firm performance. The non-significant relationship between state ownership and executive remuneration and pay-performance sensitivity reported in this thesis might also be because of the lack of controlling effects of state ownership on executive pay. But equally, this may be due to the offsetting impact of different effects of state ownership as I mentioned in the earlier part of this paragraph.

Both of the effects of state ownership were mentioned by the interviewees. Most of the interviewees mentioned the ineffectiveness of monitoring by the State as the dominant shareholders. Two interviewees stressed that they have to try to keep their executive pay levels reasonable to avoid offending government officials at a similar hierarchical level. One interviewee said that the firm he worked for had to be careful not to pay their management members more than those in the parent company which is a state-own company.

8.4.2. INSTITUTIONAL OWNERSHIP AND EXECUTIVE REMUNERATION

As discussed in Chapter 3, the literature has shown consistent evidence of an active role in monitoring played by institutional investors. Institutional investors are expected to be more active in monitoring than individual shareholders because they have a legal fiduciary obligation to guard their customers' interests: it is more difficult

for them to "vote with their feet" due to their large holdings, and they are more eligible and capable of monitoring top management (David *et al.* 1998; Gomez-Mejia and Wiseman 1997; Kochhar and David 1996), such as monitoring managment remuneration policy (Black 1992). In China's case, institutional ownership, also called legal person ownership, are not allowed to trade freely in the second market, which in turn forces institutional investors to pay more attention to the long-term performance of the firms in which they invest.

Based on this argument, this thesis proposes that having higher proportions of legal person ownership is related to lower executive remuneration (Hypothesis 5a) and stronger executive pay-performance sensitivity (Hypothesis 5b). The thesis tests these two hypotheses by proxying legal person ownership through the use of state-controlled legal person ownership, foreign ownership, and private legal person ownership, both individually and collectively. It is found there is a positive relationship between HPD pay and state-controlled legal person ownership, foreign ownership, and private legal person ownership, while in the case of REST pay, only foreign ownership has a positive impact. Also, all the institutional ownership variables do not seem to have a significant impact on executive pay performance except that foreign ownership has a significant impact on REST pay-performance sensitivity. Hypothesis 5a is therefore not supported. Hypothesis 5b is not supported in the case of HPD pay, but is partly supported in the case of REST pay: higher institutional ownership leads to stronger REST pay-performance sensitivity, but not to a stronger HPD pay-performance sensitivity.

The finding of a positive relationship between executive pay and legal person ownership is consistent with Firth *et al.* (2006), but is inconsistent with most previous literature, such as Hambrick and Finkelstein (1995), Bertrand & Mullainathan (2000) and Firth *et al.* (1999), who found that companies with large external/institutional shareholders pay their CEOs less than those with no significant external owners, and is also inconsistent with those in Mehran (1995), David *et al.* (1998) and Hartzell and Starks (2003). Mehran (1995) found that firms with larger percentages of their shares held by outside blockholders used less equity-based remuneration and suggested that monitoring by outside blockholders may be a substitute for incentive pay for executives.

David *et al.* (1998) and Hartzell and Starks (2003) reported that institutional investors have a negative impact on CEO pay and a positive impact on fostering long-term incentives. However, David *et al.* (1998) also argued that the monitoring effect depends on the nature of institutional investors' relationships with firms, such as whether they were "pressure-resistant" or "pressure–sensitive".

Given the quite consistent results in the literature on China of a positive effect of institutional ownership on firm performance, caution should be exercised in interpreting my results. Instead of management entrenchment, it might just be that those firms with higher institutional ownership are more likely to employ more competent directors and therefore pay them more. Unfortunately, the data does not allow me to further explore this issue. However, this interpretation of my results are consistent with the argument made by Chhibber & Majumdar (1999) and Hovey (2003), that institutional investors, especially foreign investors, have an incentive to

more closely monitor the management of the firms they invest in, and encourage them to hire highly qualified executives (Firth *et al.* 2006). However, in this case, it remains hard to explain why there is no stronger pay-performance link in those firms with higher proportions of foreign ownership or private legal ownership.

8.4.3 MANAGERIAL OWNERSHIP AND CEO REMUNERATION

According to agency theory, agency cost declines as management's ownership of stock rises (Jensen and Meckling 1976). As managers' stakes rise, they bear a larger proportion of agency cost and are, therefore, less likely to squander corporate wealth by overpaying themselves. Hence, Hypothesis 6a presumes that executive cash remuneration is negatively related to the proportion of managerial ownership. Also managers are more likely to pay themselves according to firm performance, which gives rise to Hypothesis 6b that predicts a positive relation between managerial ownership and executive pay-performance sensitivity. My empirical results support Hypothesis 6b. However, the results also show a positive relationship between managerial ownership and executive remuneration, which does not support Hypothesis 6a.

These results are consistent with Jensen & Murphy (1990b), Holderness and Sheehan (1988), Hadlock & Lumer (1997) and Holderness *et al.* (1999), but are inconsistent with Mehran(1995). Holderness and Sheehan (1988) investig ated the relationship between managerial shares and managerial remuneration and found that top executives with higher ownership received higher cash remuneration compared to those in firms of similar size but whose shares were more diffusely held. Mehran

(1995), on the contrary, reported a negative relationship between executive cash remuneration and managerial ownership and a negative relationship between the percentage of executives' equity-based remuneration and their shareholdings. He argued that cash remuneration in large firms may become less important for managers holding significant equity stakes in the firm since the majority of their income would come from their equity stakes.

Mehran's explanations provide a useful insight that helps the interpretation of my results. As discussed in Chapter 2, in China only a few firms have awarded management teams share ownership, and even when they do that, the amount is tiny, less than 0.01% of total shares (Lin *et al.* 2005) and thus may not motivate managers in terms of monetary income. Therefore, cash remuneration is still the most important part of their pay. Also, given that higher managerial ownership seems to lead to a stronger pay-performance link, instead of taking the higher pay level as evidence of management entrenchment, this thesis instead cautiously provides an alternative explanation: firms could be using managerial ownership as a more intrinsic motivation to attract and retain higher qualified managers, who are expected to be paid more.

The conflicting results indicated by the previous research and this study suggest that the agency relationship between owners and executives is very complex (Hambrick and Finkelstein 1995). As argued by Hambrick & Finkelstein (1995), CEO remuneration in management-controlled firms and in owner-managed and externally controlled firms is influenced by different determinants. No previous study has

explored this issue in China (Lin *et al.* 2005), so further studies are required to better understand the function of managerial ownership in China.

8.5 Market comparisons and executive remuneration

Another determinant of executive pay that this thesis focuses on is market comparison factors. Ezzamel and Watson (1998; 2002), with a sample of UK firms, found that market pay comparisons factors, both internal and external, are important in explaining both CEO and other directors' pay dynamics. This thesis retested the Ezzamel and Watson models using a sample drawn from Chinese listed firms. I first replicated their models by using the traditional agency model to estimate the market going rate for executive pay (henceforth, called replicated models). I then retested the same models but adding the governance variables and other control variables to the market going estimate model (henceforth, called extended models). I found similar results to those found in Ezzamel and Watson (1998; 2002): market comparison factors have a significant influence on executive pay dynamics in China.

8.5.1 EXTERNAL MARKET COMPARISONS AND EXECUTIVE PAY

Hypotheses 7a and 7b were concerned with the extent to which the board of directors attempts to reduce any pay anomalies relative to what the market was paying for similar positions. Based on the results in Ezzamel and Watson (1998; 2002), Hypothesis 7a predicted that external pay comparisons have a significant impact upon executive remuneration adjustment. My results suggest that pay anomalies in the prior period are important in explaining the cash pay awards to both HPDs and the REST of

management. This finding supports Hypothesis 7a and is consistent with Ezzamel and Watson (1998; 2002) and previous research (Agrawal and Walkling 1994; Fama 1980).

Based on Hypothesis 7a, Hypothesis 7b further predicted that the strength of the relationship between the time t+1 changes in executive cash pay and their time t pay anomalies is significantly greater for executives who were underpaid than for executives who were overpaid relative to the external comparative pay level. My results in the extended model of HPD pay changes show support for the prediction of asymmetric adjustment, which leads to the "bidding up" of executive pay, thus supporting Hypothesis 7b. However, I did not observed these asymmetric adjustments in the results of the replicated models of HPD pay changes models, the replicated models of REST pay changes and the extended REST pay changes models. This variation of results between models was also found in Ezzamel and Watson (1998), where they reported asymmetric adjustments in the salary models, but not in the total cash payment models. Therefore, my empirical results only show mixed support for Hypothesis 7b that there is a 'bidding-up' effect in executive pay adjustment and thus partially support the argument of Gomez-Mejia and Wiseman's (1997) that the notion of "going rate" in the market is firmly abused among remuneration practitioners.

According to O'Reilly *et al.* (1988), this "bidding-up" might be because executives tend to compare themselves to those who are slightly better qualified or more expert; and also that from the perspective of agency theory, an agent, especially when he has power over the board, will try to negotiate his pay up when underpaid but will try to avoid pay reduction when he/she is overpaid. The finding about the important impact

of external market level does not conflict with agency theory. On the contrary, agency theory also suggests that market forces offer an upper boundary for executive compensation, as argued by Gomez-Mejia and Wiseman's (1997). Smith and Szymanski (1995) argue that the market going rate can be regarded as the effect of the participation constraint in a principal agent model, which must be paid by a firm in order to retain their executives from being bid away by another firm. Also, as argued by Ezzamel and Watson (1998), the substantial costs related to executive recruitment provide a financial incentive for firms to keep their executives by offering competitive remuneration. Furthermore, market competition restrains the entrenchment of managers who are concerned about their reputation and long-term career and helps keep levels of compensation in line with the market rate (Gomez-Mejia and Wiseman 1997).

The interviews also support the impact of external market comparison factors. To the question "*What internal or external reference points or comparisons do they use and why?*" almost all of the interviewees replied that they take into account the market pay levels when making executive remuneration decisions. For example, one interviewee, who was an independent director and a remuneration committee member of the firm he served, said, "We try to keep our pay level of executives in line with, or maybe a bit higher than, the market pay level, especially the market pay level in similar sized firms and/or in the same industry. Otherwise, they will jump to another company if they are offered a better remuneration package." Another interviewee, an executive director and also the board secretary, said "We refer to related remuneration regulations, the practices of other companies when designing our pay system...We normally survey the remuneration packages in all listed companies before we design

ours. The survey focuses on: the listed companies in the same industry and the listed companies around this geographical area. We should make our remuneration competitive in the industry but we also have to take into account the acceptability of pay levels to society".

8.5.2 INTERNAL COMPARISONS AND EXECUTIVE PAY

Hypothesis 8 was concerned with the impact of internal comparisons upon executive pay. It states that executive pay adjustment is positively related to the pay adjustment of their peers within the firm. It was motivated by the previous studies by O'Reilly *et al.* (1988) and Ezzamel & Watson (2002), both of which found that comparability in pay awards to all members of the board is essential when setting executive pay. From the initial analysis in Chapter 5, I have observed that HPD pay and REST pay increased at a similar rate every year. After controlling for other factors, there is still a significant and positive relationship between HPD pay and REST pay, and between HPD pay changes and REST pay changes. Hypothesis 8 is therefore supported.

My results are consistent with those of O'Reilly *et al.* (1988) and Ezzamel & Watson (2002). O'Reilly *et al.* (1988) observed that board members refer to their own pay when setting executives' pay and their empirical results showed that CEO pay rose as the average salary of outside directors increased. Ezzamel & Watson (2002) investigated the determinants of, and the relations between, the cash pay awards of CEOs and other board members for a sample of large UK companies over the period of 1992-1995. They found that internal (i.e. within-board) pay comparisons were important in explaining both CEO and other directors' pay awards. Social comparison

theory, signalling theory and equity theory were used by these two studies to explain their results. Ezzamel & Watson (2002) argued that comparability in pay awards to all members of the board is essential for the firm to observe justice and fairness in pay and to maintain team cohesion and equality. Given that the Chinese government gives priority to social stability (Zou and Xiao 2005) and that the ideology of society is collective development and equity among people, it is not difficult to explain why I found similar results in China. Retaining the comparability and equality among management members in pay adjustment is essential for Chinese listed companies.

Finally, this thesis also investigated the relationship between CEO pay changes and the extent to which the other board members appear to be under or overpaid relative to their market pay level. As stated in Hypothesis 9, this thesis predicted that 'Bidding-up' of Highest Paid Directors' pay was most likely to occur when the rest of management are relatively overpaid compared to the external comparison pay level, which was supported by the empirical results. The results are consistent with Ezzamel & Watson (2002) and suggest that executive pay adjustment is affected by :1) their own pay levels compared to external market pay level; 2) the percentage changes in pay of their peers within the firm; and 3) the pay level of their peers compared to external pay level. These results are further supported by the interview findings. Most interviewees recognised the importance of retaining internal comparability. For example, one interviewee said, "although the people are getting familiar with the difference in pay levels, our culture is to average everything, particularly formed in the time of 'Da Guo Fan' [i.e., life-long employment and averaged income]. So the company normally adjusts executives' pay in the same direction, though the extent might be different."

It is worth stressing that although the empirical results of this thesis have shown that HPD pay, REST pay and their dynamics are closely related to each other, the empirical analysis cannot detect the causal relationship between the two. That is, I do not yet know whose pay determines whose. However, my interview findings tend to suggest that it is more likely that REST pay is adjusted according to HPD pay rather than vice versa. From the interviews' insider insights, the practice is that the board decides the pay packages of the Chairman and/or the CEO, and then decides the pay for other senior managers based on their pay packages or according to the suggestions by the Chairman and/or the CEO. For example, one interviewee stated clearly: "Well, in my firm, the executive remuneration solution is designed for the CEO. The vice directors are to assist him in his job and therefore they are evaluated by two factors: an index related to CEO, and the individual performance. For example, if the base is '1' for the CEO, each of the others is given an index between 0.6 and 0.8, depending on his/her responsibility. And at the year end, the pay of other senior managers is determined by the CEO's pay multiplied by their index after being adjusted to reflect their individual performance." Also, in Chinese business, especially in state owned companies, the CEO or Chairman is appointed by the government or the parent company (stated-owned as well), while the other senior managers are appointed and compensated by the CEO or the Chairman. Therefore, this thesis argues that it is more the case that HPD pay determines REST pay, rather than the other way round.

8.6 Conclusion

In summary, the empirical results of the data analyses in this thesis have shown mixed supports for agency theory and the research Hypotheses. Hypotheses 1a, 3a, 2b, 6b, 7a,

and 8 are supported, while Hypotheses 1b, 2a, 3b, 4a, 4b, 5a, 5b and 6a are not. Hypothesis 7b and Hypothesis 9 are partially supported. Hypothesis 9 is supported in terms of HPD pay, but not in the case of REST pay. Hypothesis 7b is supported by the results of extended HPD pay change models, but not by those of the replicated HPD pay change models and the REST pay change models.

This thesis provides results supporting the idea that corporate governance and market comparisons have a significant impact on executive pay. However, due to the special institutional factors in China, the empirical results concerning the governance variables are not exactly as predicted by the hypotheses or as found in the Western literature. In particular, I did not find supportive results for the monitoring effects of institutional ownership, managerial ownership and independent directors. Instead, higher institutional ownership, higher managerial ownership and/or higher proportions of independent directors seem to lead to higher executive pay. These results could be interpreted as evidence of management entrenchment or the failure of corporate governance, in accordance with Western literature. Moreover, taking into the special institutional environment in China, this thesis provides an alternative interpretation that the higher quality of the executives may lead to higher executive pay. At the very least, having a stronger pay-performance linkage related to higher managerial ownership and higher proportion of independent directors is a good sign. The conclusion is not definitive. China, a transitionally planned economy, is in a process of transformation with emerging elements of a market economy. Given that the Chinese governance systems are relatively weak, the performance of the firm and the behaviour of the management team greatly depend on the moral standard and the quality of executives.

In terms of market comparison factors, this thesis provides relatively consistent support to the literature, particularly the findings of Ezzamel and Watson (1998; 2002). Both my empirical results and business insiders' insights suggest that when deciding pay for executives, the board takes into account the following: the market pay levels, especially those firms of a similar size and in the same industry; the necessity to maintain within-firm comparability; and the relative pay position of their peers compared to the market. Although China used to be a socialist economy, it has been changing into a market economy. Executives in Chinese listed companies are now employed on contract and renew basis. Therefore, it is also necessary for a Chinese listed company to pay their executives at least the market rate in order to keep them. Within-firm equity is also important to executives.

In terms of theory, in transitional economies like China in this case, agency theory cannot provide full guidelines for corporate governance reform. Additional perspectives are required in order to understand the complexity of corporate governance issues in China. The results of this thesis have shown support for previous studies that draw on social comparison theory and equity theory. Whether there are some other theories that might have significant implications requires more research work.

The next chapter reviews the main arguments in previous chapters, discusses the contributions and limitations of the thesis and ends with a conclusion.

CHAPTER 9 SUMMARY AND CONCLUSIONS

9.1 Introduction

Chapter 8 discussed the main results of this thesis at a general level, focusing on the findings concerning the focal variables in this thesis, and related the findings to the research hypotheses, previous literature and institutional settings in China. By now, the main parts of this thesis have been covered. This chapter summarizes the main themes of the thesis and draws the conclusions.

The main objective of this thesis has been to investigate the determinants of executive remuneration in listed companies in China. Executive remuneration has been a controversial topic in both practice and academic research (Barkema and Gomez-Mejia 1998). Most of the literature on this topic area focuses on testing for the relation between executive remuneration and firm performance from the perspective of agency theory, and most studies have been conducted in the USA or the UK. This thesis relates executive remuneration to board characteristics, ownership structure and market comparison factors, in addition to those factors widely recognized in the literature, such as firm performance, firm size, risk and other firm characteristics. The empirical analyses were carried out in the context of the world's largest transitional economy, China, with a panel data set of 417 Chinese listed firms over 2001 to 2003. In addition, in-depth interviews were conducted with 10 directors (both executive directors and independent directors) to gain insiders' insights into corporate governance and executive remuneration in China and to help understand the empirical quantitative results.

The results show that board characteristics, ownership structure and market comparison factors all have significant explanatory power over executive remuneration in Chinese listed companies. Being one of the few studies on corporate governance and executive remuneration in China, this thesis makes significant contributions to the literature and has important implications for the international investors, business practitioners and policy makers. This final chapter recaps the research objectives and hypotheses of this thesis, summarizes the main findings, discusses the main contributions, implications and limitations, and investigates the possibilities for future research.

The chapter is organized as follows. Section 2 reviews the research objectives, hypotheses and methods. Section 3 recapitulates the main findings. Section 4 illustrates the contributions and implications of the thesis. Section 5 identifies the limitations of the thesis and suggests some avenues for future research. Section 6 concludes the chapter.

9.2 Research background, objectives, hypotheses, and methods

This thesis is motivated by the conflicting results in the existing literature and the lack of studies on executive remuneration in China. Most research on the determinants of executive remuneration is conducted in Western economies, mostly the USA and UK, drawing predominantly on agency theory. China has recently been reforming its corporate governance system, influenced in part by Western reform experiences. This process raises an interesting and far-reaching question: do the traditional governance models used in the West function well in China?

As outlined in Chapter 1, the main objectives of this study are two-folded: to investigate the impact of board characteristics and ownership structure on HPD remuneration in Chinese listed firms; and to test and extend the models developed by Ezzamel and Watson (1998; 2002), exploring how the concept of internal and external 'market rate', as identified in the developed economies in the West, works in a transitional economy like China.

The following hypotheses were developed based on the literature review, agency theory and the specific institutional settings of China, which relate executive pay or pay changes to board characteristics, different ownership structures, internal and external pay comparison factors.

Hypothesis 1a: Executive remuneration is related to the size of the board of directors.
Hypothesis 1b: Executive pay-performance sensitivity is related to the size of the board of directors.

Hypothesis 2a: Executive remuneration is negatively related to the proportion of independent directors.
Hypothesis 2b: Executive pay-performance sensitivity is positively related to the proportion of independent directors.

Hypothesis 3a: Executive remuneration is positively related to CEO-Chairman duality.
Hypothesis 3b: Executive pay-performance sensitivity is negatively related to CEO-Chairman duality.

Hypothesis 4a: Executive remuneration is related to the proportion of state ownership.
Hypothesis 4b: Executive pay-performance sensitivity is related to the proportion of state ownership

Hypothesis 5a: Executive remuneration is negatively related to the proportion of legal person ownership.
Hypothesis 5b: Executive pay-performance sensitivity is positively related to the proportion of legal person ownership.

Hypothesis 6a: Executive cash remuneration is negatively related to the proportion of managerial ownership.
Hypothesis 6b: Executive pay-performance sensitivity is positively related to the proportion of managerial ownership.

Hypothesis 7a: External market pay level has a significant effect over executive pay adjustment, i.e. pay anomalies have a negative impact on subsequent-period pay changes

Hypothesis 7b: The strength of the relationship between the time t+1 changes in executive cash pay and their time t pay anomalies will be significantly greater for executives who were underpaid than for executives who were overpaid relative to the comparative pay measure.

Hypothesis 8: Internal pay level has a significant effect over executive pay: executive pay adjustment is positive related to the pay adjustment of their peers within the firm.

Hypothesis 9: 'Bidding-up' of highest paid directors' pay will be most apparent in the firms where the rest of management is relatively overpaid compared to the external comparison pay level.

To test these hypotheses, several multiple regression models were run with a panel data set consisting of 417 Chinese listed firms over 3 years' periods. Models were run separately on Highest Paid Director (HPD) pay and the rest of management (REST) pay, and were run with various techniques to check for their robustness.

9.3 Summary of discussion and findings

This thesis focuses on several key research questions: how is executive remuneration in China determined? Are recently-introduced Western corporate governance mechanisms affecting the setting of executive pay? Do market factors matter in shaping executive pay? Studying corporate governance and executive remuneration in China is very important. As discussed in Chapter 1, China has introduced a series of economic reforms and one of the key goals is to establish a sound corporate governance system to facilitate the sustainable development of Chinese enterprises. Management incentive is always a central issue in corporate governance and the lack of effective managerial incentive has been well acknowledged as a key obstacle to the further improvement of the Chinese economy and as a key cause for managerial corruption in China (Wu 2002). Therefore, this study is a timely piece of work and has important implications for the Chinese government and business practitioners, as will be discussed later in this chapter. From the academic point of view, the findings of this study contribute empirical evidence for the relationship between executive remuneration and corporate governance, and market comparison factors, drawn from a transitional economy.

Chapter 8 offered a detailed discussion of the main findings. Generally speaking, the focused variables in this thesis all have significant impact on executive remuneration, as briefly recapped as follows. First, this thesis unearths some interesting findings on the relationship between board characteristics and executive remuneration. Hypothesis 1a predicts that board size has significant impact on executive pay, without specifying the direction of the impact, which is supported by the empirical

results. I found an inverse U-shaped association between executive pay and board size with my sample, which suggests that executive pay initially increases with board size, but peaks at a certain size, and then decreases as board size further increases. This finding is not consistent with the previous literature. It is not predicted by agency theory but does support the argument that the effect of board size is complex and is moderated by other factors such as board independence, board roles and firm size (Dalton *et al.* 1999). Further research is needed in order to better understand the relationship between board size, board effectiveness and executive pay. I also found that executive pay is positively related to the proportion of independent directors which runs counter to the prediction of agency theory and Hypothesis 2a. It seems that in China's context, this result could be taken to suggest that independent directors are inefficient in monitoring top management, which supports previous studies (Peng 2004). However, given the typically low pay levels of Chinese executives reported, the interpretation should be cautious. Alternative explanations of the result can be that more independent directors help companies bit for better quality executives who deserve higher pay, or that more independent directors are more likely to bring executive pay up to market level. Consistent with agency theory, I found a positive relationship between CEO and chairman duality and HPD remuneration (though not REST remuneration), suggesting that HPDs in firms with CEO-chairman duality are paid more compared to those without duality, which supports Hypothesis 3a.

In terms of executive pay-performance sensitivity, this thesis found that only the proportion of independent directors has a positive impact on HPD per-performance sensitivity and therefore supports Hypothesis 2b. Hypothesis 1b and 3b are not

supported, because board size and board leadership structure do not have a significant impact on executive pay-performance sensitivity.

In terms of ownership structure, I found no significant result for state ownership which is consistent with the literature (Chen 2001; Gul and Zhao 2000), therefore Hypothesis 4a is not supported. This might be due to the off-setting impacts of state ownership on executive remuneration: on the one hand, the state might be under the pressure to keep the executive pay controlled in order to maintain the balance between government appointed business executives and government bureaucrats; on the other hand, the inefficient and ineffective supervision due to the lack of real shareholders might provide a chance for executives to overpay themselves.

I also found positive and significant relations between HPD pay and the proportion of domestic legal person ownership, foreign ownership and managerial ownership, which is inconsistent with agency theory and is counter to Hypothesis 5a and 6a. While the impact of managerial ownership is complex in the Western literature, the monitoring effect of institutional ownership is quite consistent. Given the quite consistent results in the literature of a positive effect of Chinese institutional ownership on firm performance (Chen 2001; Gul and Zhao 2000), these results may be understood as evidence that firms with higher institutional ownership or managerial ownership are more likely to employ more competent directors whose pay will naturally be higher (Firth *et al.* 2006), rather than as indicative of management entrenchment or non-performance of institutional monitoring.

Only managerial ownership and foreign ownership have a significant impact on executive pay-performance sensitivity. HPD pay-performance sensitivity is positively related to managerial ownership, while REST pay-performance sensitivity is positively related to foreign ownership, therefore Hypothesis 5b and 6b both receive some empirical support. These results suggest that firms with higher managerial ownership and foreign ownership are more likely to link their executive pay to firm performance. State ownership has no significant impact on executive pay-performance sensitivity and thus Hypothesis 4a is not supported.

These results were based on OLS pooled cross-sectional analyses. Once I controlled for both observed firm characteristics and unobserved firm specific effects by running the fixed effect models with the same panel data, I can no longer conclude that there are significant relationships between institutional ownership and executive pay. The firm effects are significant, which suggests that firm heterogeity is important in shaping executive pay. This finding is similar to that in Himmelberg *et al.* (1999), who found significant results with OLS cross-sectional analyses, which disappeared when they ran, fixed effects models. The changes in the results from OLS models and fixed effect models might be due to the lack of variation in the data of most ownership variables (Firth *et al.* 1999; Himmelberg *et al.* 1999; Zhou 2001).

In addition to board characteristics and ownership structure, this thesis also built on Ezzamel and Watson (1998; 2002) and explored whether the internal and external market going rate also affect the dynamics of executive remuneration in China. I first defined and ran the models as in Ezzamel and Watson (1998; 2002), using traditional agency executive pay model to estimate the comparison pay level and pay anomalies

(called replicated models), and then I modified the definition of what constitutes a pay anomaly by using the estimating pay models which take into account governance variables and control variables (called extended models).

As presented in Chapter 7 and further discussed in Chapter 8, the two versions of models produced generally consistent results. Previous pay anomalies from the external market level have significant explanatory power over both subsequent HPD pay adjustments and REST pay adjustment; therefore, Hypothesis 7a is supported. The concept of "market going rate" also functions in China, a traditionally planned economy. Chinese listed firms adjust their executive pay in a way to be in line with the market, as do their Western counterparts. However, in terms of Hypothesis 7b, which captures the 'bidding-up' phenomenon in executive pay adjustment found in the UK firms by Ezzamel and Watson (2002), this thesis did not find consistent support. Only the results of the extended HPD pay change models suggest that there is an asymmetric adjustments to previous pay anomalies between overpaid HPDs and underpaid HPDs. Other models, both the replicated HPD and REST pay change models and the extended REST pay change models, do not show support for Hypothesis 7b.

Therefore, concerning the effects of external market comparison factors, the results in this thesis consistently suggest that there is a significant impact of external comparison factors on executive pay; i.e., firms are trying to bring their executive pay towards the external market pay level. However, the results concerning whether there is a difference between the degree of the impact of pay anomalies on the pay adjustment process for overpaid executives and that for the underpaid executives, are

sensitive to how the pay anomalies are estimated in the first place and require further investigation.

Hypotheses 8 and 9 dealt with the effects of internal comparison factors. This thesis provides results that support the idea that internal comparison factors have a significant impact on executive pay. These effects were initially identified in the executive pay level models, in Chapter 6, which found that HPD pay and REST pay have significant explanatory power over each other. This idea was further explored in the pay dynamics models in Chapter 7, in which the results of pay dynamics models show that the changes in HPD pay can be explained by the changes in REST pay and REST pay anomalies, and vice versa. The insiders' insights suggest that it is more likely that REST pay is determined by HPD pay, as discussed in Chapter 8. Hypothesis 9 proposes that the 'bidding up' adjustments for HPD pay are more apparent in firms where the rest of management are relatively overpaid, which is supported by the results of the HPD pay change models. However, in the case of REST pay, such effects can not be observed.

Generally speaking, the results of this thesis are quite consistent with the findings in Ezzamel and Watson (1998; 2002): the market comparison factors, both internal and external, that have been shaping executive pay adjustments in listed companies in the West seem to also function in transitional economies like China. These findings are not conflicting with agency theory, as discussed in Chapter 8. In addition, the findings seem to support the application of social comparison theory and equity theory in China's executive remuneration settings, though these are not the guiding theories in this thesis.

Moreover, both the pay level models and the pay dynamics models yield robust results concerning the positive association of the change in pay and the change in firm size and accounting performance, which supports agency theory and is consistent with previous literature (Groves *et al.* 1994, 1995; Mengistae and Xu 2004). Also, other observable firm characteristics, such as firm diversification, risk, capital structure, location and industries, all have significant effects on executive pay. Although these factors are not the focus of this study, the findings provide useful insights into the determination of executive remuneration.

In summary, the empirical results of the data analyses show mixed support for agency theory and Hypotheses. Hypotheses 1a, 3a, 2b, 6b, 7a, and 8 are supported, while Hypotheses 1b, 2a, 3b, 4a, 4b, 5a, 5b and 6a are not. Hypotheses 7b and 9 receive mixed support. Hypothesis 7b is supported by the results of extended HPD pay change models, but not by those of the replicated HPD and REST pay change models and the extended REST pay change models. Hypothesis 9 is supported by HPD pay change models, but not REST pay change models. From theoretical perspective, in transitional economies, China in this case, agency theory can probably not provide full guidelines for corporate governance reform. Additional perspectives are required in order to understand the complication of the corporate governance issues in China. The results have shown support for social comparison theory and equity theory. Whether there are some other theories that might have significant implications requires more research work.

9.4 Contributions and implications

This study is intended as a contribution to the literature on corporate governance and executive remuneration, as well as providing help to policy makers and practitioners of corporate control in a transitional economy such as China.

9.4.1 CONTRIBUTION TO THE LITERATURE

Empirically, this thesis makes a number of contributions to the literature. First, the thesis provides empirical evidence on the relationship between executive remuneration and corporate governance mechanisms, namely the board of directors and ownership structure, which is a significant departure from the majority of previous literature on executive remuneration, that usually examines the relationship between executive remuneration and firm performance (Barkema and Gomez-Mejia 1998; Conyon and Peck 1998). The results show that corporate governance has a significant role to play in shaping executive remuneration in Chinese listed firms. However, due to the specific institutional environment in which the Chinese firms are operating, the roles that the governance mechanisms play might deviate from what they have been expected to fulfil in the West.

Secondly, this thesis is among the first pieces of work to explore the extent to which Western corporate governance models work in China, a planned economy transiting towards a market economy. Particularly, this thesis is the first study to explore how the concept of the internal and external 'market going rate', both internal and external market pay comparisons, impact the pay dynamics of executive pay in China. It

provides empirical support for the findings of Ezzamel and Watson (1998; 2002) and therefore suggests that the market comparison factors that work in the West equally function in China.

Thirdly, this thesis examines determinants of executive pay both in terms of the highest paid directors and the rest of management members. The pay dynamics for management members other than CEOs or HPDs has been largely unexplored and thus this thesis is one of the few exceptions in the literature to shed lights on this area, which will hopefully provide helpful insights for business practitioners and academics interested in the between-firm and within-firm comparison pay levels.

Fourthly, this thesis offers precious insiders' insights from interviews conducted with 10 current directors of Chinese listed companies, which is rare in the literature on corporate governance and executive remuneration. These insiders' insights have not only helped understand and interpret the results of quantitative analyses, but also provided guidance in clarifying some direction and causation of the empirical results that the quantitative analysis itself can not clarify, such as the relationship between HPD pay and REST pay.

Finally, the results of this thesis yield robust results of a significant and positive association between HPD pay and firm accounting performance, but not market based performance. Although the association is not the focus of this study, this finding is interesting and suggests that how firm performance is measured is important in this kind of research. The results of other control variables also provide useful insights into the determination of executive remuneration in China.

Theoretically, my results have offered mixed support for traditional agency theory. It suggests that although agency theory can provide a helpful guide in studying corporate governance in China, by itself it is not sufficient to explain executive remuneration. Also, a straightforward application of traditional Western governance models, though endorsed by CSRC in policy making, might not be very fruitful as Chinese firms are characterized by significant institutional differences compared to Western firms, such as the existence of dominating state ownership and the lack of legal protections of shareholders' rights (Cha 2001), as discussed in Chapter 2. Although traditional agency governance models might work well, their operation depends on a series of institutional back-up settings, which China might not yet have.

In addition, alternative theories are needed in order to better understand corporate governance issues in a transitional economy like China, see also Peng (2004) and Tian and Lau (2001). By retesting the models of Ezzamel and Watson (1998; 2002) in China's context, this thesis shows supportive evidence for the application of social comparison theory and equity theory in explaining executive remuneration in China.

The need to consider theoretical perspectives on executive remuneration other than agency theory has been recognized by other authors, for example, Barkema and Gomez-Mejia (1998) have suggested that researchers on executive remuneration should broaden the theoretical base of research by ways such as combining agency theory with other theories. Also, Conyon and Murphy (2000) suggested that a variety of economic, political, and cultural factors can help explain the difference in executive remuneration schemes, such as income tax, attitude towards risk. This area requires further research.

9.4.2 IMPLICATIONS AND RECOMMENDATIONS

The findings in this thesis have valuable implications for regulators, listed companies and their international investors in China.

Security regulators all over the world have recognized the importance of corporate governance in enhancing firms' investment values (Bai *et al.* 2006) and monitoring managerial behaviours. They have proposed various best practice codes to improve a firm's overall governance standard. Chinese regulators in recent years have also introduced a series of corporate governance reforms, generally borrowed from Western countries. This thesis has shed light on the relative importance of various corporate governance practices in determining executive remuneration. It provides useful information for Chinese regulatory authorities to design best practice codes tailored to the Chinese institutional background and to the current level of their corporate governance mechanisms, especially in terms of managerial incentive issues.

The results provided in the thesis suggest that a straightforward application of traditional Western governance models, though endorsed by CSRC in policy making, might not be very fruitful. Chinese firms are characterized by significant institutional differences compared to Western firms, such as substantial government intervention into business management, weak legal protection to shareholders' right, naive individual investors, and lack of effective management incentives and constraints (Cha 2001; Tam 2002). Therefore, before embracing Western governance models, Chinese policy makers should carefully consider the institutions - the legal, social and economic infrastructure - that are needed to make the models function as expected

(Clarke 2003). More specifically, this thesis does not observe an effective monitoring effect from Chinese independent directors and institutional shareholders. These results might disappoint those who expect to maximize shareholder value and solve the agency problem by relying on more appointments of independent directors and the activism of institutional shareholders. Based on the findings of this study and also drawing on previous literature, a number of implications for policy makers are discussed below.

First, further ownership reform is needed. As shown in my sample, the majority of shares of Chinese listed firms are in the hands of the state or state controlled legal persons and these shares are not tradable. The highly concentrated ownership structure, especially state ownership, have been seen to cause problems such as the lack of liquidity of the secondary market, inefficient stock markets and the absence of effective shareholder monitoring. This thesis joins other authors (Chen 2001; Lin 2004; Tenev and Zhang 2002) in suggesting that the Chinese government should gradually float the un-tradable shares owned by the state, by ways like selling them to existing non-government shareholders, transferring them to financial institutional shareholders or transforming them into preferred non-voting shares (Lin 2004).

Second, the importance of the independence of the board of directors should be highlighted. Board independence is not easily achieved by simply hiring more independent directors, though this might be a step in the right direction. More attention should be paid to how these directors are appointed and also how they could be induced to act in the shareholders' interests , especially those of the minority shareholders. It might be worth attempting to establish an efficient labour market of

independent directors in China. With such a market, listed companies can have a bigger pool to select and appoint independent directors rather than appointing from those known and recommended by the top management. Also, with such a market, independent directors are more likely to maintain their reputations and have a forum to seek support if needed.

Third, executive remuneration structure should be reformed. Current remuneration structures for top managers are too simple and unlikely to provide enough incentives to curb opportunistic behaviour. As argued by Monks (2001) and also Jensen and Murphy (1990a), it not how much but how CEOs are paid that matters. Although this thesis suggests a positive linkage between executive pay and accounting-based performance in China (not in terms of market-based performance), the linkage is too simple – generally only in the form of a cash bonus. To induce directors and top executives to act in the best interest of owners, a performance-related, market-based and long-term oriented executive compensation scheme needs to be designed and implemented. For example, multi-year bonus plans, in which not the level but the sustainable rise of profits should be the base for performance measurement. Or alternatively, a personal "bonus-account" without floors and caps can be used to sum up positive and negative bonuses and pay out the positive bonuses only partly at the end of the year (Gebistorf 2002). Such a bonus-account will help entice managers not to maximize short-term profits at a cost of a long-term rise of shareholder value.

Fourth, more transparent financial information disclosure should be encouraged, or even legally required. The importance of information disclosure has been highlighted

by some Western rules, such as the Sarbanes-Oxley Act (2002)[43]. Improved financial transparency will help investors in fulfilling their monitoring and oversight roles, which is even more important in China where insider transactions are prevalent (Lin 2004). This thesis agrees with Firth *et al.* (2006) in advocating greater disclosure of CEO and top management remuneration in China, especially those implicit incomes or benefits.

Last but not least, there have been some recommendations concerning stock options (Firth *et al.* 2006; Wu 2002). In western countries, managerial ownership works quite well. As stated by Wu (2002), more than 50% of American companies use long-term incentive plans, which is thought to be one of the main factors that contribute to the competitive advantage of American enterprises for the last 20 years. Though there is no generally optimal managerial ownership level and it is not possible to predict a priori whether or not the profits gained through higher incentives will outweigh the costs of managerial ownership (Himmelberg *et al.* 1999), a general conclusion that can be drawn from the empirical studies is that managerial stock options improve the chances of aligning the interests of managers with those of the shareholders. Therefore, many researchers and practitioners, such as Wu (2002) and Zhi (2003), advocate the introduction of managerial ownership and stock options into China's listed companies.

However, improving the structure of compensation packages is just a good start. There are some conditions that need establishing first to make managerial ownership

[43] also known as the *Public Company Accounting Reform and Investor Protection Act of 2002*, is a United States federal law passed in response to a number of major corporate and accounting scandals, e.g., Enron, Tyco International, and WorldCom, in order to rebuild public trust in accounting and reporting practices. It provides a framework of information disclosure requirements on auditor firms, offices, CPAs, services, fees, compliance/enforcement actions and other critical issues.

an effective incentive, as suggested by Wu (2002) and Zhi (2003), both in terms of incentive and restraint. External environments that might affect the function of managerial ownership mainly include the legal environment and the market environment. The legal environment, such as Corporate Law and Security Law etc., will affect decisions taken and their effectiveness in terms of choosing incentive mechanisms. The market environment such as the labour market, the product market, and the stock market are all essential to the functioning of managerial ownership. All these mechanisms can affect managerial incentives and firm performance. For example, the labour market can motivate managers to maintain their human capital by avoiding opportunistic behaviour.

As Monks (2001:222) stated, "Executive compensation unrelated to performance is just one symptom of a corporate governance system that fails to ensure management accountability". Mechanisms within the framework of corporate governance are not isolated. Instead, they often work together and mutually strengthen each other. Changes of ownership structure, reforms of boards of directors and strengthening of the function of supervisory boards are all necessary elements for the effectiveness of managerial incentives.

Boards of directors are only one component of a larger governance 'package' consisting of internal and external mechanisms. At present, external Chinese governance mechanisms are relatively weak (Peng 2004). For example, state ownership still dominates the stock market, controlling about 49% of the shares in my sample, with little evidence of favourable governance effects. Chinese financial institutions, most of which are state-owned, account for a very small percentage of

both market capitalization and number of shares. In the long run, financial institutional investors such as investment and pension funds, which have not had much monitoring impact in emerging economies, may accumulate more shares, demand board representations, and become more active and effective monitors (Peng 2004).

Overall, the economic and legal environment should be improved in order to effectively deal with the problem of incentive and restraints. Only in these conditions can managerial ownership incentive be expected to work. It has been suggested that any fundamental improvement in China's corporate governance will require a broad program that encompasses not only privatization but also laws and their effective implementation to provide better protection for investors.

9.5 Limitations and future research

One of the unavoidable limitations of this thesis is that I was only able to proxy executive pay using the cash components. Stock options (though still rare), benefits or other forms of payment that were not disclosed in the annual reports were not included. Again, due to the lack of data, my analysis does not control for HPD individual characteristics. Future research may be able to rectify these limitations once the data becomes available.

Moreover, the thesis focused on the impact of different types of ownership on HPD pay. Future research can examine whether different types of shareholders, especially

different groups of institutional investors, have a significant impact on corporate governance, particularly executive remuneration, in China.

Furthermore, the sample was drawn from A-share listed companies only and the results may not be generalized to Chinese firms listed in HongKong, New York or other overseas stock exchanges. Future research is needed to address diversity of the forms of Chinese companies in terms of the international stock market in which they are registered.

Also, this thesis has found some results that depart from the majority findings in Western literature. These departures in results might be attributed to the different institutional settings of the transitional economy of China from Western countries. However, are these results common to transitional economies, or are they just special to China? This is another interesting issue for future research to consider.

Finally, while a number of clear results have been obtained from this study, it is also recognized that the mixed results relating to certain variables require further research. For example, future research could further investigate the issue of why market based performance and accounting performance yield different results. Alternative specifications of performance would also be worth exploring. Further research is required to systematically examine what drives the finding that executives in firms with higher institutional ownership are paid more.

9.6 Summary and conclusion

The vast majority of studies dealing with determinants of executive pay use data drawn from Anglo-Saxon economies. We know precious little about executive pay dynamics and their determinants in contexts other than those of advanced capitalist countries.

With a sample of 417 Chinese listed firms, this thesis has examined the determinants of executive pay in the transitional economy of China, focusing on the impact of board characteristics, ownership structure, and internal and external market comparison factors. The evidence here has shown mixed support for agency theory, and this mixed support may be due to the transitional environment in which Chinese listed firms are operating. The development of corporate governance in the West has offered useful insights in terms of what might be considered the code of best practice. However, it is not advisable that China should copy these models wholesale. It should be realized by the Chinese regulators that different countries are likely to achieve high standards of corporate governance through the application of different mixture of shareholder activism, self-regulation, external regulation, statute law and law enforcement (Chambers 2005). The evidence presented in this thesis suggests that the governance of executive pay in China will continue to be an important policy and research issue for the foreseeable future.

To recap, this thesis has been organized as follows: Chapter 1 raised the research questions, introduced the research background, motivations and the main objectives of this study, and discussed the significance of this study. Chapter 2 first introduced the

development and current position of corporate governance and executive remuneration in China, which provides the institutional background for this thesis. Chapter 3 reviewed agency theory and the empirical literature on executive remuneration, based on which, and China's specific background, research hypotheses were developed. Chapter 4 defined the research methods used in this thesis; Chapters 5, 6 and 7 applied the methods to analyze the data, tested the research hypotheses, and presented and discussed the results. Chapter 8 linked the empirical results to research hypotheses, previous literature and Chinese institutional background, and provided an inter-chapter discussion. Chapter 9 provided a summary of the thesis, recapped the main results of this study, discussed its contributions, implications and limitations, and explored opportunities for future studies.

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Appendix 1

Outline of the Interview

--on Executive Compensation in Chinese Listed Firms

Interviewee:

Company Name:

Position and years in the firm and that position:

Time and Place:

Questions (Qs)

1. Does your company have a remuneration committee? (If yes → Q2, if no→ Q5)

2. About memberships of remuneration committee:
   - How many members are there in your remuneration committee?
   - How many are non-executive directors?
   - Where are they from?

3. Who select them? Who appoint them? （Who determines the remuneration committee, why it is these people and not others）

4. Does the remuneration committee use consultants to decide executive remuneration?

   Turn to Q 9

5. Who determines the CEO and other top managers' remuneration committee? And who selects those people who determine the remuneration?

6. How are they selected? Why is it these people and not others?

7. Are they formally known as the people who set the remuneration levels, do they engage consultants to help them decide on the remuneration levels? How doe the committee determine remuneration for the CEO and other top managers?

8. What factors do you think are taken into account when setting executive remuneration?

Reminders:

- Directors' characteristics (Age, Experience, Education, Tenure, the year with the company, Professional qualifications, etc.)
- Company characteristics (Size, Profit, industry, competition, etc.)

9. What internal or external reference points or comparisons do they use and why? Industry/ Whole market pay level/ similar firm?)

10. When do they use benchmark? Are they really using them (for moving up or down)?

11. What dynamics do you take if they find directors underpaid or overpaid? (Do you adjust one-off in the following year or over the following years?)?

12. Do you have a special fund for executive compensation?

13. Does it disclose in your financial reports?

14. Why the special compensation fund isn't made public in the financial Statements?

15. How much is the special fund for compensation that is not disclosed in the accounts compared to the figures published in the accounts?

16. How special compensation fund is determined (company characteristics/external characteristics?)

    - Do you use external benchmark in deciding this special compensation fund?
    - How do you know if they are all confidential?
    - Where does this special fund appear?
    - Do you have this fund even when the company is making losses?

17. Do you use stock option for executive compensation in your company?

18. How do you think of stock options as a compensation method, in China specifically? Why?