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Disproportional ownership structure and pay–performance relationship: evidence from China's listed firms

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Keywords

relationship, china, performance, pay, structure, evidence, ownership, firms, listed, disproportional

Disciplines

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Disproportional ownership structure and pay-performance relationship: evidence from China's listed firms

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Abstract

This paper examines the impact of ownership structure on executive compensation in China's listed firms. We find that the cash flow rights of ultimate controlling shareholders have a positive effect on the pay-performance relationship, while a divergence between control rights and cash flow rights has a significantly negative effect on the pay-performance relationship. We divide our sample based on ultimate controlling shareholders' type into state owned enterprises (SOE), state assets management bureaus (SAMB), and privately controlled firms. We find that in SOE controlled firms cash flow rights have a significant impact on accounting based pay-performance relationship. In privately controlled firms, cash flow rights affect the market based pay-performance relationship. In SAMB controlled firms, CEO pay bears no relationship with either accounting or market based performance. The evidence suggests that CEO pay is inefficient in firms where the state is the controlling shareholder because it is insensitive to market based performance but consistent with the efforts of controlling shareholders to maximize their private benefit.

JEL Classifications: G32; G34

Keywords: Managerial compensation, Firm performance, Ownership structure

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Disproportional ownership structure and pay-performance relationship: evidence from China's listed firms

1. Introduction

In recent years two strands of research on the effect of ownership structure on pay-performance relationships have begun to emerge. The first focuses on the effects of cash flow rights and divergence between control rights and cash flow rights (excess control rights) on CEO pay (Masulis et al., 2009; Barontini and Bozzi, 2010). With US dual-class firms, Masulis et al. (2009) find that the divergence between an insider's control and cash flow rights has a positive effect on CEO pay, while from a sample of Italian listed firms, Barontini and Bozzi (2010) acknowledged that there is a negative effect. The second strand focuses on the effects of an ultimate controlling shareholder's type on the pay-performance relationship, particularly between state and non-state owned firms in transition economies such as China. For example, Kato and Long (2005) find that state ownership weakened the pay-performance relationship. Firth et al. (2006) find that distinct types of controlling shareholders have different impacts on the use of incentive pay for CEOs, and they provide evidence that CEO pay is weakly related to firm performance in firms whose controlling shareholder is either the central government or a private owner. We extend their research by explicitly examining how a controlling shareholder's type, cash flow rights and excess control rights shape CEO pay and the pay-performance relationship.

Several studies find that the wedge between cash flow and control rights affects firm value (Cleassens et al., 2002; Lemmon and Lins, 2003; Laeven and Levine, 2008; Gompers et al., 2010). Indeed through a common practice of ownership concentration and pyramid structure, controlling shareholders in emerging markets can exercise control through voting rights despite having relatively small proportional cash flow rights. This excess control rights gives controlling shareholders an incentive to expropriate the wealth of other investors and pursue their own interests, which are

often diametrically opposed to those of minority shareholders (Chen et al., 2011). The issues regarding the expropriation of minority shareholders are especially relevant in economies with weak legal protection or poorer governance standards (La Porta et al., 1999, 2000; Johnson et al. 2000; Peng et al., 2011). Conflicts between the largest shareholders and minority shareholders are particularly severe in transition economies where the ownership is highly concentrated and investors lack legal protection (Shleifer and Vishny, 1997; Lin et al., 2010). The general consensus is that a disproportional ownership structure allows for easier expropriation of the wealth of minority shareholders, which results in lower a firm's value. Fan et al. (2011) further suggest that the cost of expropriation may ultimately be born by the controlling shareholders and that they would need to devote substantial resources to their expropriation activities. However, the question of whether the controlling shareholder's excess control rights affects CEO pay remains unexplored in the context of disproportional ownership economy. CEO compensation is essential to provide management incentive, which is not necessarily consistent with the interest of minority shareholders.

Aligning executive interests with those of shareholders is an important governance mechanism (Jensen and Murphy, 1990). In economies with concentrated ownership, the largest shareholders are often in charge of setting CEO compensations. The impact of ownership concentration and excessive control on executive incentives remains contradictory. Murphy (1999) suggested that the largest shareholders have strong incentives to directly monitor managers by relating CEO pay to firm performance. On the other hand, the separation of control and cash flow rights is able to adversely affect the pay-performance relationship, since the largest shareholders extract their private benefits by setting CEO compensation schemes unrelated to the wealth of minority shareholders but to the controlling shareholder's private interest. To help understand these questions, we use the unique Chinese context¹ to examine the effect

¹ Firth et al. (2006) suggest that "China's listed firms have unique ownership characteristics where the largest shareholder usually has effective control. Most listed firms have a dominant shareholder that helps shape the strategies and policies of the company. The dominant shareholder can exercise

of ownership structure, specifically cash flow rights and control rights of the ultimate controlling shareholders, on the pay-performance relationship.

China's economic transition follows a path of partial privatization, in which the state retains control over many SOEs by floating only a small percentage of shares to the public. It does this through creating a long principal-agent chain, a significant pyramid structure, and cross-shareholdings of ownership. As a result, the state controlling shareholders have substantial control rights in excess of their cash flow rights. At the same time, many privately controlled firms were also listed in the capital markets in China through initial public offerings (IPOs) along the development of these Chinese markets after 2001.

State controlled and privately controlled firms have different operating objectives due to the nature of their ownership and are also subject to different regulations. It is argued that state controlled firms operate with multiple objectives that vary between maximizing the wealth of shareholders, maintaining urban employment levels, and controlling sensitive industries (Clarke, 2003). Fan et al. (2011) also argued that state ownership, which is often non-tradable or not freely-transferrable, can have a significant impact on managerial incentive schemes. Therefore, it is important to distinguish between state and private-controlled firms because they may intend to use different incentive schemes.

However, due to the complex ownership structure of state controlled firms, it is also important to distinguish amongst state controlled firms. State controlling shareholders may belong to different state owned entities and government agencies and each of them may have different objectives and therefore desire to adopt different pay schemes. Therefore we classified state controlled firms into two categories based on their ultimate controlling shareholders: state assets management bureaus (SAMBs), and state owned enterprises (SOEs). SAMB is a government agency responsible for

substantial control over a firm by way of board representation as well as through voting rights. In many cases it is the State, local, city, or regional government that has the controlling share stake. In other cases, the controlling shareholder is a SOE (from which the listed firm was carved out) or a private blockholder.”

managing and controlling state owned assets. In SAMB controlled firms, CEOs work as representatives of the government, so their pay scheme may not be based purely on economic performance. In contrast, the publicized goal for SOE controlled firms is to maximize the firm's value and incentivize management.

Historically, most general managers of state controlled firms worked as bureaucrats and were paid according to the civil service pay scale. Since 1985, China introduced wage reform and other economic reforms in state controlled firms to improve the management compensation scheme. In 2000, the Ministry of Labor announced that CEO payment in state controlled firms should be linked to a firm's economic performance (the Ministry of Labor, 2000). However, this did not provide sufficient incentive as firms still operated under the previous system where profits and wages were being redistributed by the state (Yueh, 2004). With the establishment of two stock exchanges in the early 1990s and the State-Owned Assets Supervision and Administration Commission of the State Council (SASAC) in 2003, many state controlled firms were restructured and listed on the two stock exchanges. Since 2003, many regulations have been promulgated by SASAC to evaluate SOE performance and align this with CEO pay. Specifically, SASAC issued 'Interim regulations on the evaluation of the top executive operating performance' in SOEs affiliated to the central government (SOECGs) in 2003, which clearly stated that top executive pay should be aligned to total profits and sales and described how to evaluate executive performance². In 2006 and 2010, SASAC updated this regulation by adding some extra rules such as the punishment of top executives when they were underperforming. Obviously, by putting these regulations into practice, SASAC has decreed that profitability should be the primary measure of firm performance to which CEO pay should be linked. Meanwhile, to curtail CEO's from expropriating shareholder wealth through excessive perks, SASAC also promulgated 'Instructions on regulating top

² Furthermore, in 2007 and 2008, the SASAC announced two 'supplementary provisions' of this regulation which made further efforts on aligning executive pay to firm performance in SOEs. Meanwhile, in 2004, 2006 and 2009, the SASAC also promulgated the 'Interim regulations on the administration of top executive pay in SOECGs', 'Interim regulations on the evaluation and administration of SOECG performance' and 'Interim regulations on the evaluation and administration of state owned financial institutions firm performance'.

executive ‘on-job’ consumptions in SOECGs’ in 2006³.

These reforms and regulations of executive compensation in SOE controlled firms are largely aimed at aligning the interests of shareholders and management. Several studies document a positive pay-performance relationship in both SOE and privately controlled firms but not in SAMB controlled firms (Kato and Long, 2005; Firth et al., 2006, 2007). These results confirmed that the goals of these reforms in SOE controlled firms and CEO compensation have been achieved to some extent.

In China’s weak corporate governance environment, the largest shareholders have strong incentives to monitor managers and operations as their concentrated cash flow rights helps overcome the free ride problem. However, if control rights exceed cash flow rights, controlling shareholders are likely to pursue their own interests and may seek to expropriate minority investors by tunneling, related party sales, and transferring profits out of the company for personal gains (Johnson et al., 2000; Fan et al., 2011). Such conflicts of interest between the largest shareholders and minority shareholders will hamper the application of performance based pay incentives (Wang and Xiao, 2011). Therefore, the largest shareholders’ cash flow rights and excess control rights may have conflicting effects on the pay-performance relationship. Our first hypothesis states that:

- H1a: Cash flow rights have a positive effect on pay-performance relationship.
- H1b: Excess control rights have a negative effect on pay-performance relationship.

Many controlling shareholders of China’s listed firms are state-owned entities or government agents, and state held shares are not tradable on the stock exchanges⁵. As a result, state shareholders have an incentive to set CEO pay based on accounting-linked performance indicators, since to maximize free cash flow, they either receive cash remittance or can expropriate other investors that have more

³ At the local levels, the local SASACs located across the country have also issued regulations based on their local specific characteristics according to the regulations from the central SASAC. For example, Beijing SASAC promulgated ‘Interim regulations on the administration of top executive pay in Beijing SOEs’ in 2004, which has similar effects of relating CEO pay to firm performance.

resources available. Therefore, market based indicators such as stock return often have no direct link to a controlling shareholder's wealth. Accordingly, we argue that state shareholders emphasize maximizing profits rather than shareholder value. In contrast, since shares in privately controlled firms held by the largest shareholders can be freely traded, private investors are more concerned about market performance. Therefore, we formulate the following hypothesis:

- H2a: Cash flow rights in state controlled firms have a positive effect on accounting performance based pay-performance relationship, while cash flow rights in non-state controlled firms have a positive effect on market performance based pay-performance relationship.
- H2b: Excess control rights in state controlled firms have a negative effect on accounting performance based pay-performance relationship, while excess control rights in non-state controlled firms have a negative effect on market performance based pay-performance relationship.

In China under SASAC, SOE controlled firms are directly and ultimately controlled by central and/or local governments. It is mandatory that state owners receive cash flows, including profits and dividends, because shares of SOEs are often not tradable unless approved by the CSRC and the selling price is only at book value (Xu, 2003). Since 2003, CEOs of SOE controlled firms have been evaluated according to a combination of annual performance measures such as return on assets (ROA) and return on sales (ROS). We therefore hypothesize that:

- H3a: Cash flow rights have a positive effect on accounting based pay-performance relationship in SOE controlled firms.
- H3b: Excess control rights have a negative effect on accounting based pay-performance relationship in SOE controlled firms.

SAMBs⁴ are the state agencies that hold non-tradable shares on the market. They do not have cash flow rights from these shares and payouts often have to be remitted

⁴ The term SAMB encompasses state asset management bureaus, state asset operating companies, and state agencies like the Ministry of Finance and Ministry of Agriculture. However, SAMBs, located across provinces and cities, are merely agents of the central government that manage state-owned assets and invest them in listed firms.

directly to different levels of governments (Firth et al., 2006). The objectives of SAMB controlled firms are to carry out the instructions of the central or local governments and to maintain local employment levels rather than maximize the value of a firm. In most instances CEOs in SAMB controlled firms are officials from the government, with little or no professional background, no rights to select other top executives, and no responsibility for economic consequences (Zhang, 1998). We therefore hypothesize the following:

- H4: Cash flow rights and excess control rights have no effect on pay-performance relationship in SAMB controlled firms.

Our results indicate that CEO pay in SOE controlled firms is related to firm accounting performance (return on assets and return on sales), while CEO pay in privately controlled firms is related to market performance (stock return). However, there is no relationship between CEO pay and firm performance in firms controlled by SAMBs. Our regression results show that the cash flow rights of the largest shareholders enhance accounting performance related pay schemes in SOE controlled firms and improve market performance related pay schemes in privately controlled firms. However, the separation between control rights and cash flow rights shows negative entrenchment effects by significantly reducing the pay-performance relationship in both SOE and privately controlled firms. We also find that cash flow rights in SAMB controlled firms do not appear to affect the pay-performance relationship, which confirms the consensus that these firms do not really have cash flow rights because they must remit earnings back to their superiors (Firth et al., 2006).

We have made two substantial contributions to the literature. First, our research not only sheds light on how cash flow rights and excess control rights affect CEO pay, it also submits new evidence on how cash flow rights and excess control rights affect the pay-performance relationship. Cash flow rights have a positive incentive effect on the pay-performance relationship while excess control rights have a negative entrenchment effect. Second, our study furthers the understanding that different performance based pay schemes are used between SOE controlled firms and privately

controlled firms. Cash flow rights and the divergence between control rights and cash flow rights influence pay-performance relationship across firms with different types of ultimate ownership. Our evidence suggests that CEO pay in firms with SOEs as the controlling shareholders is determined by accounting based performance but is not sensitive to market based firm performance. This is consistent with the private benefits of controlling shareholders, as the CEO pay scheme aims to maximize accounting performance in order to extract greater cash flows.

The rest of the paper proceeds as follows: Section 2 reviews the relevant literature; Section 3 outlines the data and methodology; Section 4 discusses the empirical results; and Section 5 presents the conclusions.

2. Literature review

The separation of ownership and control by the largest shareholder has been researched extensively. For example, La Porta et al. (1999) argued that the ultimate controlling shareholders often use a pyramid structure and cross shareholding to obtain control rights in excess of their cash flow rights. With a sample of 1,301 publicly traded corporations in eight East Asian countries at the end of 1996, Claessens et al. (2002) provided important evidence that cash flow rights have a positive incentive effect while the divergence between control and cash flow rights has a negative entrenchment effect on corporate governance. Similar results were also provided by Lemmon and Lins (2003), Laeven and Levine (2008) and Gompers et al. (2010). Chen et al. (2011) further argued that the disproportional ownership can also be due to political connections. By using a sample of 276 privately controlled firms that listed in markets via IPO between 1993 and 2008, they found that politically connected firms tended to maintain a significantly concentrated ownership control structure. Moreover, Johnson et al. (2000) argued that managerial expropriation is an important form of tunneling which lowers shareholder value, and Peng et al. (2011) pointed out that connected transactions are an alternative to tunneling depending on the different financial situations of firms. However, Fan et al. (2011), among others, argued that disproportional ownership structure may not always result in

expropriation especially when controlling owners need to devote substantial resources to carry out the expropriation. In this sense, they suggested that expropriation may not be the sole reason for concentrated ownership structures in emerging markets.

Only recently have academics started to examine the effects of cash flow rights and excess control rights on CEO pay. Specifically, Masulis et al. (2009) found a positive relationship between excess control rights and CEO pay by using a sample of 189 U.S. dual-class firms that made acquisitions during the period between 1994 and 2002, while Barontini and Bozzi (2010) found evidence from a sample of Italian listed firms that CEO pay was positively affected by a low divergence of control and cash flow rights.

Recent studies also provided evidence of the effects of blockholder ownership on pay-performance relationship. For example, John et al. (2010) examined an association between outside blockholder ownership and pay-performance sensitivity, by using a sample of 120 bank-holding companies from 1992 to 2000. They argued that the pay-performance relationship was positively related to blockholder intensity. A similar argument was echoed by Kim (2010), who suggested that the pay-performance relationship was positively determined by blockholder ownership. Several other studies examined whether the largest shareholder's ownership affects the pay-performance relationship. By using a sample of U.S. insurance companies from 1994 to 1996, Ke et al. (1999) found that for public-held insurers, managerial compensation and ROA were closely related.

China, as a transition economy, is an important and unique case study for examining the effect that different ultimate controlling shareholders, particularly between state and non-state owned firms, have on CEO pay and the pay-performance relationship. For example, by using a sample of China's listed firms between 1998 and 2002, Kato and Long (2005) found that the pay-performance relationship was weaker in state owned firms, thus making them less effective in solving agency problems. With a sample of China's listed firms between 1998 and 2002, Firth et al. (2006) argued that firms having foreign investors or SOEs as their largest shareholders tended to relate CEO pay to accounting performance, whereas firms with

private controlling shareholders tended to relate CEO pay to the performance of the stock market. In contrast, by using a sample of China's listed firms between 1999 and 2005, Wang and Xiao (2011) provided evidence that controlling shareholders may have less incentive to strengthen the pay-performance relationship due to the private benefits they obtain from the listed firms. However, these studies only focused on who the controlling shareholder (i.e. owner type) was and their effect on the pay-performance relationship, they did not explain the channel through which these effects were exercised.

In this paper we fill the gap by using samples of China's listed firms between 2002 and 2007 to examine how and why the disproportional shareholder ownership structure affects the pay-performance relationship.

3. Data and methodology

3.1. Sample

We compile data from firms listed on the Shanghai Stock Exchange and Shenzhen Stock Exchange between 2002 and 2007 because information on cash flow rights and control rights has only been available since 2002. We obtain firm characteristics from the Chinese Stock Market Accounting Research (CSMAR) database and the data on managerial compensation, board, and ownership structure from the SinoFin database. Both databases have been used in past studies of Chinese listed firms (e.g., Kato and Long, 2005; Firth et al., 2006, 2007). Similar to prior studies, we delete the ST and *ST⁵ companies from our population. We also excluded firms in the finance industry because of their unique accounting standards and incomplete information on the main variables used in our analysis. Our final sample consists of 1,129 firms and 6,297 firm-year observations between 2002 and 2007.

⁵ ST stands for Special Treatment, refers to the listed firms that have already got negative net profits for two consecutive years. *ST refers to the listed firms that have already got negative net profits for three consecutive years and have the probability of being delisted from the stock exchanges.

3.2. Variable definitions

3.2.1 Managerial compensation

Since 1998, Chinese listed firms have disclosed information on managerial compensation in their annual reports. Prior to 2005, firms only reported the aggregate compensation of their top three executives' the sum of salary, bonus and other cash compensation. We follow Kato and Long (2005) and use the log of the average top three executives' compensation as the proxy for managerial compensation. Although some firms started to use other forms of incentive compensation after 2006, such as stock options and restricted stock, the number of these firms account for less than 5% of the total listed firms. Because of data limitations for other forms of incentive compensation, we use cash and bonus compensation in this study.

3.2.2 Firm performance

We measure firm performance by using both accounting-based and market based performance. We also use return on sales (ROS) to do robustness tests in addition to the return on assets (ROA) and annual stock return (RET), which is consistent with previous studies. For our analysis, we adopt industry adjusted measures of ROA, ROS, and RET, which are calculated as the difference between the firm specific and industry-median value of performance measure. We also repeat our analysis using Tobin's Q (Q), measured as the ratio of market value to firm replacement value, as an additional measure of performance for robustness tests. We follow Merhebi et al. (2006) and Firth et al. (2007) and employ lagged values of these variables in the regressions because CEO pay responds to a firm's previous performance.

3.2.3 Ownership type, cash flow rights and control rights

To examine the effects of ultimate shareholder ownership, we first identify the ultimate controlling shareholder by tracing the chain of ownership. We classify controlling ownership into three categories: SAMBs, SOEs and private ownership. We then define control rights as the weakest link in the chain and cash flow rights as the product of ownership stakes along the chain, which is consistent with previous studies (La Porta et al., 1999; Claessens et al., 2002). For example, firm A, the

ultimate controlling shareholder, owns 70% of the shares in listed firm B, which in turn owns 35% of the shares in listed firm C. We then decide that firm A controls 35% of firm C, B's ownership being weakest link in the chain, while the cash flow right is 24.5%, being the product of 70% and 35% ($70\% \times 35\%$). Through a pyramid structure, cross-shareholding, and dual-class stocks, the largest shareholder's control rights were always in excess of their cash flow rights (La Porta et al., 1999). Therefore, in further tests, we replace cash flow rights with excess control rights, defined as the difference between control rights and cash flow rights, to support our main hypotheses. To determine effective control at any intermediate as well as ultimate level, we follow Claessens et al. (2002) and employ a cutoff level of 10% in our analysis.

Table 1 lists the definitions of all variables we use in our analysis, including the control variables, which we take mainly from Firth et al. (2007) and Chen et al. (2009).

(inset Table 1 here)

3.3. Sample statistics

Table 2 lists a summary statistics of variables for the full sample. Panels A and B present descriptive statistics on managerial compensation and firm characteristics, the latter covers the measures of firm performance, firm characteristics and the information on cash flow rights and excess control rights. Panel C provides summary statistics on CEO and board characteristics. Panels D, E and F report detailed statistics for managerial compensation based on years, industries, and dominant shareholders. Panel A shows that the mean (median) of CEO pay is 219,939 (160,000) RMB, which is equivalent to approximately 31,420 (22,860) USD. These pay levels were much lower than those reported in research for the U.S., U.K., and other countries (Brick et al., 2006; Merhebi et al., 2006; Kato et al., 2007; Basu et al., 2007). This pay level gap between China and other countries may be attributable to smaller firms, higher rates of CEO turnover, and/or lack of long term incentives (Firth et al., 2002; Kato and Long, 2005). Nevertheless, the means (medians) in Panel D indicate a steady 151.7% (164.8%) increase in CEO pay across our sample period, ranging from

131,023(95,666) RMB in 2002 to 329,811 (253,333) RMB in 2007. Panel B shows that the average cash flow rights is 34.4% while the excess control rights is 6.4%, indicating a clear divergence between the largest shareholder's control rights and its cash flow rights in these listed Chinese firms.

As shown in Panel E and F, CEO pay varies across industries and firms according to the different categories of dominant shareholder. For example, the mean (median) of CEO pay in the commercial industry was 236,011 (178,683) RMB, whereas the mean (median) of CEO pay in the property industry was 339,343 (230,000) RMB. Likewise, the mean (median) for SAMB controlled firms was 177,740 (129,333) RMB, whereas the mean (median) for SOE controlled firms was 241,229 (190,400) RMB.

(Inset Table 2 here)

4. Empirical results

In this section we examine the impact of ownership structure on CEO pay and the pay-performance relationship in Chinese listed firms. We first examine how CEO pay varies across different ownership structure and then explore how cash flow rights and excess control rights related to CEO pay and pay-performance relationships.

4.1 Ownership structure and CEO pay

To provide some preliminary results regarding how CEO pay is related to owner type, Table 3 reports the significance of differences in means and medians of CEO pay between the groups. For example, the t -statistic (z -statistic) of -6.52 (-9.34) in the comparison of SAMB versus SOE shows that the mean (median) CEO pay was significantly higher for SOE controlled firms than SAMB controlled firms does. These results can be further summarized as follows: the negative t -statistics in the comparisons of SAMB versus all the other owner categories indicate that CEOs in SAMB controlled firms received lower payments, while the positive t -statistics in the comparisons of SOE versus all the other owner types suggest that CEOs in SOE controlled firms received the highest payment among all categories of listed firms.

(Inset Table 3 here)

4.2. Cash flow rights and pay-performance relationship

To test our hypotheses regarding the relationship between managerial compensation and firm performance, we examine the impact of ownership structure on the pay-performance relationships. Our method is similar to those employed by Core et al. (1999), Firth et al. (2006, 2007) and Canarella and Nourayi (2008) to test the effects of firm performance and corporate governance variables on managerial compensation. Before we run regressions, we also tested the Pearson correlations between each pair of variables (contemporaneous value) in our regressions and found they are lower, which indicates that multi-collinearity does not exist. To save space, we did not report these results here.

In order to control for endogeneity of performance measures, we estimate regressions relating to the equations employed in this study using 2SLS. In the first stage we use an OLS model to obtain the fitted values of firm performance by regressing it on a set of lagged control variables in Equation (1). In the second stage we then estimate the following regression model in Equation (1) of CEO pay⁶:

$$\begin{aligned} PAY_{it} = & \alpha_0 + \alpha_1 CASH_{it} + \alpha_2 \hat{PERF}_{it-1} + \alpha_3 CASH_{it} * \hat{PERF}_{it-1} + \alpha_4 SIZE_{it} \\ & + \alpha_5 BOARD_{it} + \alpha_6 INDEP_{it} + \alpha_7 LEV_{it} + \alpha_8 DUALITY_{it} + \alpha_9 TENURE_{it} \\ & + \alpha_{10} FOR_{it} + Industry + Year + \varepsilon_{it} \end{aligned} \quad (1)$$

where i and t represent the firm and year, and ε is the error terms related to unobservable features that explain cross sectional variations in CEO pay. PAY is the level of managerial compensation measured by the log of the average top three executive compensation levels. CASH is the cash flow rights of the controlling shareholders. In the additional tests we replace cash flow rights with excess control rights (EXCESS), defined as the difference between the control rights and cash flow rights of the controlling shareholders, to provide some supplementary evidence. \hat{PERF} is the fitted value of the firm performance variable obtained in the first stage regression. We proxy firm performance with four measures, namely the return on

⁶ Results based on OLS estimation are generally similar to 2SLS estimations.

assets (ROA), return on sales (ROS), annual stock return (RET) and Tobin's Q (Q), and then regress these fitted variables in separate equations. SIZE is the log of the total firm assets, BOARD is the log of the total number of directors on the board, INIDEP is the proportion of independent directors, and LEV is the ratio of total debts to total assets. DUALITY is a dummy variable coded 1 if the CEO is also the board chairman and 0 otherwise, and TENURE is the log of the CEO's tenure with the firm as CEO. We also include dummy variables to control for industry and year effects.

As shown in Table 4, which presents the results for Equation (1) broken out by different firm performance measures, the lagged industry-adjusted ROA, ROS, RET and Tobin's Q are positively and significantly associated with CEO pay. This result suggests that top executives tend to be paid more in firms that perform well in the market, or have higher corporate value. For example, the coefficient on industry adjusted ROA indicates that one unit increase in industry adjusted ROA lead to a 1.37% increase in CEO pay level (column 1). In addition, we find a positive effect of stock return on pay. This differs from the earlier findings by Firth et al. (2007) who depended on much earlier sample period and found that market performance did not provide an incentive to CEOs⁷. We also find a positive and significant effect of Tobin's Q. These new findings of the positive incentive effect of market-based performance on CEO pay is largely due to the fact that Chinese listed firms have become more market oriented in the recent years.

The negative coefficients of CASH (see Table 4) provide evidence that CEO pay is lower in firms where the largest shareholders have higher cash flow rights, and the coefficients are significant. Moreover, all the interaction terms used to test whether ownership is associated with performance based pay for CEOs are positive and significant. This finding provides evidence in support of Hypotheses 1 that cash flow rights have a positive incentive effect on the pay-performance relationship.

In line with previous studies (Conyon, 1997; Hermalin and Wallace, 2001; Girma et al., 2007), our results also show that larger firms paid their managers higher salaries,

⁷ Using a sample of China's listed firms from 1998 to 2000, Firth et al. (2007) find no relationship between CEO pay and market performance.

and with Basu et al.'s (2007) finding of a significantly negative effect of firm leverage, managerial compensation is negatively related to leverage, that is, firms with higher debt pay their managers less. This latter effect may be attributable to debt being seen as monitoring by external debt holders (John and John, 1993).

(Inset Table 4 here)

Variables such as the size of a board and number of independent directors have a positive impact on managerial compensation. This interesting result contrasts directly with Conyon and Peck (1998) and Firth et al. (2007), who found a negative effect of the size of a board and an insignificant effect of the proportion of independent directors. Our results, however, are consistent with the evidence that small boards are more effective (Yermack, 1996) and large boards have a more doubtful influence on CEOs (Jensen, 1993). It also suggests that the proportion of independent directors is coming into line with the Chinese Securities Regulatory Commission's (CSRC) mandate that at least one third of board directors, who set CEO pay, should be independent.

We also find positive relationship between duality and CEO pay, which is similar to Core et al.'s (1999) findings that duality in U.S firms lead to higher CEO pay, but contrary Conyon's (1997) analysis of British firms. We do note a positive relationship between CEO tenure and CEO pay, which is not only consistent with most previous studies (Brick et al., 2006; Cornett et al., 2008) but echoes the intuitive assumption of a relationship between CEO pay and years of experience (Palia, 2001). Interestingly, in line with our conjecture, we also find that CEOs receive higher payment if a firm has foreign investors.

4.3 Cash flow rights and pay-performance relationship between state and non-state controlled firms

We modify our first equation by dividing the ownership of the largest shareholder between state ownership and private investors. Our second equation is shown as follow:

$$\begin{aligned}
PAY_{it} = & \alpha_0 + \alpha_1 CASH_{it} + \alpha_2 \hat{PERF}_{it-1} + \alpha_3 PSTATE_{it} * \hat{PERF}_{it-1} + \alpha_4 SIZE_{it} \\
& + \alpha_5 BOARD_{it} + \alpha_6 INDEP_{it} + \alpha_7 LEV_{it} + \alpha_8 DUALITY_{it} + \alpha_9 TENURE_{it} \quad (2) \\
& + \alpha_{10} FOR_{it} + Industry + Year + \varepsilon_{it}
\end{aligned}$$

where PSTATE is the cash flow rights of state controlled firms. All other variables in the second equation are defined the same as the first equation.

Table 5 reports the regression results for Equation (2) with a primary focus on the ownership coefficients and interaction terms. A close examination of the interaction terms also reveals some interesting outcomes. They are positive when we use profitability to measure performance but are negative when performance is measured as stock return and firm value. This result shows that SOE controlled firms put great emphasis on profitability while privately controlled firms care more about market performance. In fact, during the period of this study, SOE controlled firms achieved a higher average growth in operating sales, which supports Hypotheses 2a. This result differs from Kato and Long (2005) who found that state ownership weakens the pay-performance relationship. While they examined the relationship between the CEO pay and performance, we mainly focus on the effect that cash flow rights have on the pay-performance relationship. We find that for the state controlled firms, cash flow rights have positive effect on accounting based the pay-performance relationship, while no such effect on market based the pay-performance relationship. Therefore, our results suggest that the effect of cash flow rights on the pay-performance relationship between state controlled firms and privately controlled firms depends on different performance based pay schemes.

However, the coefficients are only significant for both CASH*ROA_{t-1} and CASH*ROS_{t-1}, and insignificant for other terms, so we divide state ownership into two types of firms where the ultimate controlling shareholder is SAMB and SOE, respectively, and run the regression relating to Equation (3) in the following section.

(Inset Table 5 here)

4.4 Cash flow rights and pay-performance relationship across owner types

We extend our second equation by dividing state ownership into the two types discussed in previous section: SAMBs and SOEs. The equation is as follow:

$$\begin{aligned}
 PAY_{it} = & \alpha_0 + \alpha_1 CASH_{it} + \alpha_2 PER\hat{F}_{it-1} + \alpha_3 PSAMB_{it} * PER\hat{F}_{it-1} \\
 & + \alpha_4 PSOE_{it} * PER\hat{F}_{it-1} + \alpha_6 PPRI_{it} * PER\hat{F}_{it-1} + \alpha_7 SIZE_{it} \\
 & + \alpha_8 BOARD_{it} + \alpha_9 INDEP_{it} + \alpha_{10} LEV_{it} + \alpha_{11} DUALITY_{it} \\
 & + \alpha_{12} TENURE_{it} + \alpha_{13} FOR_{it} + Industry + Year + \varepsilon_{it}
 \end{aligned} \tag{3}$$

where PSAMB (PSOE, PPRI) is the cash flow rights of different types of shareholders if that shareholder is the controlling shareholder.

The estimation results of Equation (3) are given in Table 6, where we apply the controlling shareholder cash flow rights to measure the ownership structure. Table 6 reports generally negative coefficients on cash flow rights regardless of performance measures which indicate that cash flow rights will reduce the level of CEO pay. More importantly, we focus on the interaction terms. These terms are positive when firm performance is measured by ROA and ROS and are statistically significant for SOE controlled firms. The results indicate that in SOE controlled firms CEO pay is related to profitability and the cash flow rights enhance the pay-performance relationship, which is consistent with our hypothesis 3a. The coefficients are economically significant. For example, in column 1 of Table 6, the coefficient of $PSOE * ROA_{t-1}$ indicates that in SOE controlled firms a 1% increase cash flow rights lead to a 8.8% increase in pay-performance sensitivity. The interaction terms with stock return measures of performance are positive and only significant when firms have private investors as the controlling shareholders. This result is consistent with our hypothesis 2a that a private controller is more likely to relate CEO pay to market performance, and again we find evidence that cash flow rights have positive incentive effects on corporate governance. However, the results of the interaction terms between SAMB and firm performance are insignificant, which is consistent with our hypotheses 4. When firms have SAMB as the largest shareholder, there does not

appear to adopt performance based pay schemes. The estimated coefficients on control variables are similar with those reported in Table 4 and 5. Overall, our results support the conjecture made by Firth et al. (2006) who believed that the stronger cash flow rights of SOEs and private investors (vis-à-vis the SAMB) induce such controlling shareholders to align CEO pay to performance whereas a controlling SAMB shareholder does not. We provide evidence that cash flow rights have positive effect on accounting based the pay-performance relationship when the controlling shareholders are SOEs due to the fact that their shares are not tradable. We also find that cash flow rights have positive effect on market based pay-performance relationship for firms whose controlling shareholder is a private investor.

(Insert Table 6 here)

4.5 Excess control rights and pay-performance relationships

In order to provide some supplementary evidence and disentangle the incentive and entrenchment effects of the largest shareholder, we repeat our analyses of regression relating the Equations (1) to (3) by replacing cash flow rights (CASH) with ultimate controlling shareholder excess control rights (EXCESS). The results are shown in Table 7 to 9. Our primary focus is on the interaction terms between ownership and performance. The general results show negative coefficients for most interaction terms which supports Hypotheses 1b, 2b, and 3b, that deviation between control rights and cash flow rights has negative entrenchment effects on corporate governance, which is reflected by a weaker the pay-performance relationship. We obtain opposite results when excess control rights are used instead of cash flow rights. These results are broadly consistent with previous studies on the separation of ownership and control (La Porta et al., 1999; Claessens et al., 2002). Meanwhile, we find there is a positive relationship between CEO pay and excess control rights, which is consistent with the argument that it is easier for a CEO to expropriate wealth where corporate governance is weak, reflected by a higher divergence between control rights and cash flow rights (Core et al., 1999; Claessens et al., 2002).

(Inset Table 7, Table 8 and Table 9 here)

We repeat the analyses by winsorizing the top and bottom 1% of the CEO pay variable to excluding any influence from the outliers, and the results are broadly consistent with those shown in the previous tables. All firm performance coefficients are positive and significant. More important, the interaction terms between cash flow rights and firm performance are all positive and $PSOE*ROA_{t-1}$, $PSOE*ROS_{t-1}$ and $PPRI*RET_{t-1}$ are statistically significant.

5. Conclusion

China's ongoing economic reform and corporate restructuring, which focuses primarily on improving management, is accelerating the corporatization of traditional SOEs. CEO and top manager's incentives, being the central theme in such reform and great concern of largest shareholders, are poorly understood. We therefore take advantage of the mandate since 2002 that listed firms in China have to disclose the largest shareholder cash flow rights and control rights in their annual reports to examine the effects on the relationship between managerial compensation and firm performance.

Our empirical results show that cash flow rights in the hands of the ultimate controlling shareholder have a positive effect on the pay-performance relationship. In particular, the higher cash flow rights can better align CEO pay with firm profitability in SOE controlled firms, and stock return in privately controlled firms. We also provide similar evidence to Claessens et al. (2002) that divergence between control rights and cash flow rights have a negative effect on the pay-performance relationship. These observations suggest that the development of a market economy in China has important implications for CEO pay.

In the Chinese context, we examine the pay-performance relationship in firms where different types of controlling owners have dissimilar objectives and motivations. Our multivariate analysis results show that the pay-performance scheme has been relevant in SOE and privately controlled firms, albeit depending on different performance measures. In SOE controlled firms, CEO pay is linked to firm accounting performance (ROA and ROS) but not sensitive to market based firm

performance. This is consistent with controlling state owners whose shares are non-tradable but who are entitled to cash flows. This is also consistent with the private benefits of controlling shareholders because the CEO pay scheme is to maximize accounting performance in order to extract greater cash flows. In privately controlled firms, however, CEO pay is sensitive to market performance, which is consistent with literature on US firms.

Overall, our study results suggest that ownership structure and types of controlling shareholders have jointly affected the CEO pay-performance relationship in China. Therefore, to better understand the causes and consequences of CEO compensation, future studies should focus on the unique characteristics of the institutional environment, such as corporate governance and ownership structure.

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References

- Barontini, R., Bozzi, S., 2010. CEO compensation and performance in family firms. Working paper.
- Basu, S., Hwang, L.S., Mitsudome, T., Weintrop, J., 2007. Corporate governance, top executive compensation and firm performance in Japan. *Pacific-Basin Finance Journal* 15(1), 56–79.
- Brick, I.E., Palmon, O., Waid, J.K., 2006. CEO compensation, director compensation, and firm performance: Evidence of cronyism? *Journal of Corporate Finance* 12(3), 403–423.
- Canarella, G.M., Nourayi, M., 2008. Executive compensation and firm performance: Adjustment dynamics, non-linearity and asymmetry. *Managerial and Decision Economics* 29(4), 293–315.
- Chen, C. J. P., Li, Z., Su, X., Sun, Z., 2011. Rent-seeking incentives, corporate political connections, and the control structure of private firms: Chinese evidence. *Journal of Corporate Finance*, 17(2), 229-243.
- Chen, G., Firth, M., Xu, L.P., 2009. Does the type of ownership control matter? Evidence from China's listed companies. *Journal of Banking and Finance* 33(1), 171–181.
- Claessens, S., Djankov, S., Joseph, P. H. F., Lang, L. H. P., 2002. Disentangling the incentive and entrenchment effects of largest shareholdings. *Journal of Finance* 57(6), 2741-2771.
- Clarke, D.C., 2003. Corporate governance in China: An overview. *China Economic Review* 14(4), 494–507.
- Conyon, M.J., 1997. Corporate governance and executive compensation. *International Journal of Industrial Organization* 15(4), 493–509.
- Conyon, M.J., Peck, S.I., 1998. Board control, remuneration committees, and top management compensation. *Academy of Management Journal* 41(2), 146–157.
- Core, J.E., Holthausen, R.W., Larcker, D.F., 1999. Corporate governance, chief executive officer compensation, and firm performance. *Journal of Financial Economics* 51(3), 371–406.
- Dewenter, K.L., Malatesta, P.H., 2001. State-owned and privately owned firms: An empirical analysis of profitability, leverage, and labor intensity. *American Economic Review* 91(1), 320–334.
- Fan, J. P. H., Wei, K. C. J., Xu, X. Z., 2011. Corporate finance and governance in emerging markets: a selective review and an agenda for future research. *Journal of Corporate Finance* 17(1), 207-217.
- Firth, M., Fung, P. M. Y., Rui, O.M., 2006. Firm performance, governance structure, and top management turnover in a transitional economy. *Journal of Management Studies* 43(6), 1289-1330.
- Firth, M., Fung, P. M. Y., Rui, O.M., 2006. Corporate performance and CEO compensation in China. *Journal of Corporate Finance* 12(4), 693–714.
- Firth, M., Fung, P. M. Y., Rui, O.M., 2007. How ownership and corporate governance influence chief executive pay in China's listed firms. *Journal of Business Research* 60(7), 776–785.
- Girma, S., Thompson, S., Wright, P.W., 2007. Corporate governance reforms and executive compensation determination: Evidence from the U.K. *The Manchester School* 75(1), 65–81.
- Gompers, P., Ishii, J., Metrick, A., 2010. Extreme governance: an analysis of dual-class firms in the United States. *Review of Financial Studies* 23(3), 1051-1088.
- Groves, T., Hong, Y., Mcmillan, J., Naughton, B., 1994. Autonomy and incentives in Chinese state enterprises. *Quarterly Journal of Economics* 109(1), 183–209.
- Hermalin, B.E., Wallace, N.E., 2001. Firm performance and executive compensation in the savings and loan industry. *Journal of Financial Economics* 61(1), 139–170.
- Jensen, M., 1993. The modern industrial revolution, exit, and the failure of internal control systems.

- Journal of Finance 48 (2), 831–880.
- Jensen, M.C., Murphy, K.J., 1990. Performance pay and top-management incentives. *Journal of Political Economy* 98(2), 225–264.
- John, T.A., John, K., 1993. Top-management compensation and capital structure. *Journal of Finance* 48(3), 949–974.
- John, K., Mehran, H., Qian, Y. M., 2010. Outside monitoring and CEO compensation in the banking industry. *Journal of Corporate Finance* 16(4) : 383-399.
- Johnson, S., La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2000. Tunneling. *American Economic Review* 90(2), 22-27.
- Kato, T., Kim, W., Lee, J.H., 2007. Executive compensation, firm performance, and chaebols in Korea: Evidence from new panel data. *Pacific-Basin Finance Journal* 15(1), 36–55.
- Kato, T., Kubo, K., 2006. CEO compensation and firm performance in Japan: Evidence from new panel data on individual CEO pay. *Journal of the Japanese and International Economies* 20(1), 1–19.
- Kato, T., Long, C., 2005. Executive compensation, firm performance and corporate governance in China: Evidence from firms listed in the Shanghai and Shenzhen Stock Exchange. *Economic Development and Cultural Change* 54(4), 39–81.
- Ke, B., Petroni, K., Safieddine, A., 1999. Ownership concentration and sensitivity of executive pay to accounting performance measures: evidence from publicly and privately-held insurance companies. *Journal of Accounting and Economics* 28(2), 185-209.
- Kim, K., 2010. Blockholder monitoring and the efficiency of pay-performance benchmarking. *Journal of Corporate Finance* 16(5): 748-766.
- La Porta, R., Lopez de Silanes, F., Shleifer, A., 1999. Corporate ownership around the world. *Journal of Finance* 54(2), 471-518.
- La Porta, R., Lopes-de-Silanes, F., Shleifer, A., Vishny, R., 2000. Investor protection and corporate governance. *Journal of Financial Economics* 58(1), 3-27.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R., 2002. Investor protection and corporate valuation. *Journal of Finance* 57(3), 1147-1170.
- Laeven, L., Levine, R., 2008. Complex ownership structures and corporate valuations. *Review of Financial Studies* 21(2), 579-604.
- Lemmon, M. L., Lins, K., 2003. Ownership structure, corporate governance and firm value: evidence from the east asian financial crisis. *Journal of Finance* 58(4), 1445-1468.
- Lin, C., Ma, Y., Malatesta, P., Xuan, Y., 2010. Ownership structure and cost of corporate borrowing. *Journal of Financial Economics*, Forthcoming.
- Masulis, R. W., Wang, C., Xie, F., 2009. Agency problems at dual-class companies. *Journal of Finance* 64(4), 1697-1727.
- Merhebi, R., Pattenden, K., Swan, P.L., Zhou, X.M., 2006. Australian chief executive officer remuneration: pay and performance. *Accounting and Finance* 46(3), 481–497.
- The Ministry of Labor, 2000. Overview of the current situation of enterprise wage structure in China. Ministry of Labor.
- Murphy, K.J., 1999. Executive compensation. In O. Ashenfelter, D. Card (eds.), *Handbook of Labor Economics*, North-Holland, Amsterdam, vol. 3. p. 2485-2563.
- Palia, D., 2001. The endogeneity of managerial compensation in firm valuation: A solution. *Review of Financial Studies* 14(3), 735–764.
- Peng, W. Q., Wei, K. C. J., Yang, Z. S., 2011. Tunneling or propping: evidence from connected

transactions in China. *Journal of Corporate Finance* 17(2), 306-325.

Shleifer, A., 1998. State versus private ownership. *Journal of Economic Perspectives* 12(4), 133–150.

Shleifer, A., Vishny, R.W., 1997. A survey of corporate governance. *Journal of Finance* 52(2), 737–783.

Wang, K., Xiao, X., 2011. Controlling shareholders' tunneling and executive compensation: evidence from China. *Journal of Accounting and Public Policy* 30(1): 89-100.

White, H., 1980. A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica* 48(4): 817-838.

Xu, L., 2003. Control transfers, privatization, and corporate performance: efficiency gains in China's listed companies. Working Paper, Zhongshan University.

Yermack, D., 1996. Higher market valuation of companies with a small board of directors. *Journal of Financial Economics* 40(2), 185–211.

Yueh, L.Y., 2004. Wage reforms in China during the 1990s. *Asian Economic Journal* 18(2), 149–164.

Zhang, W.Y., 1998. China's SOE reform: A corporate governance perspective. Working Paper, Peking University.

Tables:

Table 1

Variable Definitions.

| Variables | Definition |
|---|---|
| <i>Compensation</i> | |
| Managerial compensation (PAY) | Log of the average top three executives' compensation |
| <i>Firm performance and characteristics</i> | |
| Return on assets (ROA) | Net income / total assets |
| Return on sales (ROS) | Net income/sales |
| Stock return (RET) | Annual stock return |
| Tobin's Q (Q) | Market value/replacement value ^a |
| Firm size (SIZE) | Log of total assets |
| Leverage (LEV) | Total debts/total assets in book value |
| Foreign investor (FOR) | Equal to 1 if the firm has foreign investors |
| <i>Ownership structure</i> | |
| Cash flow rights (CASH) | Cash flow rights held by the ultimate controlling shareholder |
| Excess control rights (EXCESS) | Difference between the control rights and cash flow rights |
| PSTATE | Cash flow rights of state controlled firms |
| PSAMB | Cash flow rights of SAMB controlled firms |
| PSOE | Cash flow rights of SOE controlled firms |
| PPRI | Cash flow rights of privately controlled firms |
| <i>CEO and board characteristics</i> | |

| | |
|----------------------------------|---|
| CEO-chair duality (DUALITY) | Equal to 1 if the CEO is also the chairman of the board |
| CEO tenure (TENURE) | Log of years the CEO has been this position |
| Board size (BOARD) | Log of total directors on board |
| Board composition (INDEP) | Independent directors/total directors |
| <i>Other variables</i> | |
| Industry (Industry) ^b | Equal to 1 for the specific industry |
| Year (Year) | Equal to 1 for the specific year |

^a Market value is measured as the sum of the market value of equity and the book value of debt; replacement value is measured using the book value of total assets.

^b We create four dummy variables to represent the five groups of listed firms borrowed from Firth et al. (2006): industrial, commercial, public utility, property, and conglomerate (all other industries).

Table 2

Descriptive Statistics.

| Variables | Mean | Median | Min | Max | Std. Dev. |
|---|---------|---------|---------|-----------|-----------|
| <i>Panel A: Managerial Compensation</i> | | | | | |
| CEO average pay | 219,939 | 160,000 | 6,666 | 470,6667 | 75,649 |
| <i>Panel B: Firm characteristics</i> | | | | | |
| Return on assets (ROA) % | 2.26 | 2.64 | -168.26 | 46.31 | 8.49 |
| Return on sales (ROS) % | -0.043 | 0.039 | -83.69 | 46.63 | 1.87 |
| Stock return (RET) % | 39.69 | -3.96 | -90.93 | 1611.78 | 104.68 |
| Tobin's Q (Q) | 1.16 | 0.96 | 0.13 | 23.44 | 0.76 |
| Assets (millions) | 3940 | 1770 | 27.3 | 719000 | 17600 |
| Capital structure (LEV) % | 49.71 | 50.25 | 0.02 | 1037.51 | 25.87 |
| Cash flow rights (CASH) | 34.41 | 32.17 | 0.51 | 100 | 18.11 |
| Excess control rights(EXCESS) ^a | 6.38 | 0 | 0 | 70.56 | 9.06 |
| <i>Panel C: CEO characteristics and board characteristics</i> | | | | | |
| CEO duality (DUALITY) | 0.11 | 0 | 0 | 1 | 0.31 |
| CEO tenure (TENURE) | 2.55 | 2 | 0.08 | 12.42 | 1.85 |
| Board size (BOARD) | 9.76 | 9 | 4 | 23 | 2.20 |
| Board composition (INDEP) | 3.13 | 3 | 0 | 10 | 0.94 |
| <i>Panel D: Compensation based on year</i> | | | | | |
| 2002 | 131,023 | 95,666 | 6,666 | 1,575,308 | 122,442 |
| 2003 | 170,329 | 126,666 | 7,666 | 1,628,234 | 153,738 |
| 2004 | 212,776 | 160,379 | 10,266 | 3,210,000 | 213,192 |
| 2005 | 218,176 | 167,633 | 8,966 | 2,726,667 | 205,604 |
| 2006 | 253,069 | 196,666 | 12,000 | 3,740,000 | 243,939 |
| 2007 | 329,811 | 253,333 | 166,66 | 470,6667 | 315,655 |
| <i>Panel E: Compensation based on industry</i> | | | | | |

| | | | | | |
|----------------|---------|---------|--------|-----------|---------|
| Industrial | 202,353 | 140,333 | 7,200 | 3,486,567 | 209,495 |
| Commercial | 236,011 | 178,683 | 13,666 | 1,309,300 | 203,546 |
| Public utility | 245,134 | 202,383 | 11,424 | 1,848,030 | 204,141 |
| Property | 339,343 | 230,000 | 12,566 | 4,706,667 | 485,295 |
| Conglomerate | 231,535 | 185,870 | 6,666 | 1,707,057 | 194,260 |

Panel F: Compensation based on ownership

| | | | | | |
|---------|---------|---------|-------|-----------|---------|
| SAMB | 177,740 | 129,333 | 9,246 | 1,225,333 | 160,800 |
| SOE | 241,229 | 190,400 | 7,200 | 4,706,667 | 212,011 |
| PRIVATE | 211,333 | 146,966 | 6,666 | 1,792,933 | 210,226 |

The figures in Panel A are the average of six years from 2002 to 2007.

The figures for all the value variables are in China's currency, RMB.

^a Excess control is defined as the difference between the control rights and cash flow rights of the ultimate controlling shareholder, which is consistent with Claessens et al. (2002). This information is only available in the listed firms' annual reports since 2002.

Table 3

Test of Differences of CEO Pay across Ownerships.

| SAMB vs. SOE | SAMB vs. PRIVATE | SOE vs. PRIVATE |
|-----------------------|-----------------------|-----------------------|
| -6.52*** ^a | -3.82*** ^a | 4.86*** ^a |
| -9.34*** ^b | -3.81*** ^b | -7.17*** ^b |

*, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

^a *t*-value from the *t*-test of differences in means.

^b *z*-value from the Mann-Whitney *U*-test of differences in medians.

Table 4

Regression Results of Cash Flow Rights Effects on CEO Pay.

| Dependent variable: managerial compensation | | | | |
|---|------------------|------------------|------------------|------------------|
| Constant | 6.098***(17.10) | 5.450***(16.83) | 7.388***(16.94) | 5.022***(16.10) |
| CASH | -0.006**(-2.32) | -0.007***(-2.71) | -0.013***(-2.74) | -0.008***(-2.05) |
| ROA _{t-1} | 1.369***(3.79) | | | |
| ROS _{t-1} | | 0.053***(2.04) | | |
| RET _{t-1} | | | 0.175****(6.36) | |
| Q _{t-1} | | | | 0.259***(2.07) |
| CASH*ROA _{t-1} | 0.169*(1.94) | | | |
| CASH*ROS _{t-1} | | 0.052***(2.03) | | |
| CASH*RET _{t-1} | | | 0.051****(4.38) | |
| CASH*Q _{t-1} | | | | 0.012*(1.69) |
| SIZE | 0.246****(13.97) | 0.274****(18.18) | 0.190****(10.41) | 0.297****(19.07) |
| BOARD | 0.198****(3.68) | 0.187****(3.50) | 0.241****(4.44) | 0.185****(3.57) |
| INDEP | 0.763****(4.61) | 0.760****(4.55) | 0.441***(2.43) | 0.758****(4.45) |
| LEV | 0.091(1.36) | 0.077(1.24) | -0.081*(-1.70) | -0.144***(-3.06) |

| | | | | |
|-------------------------|----------------|----------------|----------------|----------------|
| DUALITY | 0.098***(2.81) | 0.091**(2.57) | 0.089**(2.22) | 0.081**(2.44) |
| TENURE | 0.077***(6.25) | 0.086***(7.24) | 0.068***(4.47) | 0.095***(7.40) |
| FOR | 0.377***(9.66) | 0.364***(9.07) | 0.428***(9.99) | 0.349***(8.72) |
| Industry | Included | Included | Included | Included |
| Year | Included | Included | Included | Included |
| Adjusted R ² | 0.2012 | 0.1829 | 0.1215 | 0.1775 |
| Obs | 3286 | 3286 | 3286 | 3286 |

Dependent variable is managerial compensation. Four firm performance variables, ROA, ROS, RET and Q, are the industry-adjusted firm performance measures. These performance variables are actually fitted values and obtained by regressing them on a set of lagged control variables in their first stage regression respectively. CASH is the cash flow rights of the ultimate controlling shareholder. SIZE, BOARD, INDEP, LEV, TENURE, DUALITY and FOR are measured as in Table 1.

The *t*-statistics, computed using the White (1980) heteroskedasticity robust standard error, are given in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 5
Regression Results of Cash Flow Rights of State and Non-state Controlled Firms.

| Dependent variable: managerial compensation | | | | |
|---|------------------|------------------|------------------|------------------|
| Constant | 6.375***(15.51) | 7.292***(11.90) | 5.957***(14.89) | 5.015***(16.23) |
| CASH | -0.007***(-8.73) | -0.007***(-7.90) | -0.005***(-6.02) | -0.005***(-5.77) |
| ROA _{t-1} | 4.689***(4.25) | | | |
| ROS _{t-1} | | 3.049***(4.26) | | |
| RET _{t-1} | | | 0.424***(3.32) | |
| Q _{t-1} | | | | 0.384**(2.26) |
| PSTATE*ROA _{t-1} | 0.073*(1.83) | | | |
| PSTATE*ROS _{t-1} | | 0.112***(3.82) | | |
| PSTATE*RET _{t-1} | | | -0.004(-1.17) | |
| PSTATE*Q _{t-1} | | | | -0.002(-0.03) |
| SIZE | 0.236***(11.63) | 0.185***(5.82) | 0.262***(13.53) | 0.315***(21.86) |
| BOARD | 0.226***(3.75) | 0.190***(2.74) | 0.233***(3.60) | 0.215***(3.55) |
| INDEP | 0.582***(2.96) | 0.759***(3.27) | 0.484**(2.31) | 0.419**(2.10) |
| LEV | 0.145*(1.69) | 0.577***(3.14) | -0.144***(-2.78) | -0.226***(-4.53) |
| DUALITY | 0.082**(2.05) | 0.089*(1.93) | 0.064(1.48) | 0.060(1.51) |
| TENURE | 0.061***(4.38) | 0.058***(3.64) | 0.073***(5.23) | 0.075***(5.68) |
| FOR | 0.385***(8.45) | 0.445***(7.86) | 0.381***(7.89) | 0.345***(7.68) |
| Industry | Included | Included | Included | Included |
| Year | Included | Included | Included | Included |
| Adjust R ² | 0.2326 | 0.2203 | 0.2165 | 0.2321 |
| Obs | 3286 | 3286 | 3286 | 3286 |

Dependent variable is managerial compensation. Four firm performance variables, ROA, ROS, RET and Q, are the industry-adjusted firm performance measures. These performance variables are actually fitted values and obtained by regressing them on a set of lagged control variables in their first stage regression respectively. CASH is the cash flow rights of the ultimate controlling shareholder.

PSTATE represents the cash flow rights of state controlled firms. All other variables are defined the same as those in previous tables.

The *t*-statistics in parentheses are computed using the White (1980) heteroscedasticity robust standard error. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 6
Regression Results of Cash Flow Rights across Three Types of Firms.

| Dependent variable: managerial compensation | | | | |
|---|------------------|------------------|------------------|------------------|
| Constant | 6.382***(17.69) | 5.678***(16.70) | 5.752***(15.85) | 5.027***(16.12) |
| CASH | -0.006***(-7.19) | -0.006***(-8.10) | -0.005***(-4.93) | -0.006***(-2.13) |
| ROA _{t-1} | 8.306***(2.75) | | | |
| ROS _{t-1} | | 0.756(1.23) | | |
| RET _{t-1} | | | 0.549(1.45) | |
| Q _{t-1} | | | | 0.718*(1.76) |
| PSAMB*ROA _{t-1} | 0.130(1.57) | | | |
| PSOE*ROA _{t-1} | 0.088**(2.49) | | | |
| PPRI*ROA _{t-1} | 0.207(1.28) | | | |
| PSAMB*ROS _{t-1} | | 0.012(0.56) | | |
| PSOE*ROS _{t-1} | | 0.003**(2.32) | | |
| PPRI*ROS _{t-1} | | 0.019(0.73) | | |
| PSAMB*RET _{t-1} | | | 0.006(0.78) | |
| PSOE*RET _{t-1} | | | 0.006(0.78) | |
| PPRI*RET _{t-1} | | | 0.007*(1.76) | |
| PSAMB*Q _{t-1} | | | | 0.001(0.04) |
| PSOE*Q _{t-1} | | | | 0.005**(2.25) |
| PPRI*Q _{t-1} | | | | 0.010**(2.33) |
| SIZE | 0.234***(13.20) | 0.274***(16.86) | 0.270***(15.35) | 0.316***(21.53) |
| BOARD | 0.215***(3.49) | 0.206***(3.36) | 0.228***(3.52) | 0.226***(3.61) |
| INDEP | 0.589***(2.94) | 0.552***(2.79) | 0.476**(2.25) | 0.362*(1.80) |
| LEV | 0.232**(2.08) | 0.023(0.21) | -0.141**(-2.50) | -0.238**(-2.27) |
| DUALITY | 0.076*(1.89) | 0.070*(1.74) | 0.053(1.24) | 0.061(1.50) |
| TENURE | 0.057***(4.03) | 0.075***(5.47) | 0.073***(5.09) | 0.075***(5.64) |
| FOR | 0.377***(8.26) | 0.365***(8.06) | 0.377***(7.78) | 0.345***(7.62) |
| Industry | Included | Included | Included | Included |
| Year | Included | Included | Included | Included |
| Adjusted R ² | 0.2041 | 0.2173 | 0.2160 | 0.2293 |
| Obs | 3286 | 3286 | 3286 | 3286 |

Dependent variable is managerial compensation. Four firm performance variables, ROA, ROS, RET and Q, are the industry-adjusted firm performance measures. These performance variables are actually fitted values and obtained by regressing them on a set of lagged control variables in their first stage regression respectively. PSAMB (PSOE, PPRI) represents the cash flow rights of each type of controlling shareholder. All the other variables are defined the same as those in previous tables.

The *t*-statistics in parentheses are computed using the White (1980) heteroscedasticity robust standard

error. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 7

Regression Results of Excess Control Rights Effects on CEO Pay.

| Dependent variable: managerial compensation | | | | |
|---|-----------------|------------------|-----------------|------------------|
| Constant | 6.222***(15.82) | 6.867***(13.16) | 6.090***(15.18) | 5.203***(17.16) |
| EXCESS | 0.003**(2.14) | 0.004**(2.42) | 0.004**(2.44) | 0.002(0.60) |
| ROA _{t-1} | 3.397***(2.72) | | | |
| ROS _{t-1} | | 2.746***(3.70) | | |
| RET _{t-1} | | | 0.480***(2.95) | |
| Q _{t-1} | | | | 0.462**(2.32) |
| EXCESS*ROA _{t-1} | -0.049(-0.75) | | | |
| EXCESS*ROS _{t-1} | | -0.135***(-3.27) | | |
| EXCESS*RET _{t-1} | | | -0.016*(-1.82) | |
| EXCESS*Q _{t-1} | | | | -0.007(-0.78) |
| SIZE | 0.228***(11.52) | 0.186***(6.55) | 0.242***(13.03) | 0.294***(21.15) |
| BOARD | 0.263***(4.27) | 0.300***(4.32) | 0.249***(3.86) | 0.242***(4.00) |
| INDEP | 0.653***(3.31) | 0.680***(3.11) | 0.576***(2.74) | 0.477**(2.35) |
| LEV | 0.086(1.09) | 0.423***(2.70) | -0.124**(-2.44) | -0.202***(-4.00) |
| DUALITY | 0.108***(2.62) | 0.135***(2.92) | 0.084*(1.95) | 0.080**(2.00) |
| TENURE | 0.071***(5.15) | 0.701***(4.58) | 0.079***(5.68) | 0.080***(5.95) |
| FOR | 0.392***(8.57) | 0.415***(8.04) | 0.400***(8.21) | 0.363***(8.05) |
| Industry | Included | Included | Included | Included |
| Year | Included | Included | Included | Included |
| Adjusted R ² | 0.2225 | 0.2137 | 0.2081 | 0.2252 |
| Obs | 3286 | 3286 | 3286 | 3286 |

Dependent variable is managerial compensation. Four firm performance variables, ROA, ROS, RET and Q, are the industry-adjusted firm performance measures. These performance variables are actually fitted values and obtained by regressing them on a set of lagged control variables in their first stage regression respectively. EXCESS is the excess control rights of the ultimate controlling shareholder. SIZE, BOARD, INDEP, LEV, TENURE, DUALITY and FOR are measured as in Table 1.

The *t*-statistics, computed using the White (1980) heteroskedasticity robust standard error, are given in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 8

Regression Results of Excess Control Rights of State and Non-state Controlled Firms.

| Dependent variable: managerial compensation | | | | |
|---|-----------------|-----------------|-----------------|-----------------|
| Constant | 6.249***(15.59) | 6.379***(14.23) | 6.097***(15.16) | 5.156***(16.83) |
| EXCESS | 0.003**(2.01) | 0.003**(2.21) | 0.003**(2.29) | 0.003*(1.65) |
| ROA _{t-1} | 3.311***(3.35) | | | |
| ROS _{t-1} | | 1.645***(3.39) | | |
| RET _{t-1} | | | 0.433***(3.16) | |
| Q _{t-1} | | | | 0.459***(2.79) |

| | | | | |
|---------------------------|-----------------|----------------|-----------------|------------------|
| PSTATE*ROA _{t-1} | 0.060(1.08) | | | |
| PSTATE*ROS _{t-1} | | 0.102***(3.10) | | |
| PSTATE*RET _{t-1} | | | 0.013*(1.77) | |
| PSTATE*Q _{t-1} | | | | 0.005(0.82) |
| SIZE | 0.228***(11.55) | 0.218***(9.47) | 0.242***(12.90) | 0.295***(20.72) |
| BOARD | 0.259***(4.26) | 0.260***(4.10) | 0.252***(3.90) | 0.244***(4.03) |
| INDEP | 0.659***(3.34) | 0.759***(3.61) | 0.588***(2.80) | 0.474**(2.35) |
| LEV | 0.081(1.06) | 0.160(1.50) | -0.126**(-2.51) | -0.206***(-4.04) |
| DUALITY | 0.106***(2.62) | 0.115***(2.70) | 0.082*(1.91) | 0.078**(1.96) |
| TENURE | 0.071***(5.12) | 0.076***(5.37) | 0.078***(5.51) | 0.079***(5.91) |
| FOR | 0.395***(8.57) | 0.419***(8.36) | 0.399***(8.21) | 0.363***(8.05) |
| Industry | Included | Included | Included | Included |
| Year | Included | Included | Included | Included |
| Adjust R ² | 0.2225 | 0.1543 | 0.2095 | 0.2246 |
| Obs | 3286 | 3286 | 3286 | 3286 |

Dependent variable is managerial compensation. Four firm performance variables, ROA, ROS, RET and Q, are the industry-adjusted firm performance measures. These performance variables are actually fitted values and obtained by regressing them on a set of lagged control variables in their first stage regression respectively. EXCESS is the excess control rights of the ultimate controlling shareholder. PSAMB (PSOE, PPRI) represents the excess control rights of each type of controlling shareholder. All other variables are defined the same as those in previous tables.

The *t*-statistics in parentheses are computed using the White (1980) heteroscedasticity robust standard error. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 9
Regression Results of Excess Control Rights across Three Types of Firms.

| Dependent variable: managerial compensation | | | | |
|---|-----------------|------------------|-----------------|-----------------|
| Constant | 6.216***(15.81) | 6.399***(14.15) | 6.092***(15.20) | 5.245***(17.23) |
| EXCESS | 0.003**(2.07) | 0.003**(2.28) | 0.004**(2.45) | 0.002**(2.47) |
| ROA _{t-1} | 3.362***(2.69) | | | |
| ROS _{t-1} | | 1.949***(3.13) | | |
| RET _{t-1} | | | 0.482***(2.95) | |
| Q _{t-1} | | | | 0.478**(2.33) |
| PSAMB*ROA _{t-1} | -0.060(-0.62) | | | |
| PSOE*ROA _{t-1} | -0.028(-0.40) | | | |
| PPRI*ROA _{t-1} | -0.064(-0.93) | | | |
| PSAMB*ROS _{t-1} | | -0.076(-1.52) | | |
| PSOE*ROS _{t-1} | | -0.052(-1.49) | | |
| PPRI*ROS _{t-1} | | -0.123***(-2.91) | | |
| PSAMB*RET _{t-1} | | | -0.012(-0.65) | |
| PSOE*RET _{t-1} | | | -0.017(-1.56) | |
| PPRI*RET _{t-1} | | | -0.016*(-1.80) | |
| PSAMB*Q _{t-1} | | | | -0.043(-1.07) |
| PSOE*Q _{t-1} | | | | -0.012**(-2.10) |

| | | | | |
|-------------------------|-----------------|----------------|-----------------|------------------|
| PPRI*Q _{t-1} | | | | -0.007*(-1.79) |
| SIZE | 0.229***(11.55) | 0.215***(8.92) | 0.242***(13.03) | 0.293***(21.12) |
| BOARD | 0.262***(4.25) | 0.281***(4.29) | 0.249***(3.86) | 0.243***(4.02) |
| INDEP | 0.653***(3.31) | 0.705***(3.39) | 0.576***(2.74) | 0.436***(2.14) |
| LEV | 0.078(0.98) | 0.200*(1.66) | -0.123**(-2.42) | -0.198***(-3.96) |
| DUALITY | 0.107***(2.61) | 0.123***(2.84) | 0.084*(1.95) | 0.085***(2.13) |
| TENURE | 0.071***(5.15) | 0.075***(5.24) | 0.079***(5.68) | 0.080***(5.96) |
| FOR | 0.392***(8.55) | 0.404***(8.26) | 0.401***(8.21) | 0.367***(8.14) |
| Industry | Included | Included | Included | Included |
| Year | Included | Included | Included | Included |
| Adjusted R ² | 0.2227 | 0.1434 | 0.2080 | 0.2277 |
| Obs | 3286 | 3286 | 3286 | 3286 |

Dependent variable is managerial compensation. Four firm performance variables, ROA, ROS, RET and Q, are the industry-adjusted firm performance measures. These performance variables are actually fitted values and obtained by regressing them on a set of lagged control variables in their first stage regression respectively. PSAMB (PSOE, PPRI) represents the excess control rights of each type of controlling shareholder. All the other variables are defined the same as those in previous tables.

The *t*-statistics in parentheses are computed using the White (1980) heteroscedasticity robust standard error. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.