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Abstract

This paper investigates CEO incentives in Chinese state-controlled firms. We find that firm performance has a positive effect on CEO compensation. We also find that firm performance is positively associated with CEO promotion and negatively associated with CEO turnover. CEOs for state-controlled firms thus face significant incentives, not only in monetary form, but also in terms of career prospects. These results suggest that the CEO labor market in the Chinese state sector exhibits characteristics similar to those of managerial labor markets in developed countries, at least during our sample period. Moreover, we show that local institutions have a significant impact on the relationship between CEO incentives and firm performance, with performance having a larger effect on CEO compensation, promotion and turnover in regions characterized by stronger institutions. Overall, our results demonstrate that firm performance is associated with CEO incentives also for state-controlled firms in China, suggesting that there is a functioning labor market for top managers in the Chinese state sector.

JEL Classification: G30; G38; M52; J30; P30
Keywords: State-controlled firms; Managerial labor market; Performance; CEO compensation; CEO promotion; CEO turnover; China

1 Introduction

This paper examines how the Chinese state deals with agency problems in state-controlled firms from the perspective of CEO incentives. More specifically, it provides empirical evidence of a significant relationship between firm performance and several incentive channels for CEOs. These channels include not only explicit (CEO compensation), but also implicit (CEO promotion and turnover) mechanisms. It is commonly argued that state-controlled firms have multiple objectives (Bai et al., 2006) and that their managers are typically under the strict control of the Communist Party of China (CPC) or the government (Fan et al, 2007). Governments may therefore appoint bureaucratic-like CEOs to perform roles that incorporate not only economic objectives but also social and political ones. These institutional features mean that CEO incentives in the Chinese state sector to a certain extent constitute somewhat of a black box. Although previous studies have argued that a market for managerial labor in the state sector developed relatively early during the Chinese reform process (Groves et al., 1995), observers often question its existence (Yu, 2011; CPPCC, 2012). Due to the importance of the state sector in the Chinese economy[2], it is imperative to understand one of its main components: CEOs in Chinese state-controlled firms. How are these CEOs paid? Is there a relationship between CEO compensation and performance? Besides monetary incentives, are career-related concerns important for CEOs? That is, if firms are well managed, do their CEOs have better career prospects? Vice versa, if firms are poorly managed, are their CEOs penalized or even fired? Studying these questions not only

[2] Naughton (2011) points towards how current policymakers in China see an important and ongoing role for the state in the economy.

brings light to incentives and the labor market for Chinese CEOs, but also helps us understand China's state sector and its governance.[3]

Our empirical results shed light on several important ways in which state-controlled firms relate CEO incentives to firm performance. First, we find that firm performance is positively associated with CEO compensation. Second, we find that firm performance has a strong and positive effect on CEO promotion. Third, we find that CEO turnover is negatively associated with firm performance.[4] These three findings suggest that CEOs in state-controlled firms face significant incentives, not only in monetary form, but also in terms of career prospects. Fourth, we show that local institutions influence the relationship between performance and CEO compensation, promotion and turnover in Chinese state-controlled firms. Firms located in provinces characterized by weaker institutions exhibit a much weaker relationship between different forms of CEO incentives and performance. This finding suggests that market-oriented institutions can help in the development of CEO incentives and the managerial labor market in the state sector.

This paper contributes to the literature on CEO incentives in Chinese firms in several ways. First, this is the most comprehensive study on CEO incentives in Chinese state-controlled firms in that it focuses on three different potential incentive channels. The findings on these three incentive channels support each other, and together they provide evidence that

[3] While previous studies have looked at different forms of managerial incentives in China (e.g. Kato and Long (2006a, 2006b, 2011; Firth et al., 2006a, 2006b, 2007; Conyon and He; 2008), this is, to the best of our knowledge, the first study that takes a comprehensive look at the labor market for CEOs in state-controlled firms and how they are incentivized to perform.

[4] We find that this relationship is strong for state-controlled firms, a result that deviates from the earlier literature on performance and executive turnover in Chinese state-controlled firms. For example, Kato and Long (2006a) find that the relationship is weak for state-controlled firms. One reason for this difference is likely that our analysis makes use of a newer and larger data sample.

there exist significant CEO incentives in China's state sector. Second, a new dataset on CEO compensation made available after a change in disclosure requirements in 2005 makes it possible for us to avoid potential noise or errors in measurements in the analysis. Moreover, when studying CEO compensation, this dataset enables us to analyze the most recent developments in state-controlled firms. Comparing our results with previous findings thus helps us understand the evolution of the managerial labor market in China. Third, we identify promotion both within and outside the firm, thus building on the literature on promotion in Chinese firms, which typically have applied a tournament-based analysis on promotion within firms. Fourth, this paper differs from most previous studies, which typically discuss all listed firms (e.g. Kato and Long, 2006c). Our primary focus is on the labor market for CEOs in state-controlled firms, which means that our findings have direct policy implications for the government bodies that oversee state-controlled firms in China as they need to ensure high growth levels in the state sector and evaluate CEOs more effectively.

The rest of this paper is organized as follows. Section 2 reviews the relevant literature. Section 3 outlines the reform of state-controlled firms and managerial incentives in China. Section 4 describes the data and methodology. Section 5 then presents the main empirical analysis, after which Section 6 looks at how different measures of performance affect the results. In Section 7, we analyze the influence that institutions have on the relationship between performance and CEO incentives. Finally, Section 8 concludes the study.

2 Literature Review

This study relates to several different strands of literature that tie into previous research on principal-agent theory and incentives (Berle and Means, 1932; Jensen and Meckling, 1976). Typical agency problems that owners face include underinvestment, for example with the intention to shirk (e.g. Bertrand and Mullainathan, 2003), and overinvestment, for

example as a means to building a corporate empire (e.g. Jensen, 1986; Kaplan, 1989). It is therefore imperative to construct an optimal contract that minimizes this problem. A large number of studies show how one way of dealing with principal agent problems in firms is to tie incentives to performance (e.g. Frydman and Saks, 2010; Jensen and Murphy, 1990). In this study, we focus on three forms of incentives that can be used to alleviate typical principal-agent problems between owners and managers. One of these (CEO compensation) can be seen as an explicit incentive, while the other two (CEO promotion and turnover) are implicit in nature.

Jensen and Murphy (1990) pioneered the study of the relationship between executive compensation and performance. Following in their footsteps, a number of studies have analyzed the pay-performance relationship in different countries.[5] A few studies including Kato and Long (2006b), Firth et al. (2006b, 2007), and Conyon and He (2008) discuss the relationship between performance and executive compensation in China.[6] However, the new data in this study reflect new developments in the labor market for CEOs in Chinese state-controlled firms and enables us to analyze CEO compensation more explicitly.

Turning to the first of two implicit incentives analyzed in this paper, a few studies have looked at performance as an incentive mechanism for top managers in China. Building primarily on tournament theory (e.g. Lazear and Rosen, 1981, Boganno, 2001; Main et al., 1993; Rosen, 1986), these studies find that a tournament wage structure among hierarchical levels and the possibility of promotion within the firm act as incentives for top managers in

[5] Examples of such studies include Mehran (1995) on the U.S., Zhou (1999) on the U.S. and Canada, Kaplan (1994a) on the U.S. and Japan, Joh (1999) on Japan, Conyon and Leech (1994) on the U.K., Elston and Goldberg (2003) on Germany, and Kato et al. (2007) on South Korea.

[6] For discussions on the pay-performance relationship in Chinese state-owned enterprises before the stock market era, see Groves et al. (1995) and Mengistae and Xu (2004)

China. Kato and Long (2011) find that the size of the winner's prize is driving firm performance and that this effect is lower for state-controlled firms. They also find that the contestant pool has a significant impact on the required size of the prize in promotion tournaments in China, and that the required size is positively related to state control. In a related study, Su (2011) finds that the pay gap increases with corporate hierarchies, the level of risk in business environments, the number of competitors in the tournament, and that state ownership reduces executive compensation and pay gaps as well as the sensitivities of business risks and the number of tournament competitors. Our study builds on this previous research, but focuses primarily on promotion from the top executive position. The analysis incorporates corporate tournament analysis in that the CEO is able to take on the position as Chairman of the board, which in Chinese state-controlled companies brings with it significant influence and more power. However, we also analyze career prospects from a wider angle, allowing for the possibility of being promoted outside the company, for example to a senior government position.

Moving on to the second implicit incentive, there is a large literature on executive turnover across countries.[7] One hypothesis in many of these studies is that executive turnover is negatively related to firm performance. Depending on the sample and performance measure used, previous studies on China give an inconclusive picture of the relationship between performance and executive turnover. Kato and Long (2006a, 2006b, 2006c) find indications of a relationship, even though that relationship is weak for state-controlled firms in their sample. Firth et al. (2006b) find a significant relationship between performance and

[7] See, for example, Audas et al. (1999), Coughlan and Schmidt (1985), Kim (1996), Parrino (1997), and Brickley (2003) on the U.S., Kaplan (1994a) on the U.S. and Japan, Gregory-Smith et al. (2009) on the U.K., Kaplan (1994b) on Germany, Kang and Shivdasani (1995) on Japan, Volpin (2002) and Brunello et al. (2003) on Italy, and Renneboog (2000) on Belgium.

the turnover of the Chairman of the board. Ke et al. (2010) find no sensitivity of executive turnover to firm performance for Chinese firms. Liao et al. (2009) find that the relationship between performance and executive turnover is dependent on the so-called policy burden.[8] By using new data and connecting the relationship between performance and CEO turnover to local institutions, we are able to shed light on this important issue.

Besides these different strands of literature on how different forms of incentives can be used to solve the principal-agent problem between owners and managers, this paper relates to the literature on institutions and corporate governance. Economists have long been interested in the effects of institutions on entrepreneurship and economic development (Acemoglu et al., 2001; Acemoglu and Johnson 2005; Scully, 1998; Hall and Jones, 1999; Shleifer, 2009; Berggren, 2003; La Porta et al., 1998). The consensus is that institutions have a first-order effect on a society's prosperity and corporate governance because the institutional environment in which entrepreneurs act shapes and constrains the opportunities available at any point in time (Bottke and Coyne, 2009). We build on this literature by analyzing how local institutions affect the relationship between performance and CEO incentives in Chinese state-controlled firms.

3 Reform of Chinese State-Controlled Firms and Managerial Incentives

The reform of China's state-owned enterprises began with the economic reform and opening-up policy initiated in 1978. Before the economic reforms, firms were tightly controlled, with profit and losses transferred to and covered by the state. At that time, CEOs had almost no autonomy and their incentives were extremely limited. As the reforms

[8] Many state-controlled firms in China have faced several objectives during the period of economic reforms, including not only maximizing firm value but also certain state objectives (e.g. Lin et al., 1998; Lin and Li, 2008; Lin and Tan, 1999).

progressed, firms were given more independence and different forms of profit sharing were initiated. These paved way for a more formal incentive structure with the introduction of the "contract (management) responsibility system". Starting in the agricultural sector as the household responsibility system (Xu, 1998), the system was soon extended to medium- and large-sized industrial companies (Koo, 1990). The number of firms with some type of contract which gave detailed information on responsibilities expanded rapidly and in 1987, approximately 95 percent of state-owned enterprises (SOEs) had adopted a contract for management (Chen, 1995; Choe and Yin, 2000). The introduction of the contract responsibility system represented the largest experiment with contractual agreements in history (Liu, 1993). The contract, which usually lasted for 3-5 years, was in essence a performance contract in which it was stipulated that the manager of a firm had a certain degree of freedom but that he or she was supposed to meet certain targets. Xu (1998) interprets this as an early effort by the state to try to formalize and use performance contracts with incentive components. During this dual-track period, CEOs in state-owned enterprises were appointed and controlled in accordance with Chinese civil service system and some of them were in fact even civil servants (Xu, 2013). Grove et al. (1995) discuss the nascent managerial labor market against this social and economic background in more detail.

The contract responsibility system had several distinct flaws[9] and continued enterprise reform was the main theme for the CPC in the mid-1990s (Perkins, 1994). The 14th Party Congress in 1992 announced the goals of developing from a planned to a market economy and establishing a modern enterprise system, which lead to a critical stage in China's SOE reforms (Sun and Tong, 2003). In December 1994, the State Council proposed a pilot scheme

[9] Firth et al. (2006a) point to three such flaws: it encouraged a behavior by managers that turned out to be short term and myopic; it was operated in a planned economic system; and the contracts required substantial negotiations firm by firm, which created significant additional burden for managers of state-controlled firms.

for a few large SOEs. This led to a SOE reform program called *zhuada fangxiao* ("grasping the large and letting go of the small"). In this program, the government has focused on a number of selected elite SOEs seen as strategically important to the country's development and security in the hope that they will be transformed into "flagship" conglomerates. Smaller SOEs have been encouraged to "find their own solution" (Li, 2001). Corporatization and going public were also encouraged with the aim of making firms focus more on profit maximization[10].

The State-Owned Assets Supervision and Administration Commission (SASAC) was established in 2003 after a consolidation of different industry-specific ministries. Its main purpose is to manage the remaining SOEs and it has the power to appoint (and remove) managerial staff in the companies under its control. Naugthon (2004) points out that SASAC launched a series of campaigns with the goals of recruiting better-qualified personnel and improving compensation and evaluation criteria in an effort to upgrade the managerial quality in SOEs. Yet, it is not clear whether SASAC has full control of handling top management in the SOEs under its control. For example, Naughton (2004) notes that the CPC's Organization Department quickly took over the control of the appointment of top management for their largest and most important firms at both central and local levels. It is also unclear whether SASAC is acting as a direct agent of the CPC or if it is managed more autonomously. This institutional setting makes it challenging to ascertain how the labor market for CEOs in China's state-controlled firms actually functions, and whether the efforts made to improve the quality of top management in such firms have resulted in a more efficient evaluation system with well-functioning incentive mechanisms. It is therefore important to take these issues to the data.

[10] This type of privatization was often partial in nature, with the state or different types of state entities still in control of listed companies.

4 Data and Methodology

4.1 Data Sources

The financial data used in this study comes from the China Security Market and Accounting Research (CSMAR) database. CSMAR has detailed financial information on all listed firms in China. We include all firms that are listed with A-shares on the Shenzhen and Shanghai stock exchanges in the empirical analysis.[11] While the two Chinese stock exchanges have been operating since the early 1990s, we only include data from 2005. As mentioned earlier, we make use of the fact that the CSRC introduced a new regulation that year, which states that all listed firms in China are required to disclose compensation to their CEOs in the annual report. As discussed in the next section, while listed firms were required to disclose compensation levels from 1998, the disclosed figures were only those of total compensation to top management. Earlier disclosures of executive compensation are thus noisy and we therefore believe that the disclosed data since 2005 constitute a better measure of CEO compensation.[12] We thus collect data for the period 2005-2012 for all listed companies.

[11] Firms have issued A- and B-shares since the opening of the two Chinese stock exchanges in the early 1990s. Domestic investors are allowed to trade A-shares, while B-shares originally were traded by foreign investors. After a comprehensive share reform in 2001, domestic investors are also allowed to trade in B-shares (only a small minority of the firms on the Shanghai and Shenzhen stock exchanges has issued B-shares). The Chinese government has introduced out reforms with the aim to gradually open up the A-share market to foreign investors. Foreign investors are now allowed to invest in A-shares if they are included in the Qualified Foreign Institutional Investor (QFII) scheme. Chan et al. (2007, 2008) provide more information on the different share classes in China.

[12] China's Company Law did not allow listed firms to grant stock options or restricted shares to its top managers until 1 January 2006 when the CSRC set a new rule stating that firms which had completed the split share reform were allowed to do so (Ke et al., 2012). However, very few state-controlled firms have so far

As this study focuses on CEO incentives in state-controlled firms, we need to identify listed firms that are in effect controlled by a state entity in the form of the central or a local government, or other state-controlled organizations. It has been pointed out that Chinese listed firms are characterized by a single dominant shareholder that holds a much larger share of the company compared to the second largest shareholder (Chen et al., 2009). Following previous studies on listed Chinese firms (e.g. Chen et al., 2009, Feng et al., 2011; Johansson and Feng, 2013), we therefore focus on major shareholders and categorize a listed firm as privately or state-controlled based on the ultimate shareholder.

4.2 Methodology

We examine the association between firm performance and CEO compensation using the following model for firm *i* and year *t*:

$$compensation_{i,t} = \alpha + \beta \cdot performance_{i,t} + \gamma \cdot \mathbf{X}_{i,t} + \varepsilon_{i,t}, \qquad (1)$$

where $compensation_{i,t}$ is measured as the natural logarithm of CEO compensation plus 1. The key independent variable is firm performance, which is measured using return on assets (ROA) in the baseline estimations.[13] To shed more light on the relationship between performance and compensation, we also look at two alternative measures of performance in Section 6: return on sales (ROS) and market performance. $\mathbf{X}_{i,t}$ is a set of firm-level control variables, including: *firm size*, measured as the natural logarithm of total assets; *Tobin's Q*,

implemented equity incentives. We therefore do not discuss equity-based CEO compensation. For more information on this new rule, see the CSRC's official website:

www.csrc.gov.cn/pub/shenzhen/xxfw/tzzsyd/ssgs/sszl/ssgsxx/200902/t20090226_95491.htm

[13] We use ROA as a measure of firm performance because one important goal for SASAC is to preserve and increase the value of state owned assets. Taking this into account, ROA reflects the change in state assets and should therefore constitute a suitable measure of performance for state-controlled firms.

measured as the sum of total market valuation of equities and total net liabilities over total assets; *leverage,* measured as the ratio of total liabilities; *largest ownership*, measured as the percentage ownership of the largest owner; *duality*, a dummy variable that is equal to 1 if the CEO is also the Chairman of the board and 0 otherwise; *board size*, measured as the natural logarithm of the total number of board members; *independent board ratio*, defined as the number of independent board members over total board members; *CEO age*, i.e. the age of the CEO in years; *CEO tenure*, measured as the number of years since the CEO took up his or her position; and industry and year dummies.[14] Following Petersen (2009), we compute *t*-statistics based on the standard errors clustered by firm and year in all regressions throughout the paper where appropriate. The main results hold up when the standard errors are clustered only by firm.

More information on the independent as well as dependent variables is available in Appendix 1 and 2. Appendix 3 presents a correlation matrix for all variables that are included in the analysis. In Equation (1), β is our coefficient of interest as it captures the potential effect of firm performance on CEO compensation.

Similar to the analysis on compensation, we analyze the potential relationship between performance and CEO promotion as well CEO turnover. Since we want to analyze the effect of performance on the likelihood of a CEO being promoted or relieved from his or her position, the baseline estimation is now comprised of a logistic regression model:

[14] We did not include the education of CEOs because a significant number of firms choose not to disclose that information, which means that including it would greatly reduce our sample. Even when disclosed, the information can be questioned. For example. it is popular among CEOs in larger Chinese companies to obtain an EMBA, an education that in many cases is of very low quality in China and can instead be seen as mere window dressing to remedy a CEOs' low level of education.

$$promotion_{i,t} = \alpha + \beta \cdot performance_{i,t-1} + \gamma \cdot \mathbf{X}_{i,t-1} + \varepsilon_{i,t}, \quad (2)$$

$$turnover_{i,t} = \alpha + \beta \cdot performance_{i,t-1} + \gamma \cdot \mathbf{X}_{i,t} + \varepsilon_{i,t}, \quad (3)$$

where the independent variables are the same as those in the analysis on compensation. As compensation is usually paid at the time of the disclosure of operating performance, the independent variables are from the same period as the dependent variable. However, for promotion and turnover, we use lagged independent variables since current performance and other firm- and CEO-specific variables mainly influence future CEO promotions and turnovers. Wald-statistics based on standard errors clustered by firm and year are also provided following Petersen (2009). To control for potential omitted variables that may endogenously influence our result, we also estimate fixed-effect models for all three dependent variables.

5 Empirical Analysis

5.1 CEO Compensation

During the initial period of China's stock market development in the early 1990s, information on top management was quite limited, mirroring the low level of investor protection during that period. As a result of increased regulation and the enactment of the Securities Law, basic information on CEOs' such as age, tenure and working experience was introduced in annual reports from 1998. Some firms also voluntarily disclosed CEO compensation under the guidance of the Ministry of Finance (Ministry of Finance, 1997). This marked a progress in that the background and compensation levels of CEOs became increasingly transparent. In 2001, the CSRC required that all listed firms must disclose the total compensation for all directors, supervisors and top management, the total compensation

for the three highest paid managements and the three highest paid directors (CSRC, 2001). This requirement enabled a better understanding of top management compensation in Chinese listed firms. However, observers were still not informed about how CEOs were compensated since firms were not required to disclose compensation for individuals in upper management. Finally, the CSRC formally required listed firms to report individual compensation of members of the board and top management, including the CEO, in 2005 (CSRC, 2005)[15].

Table 1 presents the firm sample with compensation measured in units of RMB1,000. Each of the three panels in the table is divided into two sections, one with the total sample and one which we label the "zero compensation sample". It is somewhat unexpected that some CEOs have a zero salary in our sample, because previous studies do not comment on the existence of such salaries in China.[16] In other countries, a zero or very low CEO salary is not unheard of. For example, some CEOs in the U.S. work for a one-dollar salary, as frequently commented upon and analyzed in media and academia (Loureiro et al., 2011; Hamm et al., 2013). To make sure that an observation of a zero salary is not the result of human error, we read the corresponding annual reports and find that the CEOs in question receive compensation mainly from, and also often hold a top position in, a controlling parent company. For completeness, we thus include the additional columns on the zero salary sample in the table for CEO compensation. Panel A shows the total sample over the eight

[15] Although this regulation makes the disclosure of CEO compensation more transparent, it still lags behind its counterpart in the United States. For example, the disclosure of CEO compensation in China still lacks a benchmark for executive compensation as well as details of the different components, including salary and bonus.

[16] The most likely reason for why previous studies do not report such observations is because they most commonly use the sum of total compensation of the three top managers as a proxy for CEO compensation.

years that are included in the study. The number of listed state-controlled firms increased from 758 in 2005 to 965 in 2012, while the average annual CEO compensation increased from RMB237,410 in 2005 to RMB672,690 in 2012. The minimum CEO compensation during the whole period was 0, while the maximum level of compensation increased fairly dramatically from RMB2,756,000 to RMB13,680,000. The number of companies with zero CEO compensation was relatively stable at below five percent of the total number of listed state-controlled firms throughout the period.

Panel B presents the industry distribution of the sample firms according to CSRC's 2001 industry classification guidance.[17] A majority of the 6,967 observations are for firms in the manufacturing sector (a total of 3,640 observations). The highest average compensation is found in the real estate sector with an annual average of RMB705,480, followed by an average of RMB563,680 and RMB542,230 in the construction and wholesale and retail trade sectors, respectively. The highest annual CEO compensation, RMB13,680,000, is found in the real estate sector, followed by a maximum salary of RMB9,980,000 in the manufacturing sector. Overall, the descriptive statistics in Panel A and Panel B suggest a large variation in CEO compensation across Chinese state-controlled firms, both within and across industries.

Previous research has shown that size is an influential factor for executive compensation (e.g. Gabaix and Landier, 2008; Terviö, 2008). It is therefore relevant to take a closer look at firm size before we move on to the empirical analysis. Panel C presents the variation of firm size across the sample. We first divide the sample into ten cohorts with

[17] CSRC modified the 2001 industry classification guidelines on 26 October 2012. However, that change only had a negligible impact on our sample. For more information on the revised guidelines, see the CSRC's official website:

www.csrc.gov.cn/pub/zjhpublic/G00306201/201211/t20121116_216990.htm.

equal number of observations. The first two columns show the mean and median size of the companies in the ten cohorts. The rest of the columns show descriptive statistics on CEO compensation across the different cohorts. The group with the smallest average firm size has an average annual CEO compensation of RMB237,530, while the group with the largest average firm size a mean annual CEO compensation that is more than three times as large (RMB850,250). These initial summary statistics suggest that CEO compensation in Chinese state-controlled firms is related to firm size.

[Table 1 about here]

Having looked at the descriptive statistics of CEO compensation, we now move on to the empirical analysis of the relationship between performance and CEO compensation. Table 2 shows the regression results, where the first column only includes our performance measure ROA as the independent variable. The results for this basic bivariate model show that performance is strongly associated with executive compensation. The coefficient for performance is positive and significant at the 1 percent level, indicating that performance has a positive influence on the compensation of CEOs. In the second model specification, we add industry and year dummies, and in the third, we also add firm size as an independent variable. Supporting previous studies, firm size is significantly and positively associated with compensation. However, the results show that performance is still positively associated with compensation at the 1 percent level. To further control for firm-specific factors that may influence compensation, we first add standard financial variables in Column 4, and variables that control for board and CEO characteristics in Column 5. The results in Columns 4 and 5 indicate that all firm-specific variables are significantly associated with executive compensation. More importantly, performance is still positively associated with CEO compensation at the 1 percent level.

To alleviate potential endogeneity concerns, we also run a fixed-effect panel regression in which we control for heterogeneity in firms and managerial talent. The number of observations in our fixed-effect regression is somewhat smaller since we exclude firms with only one observation. Column 6 presents the results from the fixed-effect estimation. While several of the independent variables are no longer significant, firm size is still positively associated with CEO compensation. More importantly, the relationship between performance and compensation is still significant at the 1 percent level.

To test the sensitivity of including the zero compensation sample, we run additional regressions in which we exclude that set of firms. The results are omitted to save space, but they remain qualitatively the same. To further test the relationship between performance and compensation, we also run year-by-year OLS regressions. Again, the relationship between the two remains significant for all years. We also run new regressions using Fama and Macbeth's (1973) method to estimate the coefficient and standard errors, with the results again remaining qualitatively the same. The results from the different model specifications thus confirm the hypothesis that performance influences executive compensation for CEOs in Chinese state-controlled firms.

[Table 2 about here]

5.2 CEO Promotion

Next, we analyze the relationship between performance and CEO promotion. Here, we define promotion as one of four possible ways to move up the career ladder which we identify through a number of different public sources, including annual reports, board announcements, newspapers, business journals, corporate websites and Chinese financial media. First, a CEO can move up in his or her career by taking up a senior position in government since this type of position brings with it considerable power and prestigious

social status. To ensure that the move to a government position is actually a promotion, we include the term "promotion" when searching for the CEO's career move. Second, a CEO can be promoted to Chairman of the board. In China, the Chairman of the board is actually the legal representative of listed firms and is appointed by the largest shareholder (Kato and Long, 2006a). As discussed previously, the major shareholder most often holds a significant part of a firm's shares, which means that the Chairman of the board wields considerable influence. In addition, Kato and Long (2006a) point out that the Chairman of the board is typically seen as more powerful than the CEO when both are responsible for daily operations, as is often the case. Becoming the Chairman of the board can thus be considered a promotion for CEOs in typical Chinese state-controlled firms.

Third, a CEO can become the CEO or Chairman of the board of another listed firm. We define this move as a promotion only if the new position brings with it a higher compensation or if the new company is larger than the old firm, as measured by total market value. We include this move because it can be seen as recognition of the CEO's competence in China's business circles. Fourth, a CEO can be appointed as the CEO or Chairman of the board for a parent company that controls at least two listed firms. We include this type of career move due to the important and particular structure of business group in China.[18] From the mid-1980s, China's government began to promote the formation of business group as a part of the SOE reforms. Such groups are often composed of many firms, some of which are listed and thus become partially privatized firms and some of which remain unlisted. Although they are independent from each other, these affiliates often have a common parent company that controls them. A move to the position as CEO or Chairman of the board of the parent company means that the person in question wields more power and can allocate more

[18] For a more detailed discussion on business group in China, see He et al. (2013).

resources in the business group. Such a move can thus be characterized as a promotion. Because of the difficulty of finding financial information for unlisted firms, we require that the controlling parent company has at least two listed firms, regardless of whether they are listed domestically or overseas. Because the controlling parent company is often unlisted, we primarily identify such promotions through corporate websites and news media.

Based on these different ways of CEO promotion, we identify a total of 216 cases of CEO promotion during the sample period. Panel A in Table 3 presents the univariate statistics for performance for two firm samples, one with CEOs being promoted the following year, and one with all other firms (with a total of 6,409 observations). The average ROA for firms in which the CEO was promoted the following year was 3.6 percent, compared to an average ROA of 2.7 percent for the rest of the firms. When we run a simple comparison of the mean and median of the two groups, we find that the mean and median performance is higher for firms with CEOs being promoted in the following year at the 5 percent and 1 percent level, respectively.

To control for other variables that may influence the likelihood of future promotion, we run logistic regressions. The estimation results are presented in Panel B of Table 3. We again begin with a basic bivariate regression model with performance as a single independent variable in Column 1. The coefficient is positive and significant at the 5 percent level. When we add control variables, the results remain the same, even though the significance of performance becomes somewhat weaker in the more comprehensive model specifications in Columns 4 and 5. However, performance is still positively associated with a future promotion of the CEO. To further test the robustness of this finding, we carry out a fixed-effect regression in which we include all the control variables in the full logistic regression model specification. The results of the fixed-effect panel regression in Column 6 support the

previous finding with a significant and positive relationship between performance and CEO promotion.

[Table 3 about here]

5.3 CEO Turnover

Having found that performance is positively associated with both CEO compensation and promotion, we now turn to CEO turnover. Previous studies have not found conclusive evidence that executive turnover in Chinese state-controlled firms is driven by past performance. Due to the different focus in those studies, their definitions of turnover differ somewhat from ours. Also, most of the previous studies discussed in Section 2 were based on data from the earlier part of the reform period. As our analysis focuses on the most recent period, it is possible that the job market for top management in Chinese state-controlled firms has evolved and that performance is now more strongly associated with CEO turnover.

Since our focus is on CEO incentives, we first need to identify the reasons behind changes of CEO. This represents a significant challenge. Although the CSMAR database gives the reason for changes of CEOs, the information provided is not suitable for this study. We discussed the data with representatives from CSMAR and were informed that their classification is mainly based on corporate announcements of a CEO change. Having analyzed corporate announcements in detail, we found them to be too concise and often merely providing an ambiguous reason for a change of the CEO. For example, "resign" or "job change" often appears in announcements and in CSMAR. Similar to the procedure we used to identify reasons behind CEO promotions, we again use a number of different public sources, including annual reports, board announcements, newspapers, business journals, corporate websites and financial media. By doing this, we can accurately confirm other reasons behind a CEO leaving his or her position, including death, severe health issues,

retirement, arrest, or a change of the largest shareholder. We argue that since these occurrences may drive CEO turnover in their own right, it is not correct to include them in the analysis. Moreover, as CEO promotions are analyzed in the previous section, including them in the following analysis on CEO turnover would be redundant. We suggest that the rest of the sample of CEO turnover is driven by various reasons of which performance may constitute one important factor.[19] In other words, we treat this type of CEO turnover as potentially performance-induced and therefore "involuntary" in our estimation.[20]

Panel A in Table 4 presents the new firm sample that we use to analyze CEO turnover. The sample is composed of 842 cases in which the CEO of the company left his or her position for reasons other than the ones listed above. The remaining 5,356 observations are composed of firms in which a CEO turnover did not occur. The sample is somewhat smaller than the one used in the previous section due to the fact that the observations in which the CEO left his or her position for any of the reasons listed above have been deleted. The average ROA for firms with a subsequent CEO turnover is 1.1 percent compared to an average ROA of 2.8 percent for other firms. We again run a simple comparison of the mean and median of the two groups and find that the mean and median performance is lower for firms with a subsequent CEO turnover and that the difference is significant at the 1 percent level.

[19] Using the term "performance" when searching for the reason behind the CEO leaving his or her position for the rest of the sample, only about 14 percent of the cases was officially related to bad performance. This suggests that performance is seldom used as a formal reason for CEO turnover in Chinese state-controlled firms.

[20] Most studies on the U.S. have used different ways to distinguish forced and voluntary CEO turnover. As argued by Jenter et al. (2000), any algorithm inevitably misclassifies some turnovers. Moreover, board announcement on CEO turnover is different with their counterpart in U.S. due to differences in cultural backgrounds. Our classification of CEO turnover therefore differs somewhat from those used in studies on U.S. firms.

These initial results suggest that there is a relationship between performance and subsequent CEO turnover. To control for other firm-, board-, and CEO-specific factors, we again run logistic regressions in which the dependent variable is CEO turnover and the main independent variable is performance measured by ROA. Panel B in Table 4 presents the estimation results, with the results for the basic bivariate model specification in Column 1. Again, we find that performance is negatively associated with subsequent CEO turnover at the 1 percent level. When firm-specific characteristics are added into the estimations presented in Columns 2 to 4, the coefficient for performance remains negative and significant at the 1 percent level. Similarly, when we add the board- and CEO-specific variables, performance is still negatively associated with turnover at the 1 percent level and the size of the coefficient is still large. As in the sections on compensation and promotion, to further test for the robustness of these results and control for heterogeneity in firm and managerial talent, we also run a fixed-effect panel regression with the results presented in Column 6. Similar to the previous fixed-effect estimations, most of the control variables are insignificant. However, duality of CEO and Chairman of the board is positively associated with turnover. Moreover, and as could be expected, CEO age is positively associated with turnover. More importantly, performance is still negatively associated with turnover, albeit now at the 5 percent level. We can thus conclude that inferior performance has a significant and negative effect on the ability for CEOs for Chinese state-controlled firms to retain their position.

[Table 4 about here]

6 Alternative Measures of Performance

6.1 Return on Sales

To see if the results in the previous sections hold up to alternative measures of performance, we run new regressions with performance measured by return on sales (ROS) instead of ROA. We re-estimate each of the models for all three dependent variables: CEO compensation, CEO promotion, and CEO turnover. To save space, we only focus on the baseline and fixed-effect panel regressions. The results for all three dependent variables are presented in Table 5. Columns 1 and 2 present the estimations with CEO compensation as the dependent variable. It is evident that the results from the previous sections hold up, with a coefficient for ROS that is positive and significant at the 1 percent level. These results suggest that our previous findings are not sensitive to how we define operating performance. Columns 3 to 6 present the results for the estimations in which promotion and turnover are the dependent variables. Again, the results hold up when we use ROA as a measure for performance instead of ROS: performance is positively associated with CEO promotion at the 1 percent level. Similarly, the coefficient for performance is negative and significant at the 1 percent level when turnover is the dependent variable. Similar to the results on ROA, the performance coefficient is negative and significant at the 5 percent level in the fixed-effect panel estimation. We can thus conclude that the effect of operating performance on compensation, promotion, and turnover is not dependent on how we measure operating performance.

[Table 5 about here]

6.2 Market Performance

Another way to gauge the potential effect of performance is to look at market performance. If a firm performs poorly on the stock market relative to comparable firms, shareholders can be expected to address this through one of the three CEO incentive channels analyzed in this paper. However, for this mechanism to function properly, the controlling shareholder should be focusing on maximizing firm value and the capital market should be efficient. As discussed earlier, our sample is composed of state-controlled firms that often have multi-task objectives. This means that profit maximization is not the sole objective for many of the firms. Moreover, a number of studies (e.g. Morck et al., 2000; Malkiel and Taylor, 2008; Mei et al., 2009) have argued that the Chinese stock market is relatively inefficient, buttressed by a myriad of anecdotal examples of stock price manipulation through wash sales and the spread of false information. These market-specific features mean that it is not necessarily certain that market performance has a significant impact on the CEO incentive structure. Firth et al. (2010) do find a significant and positive relationship between market performance and executive compensation for both privately and state-controlled firms. However, their measure of market performance is a simple industry-adjusted market return and their measure of executive compensation is just an average of the three highest paid executive directors. To take potential firm-specific factors as well as issues related to the analysis of long-term stock market returns into account, we choose to calculate buy-and-hold abnormal returns (BHARs) and use them as measures for market performance. Barber and Lyon (1997) and Lyon et al. (1999) suggest that using BHARs yields well-specified test statistics for the long-run behavior of stock market returns. In addition, Fama and French (1992, 1993) find that size and the book-to-market ratio are influential determinants of the cross-section stock returns. We therefore create value-weighted portfolios based on the two

factors and match each sample firm along these two dimensions in order to calculate the abnormal returns for each firm.

The results from the basic and fixed-effect panel regressions are presented in Panel B of Table 5. Contrary to our previous results, we do not find a significant relationship between performance and compensation or promotion. The relationship between market performance and CEO turnover is negative and significant, albeit only at the 10 percent level. As a robustness check, we also use raw return or market-adjusted return as measures of market performance. However, the results remain qualitatively the same. These results suggest that, on average, market performance is not an important factor in the decision-making process for CEO executive compensation, promotion and turnover in Chinese state-controlled firms.

[Table 6 about here]

7 Local Institutions

Laws and institutions play a crucial role for protecting investors and for economic development in general (e.g. La Porta et al., 1998, 2000). Better legal protection for investors reduces the risk of expropriation of funds in that it controls shareholders, allows for better separation between ownership and control of firms, and increases economic growth. In the case of China, it is likely that local institutions are important not only for avoiding expropriation of funds by controlling stakeholders, but also for minimizing the cost that shareholders face due to multiple objectives in state-controlled firms.[21] As China is still in the process of economic reform and transition from a planned to a market economy, and since

[21] As mentioned earlier, many state-controlled firms in China have faced several objectives during the period of economic reforms, including not only maximizing firm value but also certain state objectives. This phenomenon has been called the "policy burden" (e.g. Lin et al., 1998; Lin and Li, 2008; Lin and Tan, 1999) or "multitasking" by state-controlled firms (Bai et al., 2000; Bai et al., 2005; Bai et al., 2006).

this process has been moving forward at an uneven pace across provinces, the quality of institutions vary across regions in China.

To analyze how institutions affect the relationship between performance and CEO incentives, we estimate new regressions in which we divide the sample into two groups based on the quality of local institutions. The National Economic Research Institute (NERI) Index of Marketization for China's provinces is used as a proxy for local institutions. The NERI index focuses on provinces' progress towards a market economy relative to other provinces. Each province is given a score between zero and ten. The index is based on a large set of indicators of institutional arrangements and policies in five areas: size of the regional government; economic structure (growth of the non-state sector as well as the reform of state-controlled firms); inter-regional trade barriers; development of local factor markets; and legal framework (Wang et al., 2007). [22]

Table 6 presents the new estimations for the two firm samples. Panel A uses the same econometric model as in Section 4.1. Focusing on the main explanatory variable, i.e. performance measured by ROA, we find that the effect of performance on CEO compensation is much larger in provinces with stronger institutions.[23] When using the basic model, the performance coefficient is 4.544 and 2.583 for provinces with strong and weak institutions, respectively. In the fixed-effect regression, the difference is even more pronounced, in that the performance coefficient is no longer significant for the sample of firms located in provinces characterized by weaker institutions. Panel B tells a similar story. Again using a logistic regression and a fixed-effect model, we find that performance has a

[22] The NERI index has been used extensively in economics, finance and business research to analyze local institutions and their effects in China (e.g. Du et al., 2008; Chen et al., 2009; Feng et al., 2011; Li et al., 2011).

[23] We also ran regressions using GDP per capita instead of NERI's marketization as a rough proxy for local institutions. The results, which are omitted to save space, remained qualitatively the same.

significant effect on the likelihood of promotion in provinces characterized by stronger institutions. On the other hand, while the effect is still positive for the sample of firms located in provinces characterized by weaker institutions, it is no longer significant. Finally, Panel C presents the estimation results with turnover as the dependent variable. Again, we find that performance has a significant and negative effect on CEO turnover, meaning that CEOs are less likely to be relieved from their position if their firms perform well. The sign of the performance coefficient is negative also in the sample with firms located in provinces characterized by weaker institutions. However, performance is no longer significant for CEO turnover.

The results for all three dependent CEO incentive variables suggest that the relationship between performance and CEO incentives is dependent on the quality of local institutions. For firms located in provinces with weaker institutions, performance has a much weaker effect on all three incentive mechanisms, and the effect is even insignificant in the case of CEO promotion and turnover. Our findings corroborate those of Firth et al. (2010), who show that the relationship between management pay and performance is somewhat weaker in less developed provinces. These results support the argument that institutions play an important role for performance and CEO incentive mechanisms. They also help explain why the results on performance and CEO incentives are stronger in this study compared to earlier studies on China. As reforms progress and economic development continues, local institutions are improving, thus providing a better environment for solving basic principal-agent problems by applying performance measures and different forms of CEO incentives.

[Table 6 about here]

8 Concluding Remarks

This study has attempted to analyze the relationship between performance and different forms of incentives for CEOs in Chinese state-controlled companies, including compensation, promotion, and turnover. We find that CEO compensation and promotion are significantly and positively associated with performance when performance is proxied by ROA and ROS. Likewise, CEO turnover is significantly and negatively associated with performance. Market performance does not have a significant effect on the different incentive mechanisms, indicating that share price movements are not important for state-controlled firms when they evaluate and incentivize their CEOs. Moreover, institutional quality has a significant and positive effect on the relationship between performance and incentive mechanisms. The effect is so strong that firms located in provinces characterized by weaker institutions have a much weaker, and for CEO promotion and turnover insignificant, relationship between performance and CEO incentives. This supports the conjecture that institutions play an important rule for firms in transition economies such as China.

Our study is closely related to several strands of literature that focuses on different incentive mechanisms and performance. The new data we use help us shed light on three of the most important incentive mechanisms for state-controlled firms. This, together with the fact that we find such a significant effect of local institutions on the incentive-performance relationship, has important implications for the central and local governments and other state entities that control firms in China. Furthermore, they have direct implications for other transition economies as well as emerging economies with weaker institutions and significant state control over many of the major domestic firms. Other studies have emphasized the need for ownership reforms (e.g. Firth et al., 2006). While we agree with the importance of continued privatization in countries such as China, our results show the importance of the

continued improvement of local institutions and that state control does not necessarily have to rule out a strong incentive-performance relationship in such countries.

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Table 1. The sample

Panel A: Year distribution of CEO compensation in SOEs (Compensation measured in thousands RMB)

This panel presents the distribution of CEO compensation by year during 2005-2012. Columns 1 to 8 report descriptive statistics for the total sample. Columns 9 and 10 report the number of firms in the zero compensation sample and the percentage of such firms relative to the full sample. CEOs in the zero compensation sample receive a zero salary from their position.

	Total Sample								Zero Compensation Sample	
Year	Number	Mean	Median	Std.	Min	Q1	Q3	Max	Number	Percentage
2005	758	237.41	182.80	224.42	0	93.60	321.00	2,756.00	34	4.49%
2006	794	284.67	212.49	360.84	0	110.00	363.90	5,845.00	35	4.41%
2007	844	409.77	295.05	548.67	0	152.80	493.90	7,105.30	36	4.27%
2008	861	432.09	322.00	498.55	0	182.30	517.00	6,846.40	23	2.67%
2009	881	455.54	345.00	455.63	0	194.90	575.00	5,200.00	37	4.20%
2010	927	553.48	420.00	584.97	0	246.60	656.00	6,800.00	28	3.02%
2011	937	636.80	473.00	726.75	0	280.30	733.00	9,577.40	24	2.56%
2012	965	672.69	519.32	809.13	0	318.00	758.92	13,680.00	27	2.80%
Total	6967	471.38	339.47	584.38	0	180.00	580.00	13,680.00	244	3.50%

Table 1. The Sample (Continued)

Panel B: Industry distribution of CEO compensation in SOEs (Compensation measured in thousands RMB)

This panel presents the distribution of CEO compensation by CSRC industry classification during 2005-2012. Columns 1 to 8 report descriptive statistics for the total sample. Columns 9 and 10 report the number and the percentage respectively for the zero compensation sample, which means that such CEOs get zero salary from their position.

	Total Sample								Zero Compensation Sample	
Industry	Number	Mean	Median	Std.	Min	Q1	Q3	Max	Number	Percentage
Agriculture, Forestry, Farming and Fishery	135	228.13	151.80	223.54	0	93.00	286.00	1,287.30	4	2.96%
Mining	294	507.93	418.30	547.39	0	193.10	654.80	5,148.40	20	6.80%
Manufacturing	3640	435.42	297.05	576.23	0	159.95	520.90	9,980.00	129	3.54%
Utilities	472	376.02	344.32	248.66	0	200.00	514.00	2,159.50	24	5.08%
Construction	146	563.68	454.60	492.84	0	275.70	663.10	2,997.80	1	0.68%
Transportation	459	500.43	455.00	356.08	0	265.80	650.00	2,964.00	11	2.40%
Information Technology	287	513.22	397.70	628.16	0	191.00	650.00	7,593.10	12	4.18%
Wholesale and Retail Trade	506	542.23	402.05	468.16	0	223.10	700.00	2,948.00	11	2.17%
Real estate	450	705.48	433.20	1,118.85	0	234.00	732.90	13,680.00	16	3.56%
Social Services	241	491.43	341.00	497.58	0	190.00	560.00	3,410.00	4	1.66%
Transmission and Culture	135	485.76	368.00	474.93	0	230.80	656.00	3,590.70	5	3.70%
Conglomerate	202	526.83	427.60	392.39	0	285.00	700.00	2,181.00	7	3.47%
Total	6967	471.38	339.47	584.38	0	180.00	580.00	13,680.00	244	3.50%

Table 1. The Sample (Continued)

Panel C: CEO compensation in SOEs by size group (Compensation measured in thousands)

This panel presents the distribution of CEO compensation by firm size during 2005-2012. We first divide the sample in each year into ten cohorts with equal number of observations and then compute the statistic for each size group. Columns 1 and 2 report the mean and median size for each group, measured as total assets. Columns 3 to 10 report descriptive statistics for the total sample. Columns 11 and 12 report the number and the percentage respectively for the zero compensation sample, which means that such CEOs get zero salary from their position.

Group	Size (in millions)		Total Sample								Zero Compensation Sample	
	Mean	Median	Number	Mean	Median	Std.	Min	Q1	Q3	Max	Number	Percentage
1	5.61	5.67	701	237.53	200.00	191.87	0	110.00	310.00	1,292.40	21	3.00%
2	10.55	10.02	696	295.04	239.85	257.09	0	130.00	390.00	2,029.60	28	4.02%
3	15.35	14.49	699	353.91	285.00	303.29	0	151.80	477.00	3,663.40	24	3.43%
4	20.89	19.70	694	406.50	323.34	348.21	0	178.00	528.00	2,265.80	16	2.31%
5	27.51	25.97	696	396.66	329.40	314.57	0	177.00	532.25	2,240.10	16	2.30%
6	37.34	33.60	698	445.04	328.50	452.64	0	190.40	532.00	6,620.00	19	2.72%
7	53.78	49.27	695	549.95	424.10	549.31	0	240.00	661.80	4,997.00	17	2.45%
8	81.09	74.01	698	581.05	448.40	685.17	0	268.88	700.00	7,593.10	21	3.01%
9	145.43	138.78	697	601.16	441.00	603.21	0	249.00	750.00	4,800.00	35	5.02%
10	918.40	410.59	693	850.25	600.00	1,173.10	0	320.00	896.00	13,680.00	47	6.78%
Total	471.38	339.47	6967	471.38	339.47	584.38	0	180.00	580.00	13,680.00	244	3.50%

Table 2. The Relationship between CEO Compensation and ROA in SOEs

This table presents the regression results of firm performance on CEO compensation using panel data for state-controlled firms from 2005 to 2012. All variables are defined in appendix 1. T-statistics are given in parentheses and computed using two way clustered robust standard errors clustered by firm and year. All continuous variables are winsorized at top and bottom 1%. ***, **, and * denote significance at the 1%, 5% and 10% level, respectively.

	Dependent Variable: Log(1+Compensation)					
	Basic Model					Fixed Effect Model
	Model I	Model II	Model III	Model IV	Model V	
ROA	6.307***	6.136***	5.799***	5.136***	4.948***	1.807***
	(12.89)	(12.38)	(11.61)	(8.89)	(8.43)	(2.90)
Firm Size			0.124***	0.203***	0.199***	0.288***
			(5.06)	(6.97)	(6.51)	(3.55)
Tobin's Q				0.046*	0.051**	0.029
				(1.87)	(2.04)	(0.91)
Leverage				-0.496***	-0.454***	-0.175
				(-2.97)	(-2.70)	(-0.62)
Largest Ownership				-1.195***	-1.067***	0.222
				(-5.98)	(-5.28)	(0.48)
Duality					-0.279***	-0.583
					(-2.76)	(-1.37)
Board Size					0.009	0.072*
					(0.57)	(2.40)
Independent Board Ratio	()				-1.889***	-1.379
					(-3.02)	(-1.63)
CEO Age					-0.008	0.008
					(-1.47)	(1.12)
CEO Tenure					0.088***	0.077***
					(7.13)	(4.69)
Intercept	12.083***	11.438***	8.792***	7.765***	8.6112***	0.074***
	(370.49)	(73.10)	(16.11)	(12.53)	(12.95)	(2.74)
Industry Dummies	No	Yes	Yes	Yes	Yes	No
Year Dummies	No	Yes	Yes	Yes	Yes	Yes
N	6967	6967	6967	6967	6967	6935

Adjusted R^2	0.104	0.215	0.306	0.315	0.321	0.329
F test for no fixed effects						3.82
Hausman(1978) Test						48.93

Table 3. CEO Promotion

Panel A. Univariate Test

This panel reports the descriptive statistics of ROA for state-controlled firms in China during 2004-2011, distinguished by whether or not their CEOs are promoted in the following year. ROA are winsorized at the top and bottom 1%. T-tests and Wilcoxon-Mann-Whitney tests are provided for the comparison of the mean and median of ROA between CEO Promotion sample with No Promotion sample. ***, **, and * denote significance at the 1%, 5% and 10% level, respectively.

	CEO Promotion				No Promotion			
	N	Mean	Median	Std	N	Mean	Median	Std
ROA	216	0.036**	0.041***	0.059	6409	0.027	0.028	0.062

Table 3. CEO Promotion

Panel B. Multivariate Test

This table presents the regression results of firm performance on CEO Promotion using panel data logistic model for state-controlled firms from 2005 to 2012. All variables are defined in appendix 1. Wald-statistics are given in parentheses and computed using two way clustered robust standard errors clustered by firm and year. All continuous variables are winsorized at top and bottom 1%. ***, **, and * denote significance at the 1%, 5% and 10% level, respectively.

	Dependent Variable: CEO Promotion					
	Logistic					Fixed Effect Model
	Model I	Model II	Model III	Model IV	Model V	
ROA	2.482**	2.301**	2.665**	2.652*	2.640*	4.716**
	(5.33)	(4.20)	(5.37)	(3.81)	(3.68)	(5.34)
Firm Size			0.114*	0.064	0.074	0.075
			(3.31)	(0.72)	(0.83)	(0.07)
Tobin's Q				0.073	0.057	0.028
				(0.85)	(0.52)	(0.05)
Leverage				0.084	0.128	-1.481
				(0.03)	(0.07)	(1.68)
Largest Ownership				0.680	0.546	-0.371
				(1.61)	(0.98)	(0.05)
Duality					-1.193***	-0.743
					(6.76)	(1.70)
Board Size					-0.048	-0.061
					(1.17)	(0.49)
Independent Board Ratio					0.066	-1.308
					(0.01)	(0.22)
CEO Age					-0.021	0.002
					(1.60)	(0.031)
CEO Tenure					0.012***	0.379***
					(9.089)	(22.15)
Intercept	-3.682***	-4.053***	-6.562***	-5.679***	-5.344***	
	(2095.84)	(99.80)	(20.50)	(11.67)	(9.73)	
Industry Dummies	No	Yes	Yes	Yes	Yes	No
Year Dummies	No	Yes	Yes	Yes	Yes	Yes
N	6625	6625	6625	6625	6625	6584
Pseudo R^2	0.105	0.168	0.214	0.221	0.246	0.273

Table 4. CEO Turnover

Panel A. Univariate Test

This panel reports the descriptive statistics of ROA for state-controlled firms in China during 2004-2011, distinguished by whether or not their CEOs are turned over in the following year. ROA are winsorized at the top and bottom 1%. T-tests and Wilcoxon-Mann-Whitney tests are provided for the comparison of the mean and median of ROA between CEO Promotion sample with No Promotion sample. ***, **, and * denote significance at the 1%, 5% and 10% level, respectively.

	CEO Turnover				No Turnover			
	N	Mean	Median	Std	N	Mean	Median	Std
ROA	842	0.011***	0.019***	0.080	5356	0.028	0.028	0.057

Table 4. CEO Turnover

Panel B. Multivariate Test

This table presents the regression results of firm performance on CEO Turnover using panel data logistic models for state-controlled firms from 2005 to 2012. All variables are defined in appendix 1. Wald-statistics are given in parentheses and computed using two way clustered robust standard errors clustered by firm and year. All continuous variables are winsorized at top and bottom 1%. ***, **, and * denote significance at the 1%, 5% and 10% level, respectively.

	Dependent Variable: CEO Turnover					
	Logistic					Fixed Effect Model
	Model I	Model II	Model III	Model IV	Model V	
ROA	-4.129***	-3.999***	-3.674***	-3.297***	-3.266***	-1.618**
	(73.49)	(62.64)	(51.30)	(32.04)	(29.79)	(5.10)
Firm Size			-0.103***	-0.095***	-0.089**	-0.112
			(11.57)	(7.30)	(5.62)	(0.98)
Tobin's Q				-0.053*	-0.052*	0.040
				(3.47)	(3.16)	(0.93)
Leverage				0.336*	0.336	0.347
				(2.80)	(2.68)	(0.72)
Largest Ownership				0.032	0.064	-1.126
				(0.02)	(0.06)	(3.35)
Duality					0.302***	0.729***
					(7.15)	(19.19)
Board Size					0.002	-0.009
					(0.09)	(0.063)
Independent Board Ratio					-0.028	-0.607
					(0.12)	(0.29)
CEO Age					0.033***	0.062***
					(18.67)	(19.63)
CEO Tenure					0.018	0.575
					(0.88)	(1.14)
Intercept	-1.680***	-1.325***	0.921	0.482	0.304	
	(2279.57)	(69.279)	(1.85)	(0.40)	(0.14)	
Industry Dummies	No	Yes	Yes	Yes	Yes	No
Year Dummies	No	Yes	Yes	Yes	Yes	Yes
N	6198	6198	6198	6198	6198	6123
Pseudo R^2	0.124	0.159	0.202	0.218	0.244	0.225

Table 5. Alternative Definition of Firm Performance

Panel A. ROS

This table presents the regression results of ROS on CEO Compensation (in Columns 1 and 2), CEO Promotion (in Columns 3 and 4) and CEO Turnover (in Columns 5 and 6) using panel data for state-controlled firms from 2005 to 2012. All variables are defined in appendix 1. T-statistics /Wald-statistics are given in parentheses and computed using two way clustered robust standard errors clustered by firm and year. All continuous variables are winsorized at top and bottom 1%. ***, **, and * denote significance at the 1%, 5% and 10% level, respectively.

	CEO Compensation		CEO Promotion		CEO Turnover	
	Basic Model	Fixed Effect Model	Logit	Fixed Effect Model	Logit	Fixed Effect Model
ROS	0.817***	0.193***	0.863***	1.263***	-1.249***	-0.635**
	(4.16)	(2.96)	(5.39)	(7.08)	(7.64)	(4.65)
Firm Size	0.238***	0.292***	0.113	-0.342	-0.188***	-0.236
	(7.85)	(3.59)	(1.56)	(0.91)	(16.95)	(1.79)
Tobin's Q	0.083***	0.039	-0.044	0.05	0.046	-0.122**
	(3.32)	(1.23)	(0.25)	(0.17)	(1.79)	(3.94)
Leverage	-0.796***	-0.289	0.207	-0.490	0.853***	0.806
	(-4.87)	(-1.04)	(0.14)	(0.10)	(12.73)	(1.85)
Largest Ownership	-1.020***	0.213	0.111	-1.144	-0.006	-1.169
	(-5.04)	(0.45)	(0.02)	(0.25)	(0.04)	(1.36)
Duality	-0.283***	-0.585***	-1.078***	0.101	0.339**	0.975***
	(-2.78)	(-4.39)	(4.35)	(0,23)	(6.29)	(15.01)
Board Size	0.009	0.070**	-0.019	-0.050	-0.041*	-0.063
	(0.55)	(2.34)	(0.12)	(0.17)	(2.87)	(1.02)
Independent Board	-2.057***	-1.340	1.170	-0.437	0.578	0.607
Ratio	(-3.29)	(-1.59)	(0.36)	(0.21)	(0.35)	(0.12)
CEO Age	-0.007	0.009	-0.023	-0.002	0.033***	0.063***
	(-1.34)	(1.16)	(1.79)	(0.05)	(17.93)	(19.42)
CEO Tenure	0.093***	0.077***	0.009	0.379***	0.016	0.575
	(7.52)	(4.69)	(0.05)	(21.65)	(0.67)	(1.69)
Intercept	7.948***	5.377***	-19.319		-15.90	
	(12.03)	(2.73)	(0.69)		(0.32)	
Industry Dummies	Yes	No	Yes	No	Yes	No

Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	6967	6935	6625	6584	6198	6123
Adjusted /Pseudo R^2	0.212	0.206	0.208	0.175	0.185	0.201

Table 5. Alternative Definition of Firm Performance (continued)

Panel B. Market Return

This table presents the regression results of market return on CEO Compensation (in Columns 1 and 2), CEO Promotion (in Columns 3 and 4) and CEO Turnover (in Columns 5 and 6) using panel data for state-controlled firms from 2005 to 2012. All variables are defined in appendix 1. T-statistics /Wald-statistics are given in parentheses and computed using two way clustered robust standard errors clustered by firm and year. All continuous variables are winsorized at top and bottom 1%. ***, **, and * denote significance at the 1%, 5% and 10% level, respectively.

	CEO Compensation		CEO Promotion		CEO Turnover	
	Basic Model	Fixed Effect Model	Logit	Fixed Effect Model	Logit	Fixed Effect Model
Market Return	0.051	0.033	0.221	0.321	-0.131*	-0.146*
	(0.95)	(0.69)	(1.78)	(2.30)	(3.18)	(3.13)
Firm Size	0.262***	0.315***	0.081	-0.497	-0.197***	-0.235
	(8.56)	(3.86)	(0.80)	(1.85)	(19.01)	(1.76)
Tobin's Q	0.083***	0.044	-0.002	0.117	-0.078**	-0.159**
	(3.14)	(1.27)	(0.04)	(0.63)	(4.74)	(5.73)
Leverage	-1.064***	-0.488*	0.766	0.676	1.078***	1.140**
	(-7.00)	(-1.86)	(2.30)	(0.21)	(23.48)	(3.85)
Largest Ownership	-0.977***	0.368	0.122	-0.771	-0.062	-1.137
	(-4.72)	(0.79)	(0.03)	(0.10)	(0.38)	(1.29)
Duality	-0.275***	-0.594***	-1.010**	0.358	0.292**	0.878***
	(-2.65)	(-4.38)	(3.84)	(0.27)	(4.49)	(11.78)
Board Size	0.011	0.087***	-0.014	-0.110	-0.039	-0.050
	(0.62)	(2.85)	(0.07)	(0.72)	(2.29)	(0.62)
Independent Board Ratio	-2.238***	-1.149	1.416	-2.159	0.835	0.970
	(-3.50)	(-1.35)	(0.51)	(0.28)	(0.73)	(0.29)
CEO Age	-0.008	0.010	-0.023	0.002	0.035***	0.059***
	(-1.43)	(1.39)	(1.86)	(0.07)	(19.94)	(16.90)
CEO Tenure	0.097	0.074***	0.009	0.418***	0.014	0.584
	(7.74)	(4.46)	(0.04)	(25.20)	(0.51)	(1.96)
Intercept	7.642***	4.433**	-19.225		-16.155	
	(11.30)	(2.21)	(0.06)		(0.33)	
Industry Dummies	Yes	No	Yes	No	Yes	No
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	6967	6935	6625	6584	6198	6123

Adjusted /Pseudo R^2	0.137	0.182	0.196	0.214	0.169	0.198

Table 6. The Effect of Local Institutions on the Relationship between Firm Performance and CEO Incentives

Panel A: CEO Compensation

This table presents the regression results of firm performance on CEO compensation using panel data for state-controlled firms from 2005 to 2012, respectively for High Marketization and Low Marketization sample. All variables are defined in appendix 1. T-statistics are given in parentheses and computed using two way clustered robust standard errors clustered by firm and year. All continuous variables are winsorized at top and bottom 1%. ***, **, and * denote significance at the 1%, 5% and 10% level, respectively.

Dependent Variable: Log(1+Compensation)				
	High Marketization		Low Marketization	
	Basic Model	Fixed Effect Model	Basic Model	Fixed Effect Model
ROA	4.544***	1.247***	2.583**	0.860
	(6.43)	(3.62)	(2.19)	(0.67)
Firm Size	0.163***	0.228**	0.210***	0.449***
	(4.76)	(2.29)	(3.00)	(3.14)
Tobin's Q	0.034	0.036	0.076	0.025
	(1.19)	(0.96)	(1.54)	(0.40)
Leverage	-0.587***	-0.275	0.052	0.045
	(-3.00)	(-0.78)	(0.16)	(0.09)
Largest Ownership	-1.104***	0.169	-0.675*	0.506
	(-4.74)	(0.29)	(-1.66)	(0.64)
Duality	-0.311***	-0.700***	-0.209	-0.259
	(-2.61)	(-4.35)	(-1.09)	(-1.07)
Board Size	0.045**	0.121***	-0.063**	-0.019
	(2.33)	(3.25)	(-1.99)	(-0.38)
Independent Board Ratio	-2.249	-1.293	-0.333	-1.213
	(-3.05)	(-1.26)	(-0.28)	(-0.80)
CEO Age	-0.005	0.013	-0.019*	0.002
	(-0.76)	(1.45)	(-1.74)	(0.17)
CEO Tenure	0.077***	0.051***	0.106***	0.139***
	(5.43)	(2.62)	(4.29)	(4.48)
Intercept	9.214***	6.085***	8.463***	2.033
	(12.29)	(2.59)	(5.65)	(0.58)
Industry Dummies	Yes	No		No
Year Dummies	Yes	Yes	Yes	Yes

N	4868	4859	2099	2076
Adjusted R^2	0.331		0.215	
F test for no fixed effects		4.49		3.89
Hausman(1978) Test		35.62		32.95
R^2		0.314		0.261

Table 6. The Effect of Local Institutions on the Relationship between Firm Performance and CEO Incentives

Panel B: CEO Promotion

This table presents the regression results of firm performance on CEO Promotion using panel data logistic model for state-controlled firms from 2005 to 2012, respectively for High Marketization and Low Marketization sample. All variables are defined in appendix 1. Wald-statistics are given in parentheses and computed using two way clustered robust standard errors clustered by firm and year. All continuous variables are winsorized at top and bottom 1%. ***, **, and * denote significance at the 1%, 5% and 10% level, respectively.

	Dependent Variable: CEO Promotion			
	High Marketization		Low Marketization	
	Logit	Fixed Effect Model	Logit	Fixed Effect Model
ROA	4.360*	7.764***	1.693	2.336
	(5.54)	(7.28)	(1.47)	(1.10)
Firm Size	0.102	0.222	0.205	0.788
	(0.88)	(0.30)	(1.00)	(0.71)
Tobin's Q	0.049	0.045	0.014	0.273
	(0.23)	(0.08)	(0.81)	(0.61)
Leverage	-0.366	-4.854***	1.182	-2.888***
	(0.31)	(8.17)	(1.23)	(6.78)
Largest Ownership	-0.087	-3.320	0.631	1.487
	(0.01)	(1.38)	(0.27)	(0.09)
Duality	-0.905	-0.466	-1.215	-0.980
	(2.29)	(0.34)	(1.40)	(0.31)
Board Size	-0.054	-0.189	-0.017	-0.060
	(0.72)	(1.19)	(0.03)	(0.08)
Independent Board Ratio	0.576	-0.231	1.453	2.340
	(0.05)	(0.25)	(0.16)	(0.25)
CEO Age	-0.012	-0.021	-0.052	0.097
	(0.36)	(0.29)	(2.24)	(2.04)
CEO Tenure	0.002	0.433***	0.050	0.490***
	(0.14)	(16.78)	(0.48)	(9.24)
Intercept	-8.316		-9.056	
	(0.44)		(0.18)	
Industry Dummies	Yes	No	Yes	No
Year Dummies	Yes	Yes	Yes	Yes

N	4850	4836	1775	1748
Pseudo R^2	0.271	0.301	0.186	0.163

Table 6. The Effect of Local Institutions on the Relationship between Firm Performance and CEO Incentives

Panel C: CEO Turnover

This table presents the regression results of firm performance on CEO Turnover using panel data logistic model for state-controlled firms from 2005 to 2012, respectively for High Marketization and Low Marketization sample. All variables are defined in appendix 1. Wald-statistics are given in parentheses and computed using two way clustered robust standard errors clustered by firm and year. All continuous variables are winsorized at top and bottom 1%. ***, **, and * denote significance at the 1%, 5% and 10% level, respectively.

	Dependent Variable: CEO Turnover			
	High Marketization		Low Marketization	
	Logit	Fixed Effect Model	Logit	Fixed Effect Model
ROA	-2.545***	-1.075***	-1.998	-1.471
	(7.80)	(10.71)	(2.25)	(0.73)
Firm Size	-0.178***	-0.436*	-0.074	-0.029
	(10.86)	(3.82)	(0.52)	(0.91)
Tobin's Q	-0.029**	0.101	-0.142	0.153
	(5.20)	(1.91)	(0.47)	(1.56)
Leverage	0.926***	1.797**	-0.039	-1.795
	(10.05)	(5.63)	(0.65)	(1.50)
Largest Ownership	0.048	-0.015	-0.451	-2.831*
	(0.16)	(0.02)	(0.58)	(2.78)
Duality	0.496***	0.962***	0.159	0.939*
	(9.34)	(10.49)	(0.37)	(3.62)
Board Size	-0.031	-0.070	0.054	-0.071
	(0.98)	(0.78)	(1.42)	(0.45)
Independent Board Ratio	-1.287	0.691	-1.704	-1.524
	(1.15)	(0.10)	(0.85)	(0.22)
CEO Age	0.024**	0.052***	0.058***	0.091***
	(6.42)	(9.10)	(15.36)	(12.19)
CEO Tenure	0.043	0.592	-0.041	0.560
	(0.32)	(1.55)	(1.25)	(1.38)
Intercept	-1.307		-0.780	
	(0.57)		(0.33)	
Industry Dummies	Yes	No	Yes	No
Year Dummies	Yes	Yes	Yes	Yes

N	4588	4525	1610	1598
Pseudo R^2	0.247	0.196	0.131	0.160

Appendix 1: Definition of Variables

Variable	Definition
Compensation	CEO's cash salary disclosed in the annual report.
Log (1+Compensation)	The natural logarithm of one plus CEO compensation.
CEO Promotion	A dummy variable that equals one if the CEOs got promoted in the following year in one of the four ways and zero otherwise: (1)taking up a position in government using the term "promotion" when searching for such CEO's career move; (2) being appointed as Chairman of the board; (3) being appointed as the CEO or Chair of another listed firm if the new position brings with it a higher compensation for the CEO or if the new company is larger than the old firm, measured with total market value; (4) being appointed as a CEO or Chairman of the board for a parent company that controls at least two listed firms. Data source: manually collected from annual reports, corporate announcements, newspapers, business journals, corporate websites and Chinese financial media.
CEO Turnover	A dummy variable that is equal to one if the CEOs leaves the firm in the following year due to reasons other than the ones listed below and zero otherwise: (1) death; (2) severe health issues; (3) retirement; (4) a change of the largest shareholder; (5) being arrested; (6)CEO promotion as defined above. Data source: see data source for CEO Promotion above.
ROA	The ratio of earnings to total assets
ROS	The ratio of earnings to total sales.
BHARs	One year buy and hold abnormal return adjusted by Fama and French (1992, 1993) three factors.
Firm Size	The natural logarithm of total assets
Tobin's Q	The sum of total market valuation of equities and total net liabilities divided by total assets.
Leverage	The ratio of total liabilities over total assets.
Largest Ownership	The percentage ownership of the largest owner.
Duality	A dummy variable that equals one if its CEO is also the Chair of board for the same firm and zero otherwise.
Board Size	The natural logarithm of total board members.
Independent Board Ratio	The ratio of independent board member to total board member.
CEO Age	The age of the CEO.
CEO Tenure	The number of years since the CEO took up his or her position.

Appendix 2: Main Control Variables

This appendix presents the summary statistics for the main control variables in this study. All variables are defined in appendix 1 and all continuous variables are winsorized at the top and bottom 1%

	Number	Mean	Median	Std.	Min	Q1	Q3	Max
Log (1+Compensation)	6967	12.26	12.74	2.50	0.00	12.10	13.27	16.43
CEO Promotion	6625	0.03	0.00	0.18	0.00	0.00	0.00	1.00
CEO Turnover	6198	0.14	0.00	0.34	0.00	0.00	0.00	1.00
ROA	6967	2.77%	2.79%	6.08%	-32.66%	0.89%	5.32%	19.96%
ROS	6967	5.13%	4.22%	17.61%	-158.57%	1.27%	9.85%	64.30%
BHARs	6967	13.71%	-0.65%	64.96%	-122.74%	-18.53%	26.76%	503.35%
Firm Size	6967	21.99	21.81	1.31	19.23	21.06	22.72	26.80
Tobin's Q	6967	2.12	1.62	1.50	0.75	1.22	2.45	14.34
Leverage	6967	0.53	0.54	0.21	0.07	0.38	0.67	1.66
Largest Ownership	6967	0.40	0.39	0.16	0.09	0.27	0.52	0.79
Duality	6967	0.09	0.00	0.29	0.00	0.00	0.00	1.00
Board Size	6967	9.58	9.00	1.93	5.00	9.00	11.00	15.00
Independent Board Ratio	6967	0.36	0.33	0.05	0.22	0.33	0.38	0.57
CEO Age	6967	47.89	48.00	5.71	34.00	44.00	52.00	62.00
CEO Tenure	6967	3.16	3.00	2.57	0.00	1.00	5.00	12.00

Appendix 3: Correlation

This table presents the correlation matrix of variables in the analysis. All variables are defined in appendix 1. The upper triangle presents the Pearson correlation coefficient. The lower triangle presents Spearman correlation coefficient. ***, **, and * denote significance at the 1%, 5% and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) Log(1+Compensation)	1.00***	0.07	-0.10	0.13***	0.09***	-0.00	0.08***	0.02*	-0.05***	-0.04***	0.03	0.04***	-0.00	0.01**	0.13***
(2)CEO Promotion	0.06	1.00***	-0.27***	0.03***	0.03***	-0.01	0.01***	0.01	0.02	0.01	-0.03***	-0.01	0.00	-0.02	0.01***
(3)CEO Turnover	-0.09	-0.23***	1.00***	-0.10***	-0.09***	0.01	-0.09***	-0.04***	0.04***	-0.02	0.04***	-0.03	0.00	0.03***	-0.03**
(4)ROA	0.36***	0.02***	-0.08***	1.00***	0.78***	0.13***	0.18***	0.17***	-0.43***	0.16***	-0.03*	0.06***	-0.01	0.08***	0.07***
(5)ROS	0.29***	0.02***	-0.08***	0.84***	1.00***	0.07***	0.18***	0.07***	-0.36***	0.13***	-0.03**	0.05***	-0.01	0.06***	0.05***
(6)BHARs	0.04***	0.00	-0.01	0.18***	0.13***	1.00***	-0.01	0.41***	0.03**	-0.01	0.02	0.00	-0.01	-0.02*	0.02
(7)Firm Size	0.39***	0.01***	-0.08***	0.15***	0.16***	-0.01	1.00***	-0.32	0.22	0.24	-0.07	0.23	0.15	0.15	0.12
(8)Tobin's Q	0.02*	0.02	-0.03***	0.31***	0.23***	0.42***	-0.38***	1.00 ***	-0.19***	-0.03***	0.02*	-0.08***	0.01	-0.03**	0.00
(9)Leverage	-0.04***	0.02	0.03**	-0.43***	-0.41***	0.01	0.26***	-0.25***	1.00***	-0.09	0.03	0.01	0.04	-0.02	0.00
(10) Largest Ownership	-0.01***	0.01	-0.02	0.18***	0.13***	-0.01	0.21***	-0.05***	-0.08***	1.00***	-0.07***	-0.01	0.05 ***	0.04***	-0.07***
(11)Duality	0.01	-0.03***	0.04***	-0.01	-0.02	0.01	-0.07***	0.04***	0.01**	-0.06***	1.00***	-0.06***	0.01	0.08***	0.05***
(12)Board Size	0.08***	-0.01	-0.01	0.05***	0.05***	0.00	0.21***	-0.09***	0.03***	-0.02*	-0.06***	1.00***	-0.21***	0.04***	0.01
(13)Independent Board Ratio	0.06***	0.00	0.01	-0.01	-0.01	-0.01	0.12***	0.00	0.03	0.01	0.01	-0.11***	1.00***	0.02*	0.03**
(14)CEO Age	0.14***	-0.02	0.02*	0.09***	0.07***	0.00	0.15***	-0.03**	-0.02	0.04***	0.07***	0.03*	0.02	1.00***	0.14***
(15)CEO Tenure	0.26***	0.00***	-0.01	0.05***	0.03**	0.05***	0.12***	0.04***	0.01	-0.07***	0.05***	0.01	0.03**	0.14***	1.00***