

**Big is beautiful:**

**How state shareholders discipline their CEOs in China**

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Sales maximization or profit maximization?

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### Abstract

This study examines the determinants of CEO turnover in Chinese state-owned firms. Based on a sample of 1555 turnover cases among listed firms in China during the period 1999 to 2003, we obtain three main results. First, CEO turnover is negatively related to the sales performance but not the profitability of the core business. Second, the negative relationship between CEO turnover and sales is stronger for firms with excessive employment and higher organizational slack. Third, there is a significant post-turnover increase in sales but a decline in profitability of the core business. Overall, our evidence is consistent with the hypothesis that state shareholders put a greater emphasis on sales generation than on profitability when they monitor their CEOs.

state ownership - corporate governance – management turnover - China

## 1. Introduction

The nature of the corporate governance of state-controlled firms has been a focal point of intensive academic research and policy debate (e.g., Alchian, 1965; Alchian and Demsetz, 1972; Buchanan et al., 1980; Millward and Parker, 1983; Demsetz, 1988; Kornai, 1992; Shleifer and Vishny, 1994; Dixit, 1997; Matsumura, 1998; Bennedsen, 2000). Managerial monitoring in particular, as an integral part of corporate control, has inspired a series of studies (e.g., Groves et al., 1995; Kole and Mulherin, 1997; Claessens and Djankov, 1999; Aviazian et al., 2005; Firth et al., 2006, Kato and Long, 2006, Chang and Wong, 2008). Naturally, the objectives of state shareholders are likely to have crucial implications for the way in which they monitor and govern a company's management. Similar to owners of private companies, state shareholders have sought to develop monitoring mechanisms that help to align management performance with shareholder interests. As a result, the mechanisms of managerial turnover in state-controlled firms are expected to display distinct features that reflect the specific objectives of state shareholders.

State shareholders are not real company owners, because they merely administer state assets on behalf of the government (Alchian and Demsetz, 1972). As state shareholders enjoy control rights but no cash-flow rights and do not run the risk of bankruptcy, economics and finance theories suggest that they have a weak incentive to maximize profits (hereafter referred to as the *profit motive*) (Alchian, 1965; Demsetz, 1988; Dixit, 1997). Instead, shareholders use state-controlled firms to serve the objectives of government and interest groups, such as the provision of employment and the preservation of state assets (Shleifer and Vishny, 1994; Bennedsen, 2000). Others

emphasize the role of personal interests, such as the accumulation of personal wealth, the consumption of on-the-job perks, and job security (Alchian, 1965; Niskanen, 1971; Buchanan et al., 1980). This suggests that state shareholders will have an inherent incentive to maximize sales revenue and output (hereafter referred to as the *sales motive*), as firms with a higher sales volume can generate more cash inflows which in turn increase the resources available to pursue political and personal objectives (Millward and Parker, 1983; Kornai, 1992; Matsumura, 1998; Xu and Birch, 1999). The likely outcome is that state shareholders tend to have a strong motive to maximize sales and a weak motive to maximize profit, which can easily lead to a decoupling of sales maximization and profit maximization motives.

Earlier studies in this area have focused on the determinants of managerial turnover in state-controlled firms, mainly among state-controlled firms in China<sup>1</sup>. These studies have examined the sensitivity of managerial turnover with respect to three different performance measures. The first measure is labor productivity, which has produced inconclusive results. Groves et al. (1995) find that turnover is not associated with ex-ante labor productivity, but is followed by an increase in productivity in a sample

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<sup>1</sup> Two studies investigate the managerial turnover in state-owned firms in other countries. Kole and Mulherin (1997) examine managerial turnover in 17 U.S. firms in which the federal government served as a controlling shareholder during and after World War II and find no significant difference in turnover rate from private-sector firms. Their results suggest that there is no significant difference in CEO monitoring between state and private shareholders. A small sample size, however, limits the generalizability of their results. Claessens and Djankov (1999) study the managerial turnover of a sample of Czech firms that had just undergone privatization, and find that privatized firms are associated with a greater improvement in post-privatization performance when the firm appoints a new manager. The extent of improvement is even greater if the new manager is appointed by the private owners rather than a state asset management agency. Their study suggests that human capital is an important determinant of post-privatization firm performance and that private owners are better able to appoint more capable managers. More general inferences from these findings, however, seem inappropriate due to the study's unique focus on the first managerial changes after privatization. Furthermore, neither study examines the determinants of managerial turnover.

of wholly state-owned firms. In contrast, a more recent study by Aviazian et al. (2005) finds a negative relationship between productivity and turnover in a sample of incorporated state-owned firms. The second measure is sales studying the sensitivity of turnover to sales-related measures such as sales growth and asset turnover (measured as sales over assets) and consistently reporting a negative relationship between turnover and sales measures. The final measure is return on assets (ROA) (Firth et al., 2006; Kato and Long, 2006; Chang and Wong, 2008) for which the results are mixed. While Firth et al. (2006) and Kato and Long (2006) document a negative relationship between turnover and ROA in listed firms in China, Chang and Wong (2008) show that the relationship exists only in loss-making firms.

A salient characteristic of these earlier studies is that they do not distinguish between the profit motive and the sales motive of state shareholders nor examine the relative importance of these motives in determining managerial turnover. Instead, the three performance measures are used as alternative ways to capture the incentives of state shareholders to discipline their managers on the basis of financial performance. Often, a negative relationship between turnover and these performance measures is interpreted as evidence that state shareholders monitor their top executives on the basis of firm profitability.

In sum, previous findings suggest that state shareholders, similar to private shareholders, have the incentive to discipline their managers on the basis of firm profitability. However, the negative relationship between managerial turnover and ROA does not necessarily indicate profit-maximizing behavior on the part of state shareholders, as ROA is analytically the product of profit margin (profit over sales) and

asset turnover (sales over asset), which are measures of firm profitability and sales generation, respectively. Given that ROA sensitivity can be driven by shareholder monitoring in response to profits and sales performance, it is crucial to identify which type of shareholder objective actually steers management turnover.

This study seeks to offer further evidence on management monitoring in state-owned firms by explicitly distinguishing between the profit and sales motives and estimating their relative importance in determining the forced turnover of Chief Executive Officers (CEOs) in listed firms in China. Managerial turnover in these firms provides a useful testing venue because listed firms include both state-controlled and private firms that operate in different industries but in a similar institutional environment. This allows us to use private firms as a control group to isolate ownership-specific effects. Overall, our sample includes 1555 turnover cases in listed firms in China during the period 1999 to 2003.

Our study relates to two important issues discussed in literature on the corporate governance of state-controlled firms. First, we provide new evidence on managerial monitoring in state-controlled firms that shows that state shareholders actually place more emphasis on sales generation than profitability when monitoring their CEOs. To our knowledge, this is the first study to provide evidence that the inherent preference of state shareholders for sales maximization over profit maximization has material consequences for CEO monitoring. Despite massive waves of privatization in recent decades, state ownership remains globally important in many vital industries, such as telecommunications, energy, public utilities, and banking,<sup>2</sup> and the current global

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<sup>2</sup> Bauer (2005) documents that 49.2% of fixed-access lines were still operated by either a fully or partially state-owned telecommunication operator at the end of 2004. Based on a study of the 10

financial crisis has led to the emergence of even more state-controlled firms. The quality of corporate control as exercised through CEO monitoring in wholly or partially state-owned firms is therefore of continued and possibly increasing relevance for policy makers and international investors.

Second, our study is relevant to the literature on the privatization of state-owned firms. There is an important debate over the question of whether the privatization of state-owned firms is necessary to improve their financial performance. The property school regards privatization as a prerequisite to improve performance in traditional state-owned firms (Frydman and Rapaczynski, 1993; Boycko et al., 1996; Shleifer, 1998), whereas the market approach claims that increasing competition and organizational changes in governance structures will be sufficient to improve performance (Yarrow, 1986; Vickers and Yarrow, 1991). Although listed firms in China operate under corporate governance structures that closely resemble the rules of the game in mature market economies, our evidence suggests that the inherently weak profit motive of state shareholders continues to influence company management through CEO monitoring.

The remainder of this paper is structured as follows. Section 2 provides a brief discussion of corporate governance mechanisms and the incentive structures of state shareholders in listed firms in China. Section 3 introduces the data and research method, and section 4 presents the empirical results and robustness checks. Section 5 concludes.

## **2. Corporate governance: Between the profit motive and the sales motive**

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largest banks in 92 countries, La Porta et al. (2003) document that 42% of their assets are controlled by state-owned entities.

Formally, China's corporate organization resembles Western models of corporate governance, with the shareholder meeting being the highest decision-making organ that elects the Board of Directors to oversee and monitor the performance of CEOs. However, China's corporate governance system also has distinct features that stem from its unique ownership structure and administrative control mechanisms. At present, the state still controls about two thirds of the total equity of the majority of listed companies through holdings of non-tradable state shares (Sun and Tong, 2003). Control rights over these shares are exercised through a two-tier administrative system that is not dissimilar from international state asset management systems such as the Italian IRI or the Singapore Development Bank (Wu et al., 1997). During our observation period, the National Administrative Bureau of State-owned Property (NABSOP) was at the top of China's asset administration system. NABSOP is entrusted by the State Council to perform all overseeing duties to protect the state's ownership interest. The actual execution of ownership rights, however, is delegated to local business groups, locally run asset administrations, or state-asset operating companies (SAOCs), which are formally registered as state-holdings or state investment companies. Although these three types of agents are not an integral part of the Chinese bureaucracy, they remain closely linked with the government through the oversight of the NABSOP and the State Council.

Despite official statements emphasizing the formal separation of government and firms, politicians and bureaucrats can still rely on vertical ties and personnel dependencies to pursue multiple interests in state-owned firms. Even in corporatized firms, state influence is not limited to the formal authority of state shareholders to vote at shareholder meetings. Equally importantly, the state retains the formal right to approve

the decisions of the Board of Directors on appointments and dismissals of CEOs and other key personnel (Qian 1995). This factual monopoly power over management recruitment provides us with a valuable opportunity to directly explore which objectives state shareholders seek to maximize when exercising their authority over management turnover.

There is a rich seam of literature on the nature of state-owned firms that emphasizes their weak profit motive. Governments operate state-owned firms not only to correct market failures, but also to win public support by providing additional employment opportunities, above market-rate wages, and social security (Shleifer and Vishny, 1994, 1997; Dixit, 1997). Moreover, the political economy perspective on state-ownership suggests that, similar to managers in private firms, politicians and bureaucrats tend to abuse their office to utilize state-owned resources for personal interest and material gain (Shleifer and Vishny, 1994, 1997; Jones, 1985; Krueger, 1990). There is a general conflict between firm profitability and political and personal goals because the pursuit of the latter is often connected with higher costs and thus results in lower profits (Laffont and Tirole, 1993; Shleifer, 1998; Sikorsky, 2007).<sup>3</sup> The lack of cost minimization suggests that state shareholders are unlikely to be profit maximizing, but will rather respond to the government's non-profit goals. Empirical studies documenting an increase in the profitability of previously state-owned enterprises after privatization support the view that state-owned firms are less profitable than private firms (Shirley, 1998; Megginson and Netter, 2001; Claessens and Djankov, 2002). The link between managerial turnover and firm profitability is therefore likely to be weak.

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<sup>3</sup> Sikorsky (2007) reviews more than 50 studies and finds that only three studies identify the cost-advantages of state-owned firms, whereas five studies do not detect a significant difference in the cost structure of state and private firms.

In China, the weak profit motive of state shareholders is further reinforced by institutional arrangements guiding the corporate governance of state-owned firms. To begin with, entrusted local state asset administrative agents do not receive dividends, unlike private owners, as these are directly transferred to the state budget. Second, state shareholders are not allowed to sell their firm's stock, and are therefore unable to capitalize on potential increases in their firm's stock price that result from increases in firm profitability. Finally, the management and control activities of local asset administrators do not carry with them the risk of bankruptcy or an alternative sanctioning mechanism when performance is poor (World Bank, 2007). It is therefore likely that the profit motive will naturally carry a low weight in the objective function of state shareholders.

The literature on state-owned firms asserts that sales performance provides a more relevant benchmark, as a higher transaction volume generates broader opportunities for state shareholders to achieve political and personal objectives. As emphasized by Shleifer and Vishny (1994), there is an inherent tendency of politicians to maximize firm size and output because larger firms can provide more resources for politicians to buy out political supporters. Similarly, firms with a higher transaction volume also provide state shareholders with more resources to serve their private interests. Following this logic, Millward and Parker (1983) suggest that bureaucrats who run public enterprises tend to "raise the volume of co-operating resources beyond profit-maximizing levels" (p. 222) to increase the resources available for their personal use. Matsumura (1998) further indicates that public firms are typically given the objective of maximizing output subject to the condition of breaking even. Xu and Birch (1999) empirically study the objective

functions and output behaviors of 13 Argentine state-owned firms and find only one firm displaying a behavior consistent with profit maximization. Eight of the firms exhibit a behavior consistent with output maximization under a maximum loss constraint, and four display a behavior consistent with employment maximization. Kato and Long (2006) find that the compensation of top executives in listed firms in China is more sensitive to sales performance than firm profitability.

The sales motive is also reflected in China's policy and regulations specifying the reform and administration of state-owned firms. When the Chinese government accelerated its partial privatization program in 1995, size and market power became the sorting principle, as signaled by the privatization slogan "*zhua da, fang xiao*" (keep the big ones, let the small ones go) (Cao et al., 1999). By retaining substantial ownership shares only in sizeable companies, the government emphasized its interest in maintaining a powerful resource base in the economy and running only the major players in the respective product markets (Naughton, 2007).

Consistent with the government's general emphasis on size rather than profit, the regulations on the administration of state ownership in corporatized state-controlled firms do not explicitly include any profit or profitability goals as a guiding principle of state asset management. Instead, state shareholders are requested to guarantee, protect, and further increase the controlling position of state-dominated companies in line with industrial policy guidelines (He, 1999; Huchet and Richet, 1999). To this end, local asset administrators are required to oversee company activities and managerial performance based on the management's ability to maintain and increase the value of state assets (Preliminary Method for the Administration of State Shares in Listed Companies, Art.

17). Local agents, in turn, are reviewed by NABSOP based on the same guiding principle that they should “supervise and administer the preservation of and increase in the value of state-owned assets.”<sup>4</sup> Although the official regulations do not explicitly specify how the value of state-owned assets is to be measured, the lack of explicit reference to profitability signals that the profit motive at best plays a subordinate role when it comes to the assessment of state asset management.

### **3 Data and research methods**

We use a sample of firms listed on the Shenzhen and Shanghai Stock Exchanges in the period from 1999 to 2006 to empirically estimate the extent to which profit and sales objectives influence CEO turnover. The data on CEO turnover comes from the China Corporate Research Database (CCGRD) provided by the GTA Information Technology Co. For our analysis of CEO turnover, we focus on people who hold the formal title of General Manager or Chief Executive. We limit the turnover cases to those occurring during the period of 1999 to 2003 because we need three additional years of financial data for the investigation of post-turnover performance changes.

Table 1 provides an overview of recorded changes in CEO during our observation period. The total number of such changes was 1555, with at least one change in 879 out of the 1255 firms listed on the Chinese stock exchanges at the end of 2003. Turnover activity declined slightly over time, with 29.74% of firms experiencing a CEO turnover in 1999 and 25.98% in 2003. The average turnover rate for our sample is 27.99%, which clearly surpasses the figures reported in earlier studies that focus on the U.S. and

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<sup>4</sup> “Interim Regulations on Supervision and Management of State-owned Enterprises” (May 27, 2003), Art. 14.

Japanese stock markets.<sup>5</sup> 105 firms report multiple CEO changes in a given year. We follow the standard in the literature in consolidating multiple CEO changes and reporting only the final turnover. This reduces the number of valid CEO changes for our sample from 1555 to 1438. Correspondingly, the adjusted turnover rate falls from 27.99 % to 25.89%.

*[Insert table 1 about here]*

The CCGRD provides detailed information on officially recorded changes in CEO made for the following reasons: (1) change of job, (2) retirement, (3) contract expiration, (4) change in controlling shareholder, (5) resignation, (6) dismissal, (7) health, (8) personal reasons, (9) corporate governance reform, (10) legal disputes, (11) no reason given, and (12) completion of acting duties. Table 2 summarizes the distribution of the reasons for turnover for the total and consolidated samples. Change of job appears to be the most common reason for CEO turnover, accounting for 427 (or 29.69% respectively) of the consolidated sample. Change due to contract expiration follows in second place with 319 turnover instances, or 22.18%, and turnover due to resignation is ranked third with 265 or 18.43%.

*[Insert table 2 about here]*

Assessments of shareholder motives for CEO turnover decisions hinge on the adequate identification of instances of forced CEO turnover. Forced turnover is naturally hard to distinguish from non-forced turnover due to pronounced information asymmetry (Denis and Denis; 1995; Huson et al., 2004), and the classification system provided by CCGRD suffers from a similar problem. A change of job, for instance, may actually be

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<sup>5</sup> Denis and Denis (1995) report a turnover rate of 12.7% for the U.S. stock market. A more recent study by Huson et al. (2004) reports a lower turnover rate of 9.3%. Turnover rates for the Japanese stock market are comparable (Kang and Shivdasani, 1995).

the result of a forced turnover. Inferences on the true nature of a job change therefore need to be built on additional information. A reliable indicator is the change in position experienced by the outgoing CEO. If the post-turnover position held by a CEO is less attractive in terms of salary, status, and authority than the previously held position, then the job change turnover is likely to have been involuntary.

Our identification strategy for forced turnover proceeds as follows. First, we exclude all turnover cases that are due to retirement, health (including death), corporate governance reform, and a change in controlling shareholder.<sup>6</sup> As the focal point of our study is the corporate monitoring of state shareholders, we also exclude those cases of turnover resulting from legal lawsuit, as such suits are not initiated by state shareholders as part of their normal monitoring activities. These exclusions leave us with 1178 turnover cases with an unclear motivation. For these cases we retrieve additional information on the post-turnover position taken up by the outgoing CEO to partition them into the categories of “voluntary” and “forced.” We use multiple data sources to maximize the data availability and reliability, employing information from the annual reports of the firms, Infobank’s China Economic News Database, Infobank’s China Listed Firms Database, China’s Listed Firms Database (<http://www.sina.com.cn>), and online material retrieved through the internet search engine Baidu (<http://www.baidu.com>). We define as voluntary all instances of turnover where the status of the CEO’s post-turnover position is comparable or higher than the original position held, and label as forced turnover all cases where the status of the post-turnover position is significantly lower than the previously held position.

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<sup>6</sup> The exclusion of CEO changes following corporate governance reform is consistent, as departing CEOs are typically recruited as chairpersons of the board of directors or move on to key management positions in the parent firm.

*[Insert table 3 about here]*

Table 3 summarizes the results of our sorting strategy. Out of 1178 unclear turnover cases we identify 665 that can be classified as voluntary. These include 17 cases where the CEO took over a high-ranking government position at the municipal or provincial leadership level, 225 cases where the CEO retained the position of Board chair or vice-chair, 197 cases where the CEO was promoted to the position of board-chair or vice-chair, and 150 cases where the post-turnover position was a comparable management position in another listed company or within the firm's parent company. In 10 cases turnover was due to health reasons (these cases are additional to those officially registered by CCGRD in this category), in 34 cases turnover was associated with a change in controlling shareholder, in 24 cases it was due to legal investigations or criminal conviction, and in 8 cases the CEO left the position to enroll in an educational program outside of China.

The remaining 513 cases are categorized as forced turnover. In 198 cases, the post-turnover positions of the CEOs carried a weaker authority and status, in 27 cases the CEOs were employed by small-scale, non-listed firms, and in 288 cases no post-turnover position could be traced before the end of the observation period. Given our comprehensive search strategy, this lack of traceable information indicates that a CEO's post-turnover career ceases to be of interest to the business media, and therefore the new position is likely to be connected with a decline in post-turnover status and authority.

From the 513 cases classified as forced changes, we exclude 62 cases with less than one year of CEO tenure, as it is unlikely that such turnover decisions would be due to performance assessments. Further, we transfer 19 cases involving retirement as the

official turnover reason from the category of voluntary turnover to forced turnover, because the CEO's age was less than China's official retirement age of 55 years. In total, our sample of 1555 instances of CEO turnover includes 470 or 30.23% instances of forced turnover.<sup>7</sup>

### 3.1 Estimation models

We apply the following Probit regression model to estimate the extent to which CEO turnover is sensitive to the profit and sales motives of state shareholders.

$$\text{Probability (forced CEO turnover)} = f(\text{performance, control variables}). \quad (1)$$

Our dependent variable is a binary variable that equals 1 if there was an instance of forced turnover in a given period. Rather than using the common measure of *ROA* as a measure of profitability, we use two performance measures to capture whether CEO turnover is sensitive to the profit motive or the sales motive. The first is the industry-adjusted profit margin (*PM*) of the core business, which is defined as profit over sales minus the corresponding ratio of the industry and is used to capture the profit motive. *PM* is a measure of the effectiveness of cost control, and is particularly useful for capturing the profit motive because state-controlled firms tend to operate at a higher cost.<sup>8</sup>

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<sup>7</sup> Comparable figures in more advanced stock markets are considerably lower, at less than 20% in the United States [Denis and Denis (1995) report 13.3%; Huson et al. (2004) report 18%] and 24% in Japan (Kang and Shivdasani, 1995).

<sup>8</sup> Kato and Long (2006) use *PM* as a measure of financial performance, but only estimate a negative relationship between *PM* and managerial turnover if they exclude control variables for private and state ownership. If ownership and some corresponding interaction terms are included, then the negative relation between *PM* and turnover disappears. As this study estimates the performance-turnover links for both state-owned and privately owned firms in a single regression, rather than separately in different regressions, the estimation results are likely to suffer from specification errors given that state and private firms tend to have distinctly different incentive structures. Furthermore, this study uses *PM* and other sales measures as alternative measures of firm performance and does not include them simultaneously, and thus does not examine the relative importance of sales and profits in determining managerial turnover.

We also use the industry-adjusted asset turnover (*AT*), which is defined as sales over assets minus the corresponding ratio of the industry, to capture the sales motive. *AT* is a traditional financial ratio that measures the ability of the management to efficiently employ assets to generate sales (Singh and Davidson, 2003). A decline in asset turnover or a generally low asset turnover rate compared with the industry average indicates that the management of the firm is not generating sufficient sales to justify its asset size. We believe that *AT* is a relevant measure used by state shareholders in China to evaluate their CEOs' sales performance. Given the Chinese government's emphasis on the increase and preservation of the value of state assets, state shareholders are likely to benchmark the sales performance of their CEOs on the basis of assets that they can utilize. From the government's perspective, the under-utilization of state assets in generating sales is likely to be regarded as inefficient management of the state's assets. We therefore expect forced turnover to be negatively related to *AT* if sales performance matters for state shareholders.

We introduce a set of control variables to separate out possible confounding influences. First, we introduce three variables to capture individual features of the departing CEO. We control for the CEO's age (*Age*) and tenure (*Tenure*), as older CEOs and CEOs with a longer tenure seem to be more frequently subject to forced turnover (Kang and Shivdasani, 1995). We also control whether CEOs are concurrently also holding the position of board chair (*Duality*), as a more powerful CEO is naturally in a better position to resist the threat of dismissal. Further, we control for several firm characteristics. We control for the number of years a firm has been listed on the stock exchange (*Years*), as a longer listing may be correlated with greater shareholder

monitoring. Firm size, as measured by the natural logarithm of the book value of total firm assets (*Size*), is included because managers seem to be more entrenched in larger firms (Dalton and Kesner, 1983). As debtors may attract additional management monitoring (Jensen, 1986), we also include the capital structure as measured by the book value of debt over the total book value of assets (*DAR*). Finally, we include a dummy variable to indicate the year of CEO turnover to control for business cycle effects. Appendix A provides a summary of all variables used in different model specifications.

There is naturally a certain time lag in turnover decisions, and thus except for the variables associated with the personal qualities of CEOs, we use the previous year's measures if a CEO change occurs in the first six months of a given year. If the turnover date falls in the second half of the year, we include measures for the current year. This procedure is in line with Huson et al. (2001) and aims to alleviate potential endogeneity problems. The use of half-year lags also suits the rather short average period of CEO tenure in listed firms in China of only 2.8 years.

## **4. Empirical results**

### *4.1. Sample selection and descriptive statistics*

There are a total of 5555 firm-year observations in the period from 1999 to 2003 after excluding those that involve firms listed only in the B-share market and firms in the finance industry.<sup>9</sup> We also exclude firm-year observations that involve firms with negative equity and that involve firms listed for less than six months. Our *ROA*, *DAR*, *PM*, and *AT* data have some extreme values, and we therefore winsorize these variables at the

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<sup>9</sup> The B-share market was originally reserved for foreign investors, but was opened up to individual domestic investors in February 2001.

1% level. After further eliminating observations with missing values in the variables included in our regression analysis, our final sample includes 3815 firm-year observations.

We obtain data on the ownership identity of the controlling shareholder from the Ultimate Ownership of Listed Chinese Firms Dataset provided by Sinofin. To ensure that our information is accurate, we also crosscheck these data with information provided by the WIND Information Co.

Panel A of Table 4 shows the summary statistics for the variables used in the subsequent analyses. Our sample firms have on average been listed for 4.97 years, and the average age and length of tenure of the managers are 46.43 and 2.75 years, respectively. Overall, we have 3110 firm-year observations (81.5%) where the state is in the position of the controlling shareholder and 705 firm-year observations (18.5%) where private shareholders are in a controlling position. Duality is not a common feature, with only 15.4% of CEOs also serving as board chair.

Panel B of Table 4 presents some univariate analyses of state and private firms for our two performance measures. Consistent with our hypothesis on the weak profit motive of state shareholders, the PM of state-controlled firms (mean = 0.007) is significantly lower than that of private firms (mean = 0.043). Additionally, the AT of state-controlled firms (mean = 0.087) is substantially higher than that of private firms (mean = 0.006), which indicates a relatively strong sales motive among state shareholders. Similar results are obtained when median tests are used.

[Insert Table 4 about here]

## 4.2 Regression results for the baseline models

Two estimation issues are worth noting before we discuss our results. First, there is a potential lack of independence across observations for a given CEO because of the existence of certain unobservable person-specific factors. We therefore estimate the model using the Huber/White/sandwich robust method with adjustment for within-cluster correlation for each CEO (Wooldridge, 2002)<sup>10</sup>. Second, we conduct a Pearson correlation test and find that all of the correlations among the variables included in our models are lower than 0.5. We also calculate the variance inflation factors (VIF) for each independent variable. The VIFs never exceed 3, which suggests, that our models are not plagued by serious multicollinearity problems.

Table 5 reports our estimates of the sensitivity of turnover to *PM* and *AT* for state-controlled and private firms, respectively. To illustrate the importance of decomposing the profit and sales motives, we also report the results using the ratio of profit from the core business over total assets (*ROA*) as an alternative explanatory variable. For state-owned firms, the coefficient for *ROA* is negative and significant at 5%, but the breakdown of *ROA* into *PM* and *AT* indicates that the negative coefficient for *PM* is not statistically significant at conventional levels, while only the coefficient for *AT* is significant at 10%. This is consistent with our hypothesis that state shareholders rely more on sales performance than firm profitability in monitoring their CEOs. For the private firm sample, the coefficients for *PM*, and *AT* are significantly negative at 5%, which suggests that CEO turnover in private firms is sensitive to both profitability and sales performance.

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<sup>10</sup> Consistent results are obtained if we adjust for within-cluster correlation for each firm.

Our control variables behave broadly as expected. Similar to the results obtained in previous studies, the coefficients of *Age* are significantly positive and the coefficients of *Tenure* are significantly negative, indicating that the probability of forced turnover is lower for younger CEOs and for those with a longer tenure. The coefficient for a combined CEO and board chair position (*Duality*) is significantly negative, suggesting that the duality structure undermines CEO monitoring and reduces the possibility of forced turnover instances in state-controlled firms.

[Insert table 5 about here]

#### 4.3 Additional Tests

Our baseline models show that CEO turnover in China's state-owned listed firms is sensitive to sales performance measures but not to the profit margin of the core business. These results are consistent with our hypotheses on the weak profit motive but strong sales incentive of state shareholders. In this section, we conduct two tests to provide additional evidence of the underlying monitoring motive of state shareholders.

In the first test, we examine the post-turnover performance changes. Performance changes after a change in CEO can provide information on the monitoring incentive of state shareholders because post-turnover performance will be affected by how the new CEO is selected and monitored (Chang and Wong, 2008). If sales performance rather than profitability is the major cause of managerial turnover, then the new manager is more likely to be selected and monitored on the basis of *AT* rather than *PM*. This, in turn, means that a post-turnover increase in *AT* is more likely than an increase in *PM*.

We follow Huson et al. (2004) for our post-turnover analysis and use a control group to isolate the component of performance change that is attributable to the mean

reversion of accounting performance. The timing of performance comparisons is a crucial issue, as both outgoing and incoming CEOs have an incentive to manage company accounts. Outgoing managers tend to over-report company performance in an effort to secure their jobs, whereas incoming managers may under-report company performance to facilitate chances to “realize” performance increases in the following years. To mitigate problems stemming from account management, we construct two control groups. For one group we use the performance reported in the turnover year (year 0) and for the other group we use the performance reported in the year before the turnover event (year -1).

We construct the control groups as follows. We first match each firm that experienced a change of CEO in a given year with a firm in the same industry with a similar recorded firm performance (both PM and AT) (+ / - 20% of the sample firm’s performance) in the corresponding year but that did not undergo a change in CEO in the event year or the three preceding years. If multiple firms fulfill these conditions, then we choose the firm with an asset size that is closest to that of the sample firm. If there are no firms from the same industry with a performance level within the specified band, then we loosen our restrictions and match our sample firm with a firm with similar performance but in a different industry. In total, our control group includes 325 (319) firms that match in terms of both industry and performance in year 0 (and year -1) and add 80 (78) firms that only match the sample firms in terms of performance in year 0 (year -1). Finally we exclude 31 (39) firms from our sample because we are not able to identify any firms that match their performance.

Table 6 presents the median post-turnover performance changes for the samples of state-owned and private firms. The table reports only the results when year 0 is used as

reference, as we obtain consistent results for year 0 and year -1 as the comparison benchmark. Panel A reports the performance changes for state-owned firms. There is a significant decline in the unadjusted profit margin of the core business in all years, but no significant change in the industry-adjusted profit margin, control group adjusted profit margin (measured as PM minus the median of the corresponding ratio in the control group), or the industry and control group adjusted profit margin. However, there are significant increases in the unadjusted asset turnover and industry-adjusted asset turnover in the three years following a CEO change. Significant positive changes in control group adjusted asset turnover and industry and control group adjusted asset turnover can also be observed in all years except for year 3, in which the changes are still positive but not statistically significant. Overall, the results indicate a significant improvement in asset turnover but no significant improvement in profit margin in the post-turnover years among state-controlled firms. The results are consistent with our regression results, which suggest that sales performance carries more weight than profitability when state shareholders monitor their CEOs.

Panel B reports the performance changes for private firms. The control group adjusted profit margin and the industry and control group adjusted profit margin are positive and statistically significant at the 10% level except for year 1, which indicates that the control-group adjusted profit margin improved for these firms. The changes in unadjusted asset turnover are positive and statistically significant at the 5% level except for year 1. There are no significant changes in the industry-adjusted, control group adjusted, and industry and control group adjusted asset turnover.

[Insert table 6 about here]

The second test aims to examine whether the emphasis of shareholders on sales performance is related to their desire to obtain more resources to serve their political and personal objectives. We construct two variables to capture the importance of political and personal interests. First, we respond to the general notion that governments have a key interest in controlling excess labor, partly in response to voter and interest group pressure (Shleifer and Vishny, 1994; Bennedsen, 2000), by including a dummy variable to indicate whether there is any over-employment in a firm (*Over*). To identify the phenomenon of over-employment, we use three outcome variables that capture a firm's employment situation: the total number of employees, the ratio between the total number of employees and the book value of total assets, and the ratio of the number of employees to the main operating income. Further, we assume that a firm's normal labor demand is determined by firm size, capital intensity, firm growth, industry (controlling for different technology and production characteristics), and year (controlling for macroeconomic variations). We then employ three median regressions to estimate the supposed normal employment conditions for our three outcome variables and compare them with real employment conditions.<sup>11</sup> We regard over-employment as robustly confirmed for observations where all three median regressions produce positive residuals. Based on these findings we construct a binary variable *over* that equals 1 if a firm has over-employment and 0 otherwise. This variable is used to capture the need to obtain resources to support over-employment. Second, we introduce a second binary variable to indicate

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<sup>11</sup> We use median regressions to remove the confounding effects of outliers. Consistent results are obtained if we estimate the normal employment conditions by using other quantiles such as the 60<sup>th</sup> and the 70<sup>th</sup> quantile.

whether a firm's administration fee over the book value of total sales is larger than the year-industry adjusted median value (*Fee*). This variable is used to capture bureaucratic slack, which often signals the extent of firm consumption (Ang et al., 2000; Singh and Davidson III, 2003). We include these two dummy variables and their interaction terms with AT to capture the effects of political and personal interests on the sensitivity of turnover to sales performance. Table 7 reports the results.

[Insert Table 7]

Consistent with our expectation, the negative relationship between turnover and AT is stronger for firms with excessive employment and higher organizational slack. When interaction effects are included, AT also loses its independent effect on forced turnover.<sup>12</sup> Overall, the findings suggest that the emphasis of state shareholders on AT is at least partly driven by political and personal interests.

#### 4.4 Robustness Checks

We explore the robustness of our findings in several dimensions. In our baseline models, we have chosen AT as a measure of sales performance. However, if our assumption is correct that the sales motive of state shareholders is closely connected with the state's interest in controlling large resource pools, then CEO monitoring should also

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<sup>12</sup> As Powers (2005) discusses, interpreting the interaction terms in logit models can be problematic because of model non-linearity. We follow McNeil et al. (2004) in using the delta method to check the statistical significance of the predicted turnover probability and its sensitivity with respect to a change in AT. By assuming that all of the other variables are equal to the median values of each sample, we calculate the predicted probabilities and derivatives at the 25<sup>th</sup>, 50<sup>th</sup>, and 75<sup>th</sup> percentiles of AT for firms with different statuses of excessive employment and organizational slack. For the state-controlled sample, we find that the differences in the predicted performance-AT sensitivity between firms with and without an over-employment problem (firms with a high or low organizational slack) are all statistically significant at least at the 10% level. For the private sample, none of the interaction effects is significant regardless of which performance variable is used.

be sensitive to other sales-related measures. To ensure that evidence of the sales motive is robust to alternative measures of sales performance we also use sales growth (*GROW*) to capture the sales motive.<sup>13</sup> Compared with AT, annual sales growth has two limitations. First, it is closely related to changes in asset size in the corresponding year, and we therefore add the change in asset size as an additional control variable (*Asset\_change*). Second, annual sales growth often displays a great deal of variability. We employ two measures to deal with this problem. First, we further restrict our sample by excluding the upper and lower 5% of the observations. The resulting new sample for the regression using annual sales growth as performance measure has a total of 3312 observations. We construct the three-year moving average sales growth rate (*MGROW*) as an alternative measure of sales growth performance, as this smoothes out annual fluctuations in sales growth and also allows us to explore whether CEO turnover is more sensitive to average than to annual sales performance. The results using the two sales growth performance measures are consistent with those obtained from our baseline model. As shown in Table 8, we estimate a significant relationship between turnover and annual sales growth rate at the 10% level, and the relationship between turnover and average sales growth rate is significant at the 5% level. This indicates that turnover is more sensitive to the average growth rate than the annual growth rate. When the sales growth variables are included, PM is insignificant in all cases. Overall, our results provide robust support for a strong sales motive but weak profit motive among state shareholders.

[Insert table 8 about here]

Another concern that could be raised is that CEOs operating in state-controlled industries may have potentially only limited managerial tools to actually affect firm

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<sup>13</sup> We follow Firth et al. (2006) in using  $\ln(\text{sales}/\text{sales}(t-1))$  as the measure of annual sales growth.

profitability (for instance due to persisting price regulations). Under this circumstance, reliance on AT rather than PM may not signal a stronger sales motive but may rather be a convenience-driven choice for CEO monitoring in state-controlled industries. To address this possible confounding effect, we partition our sample firms into those that operate in a state-controlled industry and those that operate in a liberalized industry. In line with the transition literature (EBRD; Brada, 1996), we use the percentage of private employment in different industries as the basis for the classification of liberalized industries.

Accordingly, an industry is classified as liberalized if the share of private employment in that industry is above the countrywide median value for private employment. By following this classification, we place 720 firm-year observations into a state-controlled industry sub-sample and 3095 firm-year observations into a liberalized industry sub-sample. We re-estimate our baseline model for the two types of firms and report the results in Table 9. For firms operating in liberalized industries, there is still a significant negative relationship between turnover and AT but no relationship between turnover and PM. This suggests that the insensitivity of turnover to PM is not simply a response to weakly liberalized firm operations. However, there is neither a significant relationship between turnover and AT nor between turnover and PM in state-controlled industries, which is consistent with our expectation that CEOs are unlikely to be evaluated on the basis of financial performance in weakly liberalized industries.

[Insert table 9 about here]

We explore the reliability of our chosen performance measures. CEOs may be evaluated by their average performance rather than fluctuations in annual performance,

and we therefore follow Chang and Wong (2008) in using a three-year moving average of PM (MPM) and a three-year moving average of AT (MAT) over a CEO's tenure as alternative measures of CEO performance. Consistently, we find a negative relationship between turnover and MAT but no such relationship between turnover and MPM.

We also respond to concerns that our results could also be caused by heterogeneity in the broader institutional environment, as China's transition economy is characterized by pronounced variability in the extent and scope of its marketization. To rule out unobserved variable bias due to institutional heterogeneity, we control for the degree of provincial-level market development by using the National Economic Research Institute of China (NERI) marketization index (Fan and Wong, 2006). The composite index covers the fields of government and market relations, development of the non-state economy, development of the product market, development of the factor markets, and the legal environment. The index values range from 1 to 10, with 10 indicating the highest level of marketization. Our results are not only confirmed with the inclusion of the comprehensive overall marketization index, but also hold with the inclusion of specialized marketization sub-indices that focus on private sector development, legal quality, and firm-government relations.<sup>14</sup>

Different industries tend to have different PM and AT values due to the specific conditions within which they operate. In our baseline models, we use industry-adjusted performance measures to filter out some of these industry effects. Nevertheless, to further ensure that our results are not driven by industry effects, we include a set of industry dummy variables into our models, but the findings remain unaltered.

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<sup>14</sup> For brevity, the results of the remaining robustness checks are not reported. The regression results are available upon request from the corresponding author.

Finally, we check the sensitivity of the results to our classification of turnover instances. First, we use both 60 and then 65 years of age as the benchmark for the classification of forced retirement, and then include turnover instances that are associated with legal disputes in the forced turnover category, but obtain consistent results.<sup>15</sup>

## **5. Discussion and conclusion**

Previous studies have confirmed that managerial turnover in state-controlled firms is responsive to various financial performance measures, including profitability as measured by ROA and certain sales-related measures. These findings seemingly contradict the common notion that a weak profit motive guides and shapes state shareholder behavior. These earlier studies, however, do not explicitly incorporate the multiplicity of state shareholder objectives nor examine their relative importance. Based on the common notion that state shareholders tend to have a weak profit motive but a strong sales motive, we distinguish between the two objectives and estimate their relative impact on CEO turnover in a sample of listed firms in China.

We obtain three main results. First, CEO turnover is negatively related to the sales performance but not the profitability of the core business. Second, further tests on the interaction effects confirm that the sensitivity of CEO turnover to sales is stronger for firms with over-employment and excessive administrative expenses. This suggests that it is not that state shareholders treat sales maximization as a tool or means of efficient management, but rather that a greater sales volume helps to realize social and political objectives such as personal rent-seeking behavior and the provision of excess employment. Third, there is a significant post-turnover increase in sales performance but

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<sup>15</sup> The estimation results are available upon request from the authors.

a decline in profitability of the core business. Overall, our study suggests that CEO monitoring is guided by the interest of state shareholders in maximizing sales rather than profitability.

From a broader perspective, our study contributes to the literature on the corporate governance of partially privatized firms. Our results indicate that CEO turnover, as one of the key mechanisms of corporate control, differs profoundly between state-controlled and privately controlled firms. In particular, profit motive plays an insignificant role in state shareholder monitoring, whereas the preference for large sales and big resource pools (Alchian, 1965; Niskanen, 1971; Buchanan et al., 1980; Kornai, 1992), as exemplified by sales maximization, is a crucial determinant. Our evidence from listed firms in China suggests that corporatization and public listing may be insufficient devices to turn state-owned firms into profit-oriented entities.

In an era of the global revitalization of state shareholdings, our results may have critical implications for private investors in corporatized state-owned firms. We hope to inspire further research that aims to achieve a better understanding of the specific monitoring incentives of state shareholders in corporatized state-controlled firms. However, before prematurely generalizing our results, we advocate caution on two counts. First, our evidence is obtained from listed public firms in China only, and further evidence both from developing and developed economies is needed to rule out the impact of country-specific cultural or political effects that might influence state shareholder behavior. Second, as we have no knowledge of the specific social welfare functions, our results cannot be used to make inferences or possible judgments on overall welfare effects. Theoretically, the dominance of the sales motive could yield positive short-term

welfare effects if local employment rates and wage levels were taken into account.

Nevertheless, our results suggest that such potentially positive social effects would be partly financed by lower firm profitability.

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Table 1  
Annual CEO Turnover Rate in Listed Companies in China: 1999-2003

	1999	2000	2001	2002	2003	1995-2003
Number of listed companies	918	1054	1136	1192	1255	5555
Total number of CEO changes	273	332	314	310	326	1555
Annual turnover rate (%)	29.74	31.5	27.64	26.01	25.98	27.99
Number of CEO changes after consolidation	254	303	284	293	304	1438
Annual turnover rate after consolidation (%)	27.67	28.75	25	24.58	24.22	25.89

Table 2

## Stated Reasons for CEO Turnover in Listed Companies in China

	Full Sample		Consolidated Sample	
	Number	Percentage of Sample (%)	Number	Percentage of Sample (%)
1. Change of job	464	29.84	427	29.69
2. Retirement	31	1.99	30	2.09
3. Contract expiration	327	21.03	319	22.18
4. Change in controlling shareholder	43	2.77	43	2.99
5. Resignation	298	19.16	265	18.43
6. Dismissal	65	4.18	53	3.69
7. Health	49	3.15	45	3.13
8. Personal reasons	11	0.71	9	0.63
9. Corporate governance reform	146	9.39	137	9.53
10. Legal disputes	5	0.32	5	0.35
11. No reason given	103	6.62	93	6.47
12. Completion of acting duties	13	0.84	12	0.83
Total number of observations	1555	100	1438	100

Table 3

## Destination of Departing CEOs

Destination	No. of observations	Percentage of sample (%)
<i>Voluntary turnover</i>		
1. CEO position taken up at another listed company or within the parent company	150	13.11
2. Promoted to board chair or vice-chair	197	17.22
3. Important government position taken up	17	1.49
4. Health problems	10	0.87
5. Remaining as board chair or vice-chair	225	19.67
6. Arrested or under investigation	24	2.10
7. Going abroad to study	8	0.70
8. Change in controlling shareholder	34	2.90
<i>Non-voluntary turnover</i>		
9. Information unavailable	288	25.17
10. New position lower than CEO position	198	17.31
11. CEO position taken up at another unlisted and small company	27	2.36
Total	1178	100

Table 4

## Summary Statistics and Univariate Tests

*Panel A: Summary Statistics for the Key Variables*

Variables	Number	Mean	Median	Standard Deviation	Minimum	Maximum
Years	3815	4.973	5	2.324	1	12
Age	3815	46.434	46	7.280	26	70
Tenure	3815	2.754	2.5	1.615	0	12
Duality	3815	0.154	0	0.361	0	1
DAR	3815	-0.003	-0.001	0.159	-0.516	0.535
Size	3815	21.033	20.977	0.841	17.917	26.632
Private	3815	0.185	0	0.388	0	1
ROA	3815	0.105	0.098	0.057	-0.065	0.329
PM	3815	0.013	0.000	0.126	-0.545	0.569
AT	3815	0.072	0.001	0.302	-0.761	1.689

*Panel B: Univariate Tests for the Performance Measures*

Performance measures without industry adjustment						
	Mean test			Median test		
	State-owned sample	Private sample	P value	State-owned sample	Private sample	P value
Asset Turnover	0.532	0.442	0	0.442	0.370	0
Profit Margin	0.237	0.267	0	0.212	0.247	0
Performance measures with industry adjustment						
	Mean test			Median test		
	State-owned sample	Private sample	P value	State-owned sample	Private sample	P value
Asset Turnover	0.087	0.006	0	0.014	-0.049	0
Profit Margin	0.007	0.043	0	-0.004	0.027	0

Table 5

Probit Regression Estimation of the Turnover-Performance Links in  
Listed Companies in China

	State-owned sample		Private sample	
	(1)	(2)	(3)	(4)
Years	0.022 (0.016)	0.021 (0.016)	0.036 (0.028)	0.037 (0.029)
Age	0.019** (0.005)	0.019*** (0.005)	0.029*** (0.009)	0.029*** (0.009)
Tenure	-0.237*** (0.030)	-0.236*** (0.030)	-0.190*** (0.058)	-0.193*** (0.058)
Duality	-0.446** (0.132)	-0.455*** (0.131)	-0.466** (0.214)	-0.465** (0.212)
DAR	-0.040 (0.221)	0.017 (0.226)	0.605 (0.405)	0.580 (0.412)
Size	-0.145** (0.045)	-0.141*** (0.045)	-0.147* (0.083)	-0.147* (0.083)
ROA	-1.890** (0.694)		-2.361* (1.420)	
PM		-0.301 (0.329)		-1.080** (0.476)
AT		-0.264* (0.141)		-0.498** (0.237)
Constant	0.938 (0.933)	0.869 (0.937)	0.64 (1.713)	0.649 (1.726)
Observations	3110	3110	705	705
Pseudo R-squared	0.078	0.075	0.093	0.098

Notes: Robust standard errors are reported in parentheses; \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Table 6  
Changes in Post-turnover Performance in Listed Firms in China

Panel A: State-owned Sample					Panel B: Private Sample				
	Unadjusted PM	Industry adjusted PM	Control group adjusted PM	Both industry and control group adjusted PM		Unadjusted PM	Industry adjusted PM	Control group adjusted PM	Both industry and control group adjusted PM
(+1, 0)	-0.011	0.004	0.000	0.000	(+1, 0)	0.009	0.022	0.010	0.014
p_value	0.005	0.962	0.945	0.987	p_value	0.927	0.117	0.189	0.201
(+2, 0)	-0.025	-0.007	0.000	-0.003	(+2, 0)	-0.012	0.008	0.029	0.028
p_value	0.000	0.373	0.640	0.711	p_value	0.148	0.504	0.096	0.090
(+3, 0)	-0.025	-0.010	0.004	0.002	(+3, 0)	-0.014	0.018	0.009	0.016
p_value	0.000	0.935	0.425	0.350	p_value	0.262	0.098	0.088	0.090
	Unadjusted AT	Industry adjusted AT	Control group adjusted AT	Both industry and control group adjusted AT		Unadjusted AT	Industry adjusted AT	Control group adjusted AT	Both industry and control group adjusted AT
(+1, 0)	0.045	0.032	0.014	0.024	(+1, 0)	0.015	-0.007	0.017	0.012
p_value	0.000	0.003	0.040	0.039	p_value	0.225	0.923	0.192	0.141
(+2, 0)	0.071	0.036	0.018	0.023	(+2, 0)	0.021	0.001	0.000	0.003
p_value	0.000	0.000	0.099	0.071	p_value	0.036	0.632	0.305	0.256
(+3, 0)	0.095	0.035	0.014	0.019	(+3, 0)	0.032	-0.012	-0.010	-0.027
p_value	0.000	0.001	0.477	0.386	p_value	0.011	0.748	0.486	0.299

Table 7

## Probit Regression Estimation with Interaction Effects

	State-owned Sample			Private sample		
	(1)	(2)	(3)	(4)	(5)	(6)
Years	0.027* (0.016)	0.028* (0.016)	0.028* (0.016)	0.042 (0.029)	0.042 (0.029)	0.042 (0.029)
Age	0.019*** (0.005)	0.019*** (0.005)	0.019** (0.005)	0.029*** (0.009)	0.029*** (0.009)	0.029*** (0.009)
Tenure	-0.238*** (0.030)	-0.240*** (0.030)	-0.239** (0.030)	-0.190*** (0.058)	-0.189*** (0.058)	-0.189*** (0.058)
Duality	-0.448*** (0.131)	-0.450*** (0.132)	-0.449** (0.131)	-0.476** (0.212)	-0.477** (0.212)	-0.477** (0.212)
DAR	0.101 (0.231)	0.106 (0.231)	0.096 (0.231)	0.590 (0.409)	0.589 (0.410)	0.588 (0.409)
Size	-0.155*** (0.047)	-0.155*** (0.047)	-0.153** (0.047)	-0.186** (0.086)	-0.186** (0.086)	-0.185** (0.086)
PM	-0.235 (0.341)	-0.203 (0.337)	-0.197 (0.338)	-1.034** (0.493)	-1.041** (0.490)	-1.040** (0.491)
AT	-0.088 (0.162)	0.092 (0.183)	0.186 (0.194)	-0.383 (0.270)	-0.458 (0.308)	-0.455 (0.327)
Over	-0.047 (0.076)	-0.082 (0.075)	-0.062 (0.077)	0.021 (0.145)	0.020 (0.145)	0.020 (0.145)
Fee	-0.123 (0.078)	-0.084 (0.077)	-0.090 (0.078)	-0.223 (0.146)	-0.224 (0.146)	-0.223 (0.146)
Over*AT	-0.630** (0.303)		-0.559* (0.316)	0.002 (0.469)		-0.014 (0.472)
Fee*AT		-0.629** (0.260)	-0.579** (0.259)		0.165 (0.431)	0.166 (0.434)
Constant	1.191 (0.976)	1.220 (0.969)	1.169 (0.977)	1.525 (1.781)	1.524 (1.780)	1.518 (1.780)
Observations	3110	3110	3110	705	705	705
Pseudo R-squared	0.080	0.081	0.083	0.103	0.103	0.103

Notes: Robust standard errors are reported in parentheses; \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Table 8

## Probit Regression Estimation with Alternative Measures of Sales Performance

	Annual sales growth		Average sales growth		
	State-owned sample	Private sample	State-owned sample	Private sample	
	(1)	(2)	(3)	(4)	
Years	0.003 (0.018)	0.032 (0.037)	Years	0.006 (0.018)	0.020 (0.036)
Age	0.022*** (0.006)	0.020* (0.011)	Age	0.022*** (0.006)	0.024** (0.010)
Tenure	-0.256*** (0.030)	-0.187*** (0.069)	Tenure	-0.260*** (0.030)	-0.213*** (0.068)
Duality	-0.588*** (0.154)	-0.659** (0.271)	Duality	-0.506*** (0.147)	-0.556** (0.256)
DAR	0.239 (0.234)	0.157 (0.454)	DAR	0.232 (0.230)	0.260 (0.430)
Size	-0.156*** (0.050)	-0.333*** (0.099)	Size	-0.158*** (0.049)	-0.290*** (0.095)
Asset_change	-0.235 (0.247)	0.490 (0.409)	Asset_change	-0.151 (0.242)	0.209 (0.399)
PM	-0.475 (0.337)	-1.512*** (0.537)	PM	-0.227 (0.334)	-1.256** (0.508)
GROW	-0.301* (0.174)	0.204 (0.270)	MGROW	-0.511** (0.221)	0.505 (0.371)
Constant	1.178 (1.015)	4.910** (2.093)	Constant	1.261 (1.008)	3.944** (1.986)
Observations	2721	591	Observations	2721	591
Pseudo R-squared	0.096	0.122	Pseudo R-squared	0.095	0.114

Notes: Robust standard errors are reported in parentheses; \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Table 9

## Probit Regression for State-controlled and Liberalized Industries

	Liberalized industries		State-controlled industries	
	State-owned sample	Private sample	State-owned sample	Private sample
	(1)	(2)	(3)	(4)
Years	0.019 (0.018)	0.059* (0.032)	0.026 (0.038)	-0.071 (0.069)
Age	0.016*** (0.005)	0.029*** (0.010)	0.039*** (0.014)	0.028 (0.023)
Tenure	-0.212*** (0.032)	-0.196*** (0.062)	-0.391*** (0.063)	-0.223 (0.155)
Duality	-0.478*** (0.144)	-0.490** (0.236)	-0.352 (0.333)	-0.384 (0.426)
DAR	-0.041 (0.248)	0.304 (0.469)	0.214 (0.556)	1.696* (1.013)
Size	-0.114** (0.050)	-0.201** (0.098)	-0.304** (0.129)	0.245 (0.165)
PM	-0.351 (0.373)	-1.037* (0.538)	-0.291 (0.770)	-0.428 (1.348)
AT	-0.273* (0.146)	-0.511* (0.264)	-0.491 (0.483)	-0.168 (0.555)
Constant	0.397 (1.029)	1.479 (2.012)	3.582 (2.682)	-6.292* (3.667)
Observations	2538	557	572	148
Pseudo R-squared	0.065	0.107	0.157	0.167

Notes: Robust standard errors are reported in parentheses; \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

## Appendix A: Definitions of variables

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Variable	Definition
Force	A binary variable that equals 1 if there was an instance of forced turnover in a given period.
Years	The number of years a firm has been listed on the stock exchange.
Age	The CEO's age
Tenure	The CEO's tenure
Duality	A dummy variable that equals 1 if a CEO is concurrently also holding the position of board chair
DAR	Capital structure as measured by the book value of debt over the total book value of assets.
Size	Firm size, as measured by the natural logarithm of the book value of total firm assets.
Private	A dummy variable that equals 1 if the private is in the position of the controlling shareholder
ROA	The ratio of profit from the core business over total assets
PM	The industry-adjusted profit margin of the core business, which is defined as profit over sales minus the corresponding ratio of the industry.
AT	Industry-adjusted asset turnover, which is defined as sales over assets minus the corresponding ratio of the industry.
Over	A dummy variable to indicate whether there is any over-employment in a firm, which equals 1 if a firm has over-employment and 0 otherwise.
Fee	A binary variable to indicate whether a firm's administration fee over the book value of total sales is larger than the year-industry adjusted median value
Over*AT	The interaction term of variable OVER and AT
Fee*AT	The interaction term of variable FEE and AT
Asset_change	Changes in asset size in the corresponding year
GROW	We follow Firth et al. (2006) in using $\ln(\text{sales}/\text{sales}(t-1))$ as the measure of annual sales growth.
MGROW	Three-year moving average sales growth rate.

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