

**Ownership Structure and Tax Avoidance:
Evidence from Agency Costs of State Ownership in China**

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Current Version : 11/10/2014

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We thank Jeff Cohen, Carol Ann Frost, Pingyang Gao, Feng Gu, Alison Koester, Zining Li, Weihong Xu, and participants at Boston University, Georgetown, INSEAD, Peking University, Renmin University of China, Southern Methodist University, SUNY at Buffalo, the AAA 2012 Annual Conference, the 2012 Tel Aviv University Accounting Research Conference, the Sixth Annual University of Toronto Accounting Conference, and the 11th International Symposium on Empirical Accounting Research in China. Liao acknowledges financial support from the National Natural Science Foundation of China, Grant # 70902001 and #71272233.

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Abstract: Prior research argues that tax avoidance is beneficial to shareholders. In state owned enterprises (SOEs), taxes are a dividend to the controlling shareholder, the state, but a cost to other shareholders. Therefore, the controlling shareholder of the SOE benefits from less tax avoidance by the SOE. Using a sample of publicly traded companies in China, we find that SOEs exhibit significantly higher income tax rates than do non-SOEs, consistent with less tax avoidance. These results are especially pronounced for local versus central SOEs and during the year in which SOE managers face term performance evaluations. SOE tax rates are negatively associated with stock returns, consistent with the transfer of wealth away from minority shareholders through less tax avoidance. Overall, the findings suggest SOEs make tax decisions favorable to the controlling shareholder but costly to the minority shareholders, and the state utilizes SOE managers' career concerns to promote the minimization of tax avoidance. The findings contribute to our understanding of the impact of ownership structure on tax avoidance and to the agency literature on tunneling mechanisms.

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1. Introduction

Conventional wisdom argues that because taxes are a significant cost to a firm, tax avoidance is beneficial to shareholders (e.g., Chen, Chen, Cheng and Shevlin 2010).¹ However, in state owned enterprises (SOEs), taxes are an implicit dividend to the controlling shareholder.² Thus, *less* tax avoidance actually benefits the controlling shareholder of SOEs and reflects an implicit expropriation of wealth from other shareholders. Further, due to restrictiveness of the SOE executive labor market (discussed in detail later), managers face incentives to prioritize the controlling shareholder's interest and engage in less tax avoidance. Using a sample of publicly traded firms in China, we investigate whether tax expense and cash taxes paid by SOEs are consistent with such tunneling of resources to the controlling shareholder.

The well-established literature on agency conflicts (e.g., Jensen and Meckling 1976) articulates the conflict of interest between managers and diffuse shareholders. In this literature, managers' career concerns can alleviate agency problems and enhance shareholder value (e.g., Fama 1980; Gibbons and Murphy 1992; Brickley, Coles and Linck 1999). However, controlling shareholders can create a friction that alters managers' incentives to maximize firm value, focusing instead on decisions that benefit their careers. According to recent studies (e.g., Jiang et al. 2010), large blockholders control a majority of international publicly traded firms, including

¹ Following Hanlon and Heitzman (2010), we work under the definition that tax avoidance is any planning behavior that reduces a firm's tax burden. Tax avoidance does not imply illegal activities.

² Cash dividends are not prevalent among Chinese companies during our sample period. Recently, the Shanghai stock exchange has initiated incentives that encourage companies to increase dividend payout ratios (*Reuters*, "China encourages companies to increase dividends," August 15, 2012). The China Securities Regulatory Commission has finalized a dividend payment policy disclosure and is rumored to be coordinating with other government authorities to encourage dividends (*Beijing Business Today*, "CSRC has finalized plans to implement mandatory dividend payment policy," November 29, 2011).

most European and Asian firms. Because managers' careers are subject to a greater degree of control by these large shareholders, the managers' career concerns become subject to the objectives of the controlling shareholder, even though they may be anathema to minority shareholders. This risk of controlling shareholder expropriation of minority shareholders is referred to in the agency literature as "self-dealing" (Djankov et al. 2008) or "tunneling" (Johnson et al. 2000).

As a result of Chinese economic reforms and strong growth since 1979, a large number of SOEs are publicly traded on China's stock exchanges, but most common shares owned by the state were generally not allowed to trade prior to 2005.³ Therefore, the state historically did not benefit from stock price appreciation. Combined with a weak institutional environment relative to western markets (discussed later in Section 2.1), the state has incentives to derive benefits through other channels, such as tunneling of resources from SOEs. Also, given distinct differences between the labor markets for SOE and non-SOE managers, a SOE manager faces rather limited non-SOE corporate opportunities (e.g., Li and Zhou 2005; Cao et al. 2010), further aligning SOE managers' career concerns with those of the state. Therefore, our first prediction is that SOEs make tax decisions favorable to the state but costly to minority shareholders, captured empirically by higher tax rates and cash tax payments for SOEs relative to non-SOEs.

Evidence regarding tax rates and payments of SOEs relative to non-SOEs is an implication of the ownership structure of SOEs. For SOEs, however, such evidence should reflect, among other factors, SOE managers' incentives and career concerns to the extent they are

³ In July 2005, the Chinese government announced an initiative to convert non-tradable shares to tradable, which took several years to implement. However, the Chinese government maintains a policy of retaining control of many SOEs. Thus, even after 2005, state owned shares do not actively trade. As discussed later, currently less than half of the aggregate shares of such firms are allowed to trade.

linked to tax decisions.⁴ In China, the assignment of managers in SOEs is controlled by the state. As Li (1998) points out, most SOE managers have bureaucratic titles. For example, managers of large state owned energy firms have bureaucratic titles equivalent to the Secretary of Commerce in China. SOE managers face ongoing evaluations for political promotions, which provide further incentives for SOE managers to cater to the controlling shareholder (Li and Zhou 2005; Cao et al. 2010). In these evaluations, managers are promoted to higher bureaucratic ranks if evaluated favorably; otherwise, they are retained in their current position or assigned to similar or lower level political positions. Thus, our second prediction is that political promotions of SOE managers are associated with lower tax avoidance.

Using a sample of 2,054 Chinese firms for the years 1999-2012, we compare tax avoidance by SOEs and non-SOEs. Consistent with our first prediction, SOEs exhibit less tax avoidance than do non-SOEs, captured by higher effective and cash tax rates. The differences in both effective and cash tax rates between SOEs and non-SOEs are approximately 1%, after controlling for other variables, which strikes us as economically large. For example, SOEs in our sample realized total pre-tax profits of approximately RMB 6.2 trillion, implying that the SOEs incurred excess taxes of approximately RMB 62 billion (USD 10 billion) relative to that of their non-SOE counterparts. With regards to our second prediction, we find the probability an SOE manager is promoted to a higher level bureaucratic position is positively associated with the income taxes of the SOE they manage. Overall, these findings are consistent with SOE managers making tax decisions favorable to the state but costly to minority shareholders, and the state

⁴ The nature of monitoring within Chinese SOEs is likely to differ from that of non-SOEs, and is likely a major determinant of the level of incentives faced by managers.

rewarding the SOE managers in the form of political promotions.⁵ The results are robust to controlling for a number of factors and several other tests (described below).

SOE managers' employment contracts always have a three-year term (SASAC 2003). Thus, in addition to routine annual performance evaluations, SOE managers receive a term-evaluation every three years (see SASAC 2003). Prior studies argue that managers tend to be myopic (e.g. Bhojraj and Libby 2005); if descriptive of our sample managers, SOE managers will have heightened concern about a term-evaluation and its implication for their career in the third year relative to the first two years of the term-evaluation cycle. Therefore, we corroborate our primary findings by investigating whether SOE managers report higher taxes *in the specific year* of term-evaluations (i.e., the third year of the three year term). Indeed, we find that differences in effective and cash tax rates between SOEs and non-SOEs are highest in the year of term-evaluations, further supporting our predicted link between political promotion incentives and SOE manager's tax decisions.

Relative to the central government in Beijing, local governments can more easily intervene in the operations of SOEs and are less likely to be prosecuted for misconduct or misappropriation of state funds (e.g., Wang et al. 2008; Cheung et al. 2008). Thus, we also test whether our findings differ across local versus central state government control.⁶ We find that the difference between SOE and non-SOE tax rates is higher for local government controlled

⁵ We are cognizant that there are likely incentives in addition to lower tax avoidance that are associated with promotions, so do not imply that tax payments are the preeminent focal point of managerial incentives. Nevertheless, anecdotal evidence is consistent with SOEs proudly highlighting the amount of taxes paid by their firm. For example, see Yangtze River Pharmaceutical Group's (YRPG) 'Company News' website, which discussed their tax payments as follows: "YRPG ranked 27th among Top 100, and 1st place in pharmaceutical industry. This indicated that YRPG has made more contribution to country and society." Source: http://www.yangzijiang.com/en/gsnews_detail.aspx?id=2586.

⁶ Local governments are those provincial, city, or county governments, whereas central state government refers to the capital government in Beijing.

SOEs. The more pronounced effects for local SOEs reinforce the existence of a direct link between ownership and tax reporting incentives of SOE managers.

To better identify the direction of causality and control for potential self-selection problems, we provide several other tests. First, we perform tests based on the treatment effect model (e.g., Maddala 1983; Li and Prabhala 2006) to mitigate concerns about self-selection. The treatment effect model relies on two exogenous shocks from the split share reform and decisions by the Central Committee of the Communist Party of China. Specifically, these exogenous shocks reduce the state ownership in certain unregulated industries, while the state still controls the ownership of regulated industries which are “the economic lifeline of a country” (Central Committee of the Communist Party of China, 2003). After controlling for the hazard ratio of self-selection, we find SOEs still have significantly higher tax rates than do non-SOEs. Second, we provide difference-in-difference tests by using a matched sample of privatized SOEs and non-SOEs. We find that privatized SOEs have higher tax rates than do non-SOEs prior to privatizations, but the difference disappears after privatizations. This is consistent with state ownership leading to higher tax rates. Third, our results are also robust to using one-to-one propensity score matched samples.

We provide several additional tests to further validate our arguments. First, we examine the stock return effect of tax avoidance. Our study is motivated from the agency literature. However, an alternative interpretation of our results is that SOEs benefit from paying higher taxes to the state, which would offset any wealth expropriation of minority shareholders’ through the tunneling of resources via tax payments. For example, the state might steer lucrative contracts towards the firm, arrange favorable financing, or grant other benefits not available to other firms. To examine whether SOEs’ tax decisions are costly to minority shareholders, we

examine the association between tax rates and long-window stock returns and government grants. We find a negative association between unexpected tax rates and abnormal stock returns, consistent with the joint observations that investors are aware of tunneling through taxes but that this does not translate into benefits to minority shareholders, who are primarily rewarded from their investments through stock price appreciation. Further, we also find no relation between tax rates and governmental grants, inconsistent with SOEs accruing other state-directed benefits in exchange for less tax avoidance.

Second, we consider tax haven operations as an alternative measure of tax avoidance. Chinese companies usually establish tax haven operations through merger and acquisitions (M&As). Therefore, we test whether state ownership affects the likelihood of activities in tax havens. Probit regressions show that SOEs are less likely to have M&As in tax havens than non-SOEs. This is consistent with our argument that SOEs are less aggressive with tax avoidance activities.

Third, we test whether the effect of state ownership is mitigated when the SOEs are experiencing financial difficulties. Specifically, we split the sample based on the bankruptcy risk (measured based on Ohlson (1990)'s bankruptcy risk model). We find our results are mitigated for firms with high bankruptcy risk and poor financial health. This finding suggests that due to the state's incentive to save SOEs from bankruptcy and maintain economic growth, the state reduces the tunneling of resources out of the SOEs.

Our study is motivated by and contributes to three streams of literature. First, we contribute to the corporate tax literature, which provides few tests on the role of organizational factors, such as ownership structure, in determining a firm's tax reporting behavior. Shackelford and Shevlin (2001) call for more empirical analysis in this important area. Similarly, Hanlon and

Heitzman (2010) also call for more studies on the determinants on tax avoidance and Dyreng et al. (2010) advocate more research on how managers' careers are affected by their tax avoidance behavior. Second, we contribute to our understanding of the relation between tax avoidance and firms' agency conflicts, especially between controlling and minority shareholders (Scholes et al. 2005; Desai and Dharmapala 2004, 2006; Desai, Dyck, and Zingales 2007). Finally, we contribute to the internationally focused agency and tunneling literature. In addition, our study also has implications our study for the US market and other international markets. During the recent financial crisis, the U.S. federal government actually provided tax benefits to companies that the state temporarily take control over. For example, General Motor (i.e., GM) is exempted from the application of Sec. 382 of the tax code. The US federal government's decisions are partially due to their political concerns.⁷ During the recent crisis, the US government has the urgent need to save the US economy. Therefore, the state provides some special benefits to help GM and other troubled companies. Consistent with this idea, we find the effect of state ownership on tax avoidance is mitigated when the SOEs face high bankruptcy risk. However, our findings imply that if the state still holds the ownership of GM after the financial difficulties, the state ownership may result in significant agency costs to other investors.

The study proceeds as follows. The next section discusses key institutional features of the Chinese market, reviews relevant literature, and provides formal hypotheses. Section 3 describes the data. We identify the research design and model specification and present our primary findings in Section 4. Section 5 provides alternative analyses, and section 6 concludes.

⁷ Ramseyer and Rasmussen (2011) suggest US government used the special tax benefit to help one of GM's stakeholders, UAW, which is a loyal political supporter of the current government. Ramseyer and Rasmussen (2011) also suggest that in a similar situation, the UK government didn't do the same thing as the US government did.

2. Prior Literature and Formal Hypotheses

2.1 Prior research

2.1.1 Brief Institutional Background on the Chinese SOE Market

Before 1979, the entire Chinese economy was controlled exclusively by the government. All enterprises were owned by the state and operated as if they were production units of a single giant firm (i.e., the Chinese economy). No Chinese firms had autonomy to make production or marketing decisions. Rather, production plans and prices were set by the state, as were all profits. Managerial compensation was not tied to financial performance, but depended on a firm's size, the managers' seniority, and whether the firm met specific directives from the state. Thus, managers had little incentive to improve firm performance, which had almost no effect on their personal wealth or status (Groves et al. 1995).

Economic development was initiated by a series of SOE reforms in 1979. The first stage, spanning from 1979 to 1983, emphasized improved financial performance of SOEs, and the state allowed SOEs to retain a small portion (e.g., 3%) of profits. This reform granted some level of autonomy to SOE managers, and a labor market for managerial human capital emerged. The second stage spanned 1983 to 1992, and China established a "Management Responsibility Contract System" (MRCS), which instituted contracts to give SOE managers more autonomy (Su 2005). For example, SOE managers were empowered to make certain decisions about production, investment, and marketing. In the third stage of SOE reforms (from 1993 to the present), the performance of SOEs has improved through several efforts. In the early 1990s, the state set up a "partial privatization" initiative, which included the sale of a minority ownership in SOEs to private investors at two major stock exchanges in China - Shanghai (in 1990) and Shenzhen (in 1991). By the end of 2012, these two exchanges represent more than 2,000 publicly listed firms

with a total market capital of RMB 23 trillion. Most common shares owned by the state were classified as non-tradable prior to 2005. However, in July 2005 the Chinese government announced an initiative to convert these non-tradable shares into tradable shares, which took several years to implement.

Even with the trajectory of these economic reforms, due to weak enforcement and other implementation issues, the reforms do not seem to have solved the risk of controlling shareholder expropriation of minority shareholders (Jiang et al. 2010). Further, the government has a policy of retaining controlling interest in SOEs.⁸ Thus, even after the rollover of non-tradable shares to tradable in 2005, the state cannot actively trade its shares or benefit from stock price appreciation. Consequently, the state has a strong incentive to derive immediate monetary benefits through other channels, including tunneling of resources from SOEs. The weak legal and financial reporting environment in China further provides the state with additional opportunities to extract benefits.⁹

2.1.2 Agency Problems, Controlling Shareholders and Tunneling

The early literature on agency theory focused on the U.S. market, where the central conflict is between managers and dispersed, atomistic shareholders. However, in international markets most firms are controlled by large block shareholders. In this case, the primary agency risk is the expropriation of minority shareholders by controlling shareholders (e.g., Jiang et al., 2010). Indeed, recent research in this area has increasingly focused on the Type II agency

⁸ During our sample period, the state ceded control of only 164 firms.

⁹ For example, MacNeil (2002) notes that the state always enjoys priorities in Chinese courts. Similarly, Piotroski and Wong (2011) discuss the institutional links in China that explain the current lack of transparency in their securities markets.

problem - the risk of controlling shareholder expropriation of minority investors (i.e., ‘tunneling’ as discussed Johnson et al. 2000 or ‘self-dealing’ as discussed in Djankov et al. 2008).

Grossman and Hart (1988), Hart (1995) and Zingales (1994) are among the earliest studies on the private benefits of control, which is defined as “benefits the current management or the acquirer obtain for themselves, but which the target security holders do not obtain.” For example, Zingales (1994) examines the Italian market and estimates the private benefits of control to be 60 percent of the value of nonvoting equity. More recent studies reinforce that controlling ownership decreases firm value (e.g., Bae et al. 2002; Bertrand, Mehta, and Mullainathan 2002; Faccio et al. 2001; Lemmon and Lin 2003). Cheung et al. (2006) provide evidence on controlling shareholders’ tunneling through related party transactions, whereby controlling shareholders use related party transactions to both prop up earnings for their firms and transfer resources from public firms to related parties. Further, Jiang et al. (2010) provide evidence on controlling shareholders’ tunneling in China through inter-corporate loans, which approximate tens of billions (RMB) during 1996 to 2006.

2.1.3 Tax Reporting in an Agency Context

Although tax planning is important for shareholders, studies on the determinants of tax avoidance are surprisingly limited (Hanlon and Heitzman 2010). Shackelford and Shevlin (2001) call for a better understanding of the relations among ownership structure, agency conflict and tax reporting. Chen et al. (2010) take “a first step toward a better understanding of the impact of ownership structure on firms’ tax reporting practices” by examining tax avoidance in family firms. They find that family-owned public firms engage in less aggressive tax reporting behavior than do non-family firms, arguing that family owners relinquish tax benefits to avoid possible reputation damage from a tax audit and/or any associated price protection imposed by minority

shareholders' to offset family entrenchment. Chen et al. (2010) is the only other study of which we are aware that directly examines the impact of ownership structure on tax reporting.

2.1.4 State Ownership and Managerial Incentive to Tax Avoidance

State owned enterprises are characterized as having worse financial performance than non-state owned firms, and privatization improves firm financial performance (e.g., Boubakri and Cosset 1998; D'Souza and Megginson 1999; Djankov and Murrell 2002; Sun and Tong 2003). A number of theories attribute the noted inefficiency of state ownership to managers' weak incentives to maximize profits (e.g., Shleifer and Vishny 1994; Boycko et al. 1996). For example, Shleifer and Vishny (1994) argue that bureaucrats are the ultimate controllers of SOEs, and bureaucrats' major objective is to achieve political objectives rather profit maximization. To address their own political goals, bureaucrats provide incentives for managers to achieve those political objectives (Cragg and Dyck 2003). However, empirical evidence on how bureaucrats use SOE managers' career concerns to address their own political goals is limited.

Bureaucrats' control over SOE managers' careers can further affect the SOEs' tax reporting, because managers can individually affect corporate tax avoidance behavior. Dyreng et al. (2010) demonstrate that, in addition to the effects of firm characteristics on tax avoidance, individual managers contribute their own preferences towards tax avoidance. They examine executive mobility across different firms and show a strong manager-specific effect in the explanation of tax avoidance. The combined but limited evidence of an ownership and individual manager effect on firm-level tax avoidance motivates our predictions that SOEs in China exhibit lower tax avoidance and that individual managers associated with lower tax avoidance receive favorable promotions.

2.2 Formal Hypotheses

Traditionally, taxes are a large cost to a firm and its shareholders, making tax planning an important part of a manager's job (e.g., Chen et al. 2010). In SOEs, however, taxes represent a dividend to the controlling shareholder - the state - but a cost to minority shareholders. Thus, the controlling shareholder benefits from higher effective tax rates. Corporate tax collections are the major source of monetary resources for the state, making it a primary political objective as well. Together, these features of the Chinese SOE market and the tunneling hypothesis suggest that SOE managers make tax decisions favorable to the state. We measure the impact of tax decisions made by SOE managers using effective tax rates and cash payments for taxes. Our first hypothesis is as follows (in alternative form):

H₁: SOEs exhibit higher effective tax rates and cash tax payments than do non-SOEs.

Prior literature argues that bureaucrats provide incentives for managers to achieve political objectives (Cragg and Dyck 2003), and individual managers can have impacts on corporate tax avoidance (Dyreng et al. 2010). Therefore, it is reasonable to expect a link between management incentives and SOE tax reporting behavior. One way in which managers' incentives can be examined is to associate tax rates with promotions. During our sample period, SOE managers maintain the clearest decision rights with respect to operations; the state maintains ultimate control over the personnel charged with managing SOEs. Li (1998) observes that most SOE managers have bureaucratic titles. SOE managers also receive ongoing evaluations for political promotions, and prior research suggests that such political promotions are effective incentives for SOE managers (Li and Zhou 2005; Cao et al. 2010). Because such evaluations are overseen by bureaucrats, SOE managers will be inclined to focus on objectives that best serve

those of the bureaucrats. In these evaluations, SOE managers are assigned to similar or even lower level political positions if bureaucrats are unsatisfied with the performance of the SOE managers. Also, importantly, factors other than financial performance play an important role in determining the evaluation outcomes (Du et al. 2012).

These features of the SOE labor market and the evaluation system suggest that SOE managers will very likely respond to the political objectives of bureaucrats, which must include the collection of higher taxes by the state. We adopt an outcome-based approach to examining this link by examining whether tax rates are associated with political promotions, and restrict our analysis to the subsample of only SOE firms. Our second hypothesis (in alternative form) is:

H₂: The probability that an SOE manager is promoted to a higher level position is positively associated to the SOE's tax rates.

3. Sample, Tax Rate Measures, and Descriptive Statistics

3.1 Sample

We first obtain financial data for all the listed Chinese firms (excluding financial institutions) during 1999 to 2012 (n=20,376). Data are taken from the China Stock Market and Accounting Research (*CSMAR*) database (for financial accounting information, ownership and corporate governance information), Center for Chinese Economic Research (*CCER*) database (for industry classification), and *WIND* database (for information about income taxes).¹⁰ We then manually search annual financial and other reports for SOE firms and collect information on the CEOs,¹¹ including age, CEO appointment date, departure date, and information about political

¹⁰ These three databases are widely used in prior literature on the Chinese market (e.g., Wang et al. 2008, Jiang et al. 2010 and Li and Zhou 2005). Details are in the appendix.

¹¹ CEOs are responsible for most operating and financial decisions in China. For example, in an interview, a CFO from a public Chinese firm (Name :JiangSuYueDa, Stock trading code: 600805) said Chinese CEOs make most decisions, and other executives (such as CFOs) generally follow the decisions made by CEOs.

appointments.¹² As shown in Panel A of Table 1, we remove firm-year observations without valid data for the current effective tax rates (n=3,049). 655 observations with ambiguous or missing ownership information are deleted.¹³ We also delete 270 observations with insufficient data for market value of equity, lagged net income or other variables. Finally, using current effective tax rate as the tax avoidance measure, our sample for testing H₁ consists of 16,402 observations (2,054 unique firms). For the tests using cash effective tax rates, the sample is 15,769, after removing 606 observations with no cash tax expense data. For the test of promotions (H₂), we initially have a sample of 11,130 firm-years, but remove 2,583 observations with CEO tenure shorter than one year or missing information about CEO tenure, 1,544 observations for which CEOs leave the positions because of health problems, legal problems, retirement, demotions or ambiguous reasons, and 2 observations missing information about other control variables.¹⁴ The final sample for the test of H₂ is 7,001 observations, when the current effective tax rate is employed as tax avoidance measure. The sample is 6,753 observations for tests using cash effective tax rates.

Table 1 further reports the sample composition. The 16,402 firm-years reflect 2,054 unique firms. We identify a firm as a SOE if its ultimate controller is the state (Faccio and Lang, 2002).¹⁵ Over 67% of the firms that comprise our sample are SOEs (Panel B). Among SOEs,

¹² In addition to corporate financial reports, we manually collect information from media announcements about SOE promotions, and we also use other search engines and databases (i.e., Google; Baidu and Sina Finance) to identify other manager characteristics.

¹³ Ambiguous ownership refers to scenarios where it is not clear whether the firm is state owned or not, such as collective enterprises.

¹⁴ For these observations, it is not clear whether the tax decisions are made by the prior manager or the replacement. In primary tests, we delete 769 observations for which we cannot clearly determine whether the departure is a promotion, a demotion or other outcome. In untabulated tests, we set *PROMOTION* to 0 for these 769 observations, with no change in our reported results.

¹⁵ The controlling owner controls an absolute majority (i.e., over 50%) of voting rights, or holds enough voting rights to have de facto control. According to Chinese regulations, de facto control occurs under four conditions: 1) a person or legal entity directly controls an absolute majority (i.e., over 50%) of voting rights; 2) a person or legal entity owns, directly or indirectly, more than 30% of voting rights and no other shareholders own a higher

approximately 72% are controlled by local governments, rather than the central state government. Panel C of Table 1 tabulates the industry distribution. Consistent with prior literature (e.g., Wang et al. 2008), there are more SOEs than non-SOEs in most industries except furniture and other manufacturing. Not surprisingly, the distribution of SOEs across industries indicates extremely high state ownership in several crucial industries, such as mining (92%), energy supply (95%), and transportation (91%). Panel D shows summary data for managers' political promotion evaluations. During the sample period, there are 1,735 departing SOE managers, with 11% of those departing being promoted to higher level positions. In our primary tests, we delete CEOs who leave their positions due to health problems, legal problems, retirement and other ambiguous reasons.

3.2 Tax Rate Measures

Based on prior literature, we use two measures of income tax rates: the current effective tax rate and the cash effective tax rate.^{16,17} During most years of our sample period (through 2007), Chinese accounting standards permitted companies to use either the tax payment method (i.e., payable basis) or tax provision method (i.e., deferral basis) to account for income taxes.¹⁸

percentage directly or indirectly; 3) a person or legal entity can determine the assignments of more than a half of directors; 4) a person or legal entity has enough voting rights to influence the company's important operating decisions.

¹⁶ The tax avoidance literature also uses other measures of tax burden. However, the validity of these other measures is not clear in the Chinese market. For example, Chinese firms are characterized by earnings manipulation (e.g., Piotroski and Wong, 2011), so alternative book-tax difference measures might be dominated by earnings manipulation, clouding our ability to compare SOEs and non-SOEs along our dimension of interest (See Hanlon and Heitzman, 2010 for details).

¹⁷ Prior to 2002, all the income tax revenues of central SOEs belonged to the central government, and the tax revenues of local SOEs belonged to local governments (the State Council, 1993). From 2002, the corporate income tax revenues of the SOEs are generally divided to the central and local governments proportionally. Specifically, in the year of 2002, the central government received 50% of the tax revenues, and the local governments got the other 50% (the State Council, 2001). After 2002, the central government collects 60% of the tax revenues, and the remaining 40% belongs to the local government (the State Council, 2003). Therefore, we did not decompose the tax expense into local vs. central taxes.

¹⁸ After 2007, companies are prohibited from using the tax payment method.

Under the tax payment method, reported income tax expense only includes current tax expense (i.e., deferred tax expense is not recorded); under the tax provision method, reported income tax expense includes both current and deferred tax expense. Over 90% of public companies choose the tax payment method before 2007, so we do not separately examine tax deferral strategies from tax avoidance due to data limitation.

First, we employ the current effective tax rate (*ETR*) to measure tax avoidance:

$$ETR_{i,t} = \text{Total Current Income Tax Expense}_{i,t} / \text{Pretax Income}_{i,t}$$

The second measure is the cash effective tax rate (*CETR*_{*i,t*}):

$$CETR_{i,t} = \text{Cash Income Taxes Paid}_{i,t} / \text{Pretax Income}_{i,t}$$

We winsorize both measures at 1 to combat any small denominator problems and negative values are set to 0 (Dyreng et al. 2010).¹⁹ Consistent with prior research, a lower (higher) *ETR* or *CETR* is associated with more (less) tax avoidance.²⁰

3.3 Descriptive Statistics

We partition the sample into two groups: SOEs and non-SOEs. Our analyses start with univariate analyses of tax rates across the sample period. We calculate the mean value of *ETR* and *CETR* separately in each year for SOEs and non-SOEs. As shown in Figure 1, for both *ETR* and *CETR*, SOEs exhibit higher tax rates across all sample years relative to non-SOEs, although there is variation in tax rates across years for both SOEs and non-SOEs. These descriptive results are consistent with the first hypothesis that SOEs have greater tax rates than do non-SOEs.

¹⁹ Observations with negative pretax income and non-zero tax expenses are deleted, because tax rates are not meaningful to these observations.

²⁰ Due to non-disclosure of cash taxes paid for most of our sample years, we calculate cash income taxes paid as current tax expense plus beginning-of-year taxes payable minus end-of-year taxes payable. Hanlon and Heitzman (2010) explain that *CETR* may have a mismatch problem if fiscal (numerator) and calendar (denominator) year-ends are different. All Chinese firms have calendar fiscal year-ends, so our data are not susceptible to this problem.

Table 2 presents univariate statistics of the two tax expense measures for the entire sample period, as well as the correlation matrix. Panel A reports the means and medians of tax expense measures, separately for SOEs and non-SOEs. The univariate evidence is consistent with SOEs exhibiting higher tax rates than those of non-SOEs. For example, mean *ETR* is 0.222 for SOEs, higher than 0.210 for non-SOEs. These differences are nominally larger than those reported by Chen et al. (2011) for family-owned firms relative to other firms. Panel B shows that these results are driven by locally-owned SOEs. Panel B indicates that local SOEs exhibit significantly higher tax rates than do central SOEs, with differences significant at the 0.01 level in all cases. For example, the mean *ETR* for local SOEs (0.228) is higher than the mean *ETR* for central SOEs (0.207), the difference significantly different from zero (t -statistic = -5.475). This result is consistent with local governments having stronger influence over SOEs, echoing results in Wang et al. (2008). Panel C shows the probability of promotion for SOE managers across quintiles of tax rates. As tax rates increase, the probability of promotion also increases. The pattern is nonlinear in the last two quintiles, probably because of noise introduced by the winsorization of firms with small denominator problems.

Table 3 provides descriptive characteristics and correlations for other variables. SOEs are more profitable, larger, less leveraged and more capital intensive than non-SOEs, but SOEs have lower market to book ratio. These results are consistent with prior studies (e.g., Wang et al., 2008). Panel B reports correlations among control variables. Among other variables, *ROA* and *LEV* exhibit the largest correlation (-0.373), not large enough to suggest significant problems with multicollinearity. We checked VIFs for all regressions, and no VIFs exceed 10. In addition, untabulated results show that the effective tax rate and cash tax rate are, not surprisingly, highly positively correlated with each other (0.701).

4. Multivariate Tests and Primary Empirical Results

4.1 Multivariate Tests

We first investigate the effect of state ownership on firms' tax rates. The first hypothesis predicts that tax rates of SOEs are higher than those of non-SOEs. To test the first hypothesis, we estimate the following OLS regression, where *SOE* is an indicator variable equal to one if the firm is state owned (see the Appendix for other variable definitions). In model (1), there are two alternative dependent variables: *ETR* or *CETR*. We predict α_1 will be positive, consistent with less tax avoidance by SOEs.

$$\begin{cases} ETR_{i,t} \\ CETR_{i,t} \end{cases} = \alpha_0 + \alpha_1 SOE_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 MB_{i,t} + \alpha_4 ROA_{i,t} + \alpha_5 Lev_{i,t} + \alpha_6 CAPEX_{i,t} + \alpha_7 NOL_{i,t} \quad (1)$$
$$+ \alpha_8 RD_{i,t} + \alpha_9 ForeSale + \alpha_{10} M \& A + \alpha_{11} EquOffer + \alpha_{12} CrossList + \alpha_{13} OwnConcen$$
$$+ \alpha_{14} MgmtOwn + \alpha_{15} DualCEO + \alpha_{16} TaxPreference + \alpha_{17} GDPGrow_{i,t} + FixedEffects$$

We control for factors previously identified in the literature that may affect tax avoidance (e.g., Manzon and Plesko, 2002; Mills, 1998; Rego, 2003; Dyreng et al., 2008; Frank et al., 2009; Armstrong et al. 2012; Rego and Wilson 2012; Hope et al., 2013). Several control variables (*Size*, *ROA*, *Lev* and *NOL*) capture tax planning incentives and opportunities. Because larger firms enjoy economies of scale in tax avoidance behavior, we control for firm size (*Size*), measured as the natural log of the total assets (Cheng et al. 2012). Similarly, we include *ROA* to capture profitability, because more profitable firms have stronger incentives to avoid taxes (Manzon and Plesko, 2002; Rego 2003; Frank et al. 2009; and McGuire et al. 2012).²¹ Leverage (*Lev*) is included because firms with higher leverage already enjoy the tax shield benefit of debt

²¹ In contrast, Gupta and Newberry (1997) find a positive relation between ETRs and profitability. They argue that higher income is associated with higher marginal tax rates, and therefore more profitable firms will exhibit higher ETRs. However, the corporate income tax rate is not progressive in China. During our sample period, the income tax rate for domestic corporations is a flat 33% (see article 3 in State Council of China, 1993).

financing, which may be associated with a differential tendency to engage in incremental tax avoidance.²² We use a proxy for loss carryover (*NOL*) to capture whether firms can use the tax benefits associated with the loss in the previous five year.²³ We control for growth potential by including market to book ratio (*MB*), as growth firms may make more investments in tax-favored assets and have more opportunities to avoid taxes (e.g., Chen et al. 2010). We include a control for capital expenditure *CAPEX*, since investment often related to book-tax differences resulted from the investment tax credit and accelerated depreciation methods (Armstrong et al. 2012). Similarly, we include *R&D* to control for tax credits and tax avoidance opportunities related to research and development expense (e.g., Rego and Wilson 2012). The ratio of foreign sales to total sales, *ForeSale*, is included to control for the effect of foreign operation (Rego 2003). *M&A* is used to control for the merger and acquisition activities which could generate significant tax benefits (e.g., Devos, Kadapakkam, and Krishnamurthy 2009). Seasoned equity offering (*EquOffer*) is also controlled for, because firms may have incentives to avoid tax and increase earnings around external financing. To control for other possible correlated variables, we include *OwnCon* as a proxy for ownership concentration and other three proxies for corporate governance: cross listing (*CrossList*), management ownership (*MgmtOwn*) and CEO-Chair duality (*DualCEO*). *TaxPreference* is a dummy variable that set to one if a firm potentially enjoys a preferential statutory tax rate. There are three major types of firms that potentially enjoy a preferential tax rate.²⁴ First, according to Chinese financial regulations (e.g., MOF 1994, 1996, 1997), certain firms operating in specially designated economic and technology development

²² Article 6 of the tax law (State Council of China 1993) allows deduction of interest expense.

²³ Chinese firms are allowed to carry losses forward for five years [firms are not allowed to carry backward (Ernst & Young, 2006)]. But, Chinese firms do not report *NOL* (net loss carryover) on balance sheet. In the Chinese market, firms do not provide data on carryover losses. So, we calculate a continuous variable, *NOL*, based on the net income reported in the last five years. *NOL*= the accumulated pre-tax earnings/losses for the last five years; 0 if the accumulated pre-tax earnings is positive for the last five year.

²⁴ All of these tax deductions are available only after a firm receives approval from the state government.

zones are granted tax credits. Second, qualified enterprises with foreign direct investment sometimes qualify for tax rate reductions of 0-15% in years following foreign direct investments. Third, start-up firms can qualify for special deductions for certain start-up expenses. Finally, we further include the growth rate of regional GDP (*GDPGrow*) to control for differences in economic performance; industry and year indicator variables are included to control for possible variation in tax policies across industries and years.

We also investigate whether SOEs' tax decisions affect the probability that a manager is promoted to a higher level position. We restrict the sample to SOEs only to estimate the following two probit models. In these models, the dependent variable is an indicator variable *PROMOTION*, which equals 1 if the manager is promoted to a higher level position in the next year and 0 otherwise. Management performance evaluation is often based on the firm's performance *relative* to that of other firms (e.g., Holmstrom 1982; Gong et al. 2012). Therefore, *RANK_ETR* and *RANK_CETR* are the decile ranks of a firm's *ETR* and *CETR*, respectively, among all observations in the same year. Hypothesis H₂ predicts that the probability of promotion is positively related to the SOE's tax burden.

$$\begin{aligned}
 PROMOTION_{it} = \beta_0 + \beta_1 \left\{ \begin{array}{l} ETR_{it} \\ CETR_{it} \end{array} \right. + \beta_2 Size_{it} + \beta_3 ROA_{it} + \beta_4 Lev_{it} + \beta_5 OtherTax_{it} \\
 + \beta_6 OwnConcen_{it} + \beta_7 AGE_{it} + \beta_8 TENURE_{it} + \beta_9 GDPGrow + FixedEffects
 \end{aligned} \tag{2}$$

$$\begin{aligned}
 PROMOTION_{it} = \beta_0 + \beta_1 \left\{ \begin{array}{l} RANK_ETR_{it} \\ RANK_CETR_{it} \end{array} \right. + \beta_2 Size_{it} + \beta_3 ROA_{it} + \beta_4 Lev_{it} + \beta_5 OtherTax_{it} \\
 + \beta_6 OwnConcen_{it} + \beta_7 Age_{it} + \beta_8 Tenure_{it} + \beta_9 GDPGrow + FixedEffects
 \end{aligned} \tag{3}$$

We control for several determinants of promotions based on prior research (See Li and Zhou 2005). We control for *Size*, *Lev* and *ROA*. We expect managers at firms with higher *ROA*,

and larger *SIZE* are more likely to be promoted, but we do not have clear predictions for *Lev*. In addition, we use *OtherTax* to control for other taxes or fees the firm pays to the government exclusive of income taxes.²⁵ Second, we control for CEO age (*Age*) and CEO tenure (*Tenure*), as we suspect a manager is less likely to be promoted if older or having been at a firm for many years. We also control for the proportion of ownership of the largest shareholder, which is the state for SOEs, to capture the influence of ownership concentration (*OwnConcen*). We also include of the growth rate of provincial GDP (*GDPGrow*) to control for differences in economic performance across regions. Finally, we control for industry and year fixed effects.

4.2. Primary Empirical Results

4.2.1 State Ownership and Tax Avoidance

H₁ predicts that income taxes of SOEs are higher than those of non-SOEs. *SOE* is an indicator variable for state owned enterprises. If SOEs engage in less tax avoidance than do non-SOEs, we expect a positive coefficient on *SOE* in model (1). Results appear in Panel A of Table 4, where *t*-statistics are based on standard errors clustered by firm. In Column 1 (2), we use *ETR* (*CETR*) as the dependent variable. For both measures of tax rates, we find the coefficients on the *SOE* variable are positive and significant, consistent with a tunneling hypothesis whereby SOEs pay greater taxes than do non-SOEs. The differences in both effective tax rates and cash tax rates between SOEs and non-SOEs are, on average, 1%. These results are economically insignificant. For example, SOEs realized total pre-tax profits of approximately RMB 7.1 trillion during our sample period, implying that the SOEs incurred excess taxes of approximately RMB 71 billion (USD 11.5 billion) relative to that of their non-SOE counterparts. In addition, coefficients on the

²⁵ A large part of *OtherTax* reflects value-added taxes. Firms are not likely to avoid these taxes because of prohibitively high legal costs; the highest penalty to value-added tax evasion is death. *OtherTax* is scaled by revenue because other fees and taxes are usually a function of revenue.

control variables are generally consistent with prior research. Firms with higher *profitability* (*ROA*), more capital expenditure (*CAPEX*), greater loss carryover (*NOL*), more R&D, equity financing (*EquOffer*) and preferential statutory tax rate are associated with lower tax rates.

4.2.2 Local versus Central State Ownership

Our second analysis captures whether SOEs are controlled by the central or local government. Local governments have stronger influence over SOEs than do central governments (Wang et al. 2008), and local government officials are less likely to be prosecuted for misconduct and misappropriation of state funds (Cheung et al. 2008). Therefore, if the effect of state ownership on tax payments and the effect of tax payments on promotions (examined in the next section) are caused by state intervention and misconduct, we expect that local governments engage in more tunneling, and that local governments are more likely to use SOEs to fulfill political goals. Thus, we predict that the difference in tax rates between SOEs and non-SOEs is greater when the SOEs are controlled by local government rather than the central government.

To test this prediction, we construct two indicator variables: *Central SOE* and *Local SOE*. A firm is categorized as a *Central SOE* if it is controlled by the central government in Beijing or its agencies; a firm is categorized as a *Local SOE* if it is controlled by a local government. We then re-estimate model (1) including these two indicator variables, and results appear in Panel B of Table 4. For both columns in the table, we find that the coefficients on *Local SOE* are positive and significant, but the coefficients on *Central SOE* are insignificant. For example, in the first column, the coefficient on *Local SOE* is 0.014 (t -statistic=2.65), but the coefficient on the *Central SOE* is 0.003 (t -statistic= 0.46). Thus, local state ownership of SOEs appears to be more influential in discouraging tax avoidance than does ownership by the central government, and seems to drive our primary results.

4.2.3 Probability of Manager Promotion

Next, we investigate whether SOEs' tax decisions affect the probability that managers are promoted to higher level positions. The second hypothesis predicts that the probability is positively related to the level of taxes paid. Refer back to the univariate results in Panel C of Table 2, which show the frequency of promotion across all quintiles of tax rates for SOEs. Higher current tax rates and cash tax rates are generally associated with higher frequency of promotion, consistent with expectations.

To formally test H_2 , we use all SOE observations to estimate models (2) and (3), and results appear in Table 5. In columns 1 and 3 of Panel A, we use *ETR* and *CETR*, respectively, as our measures of tax avoidance. In columns 2 and 4, the tax measures are *RANK_ETR* and *RANK_CETR*, which are the decile ranks of a firm' *ETR* or *CETR* among all the observations in the same year. The results reported in Panel A are stronger for *ETR* than for *CETR*. For all the four columns, we find that the coefficients on both *ETR* (*CETR*) and *RANK_ETR* (*RANK_CETR*) are negative and significant at the 5% level.

In untabulated tests, we also examine whether the positive association between tax rates and the probability that a manager is promoted differs across local and central governments. We find the effects of tax rates on promotion are significant and similar for both central and local SOEs. A caveat to this analysis however is that it is not uncommon for local SOE managers to be promoted to positions in central SOEs; thus, the promotion evaluations for many local SOE managers sometimes is linked to the central government. Therefore, we caution that, for the analyses on the relation between taxes and promotion, it may be inappropriate to partition the sample based on whether the SOE is a central SOE or a local SOE.

4.2.4 Effect of Term Evaluation

SOE managers' employment contracts always have a three-year term. Based on evidence that managers tend to be myopic (e.g., Bhojraj and Libby 2005), they may be more concerned about term evaluation and their careers in the third year relative to the first two years. Therefore, to further verify the argument that managers' tax decisions are affected by their career concerns, we test whether SOE managers make more tax decisions favorable to the state in the third year relative to the first two years of their three-year terms. We split the sample based on whether or not the manager is in the third year of the three-year term and re-estimate model (1) for each subsample. We expect that the coefficient on *SOE* to be greater in the third year of SOE managers' terms relative to the first two years.

In Panel B of Table 5, we find the coefficient on *ETR* (or *CETR*) is significantly positive in the third year, but not in the first two years.²⁶ For example, when *ETR* is the dependent variable, the coefficients on *SOE* are 0.008 (*t*-statistic=1.27) for the first two years but 0.023 (*t*-statistic=2.61) for the third year. *Z*-statistic tests for differences in coefficients for the third year relative to the other two are significant at the 5% level, one tail (*Z*-statistic=1.86 for *ETR* tests; 1.72 for *CETR* tests). The tabulated findings, however, are consistent with the expectation that managers make tax decisions most favorable to the state in the year of term-evaluation.

5. Extensions

5.1 Exogenous Shocks in State Ownership and Treatment Effect Model Test

We performed tests based on the treatment effect model to mitigate concerns about self-selection. Maddala (1983) extended Heckman's (1979) sample selection model to evaluate the

²⁶ For the *ETR* (*CETR*) tests in Panel B Table 5, we must delete 5,656 (5,426) observations due to an inability to identify in which year of the three year evaluation cycle the observation falls.

effect of treatment effect. The treatment effect model is widely used in prior research to mitigate the effects of non-random treatment assignment and self-selection biases (Guo and Fraser 2014; Li and Prabhala 2006). The treatment effect model also uses a two-stage approach, where the first stage is a prediction model with a dummy variable as the dependent variable for the treatment condition. The second stage further includes the hazard ratio (e.g., Lambda estimated from the first stage) to corrects the effect of self-selection bias. Therefore, the effect of treatment estimated from the second stage is net of the effect of self-selection bias.²⁷

Our first stage regression have five variables that are not included in the second stage regression: 1) *CPCMeeting*, an indicator for the 3rd Plenary Session of the 16th China Communist Party Central Committee meeting in 2003, which decided to lessen the state control of public corporations (Central Committee of the Communist Party of China, 2003). Thus, the proportion of state owned enterprises is expected to decrease after the meeting. 2) *SplitShareReform*, an indicator for the split share structure reform (reform initiated in 2005), which allows previously non-tradable state-owned shares to be tradable on the stock market (e.g., Liao et al., 2014).²⁸ By 2007, most firms (representing 97% of the market capitalization at the time) completed the reform (Li et al., 2001). Thus, after 2007, the state could more freely sell their shares on the public stock market, leading to a reduction in state ownership. 3) *Regulated Industries*, an indicator for regulated industries which the state strategically retains the control of. Even though the Communist Party decided to lessen control for public firms after 2003, the state still has policies to control “the economic lifeline of a country” and “the important industries and

²⁷ The treatment effect model (also known as Heckit models in Greene 2003) is different from the Heckman sample selection model in two aspects: 1) the dummy variable indicating the treatment condition is also included in the second stage of the treatment effect model; 2) the dependent variable of the stage second is available for observations with treatments and those without treatments.

²⁸ Prior to the reform, some state owned shares are not allowed to be traded on stock exchanges. However, before the split share reform, the state ownership could be diluted by issuing extra shares.

key fields that have a bearing on national security” (Central Committee of the Communist Party of China, 2003).²⁹ We expect state ownership to be higher in regulated industries. 4) The interaction of *Regulated Industries* and *CPCMeeting* in 2003. We expected the effect of *CPCMeeting* on state ownership to be mitigated by *Regulated Industries*, because the stat wants to maintain the control for these. 5) the interaction of *Regulated Industries* and *SplitShareReform*. Similarly, we expected the effect of *SplitShareReform* on state ownership to be mitigated by *Regulated Industries*.

Importantly, to run reliable treatment effect mode, the first stage needs to have at least one variable that is not related to the dependent variable in the second stage. The variables above are based on government regulations, and we expect these government decisions to be made *exogenously* by the government at the macro-economy level. Untabulated results find the dependent variable in the second stage is not significantly related to *Regulated Industries*×*SplitShareReform* and *Regulated Industries*×*CPCMeeting*, supporting our augments.

We report the results of the treatment effect model in Table 6 Panels A and B. Panel A shows the first stage regression. In addition to the exogenous variables, we also included variables measuring firm fundamentals and corporate governance in the first stage regression.³⁰ Consistent with our expectations, we find all these variables are significantly related to the indicator for state ownership (*SOE*), the dependent variable of the first stage. The results suggest higher state ownership for regulated industries. State ownership decreases after the CPC meeting

²⁹ We obtain the list of regulated industries from Chang et al. (2014). Regulated industries include mining, railroads, trucking, airlines, telecommunications, energy supply, and media. These industries are identified based policy reports from the state council (General Office of the State Council, 2006) and Shenzhen stock exchange (Chen et al. 2008). These industries are characterized with high state ownership concentration and high entrance barrier.

³⁰ Several other variables, which are determinants of tax rates in the second stage, are not included in the first stage, because there is no clear reason to expect these variables to be related to state ownership. But, untabulated results suggest that our findings are robust to further including these other variables.

in 2003 and also the split share reform. But, the decrease in state ownership is mitigated for regulated industries. Figure 3 further visually presents state owned enterprise concentration across three periods: *Pre 2003 CPC meeting* (1999 to 2002), *Post 2003 CPC meeting* (2003 to 2006), and *Post Split-Share Reform* (2007 to 2012). The percentage of state owned enterprises in regulated industries are stable across the three time periods. The percentage of state owned enterprises in non-regulated industries decreases across the three time periods. This further supports the use of these exogenous variables. Table 6 Panel B reports the second stage regression results after controlling for the hazard ratio from the first stage. Results in the second stage suggest that state ownership is associated with significantly higher tax rates, support our primary findings. This treatment effect model test mitigates concerns about self-selection.

5.2 Difference in Differences Test of Privatization

To further alleviate concerns about correlated omitted variables, we perform several analyses on privatizations. First, we provide a comparison of tax rates before and after privatizations during the sample period. As shown in Figure 2, both effective tax rates and cash effective tax rates decrease after privatization.³¹ We further provided difference in differences tests of privatizations. Based on firm size at the end of the year prior to privatization, we match each pre-privatization SOE with a non-state-owned enterprise from the same industry.³² Then, we obtain all the annual observations of the SOEs and the matched non-SOEs. We use this matched sample to perform difference in difference tests. We set up two variables: *Pre-Privatization* which is an indicator which is set to 1 for SOEs prior to privatizations, 0 for matched non-SOE observations; *Post-Privatization* which is an indicator which is set to 1 for

³¹ A firm is privatized when the state is not the controlling shareholder of the firm any longer.

³² We require the SOEs and non-SOEs to have observations for at least two years before and after the year of the privatizations.

SOEs after privatizations, 0 for matched non-SOE observations. Then, we expect that SOEs have higher tax rates than do non-SOEs prior to privatizations, but the difference should disappear after privatizations. Results reported in Table 6 Panel C suggest that *Pre-Privatization* is significantly associated with higher tax rates, but *Post-Privatization* is not significantly associated with tax rates. These are still consistent with our argument that state ownership is related with higher tax rates. This test could mitigate concerns about omitted time-invariant variables.

5.3 Propensity Score Matching

Table 6 Panel D provides one to one propensity score matched sample tests. The tests follow a two-stage approach. Using the full sample, the first-stage regression predicts the probability that a firm is a SOE. Then, we match each non-SOE with one SOE based on the predicted value from the first stage regression.³³ The second stage regression uses the matched samples, and our results remain robust. These matched sample tests could also mitigate concerns about the differences in firm characteristics between SOEs and non-SOEs.

5.4 Income Taxes and Stock Returns for SOEs

An offsetting mechanism to the expropriation of wealth from minority shareholders is that SOEs (and the minority shareholders) realize certain benefits in return from the state. For example, the state might steer lucrative contracts or favorable financing to the SOE. If so, then these benefits ought to be priced. Stock returns are not of great importance to the state, but they are the primary vehicle for minority shareholders to profit. We provide indirect evidence on this by examining the association between unexpected tax rates and abnormal stock returns for SOE.

³³ For the *CETR* tests, we further deleted observations with no *CETR* data and their matched observations.

In China, listed firms are required to issue financial reports during January 1 through April 31. We calculate buy-and-hold abnormal stock returns from the beginning of May to the next April. Then, we compute buy-and-hold abnormal stock returns by taking the difference between the raw return and the market return during the same period. Further, we use two benchmarks to calculate the unexpected tax rates: tax rates in in the last year and the average tax rates in the last three years. Finally, using the sample of SOEs, we regress buy-and-hold abnormal stock returns on unexpected tax rates and control variables (*Lag_SIZE*, *Lag_MB*, *Lag_Lev*, and ΔROA). ΔROA ($\Delta ROA3$) is used to control for the firm's unexpected financial performance during the current year compared with the last year (the last three years). *Lag_SIZE*, *Lag_MB* are used to control for size and value risk factors (e.g., Fama and French 1992, 1993).³⁴ In Table 7 Panel A, we find significant negative coefficients on both proxies for unexpected tax rates. For example, in the first column, the coefficient on *ETR* is -0.108 (t -statistic = -5.59). At best, this evidence is inconsistent with benefits accruing to SOEs (and minority shareholders) through less tax avoidance, and at worst the evidence suggests SOEs' lack of tax avoidance is costly to minority shareholders, all consistent with our primary hypothesis and conclusion.

5.5 Merger and Acquisition in Tax Haven

Tax haven operations are associated with aggressive tax reporting behavior (e.g., Hope et al. 2013). Chinese firms do not disclose detailed data about tax haven operations, but many Chinese companies establish their operations in tax havens by acquiring firms in tax havens. So, we examine whether state ownership affects the probability of acquiring foreign firms in tax havens. We manually collected data on foreign merger and acquisitions. Using probit regressions,

³⁴ Market factor is controlled for by subtracting off the market return from stock return.

Table 7 Panel B suggest that non-SOEs are more likely to acquire and merger foreign firms in tax havens than non-SOEs. Specifically, the first column uses a subsample of firms with M&A activities (in either tax haven or any other areas); the second column uses the full sample of firms, regardless whether the firm has M&A activities. We include firm size, leverage, market to book value, ownership concentration and preferential tax rates as control variables. The findings are consistent with the argument that non-SOEs are more tax aggressive than SOEs.

5.6 The Role of Financial Health

We test whether the association between SOEs and *ETRs* is affected by financial health. Specifically, we split the sample based on the bankruptcy risk (measured based on Ohlson (1990)'s bankruptcy risk model). We predict the effects of SOEs on *ETR* to be mitigated when the financial health is poor. Table 7 Panel C provides results consistent with our prediction. This finding suggests that due to the state's incentive to save SOEs from bankruptcy and maintain economic growth, the state reduces the tunneling of resources out of the SOEs.

5.7 Untabulated Additional Tests

5.7.1 Tax and Governmental Grants

In addition to examining the relation between taxes and stock returns, a more direct test is whether the government allocates more financial grants to SOEs with higher tax rates. We obtain data on government grants from the WIND database for years from 2007 (data not available before 2007). In untabulated results, we find, after controlling for several other variables and current year's grants,³⁵ next year's governmental grants (scaled by total sales) are not significantly associated with either a SEO's effective tax rate (coefficient= -0.001, *t*-statistic= -

³⁵ Conclusion are the same when current year's grants is not controlled for.

0.77) or cash tax rate (coefficient= -0.000 , t -statistic= -0.38). Again, these results are inconsistent with an alternative explanation that SOEs' higher tax rates translate into benefits for the firm.

5.7.2 The Role of Governance

We also consider the effects of three governance mechanisms: the degrees of marketization across regions, management ownership and whether the CEO is also the chair of the board of directors. Marketization is an index measuring the development of the regional market and institutions from Fan et al. (2010). We find that the effects of SOEs on tax rates are significantly more positive for firms in areas with the degrees of marketization are lower. The board of directors is expected to be more independent and more effective when the CEO is not also the chair of the board of directors. We find the effects of SOE on cash tax rates are less positive when the CEO does not also serve as chair of the board of directors (the differences in the effects are significant when *CETR* is used). However, we find high management ownership does not significantly affect the relationship between state ownership and tax rates, which is consistent with benefits of minimizing tax avoidance accruing to the SOE manager exceeding the negative wealth effects of the manager's equity holdings. However, this inference is based on a non-result, and other explanations remain.

5.7.3 Other Additional Tests

We also employ several other tests to ensure the robustness of our results. First, we use an alternative definition of SOE, where a firm is identified as a SOE if the shares held by the largest shareholder are state-owned shares and exceed 20%. Second, we test whether our results are due to SEO managers being pro-government or not. Specifically, we use two proxies for pro-

government managers: politically connected managers and managers who are communism party members. Untabulated results suggest no significant interaction effect of pro-government managers and SOEs. Third, our results are robust to controlling for discretionary accruals (Dechow et al, 1995). Fourth, our tax rate results are robust to excluding *ROA* from the regressions or replacing *ROA* with stock returns. Finally, we delete firms with state ownership greater 70%, and our results are robust. None of our findings are sensitive to these alternatives, suggesting that our findings are robust.

6. Conclusion

Using a sample of listed Chinese firms, we find that SOEs have significantly higher effective tax rates and cash tax rates than do non-SOEs. We also find a positive association between tax rates and SOE manager promotions. SOE managers exhibit a marked increase in tax rates during years in which they face term-evaluations for promotions. The effects of SOE ownership on reduced tax avoidance are greater for SOEs controlled by local governments than the central government. In addition, we find some evidence that certain corporate governance mechanisms seem to mitigate the negative relation between SOEs and tax avoidance. Results are robust to numerous alternative tests. Collectively, the findings suggest that the SOEs make tax decisions favorable to the controlling shareholder, the state, but costly to the minority shareholders, and the state utilizes SOE managers' career concerns to incentivize these decisions.

Our study contributes to a better understanding of corporate tax avoidance behavior (Hanlon and Heitzman 2010). First, we provide evidence on the importance of ownership structure in determining a firm's tax avoidance behavior (e.g., Shackelford and Shevlin 2001). Second, our study also supports the idea that individual managers and their career concerns play important roles in corporate tax reporting decisions (e.g., Dyreng et al. 2010). Finally, our study

suggests that corporate tax avoidance behavior is associated with agency conflicts between controlling and minority shareholders, and these findings have important implications for investors in international emerging markets (e.g.,Desai and Dharmapala 2004, 2006; Desai, Dyck, and Zingales 2007).

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Appendix: Variable Definitions

Variable	Definition
<i>ETR</i>	Current income tax expense divided by pretax income. Source: CSMAR database.
<i>CETR</i>	Cash income tax paid divided by pretax income. Source: CSMAR database, Wind database and Manual collection.
<i>RANK_ETR</i>	The decile rank of a firm's <i>ETR</i> among all observations in the same year. Source: CSMAR database.
<i>RANK_CETR</i>	The decile rank of a firm's <i>CETR</i> among all observations in the same year. Source: CSMAR database, Wind database and Manual collection.
<i>SOE</i>	An indicator variable equal to one if a firm is controlled by the state, and zero otherwise. The controlling owner is defined as the one who controls an absolute majority (i.e., over 50%) of voting rights, or holds enough voting rights to have de facto control. Source: CSMAR database.
<i>Local SOE</i>	An indicator variable equal to one if a firm is controlled by a local government, and zero otherwise. Source: CSMAR database and Manual collection.
<i>Central SOE</i>	An indicator variable equal to one if a firm is controlled by the central government, and zero otherwise. Source: CSMAR database and Manual collection.
<i>Promotion</i>	An indicator variable for manager promotion in state owned enterprises, which equals to one if the manager is promoted to a higher level position in the next year; zero, if the manager stays at the same position. Source: Manual collection.
<i>ROA</i>	Operating income divided by total assets at the end of the year. Source: CSMAR database.
<i>Size</i>	Firm Size, measured by the natural logarithm of the book value of total assets (in RMB) at the end of the year. Source: CSMAR database
<i>MB</i>	Market to book ratio, the sum of market value of equity at the end of the year, divided by the book value of equity at the end of the year. Source: CSMAR database.
<i>Lev</i>	Financial leverage, measured by total debt divided by total assets at the end of the year. Source: CSMAR database
<i>CAPEX</i>	Capital expenditure divided by total assets at the end of the year. Source: CSMAR database.
<i>NOL</i>	The accumulated pre-tax earnings/losses reported in the prior five years; 0 if the accumulated earnings in the prior five years are positive. Source: CSMAR database.
<i>R&D</i>	Research and development expense divided by total assets at the end of the year. Source: Manual collection.
<i>ForeSale</i>	The percentage of foreign sales to total sales. Source: CSMAR database and Manual collection.

<i>M&A</i>	An indicator variable for merger and acquisition in the current year. Source: CSMAR database.
<i>EquOffer</i>	An indicator variable for seasonal equity offering. Source: CSMAR database.
<i>CrossList</i>	An indicator variable for firms that are also cross-listed in other foreign stock markets. Source: CSMAR database.
<i>TaxPreference</i>	An indicator variable for firms that potentially enjoy a preferential tax rate. Three major types of firms enjoy preferential tax rates: 1) firms domiciled in special locations, including hi-tech industry development zones and economic development zones (that sometimes receive preferential tax rates); 2) firm-years with foreign ownership (that are eligible for preferential tax rates); 3) observations of firms younger than three years (that receive special deductions for start-up expenses). Source: WIND database.
<i>OtherTax</i>	Other taxes or fees paid to the government divided by revenue. Source: CSMAR database.
<i>OwnConcen</i>	The ownership percentage of the largest shareholder, which is the state for SOEs. Source: CSMAR database.
<i>Age</i>	CEO age. Source: CSMAR database and manual collection.
<i>Tenure</i>	CEO tenure. Source: CSMAR database and manual collection.
<i>GDPGorw</i>	Regional economic development, measured based on growth rate of per capita GDP of the province where the firm is located. Source: CSMAR database.
<i>MgmtOwn</i>	An indicator variable equal to one if the management has equity ownership, 0 otherwise. Source: CSMAR database.
<i>DualCEO</i>	An indicator variable equal to one if the CEO is also the chairman of the board of directors, and zero otherwise. Source: CSMAR database.
<i>BHAR</i>	Buy and hold stock return from May of the firm-year to April in the following year, minus the market return during the same period. Source: CSMAR database.
ΔETR	ETR in year t minus ETR in year $t-1$. Source: CSMAR database.
$\Delta CETR$	$CETR$ in year t minus $CETR$ in year $t-1$. Source: CSMAR database.
$\Delta ETR3$	ETR in year t minus the average ETR from year $t-3$ to year $t-1$. Source: CSMAR database.
$\Delta CETR3$	$CETR$ in year t minus the average $CETR$ from year $t-3$ to year $t-1$. Source: CSMAR database.
ΔROA	ROA in year t minus ROA in year $t-1$. Source: CSMAR database.
$\Delta ROA3$	ROA in year t minus the average ROA from year $t-3$ to year $t-1$. Source: CSMAR database.
<i>TaxHavenM&A</i>	An indicator for merger and acquisitions in tax havens. Source: Manual collection.
<i>Pre-Privatization</i>	An indicator which is set to 1 for SOEs prior to privatizations, 0 for matched non-SOEs. Source: CSMAR database.

Post-Privatization An indicator which is set to 1 for previous SOEs after privatizations, 0 for matched non-SOEs. Source: CSMAR database.

Bankruptcy risk Olson's bankruptcy risk measure, which equals the sum of $-0.2086 * \text{equity divided by liability}$, $-4.3465 * \text{assets turnover}$, and $-4.8601 * \text{assets growth}$. (Wang and Campbell 2010). Source: CSMAR database.

Table 1
Sample Descriptive Statistics

Panel A : Sample Selection

Observations of Chinese Firms (non-financial) from 1999 to 2012	20,376
Less: Observations with missing or ambiguous ownership information	(655)
Less: Observations with missing assets or sales revenues	(113)
Less: Observations with missing or invalid current effective tax rate	(3,049)
Less: Observations with missing market values	(105)
Less: Observations with missing capital expenditure	(47)
Less: Observations with missing block holder ownership	(5)
Final Sample for current effective tax rate test	16,402
Less: Observations with missing or invalid cash tax rate	(606)
Final Sample for cash effective tax rate test	15,769

Panel B : Sample composition based on ownership

		# of firm-years	Percent	# of firms
SOEs		11,130	67.86%	1,304
	including			
	Central SOEs	3,113	18.98%	427
	Local SOEs	8,017	48.88%	1,015
Non-SOEs		5,272	32.14%	1,088
Full sample		16,402	100.00%	2,054

Panel C: Industry distribution of sample firm-years

Industry	# of SOEs	# of Non-SOEs	# of firm-years	% of SOEs
Agriculture	242	131	373	64.88%
Mining	302	28	330	91.52%
Food	476	229	705	67.52%
Apparel	328	321	649	50.54%
Furniture	2	50	52	3.85%
Printing	194	134	328	59.15%
Gas and chemistry	1,251	514	1,765	70.88%
Electronic	347	264	611	56.79%
Metal	1,066	426	1,492	71.45%
Machinery	1,776	886	2,662	66.72%
Pharmaceutical products	596	447	1,043	57.14%
Other manufacturing	115	116	231	49.78%
Energy supply	663	35	698	94.99%
Construction	227	106	333	68.17%
Transportation	619	65	684	90.50%
Information technology	567	425	992	57.16%
Retail and wholesale	874	276	1,150	76.00%
Real estate	487	317	804	60.57%
Other Service	410	109	519	79.00%
Media	112	35	147	76.19%
Other	476	358	834	57.07%
Total	11,130	5,272	16,402	67.86%

Table 1 (Cont'd)
Sample Descriptive Statistics

Panel D: Distribution of departing CEOs by the outcomes of political promotion evaluation

The outcomes of CEO political promotion evaluation	Firm-years	Percent
Promotions:	191	2.19%
Government positions	14	0.16%
Manager in a parent firm	74	0.85%
Vice manager in a parent firm	103	1.18%
CEOs stay at the same position:	6,810	77.95%
Other departing CEOs:		
Sick or deceased	45	0.52%
Arrested	25	0.29%
Retired	84	0.96%
Quit	250	2.86%
Demotion or ambiguous ^a	769	8.80%
Missing	371	4.25%
Total	8,736	100.00%

Notes: This table shows the descriptive data on the composition of our sample. Panel A shows the sample selection process. Panel B (C) [D] shows partitions based on ownership (industry) [outcomes of CEO political promotion evaluations].

^a: “Ambiguous” refers to observations for which we cannot clearly identify whether a departure represents a promotion or other outcome.

Table 2
Comparative Statistics

Panel A: SOEs versus Non-SOEs

	SOEs		Non-SOEs		<i>t</i> -test	Wilcoxon test
	Mean	Median	Mean	Median		
<i>ETR</i>	0.222	0.180	0.210	0.169	3.973***	4.785***
<i>CETR</i>	0.231	0.175	0.211	0.156	5.461***	6.562***

Panel B: Central versus Local State Ownership

	Central SOEs		Local SOEs		<i>t</i> -test	Wilcoxon test
	Mean	Median	Mean	Median		
<i>ETR</i>	0.207	0.168	0.228	0.186	-5.475***	-6.008***
<i>CETR</i>	0.215	0.160	0.238	0.181	-4.844***	-5.509***

Panel C: Ex Post Promotion Probabilities

<i>Prob(Promotion)</i>	<i>Quintiles of ETR</i>				
	1 (Lowest)	2	3	4	5 (Highest)
	0.019	0.023	0.033	0.030	0.032

<i>Prob(Promotion)</i>	<i>Quintiles of CETR</i>				
	1(Lowest)	2	3	4	5(Highest)
	0.022	0.024	0.029	0.032	0.031

Notes: This table shows univariate comparisons between tax rates (*ETR*; *CETR*) and state ownership (panels A and B) and the relation between tax rates and manager promotion (panel C). Panel A is based on all available observations; panels B and C are based on the subsample of state owned enterprises only. ***, ** and * refer to two-tailed significance at the 0.01, 0.05 and 0.10 level, respectively. Variable definitions are provided in the Appendix.

Table 3
Descriptive Firm Characteristics and Correlation Matrix

Panel A: Descriptive Statistics

	SOEs				Non-SOEs				<i>t</i> -test for the difference in mean	Wilcoxon test for the difference in median
	N	Mean	Median	Std. Dev.	N	Mean	Median	Std. Dev.		
<i>Size</i>	11,130	21.642	21.499	1.193	5,272	21.147	21.072	1.028	27.308***	23.582***
<i>ROA</i>	11,130	0.045	0.039	0.057	5,272	0.046	0.043	0.066	-1.201	-4.970***
<i>MB</i>	11,130	3.553	2.687	3.114	5,272	4.099	2.941	3.904	-8.911***	-8.653***
<i>Lev</i>	11,130	0.243	0.233	0.164	5,272	0.228	0.220	0.172	5.602***	6.646***
<i>CAPEX</i>	11,130	0.061	0.043	0.059	5,272	0.062	0.044	0.062	-1.192	1.158
<i>NOL</i>	11,130	0.164	0.000	0.959	5,272	0.424	0.000	1.751	-10.107***	-7.145***
<i>R&D</i>	11,130	0.001	0.000	0.003	5,272	0.002	0.000	0.005	-9.847***	-4.725***
<i>ForeSale</i>	11,130	0.055	0.000	0.148	5,272	0.092	0.000	0.199	-12.046***	-15.585***
<i>M&A</i>	11,130	0.308	0.000	0.462	5,272	0.362	0.000	0.480	-6.782***	-6.871***
<i>EquOffer</i>	11,130	0.092	0.000	0.289	5,272	0.085	0.000	0.279	1.455	1.437
<i>CrossList</i>	11,130	0.039	0.000	0.193	5,272	0.003	0.000	0.055	18.057***	13.129***
<i>OwnConcen</i>	11,130	0.428	0.422	0.165	5,272	0.330	0.296	0.144	38.782***	36.014***
<i>MgmtOwn</i>	11,130	0.689	1.000	0.463	5,272	0.696	1.000	0.460	-0.992	-0.989
<i>DualCEO</i>	11,130	0.105	0.000	0.307	5,272	0.249	0.000	0.433	-21.723***	-24.026***
<i>TaxPreference</i>	11,130	0.572	1.000	0.495	5,272	0.576	1.000	0.494	-0.497	-0.496
<i>GDPGrow</i>	11,130	0.118	0.118	0.024	5,272	0.117	0.119	0.023	1.198	1.401

(Table 3 continues on the next page)

Table 3 (Cont'd)

Panel B: Pair-wise Correlations (significant correlations are bold)

	<i>Size</i>	<i>ROA</i>	<i>MB</i>	<i>Lev</i>	<i>PPE</i>	<i>NOL</i>	<i>R&D</i>	<i>ForeSale</i>
<i>ROA</i>	0.203							
<i>MB</i>	-0.300	0.052						
<i>Lev</i>	0.164	-0.373	-0.052					
<i>PPE</i>	0.119	0.198	-0.079	0.075				
<i>NOL</i>	-0.266	-0.344	0.115	0.125	-0.133			
<i>R&D</i>	-0.021	0.062	0.002	-0.097	0.024	-0.033		
<i>ForeSale</i>	0.001	0.015	-0.037	-0.038	0.061	-0.056	0.065	
<i>M&A</i>	0.148	0.080	-0.007	0.042	0.079	-0.059	-0.008	0.009
<i>EquOffer</i>	0.125	0.067	-0.010	-0.019	0.078	-0.049	-0.002	-0.003
<i>CrossList</i>	0.290	0.035	-0.036	0.013	0.031	-0.022	0.018	-0.009
<i>OwnConcen</i>	0.202	0.145	-0.051	-0.058	0.055	-0.120	-0.025	-0.046
<i>MgmtOwn</i>	0.035	0.028	-0.026	0.000	-0.009	-0.076	0.038	0.005
<i>DualCEO</i>	-0.102	-0.001	0.042	-0.055	0.026	0.041	0.046	0.057
<i>TaxPreference</i>	-0.096	0.059	0.058	-0.098	0.054	-0.072	0.119	0.059
<i>GDPGrow</i>	0.038	-0.008	-0.004	0.063	0.019	0.031	-0.015	-0.042
	<i>M&A</i>	<i>EquOffer</i>	<i>CrossList</i>	<i>OwnConcen</i>	<i>MgmtOwn</i>	<i>DualCEO</i>	<i>TaxPreference</i>	
<i>EquOffer</i>	0.077							
<i>CrossList</i>	0.012	-0.016						
<i>OwnConcen</i>	-0.004	0.018	0.069					
<i>MgmtOwn</i>	-0.017	0.031	-0.029	-0.123				
<i>DualCEO</i>	-0.004	0.001	-0.029	-0.073	0.029			
<i>TaxPreference</i>	-0.019	0.043	-0.020	0.025	0.095	0.036		
<i>GDPGrow</i>	0.022	-0.048	0.001	-0.083	-0.110	-0.045	-0.146	

Notes: This table shows statistics and correlations for firm characteristics. In Panel A, all continuous variables are winsorized at the 1% and 99% levels. Panel B reports the Pearson correlations between variables. The significant correlations are bold. ***, ** and * refer to significance at the 0.01, 0.05 and 0.10 level (two-sided test), respectively. Variable definitions are provided in the Appendix.

Table 4
Analyses of Tax Avoidance and State Ownership

Panel A: Full Sample Tests

Dependent variable =	(1) <i>ETR</i>	(2) <i>CETR</i>
<i>SOE</i>	0.011** (2.22)	0.010** (1.99)
<i>Size</i>	0.003 (1.43)	0.003 (1.19)
<i>ROA</i>	-0.116*** (-2.70)	-0.623*** (-11.32)
<i>MB</i>	-0.002*** (-2.99)	-0.002*** (-2.72)
<i>Lev</i>	0.026* (1.84)	-0.027* (-1.69)
<i>CAPEX</i>	-0.104*** (-3.78)	-0.041 (-1.31)
<i>NOL</i>	-0.025*** (-17.73)	-0.027*** (-12.82)
<i>R&D</i>	-1.029*** (-2.78)	-0.989** (-2.41)
<i>ForeSale</i>	-0.002 (-0.21)	0.007 (0.66)
<i>M&A</i>	-0.004 (-1.13)	-0.009*** (-2.61)
<i>EquOffer</i>	-0.018*** (-4.42)	-0.032*** (-6.00)
<i>CrossList</i>	-0.011 (-1.14)	-0.009 (-0.80)
<i>OwnConcen</i>	-0.015 (-1.12)	-0.008 (-0.56)
<i>MgmtOwn</i>	0.001 (0.12)	0.002 (0.51)
<i>DualCEO</i>	-0.006 (-1.29)	-0.007 (-1.28)
<i>TaxPreference</i>	-0.063*** (-14.59)	-0.059*** (-12.55)
<i>GDPGrow</i>	0.002 (0.02)	-0.033 (-0.30)
Intercept	0.092* (1.86)	0.152*** (2.91)
#Observations	16,402	15,796
R ²	0.12	0.10

Table 4 (Cont'd)

Panel B: Analysis of Central versus Local SOEs

Dependent variable =	(1) <i>ETR</i>	(2) <i>CETR</i>
<i>Central SOE</i>	0.003 (0.46)	0.004 (0.63)
<i>Local SOE</i>	0.014*** (2.65)	0.013** (2.29)
<i>Size</i>	0.004 (1.55)	0.003 (1.28)
<i>ROA</i>	-0.117*** (-2.72)	-0.624*** (-11.33)
<i>MB</i>	-0.002*** (-2.91)	-0.002*** (-2.65)
<i>Lev</i>	0.025* (1.76)	-0.028* (-1.75)
<i>CAPEX</i>	-0.105*** (-3.82)	-0.042 (-1.34)
<i>NOL</i>	-0.025*** (-17.72)	-0.027*** (-12.82)
<i>R&D</i>	-1.001*** (-2.73)	-0.968** (-2.38)
<i>ForeSale</i>	-0.001 (-0.10)	0.008 (0.75)
<i>M&A</i>	-0.004 (-1.12)	-0.009*** (-2.60)
<i>EquOffer</i>	-0.018*** (-4.44)	-0.032*** (-6.02)
<i>CrossList</i>	-0.010 (-0.98)	-0.007 (-0.68)
<i>OwnConcen</i>	-0.015 (-1.12)	-0.008 (-0.56)
<i>MgmtOwn</i>	0.000 (0.07)	0.002 (0.47)
<i>DualCEO</i>	-0.007 (-1.41)	-0.008 (-1.35)
<i>TaxPreference</i>	-0.063*** (-14.36)	-0.058*** (-12.33)
<i>GDPGrow</i>	0.004 (0.04)	-0.032 (-0.29)
<i>Intercept</i>	0.084* (1.69)	0.145*** (2.78)
#Observations	16,402	15,796
R ²	0.12	0.10

Notes: This table provides formal tests for the association between tax rates and state ownership (*SOE*). Panel A employs the full sample. Panel B replicates the primary tests but partitions based on the hierarchy of state ownership. *Central SOE* (*Local SOE*) refers to a state owned enterprises controlled by the central (a local) government. All models include both year and industry fixed effects, and standard errors are clustered by firm. Variable

definitions are provided in Appendix. *t*-statistics are reported in parentheses. ***, ** and * refer to two-tailed significance at the 0.01, 0.05 and 0.10 level, respectively.

Table 5
Analyses of SOE Manager Promotion and Tax Avoidance

Panel A: Probit Analyses of SOE Manager Promotion Probability				
Dependent Variable=	(1)	(2)	(3)	(4)
	<i>Promotion</i>			
<i>ETR</i>	0.476*** (3.10)			
<i>RANK_ETR</i>		0.038*** (3.13)		
<i>CETR</i>			0.310** (2.30)	
<i>RANK_CETR</i>				0.023** (2.02)
<i>Size</i>	0.084*** (2.71)	0.084*** (2.70)	0.082*** (2.62)	0.081** (2.57)
<i>ROA</i>	0.798 (1.25)	0.573 (0.88)	0.646 (0.92)	0.467 (0.66)
<i>Lev</i>	0.054 (0.24)	0.040 (0.17)	0.059 (0.26)	0.053 (0.23)
<i>OtherTax</i>	1.001 (1.46)	1.013 (1.47)	0.772 (1.11)	0.805 (1.13)
<i>OwnConcen</i>	0.572*** (2.72)	0.570*** (2.70)	0.572*** (2.69)	0.567*** (2.66)
<i>Age</i>	-0.024*** (-4.28)	-0.024*** (-4.32)	-0.024*** (-4.21)	-0.024*** (-4.24)
<i>Tenure</i>	0.005 (0.35)	0.005 (0.35)	0.004 (0.30)	0.004 (0.30)
<i>GDPGrow</i>	0.321 (0.19)	0.418 (0.24)	0.217 (0.12)	0.235 (0.13)
<i>Intercept</i>	-2.945*** (-3.99)	-3.037*** (-4.11)	-2.852*** (-3.81)	-2.861*** (-3.82)
#Observations	7,001	7,001	6,753	6,753
Pseudo R ²	0.06	0.06	0.05	0.05

Table 5 (Cont'd)

Panel B: The Effect of Manager Term Evaluation on Tax Avoidance

Dependent Variable=	(1)	(2)	(3)	(4)
	Observations in evaluation year	Observations in other years	Observations in evaluation year	Observations in other years
	<i>ETR</i>	<i>ETR</i>	<i>CETR</i>	<i>CETR</i>
<i>SOE</i>	0.023*** (2.61)	0.008 (1.27)	0.026** (2.55)	0.011 (1.55)
<i>Size</i>	0.000 (0.03)	-0.000 (-0.03)	-0.001 (-0.19)	-0.002 (-0.50)
<i>ROA</i>	-0.289*** (-3.39)	-0.128** (-2.38)	-0.780*** (-7.59)	-0.647*** (-9.08)
<i>MB</i>	-0.003 (-1.56)	-0.003*** (-3.19)	-0.003* (-1.81)	-0.003*** (-2.95)
<i>Lev</i>	-0.006 (-0.22)	0.045** (2.47)	-0.025 (-0.80)	-0.011 (-0.51)
<i>CAPEX</i>	-0.098* (-1.89)	-0.129*** (-3.64)	-0.066 (-1.05)	-0.079* (-1.94)
<i>NOL</i>	-0.031*** (-8.30)	-0.024*** (-12.87)	-0.036*** (-6.96)	-0.026*** (-10.04)
<i>R&D</i>	-0.708 (-0.87)	-0.969* (-1.84)	-1.686** (-1.98)	-0.731 (-1.30)
<i>ForeSale</i>	-0.025 (-1.56)	0.002 (0.12)	-0.016 (-0.78)	0.006 (0.36)
<i>M&A</i>	-0.006 (-0.89)	0.002 (0.44)	-0.009 (-1.04)	-0.004 (-0.73)
<i>EquOffer</i>	-0.020** (-2.27)	-0.020*** (-3.48)	-0.030** (-2.52)	-0.034*** (-5.02)
<i>CrossList</i>	-0.017 (-0.66)	-0.001 (-0.04)	-0.027 (-1.10)	-0.009 (-0.63)
<i>OwnConcen</i>	-0.000 (-0.01)	-0.001 (-0.05)	0.029 (1.04)	-0.015 (-0.82)
<i>MgmtOwn</i>	-0.002 (-0.26)	0.000 (0.01)	0.009 (1.02)	-0.003 (-0.44)
<i>DualCEO</i>	-0.014 (-1.54)	0.002 (0.25)	0.015 (1.23)	0.001 (0.18)
<i>TaxPreference</i>	-0.070*** (-8.88)	-0.065*** (-11.56)	-0.078*** (-8.96)	-0.060*** (-9.65)
<i>GDPGrow</i>	-0.103 (-0.51)	0.124 (0.90)	-0.231 (-1.00)	-0.003 (-0.02)
Intercept	0.183** (2.08)	0.141** (2.17)	0.242** (2.39)	0.238*** (3.40)
Observations	3,056	7,690	2,947	7,423
R ²	0.16	0.12	0.14	0.10

Notes: This table provides tests for the association between SOE tax avoidance and manager promotion among SOE firms. Panel A presents results for four different measures of tax avoidance. Panel B partitions the pooled results into different years of the term-evaluation cycle; “Observations in evaluation year” indicates observations in the third year of the term-

evaluation cycle, whereas “Observations in other years” indicates observations in the first two years of the term-evaluation cycle. All models include both year and industry fixed effects, and standard errors are clustered by firm. Variable definitions are provided in the Appendix. *t*-statistics are reported in parentheses. ***, ** and * refer to two-tailed significance at the 0.01, 0.05 and 0.10 level, respectively.

Table 6
Control for self-selection

Panel A: First Stage of treatment effect model

Dependent Variable=	(1)	(2)
	ETR test sample	CETR test sample
	<i>SOE</i>	<i>SOE</i>
<i>Size</i>	0.348*** (34.28)	0.348*** (26.88)
<i>ROA</i>	-2.545*** (-10.84)	-3.044*** (-13.55)
<i>MB</i>	-0.001 (-0.30)	0.001 (0.22)
<i>Lev</i>	-0.751*** (-10.28)	-0.760*** (-8.77)
<i>CAPEX</i>	-0.834*** (-4.68)	-0.844*** (-4.46)
<i>CrossList</i>	0.798*** (6.28)	0.796*** (5.74)
<i>OwnConcen</i>	1.774*** (26.75)	1.748*** (20.83)
<i>MgmtOwn</i>	-0.042 (-1.63)	-0.056* (-1.92)
<i>DualCEO</i>	-0.517*** (-18.15)	-0.531*** (-18.69)
<i>GDPGrow</i>	5.326*** (9.79)	5.510*** (8.90)
<i>CPCMeeting</i>	-0.755*** (-19.05)	-0.722*** (-13.96)
<i>SplitShareReform</i>	0.511*** (3.33)	0.517*** (2.83)
<i>Regulated Industries</i>	0.286** (2.38)	0.363*** (2.65)
<i>CPCMeeting*Regulated Industries</i>	-1.298*** (-44.12)	-1.273*** (-28.40)
<i>SplitShareReform*Regulated Industries</i>	0.727*** (5.40)	0.649*** (4.84)
<i>Intercept</i>	-6.959*** (-29.45)	-6.945*** (-26.56)
Observations	16,402	15,796
Pseudo R2	0.20	0.20

Panel B: Second Stage of treatment effect model

Dependent Variable=	(1) <i>ETR</i>	(2) <i>CETR</i>
<i>SOE</i>	0.053*** (2.74)	0.053*** (2.68)
<i>Size</i>	-0.001 (-0.34)	-0.001 (-0.41)
<i>ROA</i>	-0.084*** (-2.58)	-0.585*** (-12.73)
<i>MB</i>	-0.002*** (-3.68)	-0.002*** (-2.67)
<i>Lev</i>	0.033*** (3.08)	-0.019 (-1.46)
<i>CAPEX</i>	-0.094*** (-4.45)	-0.031 (-1.00)
<i>NOL</i>	-0.025*** (-21.97)	-0.027*** (-14.05)
<i>R&D</i>	-1.013*** (-3.60)	-0.974** (-2.53)
<i>ForeSale</i>	-0.002 (-0.19)	0.008 (0.76)
<i>M&A</i>	-0.004 (-1.21)	-0.010** (-2.54)
<i>EquOffer</i>	-0.019*** (-3.71)	-0.032*** (-7.68)
<i>CrossList</i>	-0.014* (-1.72)	-0.011 (-1.01)
<i>OwnConcen</i>	-0.035*** (-2.69)	-0.028** (-2.50)
<i>MgmtOwn</i>	0.001 (0.47)	0.003 (0.74)
<i>DualCEO</i>	0.001 (0.14)	0.000 (0.02)
<i>TaxPreference</i>	-0.063*** (-20.44)	-0.059*** (-15.74)
<i>GDPGrow</i>	-0.067 (-0.80)	-0.105 (-1.12)
<i>Lambda</i>	-0.026** (-2.18)	-0.026** (-2.22)
<i>Intercept</i>	0.153*** (3.66)	0.212*** (3.89)
#Observations	16,402	15,796
R2	0.12	0.10

Panel C: Difference In Difference Tests of Privatization

Dependent Variable=	(1) <i>ETR</i>	(2) <i>ETR</i>	(3) <i>CETR</i>	(4) <i>CETR</i>
<i>Pre-Privatization</i>	0.043** (2.53)		0.045** (2.35)	
<i>Post-Privatization</i>		0.004 (0.29)		0.001 (0.05)
<i>Size</i>	-0.006 (-0.41)	0.015* (1.85)	0.009 (0.58)	0.010 (1.17)
<i>ROA</i>	0.336** (2.59)	-0.248* (-1.84)	-0.551** (-2.19)	-0.568*** (-3.72)
<i>MB</i>	-0.004* (-1.80)	0.001 (0.50)	-0.004** (-2.02)	-0.000 (-0.11)
<i>Lev</i>	-0.050 (-0.93)	0.038 (0.80)	-0.215*** (-3.37)	-0.024 (-0.50)
<i>CAPEX</i>	0.027 (0.24)	-0.141 (-1.12)	-0.037 (-0.28)	-0.187 (-1.60)
<i>NOL</i>	-0.014** (-2.12)	-0.022*** (-6.02)	-0.017** (-2.46)	-0.021*** (-4.30)
<i>R&D</i>	0.280 (0.12)	0.210 (0.17)	4.082* (1.83)	0.287 (0.16)
<i>ForeSale</i>	-0.043 (-0.76)	-0.032 (-0.91)	0.043 (0.58)	-0.029 (-0.79)
<i>M&A</i>	-0.010 (-0.84)	-0.002 (-0.13)	-0.035** (-2.23)	-0.012 (-0.91)
<i>EquOffer</i>	-0.003 (-0.20)	-0.037*** (-2.66)	-0.025 (-0.85)	-0.060*** (-3.60)
<i>CrossList</i>	-	-0.035 (-0.70)	-	-0.000 (-0.00)
<i>OwnConcen</i>	0.051 (1.09)	-0.033** (-2.13)	0.093 (1.65)	-0.020 (-1.30)
<i>MgmtOwn</i>	0.006 (0.27)	-0.008 (-0.52)	0.004 (0.17)	-0.010 (-0.62)
<i>DualCEO</i>	-0.021 (-1.23)	-0.055*** (-3.79)	-0.009 (-0.45)	-0.048*** (-3.12)
<i>TaxPreference</i>	-0.043** (-2.31)	-0.535 (-1.40)	-0.059** (-2.50)	-0.525 (-1.23)
<i>GDPGrow</i>	-0.319 (-0.51)	-0.005 (-0.17)	0.249 (0.41)	-0.204*** (-5.42)
Intercept	0.234 (0.80)	0.232 (0.92)	-0.126 (-0.37)	0.192 (0.81)
#Observations	809	1,396	717	1,380
R ²	0.19	0.15	0.15	0.15

Panel D: Propensity Score Matched Sample Test

Dependent Variable=	<i>First-stage</i>		<i>Second-Stage</i>	
	<i>SOE</i>	<i>ETR</i>	<i>ETR</i>	<i>CETR</i>
<i>SOE</i>		0.012** (2.37)	0.011** (2.10)	
<i>Size</i>	0.399*** (27.06)	0.007** (2.30)	0.008** (2.45)	
<i>ROA</i>	-3.029*** (-12.82)	-0.168*** (-3.35)	-0.572*** (-8.99)	
<i>MB</i>	-0.006* (-1.65)	-0.002* (-1.86)	-0.001 (-1.44)	
<i>Lev</i>	-0.923*** (-10.95)	0.033* (1.84)	-0.014 (-0.68)	
<i>CAPEX</i>	-1.255*** (-5.92)	-0.135*** (-4.03)	-0.064* (-1.68)	
<i>NOL</i>	-0.036*** (-3.78)	-0.024*** (-16.07)	-0.024*** (-10.86)	
<i>R&D</i>	-8.542*** (-2.94)	-1.055*** (-2.62)	-0.827* (-1.80)	
<i>ForeSale</i>	-0.125* (-1.76)	-0.000 (-0.03)	0.010 (0.73)	
<i>M&A</i>	-0.184*** (-7.38)	-0.002 (-0.60)	-0.008* (-1.73)	
<i>EquOffer</i>	-0.143*** (-3.40)	-0.021*** (-4.10)	-0.043*** (-6.92)	
<i>CrossList</i>	0.728*** (5.36)	0.044 (1.12)	0.021 (0.52)	
<i>OwnConcen</i>	1.683*** (21.00)	-0.008 (-0.45)	-0.006 (-0.34)	
<i>MgmtOwn</i>	-0.100*** (-3.85)	-0.004 (-0.68)	-0.003 (-0.55)	
<i>DualCEO</i>	-0.488*** (-15.66)	-0.009* (-1.68)	-0.012** (-1.96)	
<i>TaxPreference</i>	-0.051** (-1.97)	-0.057*** (-10.68)	-0.054*** (-9.48)	
<i>GDPGrow</i>	2.418*** (3.59)	0.087 (0.65)	0.038 (0.27)	
<i>Intercept</i>	-7.057*** (-22.54)	0.005 (0.07)	0.010 (0.14)	
#Observations	16,402	10,544	10,068	
R ²	0.24	0.12	0.10	

Note: The table reports results of tests to control for possible self-selection issue of state ownership. In Panels A and B, we perform the two-stage Heckman treatment effect test. Panel A shows the first stage probit model to predict state ownership. The first stage includes variables measuring firm fundamentals and corporate governance. Panel B shows the second stage regression after controlling for the hazard ratio (Lambda) estimated from the first stage regression. In Panel C, we identify a sample of SOE firms that get privatized during our sample period. Then, we match each privatized firm with a non-SOE based on the firm size in the privatization year. Further, columns 1 and 3 test differences in tax rates between (previous) SOE and matched non-SOEs prior to (after) privatizations. For the tests prior to

privatizations, we do not include “*CrossList*”, because no firms are cross listed in the test samples. In Panel D, we provide one to one propensity score matched sample tests. Variable definitions are provided in the Appendix. Panels B, C and D include both year and industry fixed effects, and standard errors are clustered by firm. *t*-statistics are reported in parentheses. ***, ** and * refer to two-tailed significance at the 0.01, 0.05 and 0.10 level, respectively.

Table 7
Additional Tests

Panel A: Association between Stock Returns and Unexpected Tax Expense for SOEs

Dependent Variable=	(1)	(2)	(3)	(4)
		<i>BHAR</i>		
<i>ΔETR</i>	-0.108*** (-5.59)			
<i>ΔCETR</i>		-0.081*** (-5.35)		
<i>ΔETR3</i>			-0.134*** (-5.27)	
<i>ΔCETR3</i>				-0.151*** (-6.15)
<i>ΔROA</i>	1.933*** (13.43)	2.071*** (13.37)		
<i>ΔROA3</i>			1.485*** (10.49)	1.546*** (8.29)
<i>Lag_Size</i>	-0.029*** (-7.44)	-0.028*** (-7.18)	-0.033*** (-7.49)	-0.034*** (-7.23)
<i>Lag_MB</i>	-0.011*** (-6.13)	-0.010*** (-6.20)	-0.015*** (-6.92)	-0.014*** (-5.52)
Intercept	0.737*** (8.38)	0.710*** (8.19)	0.914*** (8.86)	0.803*** (7.51)
Observations	9,111	8,594	6,976	5,772
R ²	0.18	0.18	0.18	0.17

Panel B: Probit Analyses of Merger and Acquisition in Tax Haven

Dependent Variable=	(1)	(2)
	Subsample with M&A activities	
	<i>M&A in Tax Haven</i>	Full Sample <i>M&A in Tax Haven</i>
<i>SOE</i>	-0.444** (-2.34)	-0.485*** (-2.76)
<i>Size</i>	0.215*** (2.58)	0.239*** (3.35)
<i>MB</i>	-0.013 (-0.49)	-0.004 (-0.16)
<i>Lev</i>	-0.138 (-0.29)	-0.013 (-0.03)
<i>OwnConcen</i>	0.372 (0.70)	0.303 (0.63)
<i>Tax Preference</i>	-0.057 (-0.33)	-0.060 (-0.37)
<i>Intercept</i>	-7.327*** (-3.99)	-8.170*** (-5.16)
#Observations	5,474	16,402
Pseudo R ²	0.07	0.08

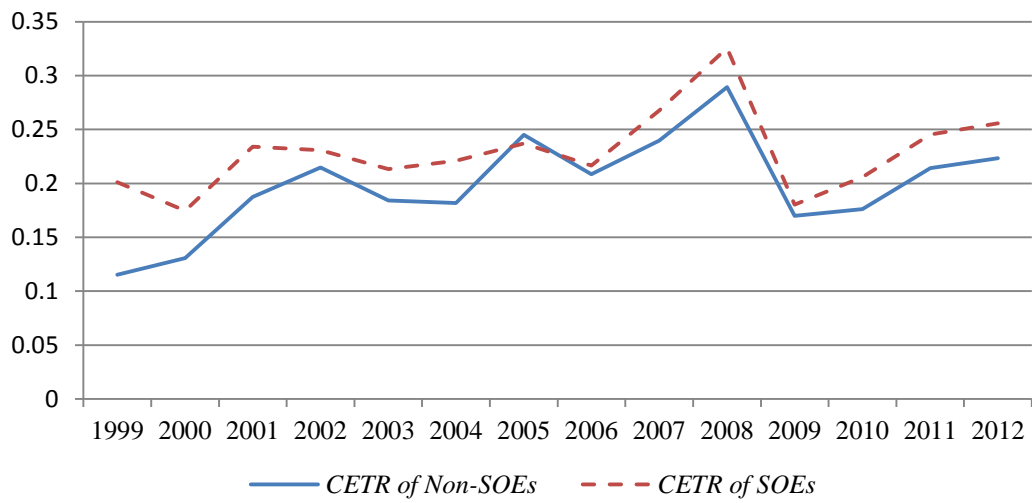
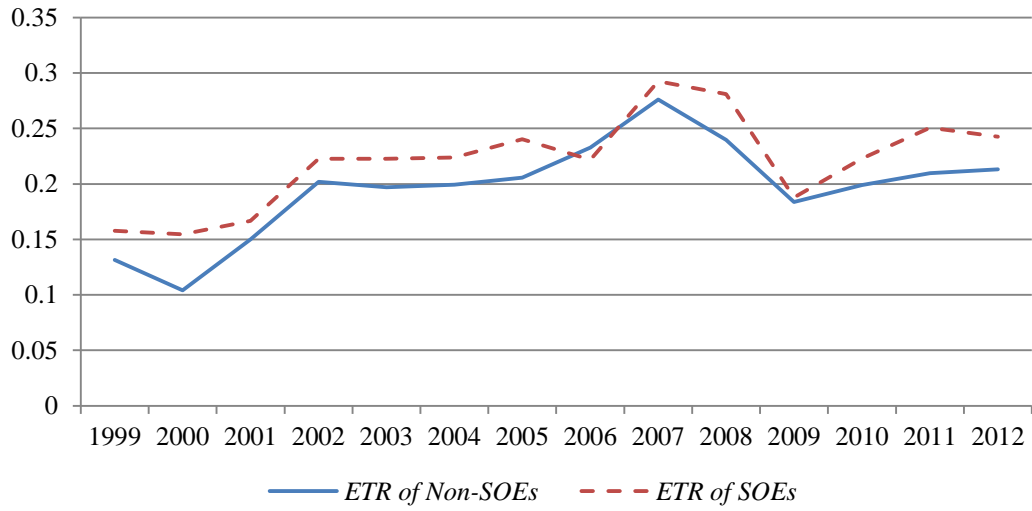
Panel C: The mediating role of Financial Health

Dependent Variable=	(1)	(2)	(3)	(4)
	<i>High Bankruptcy Risk ETR</i>	<i>Low Bankruptcy Risk ETR</i>	<i>High Bankruptcy Risk CETR</i>	<i>Low Bankruptcy Risk CETR</i>
<i>SOE</i>	0.008 (1.02)	0.012** (2.09)	0.001 (0.13)	0.017*** (2.97)
<i>Size</i>	0.005 (1.27)	0.003 (1.14)	0.004 (1.11)	0.003 (1.02)
<i>ROA</i>	0.092 (1.58)	-0.328*** (-5.67)	-0.508*** (-5.85)	-0.679*** (-10.76)
<i>MB</i>	-0.002* (-1.93)	-0.001 (-1.16)	-0.003** (-2.46)	-0.001 (-0.68)
<i>Lev</i>	0.019 (0.93)	0.020 (1.07)	-0.041* (-1.73)	-0.030 (-1.43)
<i>CAPEX</i>	-0.115** (-2.48)	-0.090*** (-2.81)	-0.071 (-1.31)	-0.005 (-0.13)
<i>NOL</i>	-0.023*** (-14.17)	-0.024*** (-5.75)	-0.026*** (-10.67)	-0.027*** (-5.02)
<i>R&D</i>	-1.469** (-2.22)	-0.703* (-1.82)	-1.522** (-2.06)	-0.689* (-1.70)
<i>ForeSale</i>	0.012 (0.57)	-0.008 (-0.74)	0.023 (1.01)	0.003 (0.27)
<i>M&A</i>	0.000 (0.05)	-0.006 (-1.49)	-0.002 (-0.31)	-0.013*** (-3.10)
<i>EquOffer</i>	-0.011 (-1.13)	-0.015*** (-3.24)	0.006 (0.50)	-0.030*** (-5.27)
<i>CrossList</i>	-0.013 (-0.80)	-0.012 (-0.90)	-0.017 (-0.90)	-0.005 (-0.35)
<i>OwnConcen</i>	-0.033 (-1.53)	0.007 (0.47)	-0.021 (-0.88)	0.008 (0.52)
<i>MgmtOwn</i>	0.003 (0.40)	-0.001 (-0.20)	0.005 (0.60)	0.002 (0.45)
<i>DualCEO</i>	-0.019** (-2.38)	0.006 (1.09)	-0.021** (-2.12)	0.004 (0.69)
<i>TaxPreference</i>	-0.054*** (-8.44)	-0.072*** (-13.97)	-0.050*** (-6.94)	-0.067*** (-12.22)
<i>GDPGrow</i>	-0.072 (-0.45)	0.024 (0.19)	-0.098 (-0.55)	0.033 (0.24)
<i>Intercept</i>	0.067 (0.88)	0.093* (1.65)	0.133 (1.57)	0.118* (1.95)
#Observations	8,200	8,199	7,751	8,042
R ²	0.12	0.14	0.08	0.14

Notes: This table shows results of additional tests. Panel A tests the association between buy and hold abnormal returns and unexpected tax expenses for SOEs. Panel B tests the association between state ownership and the probability of merge and acquisitions activities in tax havens. The first column uses a subsample of firms with M&A activities (in either tax haven or any other areas); the second column uses the full sample of firms, regardless whether the firm has M&A activities. Panel C tests the role of financial health in the

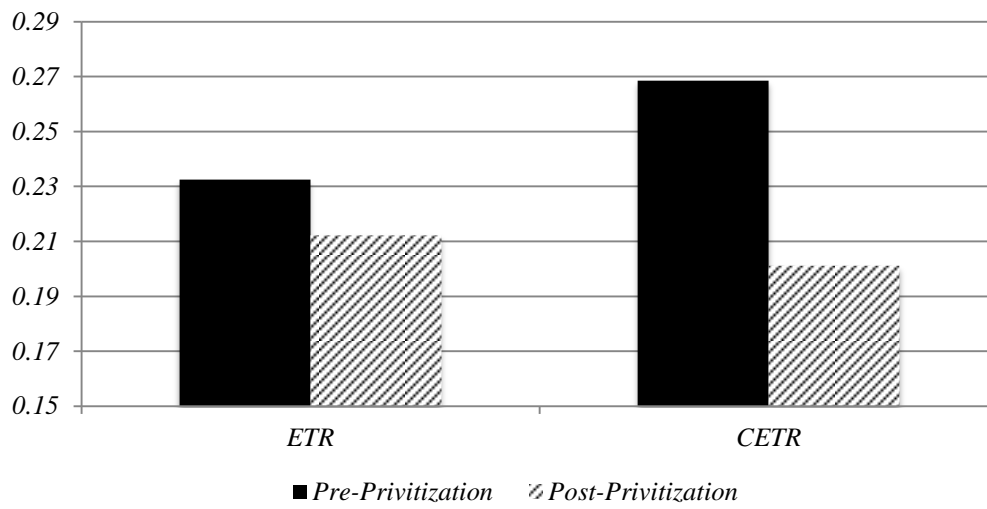
association between state ownership and tax rates. Specifically, we split the sample based on the median of bankruptcy risk. Variable definitions are provided in the Appendix. Panels A and C include both year and industry fixed effects, and standard errors are clustered by firm. *t*-statistics are reported in parentheses. ***, ** and * refer to two-tailed significance at the 0.01, 0.05 and 0.10 level, respectively.

Figure 1
Time Series Behavior of Tax Rates



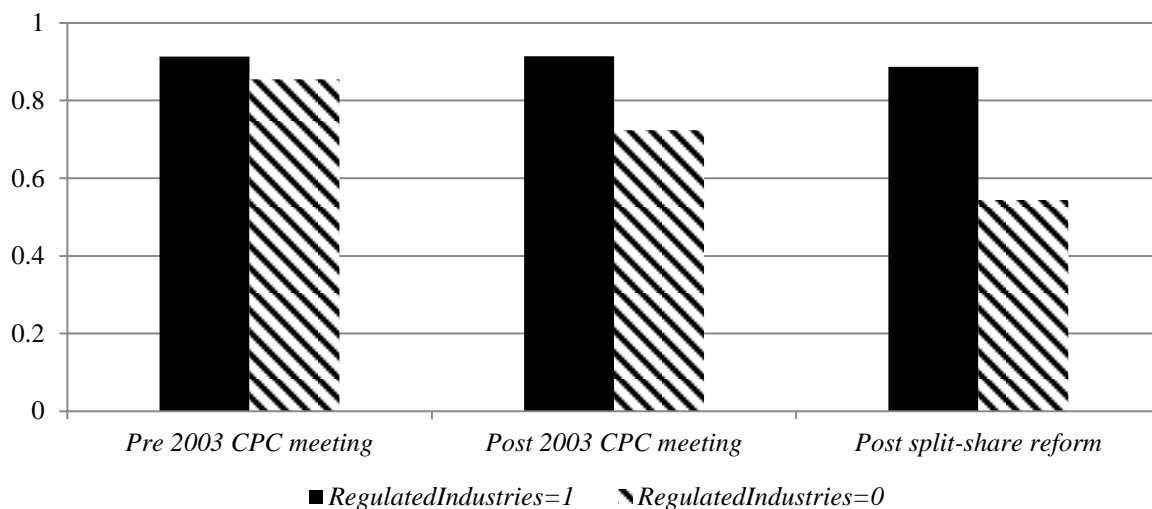
Notes: The figures plots mean tax rates across years for SOEs and non-SOEs.

Figure 2
Tax Rates before and after Privatization



Notes: The figure presents mean tax rates for a subsample of 111 firms that were privatized during the sample period. For each firm, the pre-privatization (post-privatization) period includes observations from the year before (after) privatizations.

Figure 3
Regulation and State Ownership



Notes: The figure presents state ownership across three periods: *Pre 2003 CPC meeting* (1999 to 2002), *Post 2003 CPC meeting* (2003 to 2006), and *Post Split-Share Reform* (2007 to 2012). We calculate the percentage of state owned enterprises in the regulated industries and non-regulated industries. The percentage of state owned enterprises in regulated industries are stable across the three time periods. The percentage of state owned enterprises in non-regulated industries decreases across the three time periods.