Review of Quantitative Finance and Accounting (2020) 55:1305–1340
https://doi.org/10.1007/s11156-020-00875-z

ORIGINAL RESEARCH

Identity of multiple large shareholders and corporate governance: are state-owned entities efficient MLS?

Sen Lin[1] · **Fengqin Chen**[2] · **Lihong Wang**[2]

Published online: 6 April 2020

Abstract
This paper empirically investigates how the identity of multiple large shareholders (MLS) affects principal-agent and principal–principal conflicts of interests in Chinese listed privately controlled firms during 2006–2017, by distinguishing between state-owned and non-state-owned MLS. We find that the presence of non-state-owned MLS significantly mitigates the principal-agent conflict of interests as manifested in a lower selling, general, and administrative expenses scaled by total sales (SG&A ratio) of Chinese listed privately controlled firms. However, this effect is not observed when state-owned entities serve as MLS. Although we do not observe a strong impact of non-state-owned MLS in reducing principal–principal conflict of interests, i.e., a lower ratio of related-party transactions (RPT), the presence of financial non-state-owned MLS helps to alleviate RPT in Chinese listed privately controlled firms. Conversely, state-owned MLS do not mitigate principal–principal conflict of interests but worsen it, as evidenced by a higher ratio of RPT. Additionally, the presence of state-owned MLS is associated with a large magnitude of overinvestment by and increased government subsidies to Chinese listed privately controlled firms. Finally, the entry of non-state-owned MLS enhances the performance of these firms, while the presence of state-owned MLS does not engender a performance-enhancement effect.

Keywords Multiple large shareholders · Agency problems · Costs of political control · State-owned entity · Shareholder heterogeneity

JEL Classification G32 · G34

1 Introduction

Currently, studies on corporate governance (CG) are exploring the black box of complex ownership structures with multiple large shareholders (MLS hereafter). They argue that MLS play an efficient governance role through their participation in internal decision-making (see,

✉ Lihong Wang
LihongWang@xmu.edu.cn

[1] School of Management, Xiamen University, Xiamen, China

[2] Institute for Financial and Accounting Studies, Xiamen University, Siming Nanlu 422, Xiamen 361005, China

e.g., Boateng and Huang 2017; Jiang et al. 2018), for example, by monitoring the controlling shareholder (Volpin 2002) or by competing for control by committing less expropriation (Pagano and Roell 1998) to improve firm performance (see, e.g., Bennedsen and Wolfenzon 2000). However, little attention is paid to the question of whether state-owned entities are efficient MLS. Particularly, the inefficiency of state-owned entities, which are owned by all the citizens and have political and social pursuits, in governance has been extensively demonstrated (see also Lin et al. 1998; Wei et al. 2005). The ambiguous property rights and the absence of accountability in state-owned enterprises (SOEs) facilitate insiders' expropriation, while soft-budget constraints together with the policy burden borne by state-owned entities, largely erode the pursuit of firm value maximization. Therefore, an interesting question is what the net effect of the valuable role of MLS will be when having inefficient state-owned shareholders as MLS in governance. To answer this, this paper utilizes a sample of Chinese listed privately controlled firms to explore the impact of MLS on principal-agent (PA) and principal–principal (PP) conflicts of interests as well as on firm performance, comparing state-owned shareholders with non-state-owned shareholders as other large shareholders.

Compared to dispersed ownership without powerful shareholders as well as concentrated ownership in the hands of a dominant owner, the presence of MLS is viewed as an efficient mechanism to mitigate the rent-seeking behaviors of managers and controlling shareholders. Specifically, researchers show that MLS effectively mitigate the information asymmetry and agency costs, thereby leading to better earnings informativeness (Boubaker and Sami 2011), stronger corporate risk-taking ability (Mishra 2011), a higher valuation of cash holdings (Attig et al. 2013), less inter-corporate loans (Boateng and Huang 2017), and superior investment efficiency (Jiang et al. 2018). The essence of the above positive effects lies in the monitoring by and contestability of large shareholders (see, for instance, Attig et al. 2013; Boateng and Huang 2017). In other words, if large shareholders decide to collude but not monitor, then the positive effects of the governing role of MLS will largely be discounted. Indeed, scholars find that shareholder heterogeneity limits the tendency of collusion among large investors and significantly enhances the positive effects of MLS on governance and firm performance (Laeven and Levine 2008; Barroso et al. 2016). More precisely, the valuable role of MLS is more pronounced when the identity and types of the first two largest shareholders are different. This is because shareholders with different identities are less likely to share common interests, and the different regulatory and industry environments they face increase the opportunistic costs of forming a coalition (Maury and Pajuste 2005; Jara-Bertin et al. 2008).[1]

Although the governance role of MLS and shareholder heterogeneity have been widely examined, the impact of state-owned entities serving as MLS on corporate governance has largely been ignored. By analyzing other state-owned large shareholders in Chinese listed privately controlled firms, our paper extends the research on MLS and shows that the identity of a large shareholder is important in affecting the governance role of MLS, irrespective of shareholder heterogeneity. More precisely, because of the unique nature of state-owned entities, i.e., those owned by all the citizens and born with political and social pursuits, its inefficiency in governance may reduce the positive impact of MLS, despite the existence of shareholder heterogeneity. Specifically, although prior literature has explored state-owned large shareholders to verify the effect of shareholder heterogeneity, no study

[1] For example, Maury and Pajuste (2005) analytically suggest that it is less likely for financial institutions to collude with family controlling shareholder because the cost of getting caught for private benefit extraction is extremely high for financial institutions, such as the heavy loss of reputation and the strict *ex ante* responsibility they have.

builds an integral framework to analyze the influence of state-owned MLS on corporate governance (see, e.g., Attig et al. 2008; Boateng and Huang 2017).[2] An exception is Lin et al. (2016); using a sample of Chinese listed companies from 2004 to 2011, they find that the positive relationship between MLS and the value of cash holdings disappears in Chinese listed non-SOEs when the second largest shareholder is a government entity. They attribute this finding to the fact that state-owned MLS focus on political and social purposes, which makes them lack the time and energy to monitor managers and the controlling shareholder. However, Lin et al. (2016)'s analysis focuses only on the impact of state-owned MLS on the valuation of cash holdings. To fill this void, our study extends the analysis of state-owned entities as MLS in a more general framework by comparing the influence of state-owned MLS and non-state-owned MLS on agency problems and firm performance, using a sample of Chinese listed privately controlled firms. Additionally, we explore the role of state-owned MLS from the perspective of the grabbing versus helping hand of the government, e.g., overinvestment and subsidies, to enrich our understanding of the role of state-owned MLS in corporate governance. Overall, by testing state-owned large shareholders in Chinese listed privately controlled firms, this study extends the current research on MLS. It argues that shareholder heterogeneity does not necessarily explain the governance efficiency of MLS in governance, but one should also take the identities of other large shareholders into account.

China provides a unique context to study the above research design. On the one hand, a dominance of state ownership in Chinese listed firms allows us to examine the effect of the government as another large shareholder. On the other hand, given China's unique political environment, it has been documented that Chinese privately controlled firms have long been ideologically and economically discriminated, e.g., with a limited access to subsidies and bank loans (see Lee and Wang 2017). This environment incentivizes them to obtain the government's helping hand, for example, by introducing the state as another large shareholder. In particular, a new round of reforms aimed at promoting economic vitality was initiated in 2015 in China, i.e., mixed ownership reform,[3] which encourages state-owned capital to invest in Chinese listed privately controlled firms. This environment offers us a quasi-experimental setting to investigate the governance role of the government as MLS. Therefore, this study utilizes a sample of Chinese listed privately controlled firms during 2006–2017 to compare the governance effect and firm performance by introducing a state-owned entity as another large shareholder (state-owned MLS hereafter) with those by introducing a non-state-owned entity as another large shareholder (non-state-owned MLS hereafter). More precisely, we use the *SG&A ratio* (i.e., selling, general, and administrative expenses scaled by total sales) to capture the opportunistic behaviors of managers (i.e., principal-agent conflict of interests) and *RPT* (i.e., the magnitude of related-party transactions scaled by total assets) to capture the tunneling behaviors of dominant owners (i.e.,

[2] As an example, Attig et al. (2013) show that the presence of the state as the second largest shareholder is not associated with an effective monitoring of the controlling shareholder, which aims to enhance the valuation of cash holding. They attribute this finding to outside investors' perception of the potential misuse of excess cash when the government is one of the large shareholders; however, they but do not conduct an in-depth investigation of this matter.

[3] In September 2015, the Central Committee of the Communist Party of China and the State Council issued the *Opinions on Deepening the Reform of State-Owned Enterprises*, which proposed "promoting the reform of mixed ownership to amplify the function of state-owned capital and to improve the efficiency of state-owned assets." This reform not only encourages state-owned enterprises to introduce non-state-owned capital but also pushes state-owned capital to invest in privately controlled firms.

principal–principal conflict of interests). Moreover, we utilize two accounting-based measurements, i.e., *ROA* (i.e., net income divided by total assets) and *asset utilization efficiency* (i.e., total sales divided by total assets) to explore the relationship between MLS and firm performance. Finally, to capture the grabbing hand and helping hand brought by state-owned MLS, we examine overinvestment, defined as investment expenditures beyond what is required to maintain existing assets and to finance expected new investment in positive net-present-value projects, and subsidy, which is defined as government subsidies divided by total sales.

Next, to alleviate the concerns of endogeneity and confounding events, we employ a difference-in-differences (DID) approach; additionally, we run the analyses using a propensity score-matched (PSM) sample to ensure that our treated and benchmark firms are comparable on the observable covariates. Our empirical results show that the presence of non-state-owned MLS in Chinese listed privately controlled firms has a positive effect in mitigating principal-agent conflict of interests, e.g., manifested in a lower *SG&A ratio*. However, its effect in alleviating related-party transactions is not strong, which may be attributed to a lack of shareholder heterogeneity and collusion between large shareholders. By further separating non-state-owned large shareholders into financial (financial non-state-owned MLS) and non-financial (non-financial non-state-owned MLS) ones, we observe that the presence of financial non-state-owned MLS effectively reduces related-party transactions by privately controlled dominant owners. Moreover, having state-owned entities as MLS bears no relation with the ratio of SG&A expenses and even exacerbates the magnitude of related-party transactions. This result thus suggests that ambiguous property rights together with the political and social pursuits frustrate the positive monitoring role of state-owned entities as MLS in alleviating agency problems. Besides, we find that the presence of state-owned MLS increases the degree of overinvestment, while helps privately controlled firms obtain more subsidies from the government, particularly, when these firms have no politically connected executives before the entry of state MLS. Finally, the presence of non-state-owned MLS has a positive effect in improving *ROA* and *asset utilization efficiency*, but state-owned MLS do not have this influence.

Arguably, the findings of this article contribute to the literature in the following ways. First, this article studies not only the heterogeneity of MLS but also the impact of shareholder identity on the governance role of shareholder heterogeneity, i.e., the presence of state-owned large shareholders in Chinese listed privately controlled firms. It therefore extends the research on MLS by showing that shareholder heterogeneity does not necessarily explain the positive governance effect of MLS, and hence the identities of other large shareholders must be considered. More precisely, we find that even though the identity of state-owned large shareholders is different from that of privately controlled dominant shareholders, shareholder heterogeneity does not necessarily result in better firm performance, probably because state-owned entities are inefficient in mitigating agency problems and care more about political and social objectives than about the financial performance of listed firms. Second, we further the stream of political connection literature by setting it in the context of MLS, which simultaneously enriches the research on MLS and on government ownership. Specifically, our results suggest that state-owned MLS, despite bringing benefits to Chinese listed privately controlled firms through easier access to subsidies, do not contribute to good corporate governance but even exacerbate overinvestment pursued by state-owned large shareholders for political and social goals at the expense of small investors, resulting in a poor financial performance. Our investigation on the grabbing versus helping hand by state-owned large shareholders in Chinese privately controlled firms helps us to better understand the governance role of state-owned MLS. Finally, by virtue

of the specific context of China, we can dynamically investigate the role of MLS by using a PSM-DID approach instead of a static analysis. This research design allows us to address critical endogeneity problems, which are an important issue that needs to be resolved in the corporate governance research, and thus better captures the impact of the identity of MLS on governance.

The remainder of this article is structured as follows. In Sect. 2, we develop several hypotheses about the effect of MLS on agency problems as well as on firm performance, distinguishing between non-state-owned MLS and state-owned MLS in Chinese listed privately controlled firms. Section 3 describes our data and methodology. The empirical analyses are reported in Sect. 4. Finally, Sect. 5 concludes the study.

2 Development of hypotheses

2.1 Non-state-owned MLS, agency problems, and firm performance

Most of the literature on MLS views the presence of MLS as a valuable mechanism to mitigate agency problems because they effectively alleviate the benefits extraction of entrenched insiders. For example, Boubaker and Sami (2011) show that control contestability provided by other large shareholders to the largest shareholder can act as a disciplining device and, consequently, increase the informativeness of accounting earnings. Mishra (2011) finds that MLS effectively reduce the conservative projects adopted by the controlling shareholder and therefore enhance the corporate risk-taking ability. Attig et al. (2013) argue that the presence of MLS plays an internal monitoring role on the controlling shareholder, which is associated with a higher valuation of cash holdings. Similarly, Boateng and Huang (2017) document that other large investors constrain tunneling by the controlling shareholder, leading to lower leverage and fewer inter-corporate loans. Jiang et al. (2018) also note that MLS strongly express their opinions during internal decision-making, and thus improve the firm's investment efficiency. Overall, prior literature shows that MLS play an active role in monitoring managers and the controlling shareholder, thereby mitigating agency problems and promoting firm performance.

The positive governance role of MLS is rather valuable in the Chinese context, featured by the weak legal protection of property rights, which facilitates opportunistic behaviors by top managers and the controlling shareholder. As an example, in Chinese listed privately controlled firms, without efficient monitoring, managers may frequently pursue perquisite consumption, expensive perks and empire building to extract rents from listed firms, the costs of which are manifested in a poor operating efficiency, e.g., higher SG&A expenses (see also Singh and Davidson 2003). These discretional behaviors of managers reduce the wealth distributed to non-state-owned, profit-oriented shareholders, which undoubtedly increases the incentives of non-state-owned large shareholders to monitor the managers of Chinese listed privately controlled firms. More precisely, compared with small stock market investors, other large non-state-owned shareholders have a stronger incentive to protect themselves from being hurt by opportunistic managers, a situation that efficiently solves the free rider problem brought by minority investors in monitoring the managers. In sum, we posit that the presence of non-state-owned MLS in Chinese listed privately controlled firms reinforces the motivation and the power of shareholders to protect their interests, thereby mitigating principal-agent conflict of interests, as manifested in a lower ratio of SG&A expenses.

H1a: The presence of non-state-owned MLS mitigates principal-agent conflict of interests in Chinese listed privately controlled firms, which manifests in a lower ratio of SG&A expenses.

Regarding the tunneling behavior of the dominant owner, on the one hand, prior literature shows that the presence of another large shareholder can play an efficient monitoring role because tunneling activities by the dominant owner bias the allocation of resources among various investors, to the detriment of the interest of other large shareholders, resulting in a strong incentive for other large shareholders to monitor the controlling shareholder's self-dealing behaviors. This finding is similar to our reasoning for MLS in mitigating principal-agent conflict of interests in that the presence of other large non-state-owned shareholders in Chinese listed privately controlled firms can alleviate the free rider problem brought by minority investors in monitoring the dominant owner. On the other hand, research on MLS shows that the monitoring effect of MLS in mitigating principal–principal conflict of interests may be impaired by the coalition tendency of large shareholders (Zwiebel 1995; Pagano and Roell 1998). In other words, shareholders are prone to form a coalition if the direct benefits from tunneling exceed the indirect benefits from monitoring the controlling shareholder. Conversely, if the identities of the first two large shareholders are different, the presence of MLS is more valuable because of unlikely shareholder collusion. More precisely, large shareholders with different identities are more likely to have diverse objectives, and they are supervised by different regulations and industry restrictions, which makes it difficult for them to jointly conduct tunneling and reach a consensus on the distribution of private benefits.

Overall, a non-state-owned large shareholder in Chinese listed privately controlled firms may have two competing incentives regarding the tunneling by the dominant owner, i.e., monitoring or colluding. On the one hand, the rent-seeking activities of the dominant owner expropriate the interests of other shareholders, which motivates non-state-owned large shareholders to engage in monitoring. On the other hand, non-state-owned large shareholders may collude with the controlling shareholder for greater benefit extraction from joint expropriation. This collusion among large shareholders exacerbates related-party transactions, which are frequently used by the dominant owner to extract the wealth from minority investors (see also Cheung et al. 2010; Huang 2016). To summarize, since it is uncertain which effect dominates, we posit that the influence of non-state-owned large shareholders on principal–principal conflict of interests in Chinese listed privately controlled firms remains an empirical question.

H1b: The effect of non-state-owned MLS in alleviating principal–principal conflict of interests in Chinese listed privately controlled firms, manifested in a lower ratio of related-party transactions, is not clear a priori.

Finally, previous studies document that firms with at least two large shareholders exhibit better firm performance than firms with a single large shareholder due to the mitigation of principal-agent and principal–principal conflicts of interests (see, e.g., Maury and Pajuste 2005; Jara-Bertin et al. 2008; Laeven and Levine 2008). Meanwhile, these studies highlight the importance of shareholder heterogeneity in enhancing firm performance. They note that homogeneous shareholders are more likely to form a coalition to expropriate other investors rather than to improve firm performance. More precisely, shareholders with the same identity may add extra knowledge to hide

the diversion of profits, while their coalition is less likely to be perceived by outsiders, which increases the propensity to collude (see, e.g., Maury and Pajuste 2005). Since the effect of non-state-owned MLS on principal–principal conflict of interests is determined by a tendency to collude with or to monitor the controlling shareholder, taking the positive effect of non-state-owned MLS on mitigating principal-agent conflict of interests, we posit that the influence of non-state-owned MLS on firm performance in Chinese listed privately controlled firms remains an empirical question.

H1c: The effect of non-state-owned MLS in promoting firm performance in Chinese listed privately controlled firms, manifested in a higher ROA and asset utilization efficiency, is not clear a priori.

2.2 State-owned MLS, agency problems, and firm performance

Concerning the principal-agent conflict of interests, on the one hand, the emergence of another large shareholder, i.e., state-owned large shareholder, increases the power of the shareholder group when compared to the management team. According to the theory of MLS, the presence of MLS contributes to a higher level of ownership concentration, which makes it more difficult for managers to seek rent. For example, Shleifer and Vishny (1986) suggest that MLS have the motivation and resources to monitor managers and improve firm performance. In other words, MLS could play a monitoring role, curbing the extraction of private benefits by the management. Therefore, the presence of state-owned MLS helps to deter top executives' discretional behaviors, thereby lowering the *SG&A ratio*.

On the other hand, ambiguous property rights and social/political goals of state-owned entities weaken the positive monitoring role of state-owned MLS (Qian 1996; Qiang 2003; Wei et al. 2005). Specifically, because state-owned entities are owned by all citizens (Qian 1996), ambiguous property rights result in no clear representative to do the monitoring, which largely erodes state-owned large shareholders' incentives and abilities to mitigate managerial rent-seeking behaviors. This is similar to the notion of fiduciary shareholders documented in Barroso et al. (2016), who compare the effect of beneficiary shareholders, i.e., shareholders who invest their own wealth in the company, with that of fiduciary shareholders, i.e., shareholders acting on behalf of others, and show that only the existence of beneficiary non-controlling large shareholders leads to greater shareholder protection. In addition, the intertwining of economic, social, and political objectives borne by state-owned MLS may indirectly facilitate managers' opportunistic behaviors (Wei et al. 2005; Chen et al. 2008). For example, using a sample of Chinese listed firms from 1994 to 2000, Chen et al. (2008) find that the government may actively help local firms to engage in earnings management (by giving more resources), and thus help them go public smoothly, which is ultimately for developing local economies. Furthermore, a close state-enterprise relation, i.e. the entry of state-owned MLS, provides a protection for Chinese listed firms from the government, such as no penalty of poor financial disclosure and a lower risk of bankruptcy, which again exacerbates principal-agent conflict of interests (Chen et al. 2008; Chaney et al. 2011; Belghitar et al. 2019). Hence, in Chinese listed privately controlled firms, ambiguous property rights, political goals, and additional protections brought by state-owned MLS weaken the positive monitoring role of state-owned MLS and may even loosen the tie between management effort and firm performance, which further deteriorates principal-agent conflict of interests, as manifested in a higher ratio of SG&A expenses.

H2a: The effect of state-owned MLS in alleviating principal-agent conflict of interests in Chinese listed privately controlled firms, manifested in a lower ratio SG&A expenses, is not clear a priori.

For principal–principal conflict of interests, there are again two competing effects of MLS. One is to monitor dominant owners, while the other is to collude with them (Zwiebel 1995; Bennedsen and Wolfenzon 2000). Meanwhile, the importance of shareholder heterogeneity is highlighted for MLS to prohibit shareholder coalition. Specifically, it is difficult for shareholders with different identities in a listed firm to share common interests, and thereby form a coalition. It has been documented that shareholders with different identities diverge in their preferences for risks and returns, private costs of monitoring, and strategic motivations when investing in a company (see also Maury and Pajuste 2005; Jara-Bertin et al. 2008). In our paper, state-owned large shareholders have a distinct identity when compared to privately controlled shareholders. Hence, according to extant studies, it is less likely for state-owned large shareholders and privately controlled dominant owner to reach a coalition consensus, thereby a positive governance effect of state-owned MLS could be expected.

Next, the unique nature of state-owned large shareholders may also lead to an insufficient monitoring on dominant owner. As argued above in the principal-agent conflict of interests, state-owned entities inherently face the problem of ambiguous property rights and bear the social and political goals. These two defects may largely discount the role of state-owned MLS in monitoring the controlling shareholder. First, state-owned entities are essentially owned by all the citizens, and thus there is a lack of accountable representatives to do the monitoring. This situation induces a weaker motivation and reduces the ability of state-owned MLS to monitor the controlling shareholder after they enter privately controlled firms. Second, to achieve their political and social goals, state-owned MLS may build a subtle alliance with the controlling shareholder. More precisely, an alliance/coalition between state-owned large shareholders and private entrepreneurs may facilitate state-owned investors' pursuit of political and social goals. Not surprisingly, within such an alliance, controlling shareholder of privately controlled firms might be less rigorously monitored, resulting in a more severe expropriation of minority investors. What's worse, state-owned shareholders as MLS may even push a Chinese listed privately controlled firm to achieve political or social goals by, for example, conducting related-party transactions or cross-subsidizing other SOEs in poor financial condition, which is at the expense of the interest of minority investors. In sum, we expect that, after their entry, state-owned large shareholders have insufficient incentives to monitor or prevent controlling shareholders' tunneling activities, as manifested in a large ratio of related-party transactions.

H2b: The effect of state-owned MLS in alleviating principal–principal conflict of interests in Chinese listed privately controlled firms, manifested in a lower ratio of related-party transactions, is not clear a priori.

Overall, based on above the reasoning, we argue that that the effect of state-owned MLS is also uncertain because of its dual role as MLS and state-owned entities. On the one hand, the presence of MLS would play a check and balance role in monitoring managers and the controlling shareholder, which contributes to better firm performance (see also Maury and Pajuste 2005; Jara-Bertin et al. 2008; Laeven and Levine 2008). On the other hand, the specific feature of state-owned entity, i.e., owned by all the citizens, makes the positive effect

of MLS no longer obvious. To be specific, ambiguous property rights cause the absence of accountable representative who can monitor top managers and the controlling shareholder. Besides, the political and social pursuits of the government as investors further worsen the expected positive effect of MLS in corporate governance. Hence, the uncertain role of state-owned MLS in alleviating principal-agent and principal–principal conflict of interests makes their effect on firm performance also not clear a priori.

H2c: The effect of state-owned MLS on firm performance, manifested in ROA and asset utilization efficiency, is not clear a priori.

3 Data and methodology

3.1 Data and sample selection

We began by using a sample of Chinese listed privately controlled firms on the Shanghai and Shenzhen Stock Exchange during 2006–2017. Our sampling period began in 2006 because, before the 2005 split-share reform in China, the majority of the shares in Chinese listed firms, i.e., approximately two-thirds, were non-tradable, making it difficult for the new entry of other large shareholders. We recognized a sample of Chinese listed privately controlled firms whose ultimate controller did not belong to the central or local governments or government affiliates, e.g., the Ministry of Finance, State Assets Supervision and Administration Commission, state-owned asset management companies, or their subsidiaries. Particularly, learning from La Porta et al. (1999), we used a 5% ownership stake as a threshold to define the entry of another large shareholder (blockholder). Therefore, if a firm had at least two shareholders holding more than 5% of total shares outstanding, we classified it as a firm with an MLS ownership structure. In addition, to mitigate concerns about confounding events, we further limited our sampling period to the 3 years before and after the introduction of new blockholders and employed the PSM method to select a sample of Chinese listed privately controlled firms as benchmark firms. More precisely, we classified the entry year of MLS as the post-period because the effect of MLS might emerge at the end of the entry year (see also Defond et al. 2015). As an example, if a new blockholder entered a firm without MLS in 2013, the pre-period was defined as 2010 to 2012, and the post-period was from 2013 to 2015. For newly entered blockholders, we traced their shareholdings in the following 3 years to ensure that their ownership ratio remained higher than 5% so that they were able to play a check and balance role.

Next, we removed financial firms, firms receiving special treatment, and firms with missing values for key explanatory variables, such as shareholding by the dominant owner and the ratio of independent directors, from the initial sample. We also required that a treated firm appear in both pre- and post-periods of MLS entry to ensure a comparison of economic outcomes before and after the entry of another large shareholder across treated and benchmark firms. As a result, our final PSM sample included 1126 firm-year observations (256 firms) for the treated group and 1006 firm-year observations (256 firms) for the benchmark group, totaling 512 firms and 2132 firm-year observations in the analysis of Chinese listed privately controlled firms. Finally, to identify the identity of a firm's ultimate controller and other large shareholders (e.g., the second to tenth largest investors), we hand-collected the information from annual reports, which were downloadable from the website of the Shanghai stock exchange (SHSE), i.e., www.sse.com.cn, and the website of

Shenzhen stock exchange (SZSE), i.e., www.szse.cn. The other ownership and firm-level accounting data were retrieved from the China Securities Market and Accounting Research (CSMAR) and the WIND databases.

3.2 Variables

We first utilize selling, general, and administrative expenses scaled by total sales (*SG&A ratio*) to gauge the principal-agent conflict of interests (see also Ang et al. 2000; Singh and Davidson 2003). Singh and Davidson (2003) argue that higher SG&A expenses are closely related to higher managerial pay in terms of perks, salaries, office complexes, and other organizational support facilities, which reflect managerial discretionary expenses for principal-agent conflict of interests. In addition, to empirically capture principal–principal conflict of interests, we employ the ratio of related-party transactions scaled by total assets (*RPT*) as a proxy, which has been extensively used as a measurement of tunneling (see also Cheung et al. 2010). In particular, following Cheung et al. (2010)[4] and Berkman et al. (2010), we exclude related-party transactions that are potentially beneficial to a listed firm. More precisely, these potentially "propping up" transactions from the related party to the listed firm include fund transactions, loan guarantees, and donations. Furthermore, to better capture the tunneling by the dominant owner via related-party transactions, we focus only on deals occurring between a listed firm and its parent company, other firms controlled by its parent company, other firms controlled by members exerting a substantial influence on the listed firms, and other firms controlled by members of the immediate families of any of these parties. Finally, two accounting-based measurements are employed to investigate firm performance. The first is the ratio of net income divided by total assets (*ROA*), while the other is total sales divided by total assets (*asset utilization efficiency*). A higher value of these two variables indicates the superior ability of a firm to generate profits and employ assets and, thus, enhance performance.

With respect to CG and firm-level control variables, we first calculate the shareholdings of a controlling shareholder (*Top1*), defined as the ratio of shares owned by the controlling shareholder scaled by the total outstanding shares. In addition, to accurately capture the power of shareholders and mitigate the concerns of subtle alliance, we view shareholders related to each other as one group (e.g. same pairs jointly investing other companies) and hence add their shareholdings (see also Jiang et al. 2018). Subsequently, we use a dummy variable (*Con_tran*) to identify whether the ultimate controller experiences a replacement after the entry of the new blockholder. The other CG controls include *Board* (=the natural logarithm of the number of directors on the board), *Inde_rate* (=the percentage of the independent directors to the total number of directors on the board), *Dual* (=a dummy variable that equals one if the CEO is also the chairman of the board, and zero otherwise), and *Mngshr* (=the ratio of managerial shareholdings to the total shares outstanding). In addition, we add firm-level variables to control their influences on the economic outcome of having MLS, including *Size* (=the natural logarithm of the book value of total assets), *Lev* (=the ratio of total liabilities to total assets), *Sales growth* (=the yearly growth rate of total sales), and *Tangi* (=the ratio of tangible assets to total assets). In particular, we use a

[4] Cheung et al. (2010) classify related-party transactions into three categories: (1) transactions that are a priori likely to result in the expropriation of the listed firm's minority shareholders; (2) transactions likely to benefit the listed firm's minority shareholders; 3) transactions that could have strategic rationales and perhaps are not expropriation.

Table 1 Definition of variables

Variables	Definition
The presence of MLS	
Post	Dummy variable that equals one in post-period of MLS, and zero otherwise
Treat	Dummy variable that equals one for firms experiencing a change from a single large shareholder to MLS, and zero otherwise
Economic consequence of MLS	
SG&A ratio	The ratio of selling, general, and administrative expenses scaled by total sales
RPT	The ratio of potentially expropriated related-party transactions scaled by total assets, referring to the methodology of Cheung et al. (2010)
ROA	The ratio of net income divided by total assets
Asset utilization efficiency	The ratio of total sales divided by total assets
Overinvestment	Variable that equals residuals if the residual in the model referring to the methodology of Richardson (2006) is larger than zero and equals zero if the residual is smaller than zero
Subsidy ratio	The ratio of government subsidies to total sales
CG and firm-level controls	
Top1	The shareholdings of the controlling shareholder relative to total shares outstanding
Con_tran	Dummy variable that equals one if a firm's ultimate controller experiences a replacement after the entry of MLS, and zero otherwise
Board	Natural logarithm of the total number of directors on the board
Inde_rate	The percentage of independent directors to the total number of directors on the board
Dual	Dummy variable that equals one if the CEO is also the chairman of the board, and zero otherwise
Mngshr	The managerial shareholding relative to total shares outstanding
Size	Natural logarithm of the book value of total assets
Lev	The ratio of total liabilities to total assets
Sales growth	The yearly growth rate of total sales
Tangi	The ratio of tangible assets to total assets

This table presents the definition of all variables used in this study

1-year lag of the above firm-level controls to account for any influence from the firm-level variables on the entry of MLS. Finally, to reduce the influence of outliers, all the continuous variables are winsorized at 1–99%. Table 1 presents the definitions of all the variables used in this study.

3.3 Research methodology

We employ a DID research design to compare the changes in the economic outcomes of treated firms and benchmark firms during our sampling period. This approach helps us mitigate the endogeneity effect and potentially confounding events concurrent with the presence of MLS, and thus effectively capture the effect of MLS on corporate governance and firm performance. Our DID regression consists of Eq. (1) as follows.

$$\begin{aligned} \textit{Economic outcome variables} = {} & \beta_0 + \beta_1 Post_{i,t} + \beta_2 Treat_{i,t} + \beta_3 Post_{i,t} * Treat_{i,t} + \beta_4 Top1_{i,t} \\ & + \beta_5 Con\_tran_{i,t} + \beta_6 Board_{i,t} + \beta_7 Inde\_rate_{i,t} + \beta_8 Dual_{i,t} \\ & + \beta_9 Mngshr_{i,t} + \beta_{10} Size_{i,t-1} + \beta_{11} Lev_{i,t-1} + \beta_{12}\, Sales\ growth_{i,t-1} \\ & + \beta_{13} Tangi_{i,t-1} + Industry + Year + \varepsilon_{i,t} \end{aligned} \tag{1}$$

The dummy variable *Treat* is an indicator variable for treated firms that equals one if a firm experiences a change from a single large shareholder to MLS, and zero otherwise. In addition, the dummy variable *Post* is an indicator of the post-period of MLS, which equals one if the sampling period is after the entry of MLS and zero if the sampling period is before the entry of MLS. We focus on the coefficient on their interaction term (*Treat* ** *Post*), which captures the changes in the economic outcomes of treated firms relative to those changes in benchmark firms after the entry of MLS. Other CG and firm-level controls are as defined in Sect. 3.2. Finally, we control for industry and year fixed effects while clustering standard errors at the firm level to avoid correlations in the error term due to firm-level unobserved heterogeneity (Petersen 2009).

In our DID design, to ensure that the benchmark firms are comparable to the treated group, we use the PSM method to select a group of benchmark firms (see also Rosenbaum and Rubin 1984; Defond et al. 2015; Chen et al. 2018). This matching approach helps to resolve the concern that the difference in our dependent variables between the treated and benchmark groups is due to endogenous factors other than the presence of MLS. Specifically, the PSM approach involves pairing treated and control firms based on similar observable firm characteristics. We implement this procedure by first running a probit regression to estimate the probability of being a treated firm, using the data in year $t-1$, i.e., the year before the entry of MLS. Next, we match each treated firm to control firms using the nearest neighbor matching technique without replacement. More precisely, in the probit regression model, the dependent variable is a dummy variable indicating treated firms. The explanatory variables include *Size, EBIT, Top1*, *Lev, Sales growth*, *Tangi, BM,* and *SOE*. *BM* is defined as the book value of total assets divided by the market value of equity. *SOE* is a dummy variable that is equal to one if the ultimate controller is a government entity, and zero otherwise. All other variables are the same as defined in Sect. 3.2. The industry and year dummies are also added to the regression model. Our PSM procedure shows that each treated firm found its corresponding matching firm, resulting in a PSM sample of 2132 firm-year observations, with 1126 treated firm-year observations and 1006 benchmark firm-year observations. In addition, to better explore the effect of different identities of MLS on agency problems, we divide the PSM sample into state-owned MLS and non-state-owned MLS. Specifically, Chinese listed privately controlled firms whose newly presented large blockholder is a non-state-owned entity are recognized as *non-state-owned MLS*, amounting to 1884 firm-year observations. In addition, privately controlled firms whose newly presented large blockholder is a state-owned entity are identified as *state-owned MLS*, amounting to 248 firm-year observations.

In "Appendix", we provide detailed information on the construction of our PSM sample. Panel A reports the results of the probit regression used to compute the propensity scores. Before matching, the explanatory power of the probit model is 7.1%, which decreases to 5.5% after matching, indicating the success of the PSM technique (see also Chen et al. 2018). To verify the effectiveness of our selection of benchmark firms, we compare the treated group with the benchmark group before and after MLS entry in Panel B, which

shows that the differences between these two groups of firms are significantly reduced after the matching procedure. Specifically, we find that, before PSM, most of the variables show significant differences between treated and benchmark firms; however, after PSM, the differences become non-significant, which again reflects the effectiveness of our PSM technique. One exception comes from *Top1*; after matching, the difference between the treated group and the benchmark group becomes larger., which is probably because, to be selected as a benchmark firm, firms are more likely to have a dominant owner, as evidenced by a significantly positive relation between the shareholdings of the controlling shareholder and treated firms in Panel A of "Appendix".

3.4 Descriptive statistics and univariate analysis

Table 2 presents the distribution of our sample. Panel A provides the distribution of treated firms and benchmark firms by year. We discern that the number of treated firms ranges from 0 in 2006 to 82 in 2015. Particularly, recently, it has become increasingly common for Chinese listed privately controlled firms to witness the change from a single large shareholder to MLS. Specifically, firm-year observations for treated firms reached their peak in 2014, with 207 observations. Panel B further provides the distribution of treated firms and benchmark firms by industry sector. Most of the treated firms—approximately 70% of the sample—are distributed in the manufacturing industry. In addition, we also discern a distribution of treated firms in industries such as wholesale and retail, information technology, and real estate.

Table 3 presents the descriptive statistics for variables used in the analyses in both the treated sample (Panel A) and the PSM sample (Panel B). As shown in Panel A, the treated group of Chinese listed privately controlled firms has an average value of 0.171 in *SG&A ratio*, and the ratio of related-party transactions to total assets averages to 0.206, of which 1059 firm-years have a non-zero *RPT*. The mean values of *ROA* and *asset utilization efficiency* are approximately 0.032 and 0.638, respectively. For CG and firm-level variables, the average shareholding ratio of the controlling shareholder is 38.2%, reflecting a concentrated ownership structure of Chinese listed privately controlled firms. In particular, the maximum value of *Top1* is 76.9% and the minimum reaches approximately 10%, which is consistent with previous studies in China (see, e.g., Ding et al. 2015). Notably, after the introduction of a new blockholder, approximately 7.5% of the treated firms observe the replacement of the ultimate controller. Meanwhile, our treated group of Chinese listed privately controlled firms, on an average, has approximately 10 directors on the board; of these, 37.6% are independent directors. Additionally, 32.9% of the treated firms have CEO duality, and, on an average, the managerial ownership in treated firms is 15.6%. Next, in Panel B, on an average, SG&A expenses account for 17.4% of the sampled firms' total sales. The mean ratio of related-party transactions to total assets is approximately 0.209, of which 2019 firm-years have a non-zero value of *RPT*. In addition, *ROA* is averaged to 0.030, and *asset utilization efficiency* has a mean value of 0.647. Regarding the CG and firm-level variables, the PSM sample shows similar characteristics to treated firms in Panel A.

In addition, Table 4 reports the univariate results for all the treated firms (Panel A), treated firms introducing non-state-owned MLS (Panel B), and treated firms introducing state-owned MLS (Panel C) before and after the introduction of MLS; the results show three subsamples with 1126, 1000, and 126 firm-year observations, respectively. We investigate the significance of the differences across these subsamples by employing a

Table 2 Distribution of sampling observations

	No. of firms		PSM sample					
	Treated		Total		Treated		Benchmark	
Year	N	%	N	%	N	%	N	%
Panel A: Distribution of treated and benchmark firms by year								
2006	0	0.00	18	0.84	9	0.80	9	0.89
2007	6	2.34	32	1.50	17	1.51	15	1.49
2008	4	1.56	43	2.02	21	1.87	22	2.19
2009	2	0.78	53	2.49	26	2.31	27	2.68
2010	10	3.91	57	2.67	27	2.40	30	2.98
2011	6	2.34	92	4.32	46	4.09	46	4.57
2012	6	2.34	180	8.44	88	7.82	92	9.15
2013	12	4.69	298	13.98	159	14.12	139	13.82
2014	38	14.84	358	16.79	207	18.38	151	15.01
2015	82	32.03	366	17.17	205	18.21	161	16.00
2016	62	24.22	356	16.70	186	16.52	170	16.90
2017	28	10.94	279	13.09	135	11.99	144	14.31
Total	256	100.00	2132	100.00	1126	100.00	1006	100.00
	No. of firms		PSM sample					
	Treated		Total		Treated		Benchmark	
Industry sector	N	%	N	%	N	%	N	%
Panel B: Distribution of treated and benchmark firms by industry								
Agriculture	4	1.56	36	1.69	18	1.60	18	1.79
Mining	1	0.39	11	0.52	7	0.62	4	0.40
Manufacturing	181	70.70	1471	69.00	780	69.27	691	68.69
Utilities	3	1.17	24	1.13	7	0.62	17	1.69
Construction	7	2.73	59	2.77	34	3.02	25	2.49
Wholesale and retail	22	8.59	179	8.40	89	7.90	90	8.95
Transportation	2	0.78	17	0.80	10	0.89	7	0.70
Information tech.	13	5.08	113	5.30	57	5.06	56	5.57
Real estate	12	4.69	110	5.16	58	5.15	52	5.17
Leasing	1	0.39	16	0.75	10	0.89	6	0.60
Scientific research	2	0.78	15	0.70	10	0.89	5	0.50
Public facility management	1	0.39	15	0.70	7	0.62	8	0.80
Culture and sports	3	1.17	27	1.27	15	1.33	12	1.19
Diversified	4	1.56	39	1.83	24	2.13	15	1.49
Total	256	100.00	2132	100.00	1126	100.00	1006	100.00

This table presents the year (Panel A) and industry distribution (Panel B) of our sampling observations. In each panel, we first report the number of treated firms which experience a change from a single large shareholder to MLS, and then show the number of firm-year observations for treated group and benchmark group by year and by industry after PSM

Table 3 Descriptive statistics

Variable	Minimum	Mean	Median	Maximum	SD
Panel A: Treated firms					
Economic consequences					
SG&A ratio	0.015	0.171	0.138	0.712	0.128
RPT	0.000	0.206	0.097	2.021	0.296
ROA	−0.164	0.032	0.028	0.190	0.052
Asset utilization efficiency	0.074	0.638	0.514	2.750	0.471
CG and firm-level controls					
Top1	0.099	0.382	0.368	0.769	0.161
Con_tran	0.000	0.075	0.000	1.000	0.264
Board	1.609	2.089	2.197	2.708	0.195
Inde rate	0.300	0.376	0.333	0.571	0.053
Dual	0.000	0.329	0.000	1.000	0.470
Mngshr	0.000	0.156	0.046	0.656	0.195
Size	19.594	21.644	21.556	25.644	1.112
Lev	0.051	0.423	0.413	0.876	0.202
Sales growth	−0.532	0.231	0.120	2.896	0.512
Tangi	0.569	0.919	0.947	1.000	0.089
No. of obs.	1126	1126	1126	1126	1126
Panel B: PSM sample					
Economic consequences					
SG&A ratio	0.015	0.174	0.138	0.712	0.131
RPT	0.000	0.209	0.093	2.021	0.311
ROA	−0.164	0.030	0.027	0.190	0.051
Asset utilization efficiency	0.074	0.647	0.537	2.750	0.450
CG and firm-level controls					
Top1	0.099	0.395	0.386	0.769	0.164
Con_tran	0.000	0.054	0.000	1.000	0.227
Board	1.609	2.102	2.197	2.708	0.194
Inde rate	0.300	0.375	0.333	0.571	0.052
Dual	0.000	0.327	0.000	1.000	0.469
Mngshr	0.000	0.162	0.045	0.656	0.201
Size	19.594	21.689	21.598	25.644	1.080
Lev	0.051	0.436	0.434	0.876	0.203
Sales growth	−0.532	0.224	0.120	2.896	0.497
Tangi	0.569	0.924	0.950	1.000	0.084
No. of obs.	2132	2132	2132	2132	2132

This table presents the descriptive statistics in the sample of treated firms (Panel A), amounting to 1126 firm-year observations, and the PSM sample (Panel B), amounting to 2132 firm-year observations, respectively. All variables are as defined in Table 1

parametric *t* test as well as a nonparametric Wilcoxon test. As shown in Panel A of Table 4, after the entry of MLS, the treated firms conduct more related-party transactions than those in the pre-period of MLS, while the change in the *SG&A ratio* is non-significant. Moreover, firm performance, manifested in the *ROA*, significantly increases after the entry

Table 4 Univariate analysis

	Pre-period		Post-period		Mean_diff	Median_diff
	Mean	Median	Mean	Median		
Panel A: Pre-versus post-period of MLS						
Economic consequences						
SG&A ratio	0.172	0.139	0.170	0.137	0.003	0.002
RPT	0.193	0.086	0.219	0.110	−0.026	−0.024***
ROA	0.029	0.025	0.034	0.032	−0.005*	−0.007**
Asset utilization efficiency	0.632	0.515	0.644	0.513	−0.012	0.002
CG and firm-level controls						
Top1	0.443	0.444	0.322	0.299	0.121***	0.145***
Con_tran	0.000	0.000	0.150	0.000	−0.150***	0.000***
Board	2.085	2.197	2.093	2.197	−0.008	0.000
Inde_rate	0.377	0.345	0.374	0.333	0.003	0.012
Dual	0.333	0.000	0.324	0.000	0.009	0.000
Mngshr	0.172	0.032	0.141	0.058	0.031***	−0.026
Size	21.465	21.323	21.819	21.739	−0.354***	−0.416***
Lev	0.418	0.416	0.427	0.413	−0.008	0.003
Sales growth	0.170	0.104	0.290	0.136	−0.120***	−0.032**
Tangi	0.939	0.954	0.899	0.938	0.041***	0.016***
No. of obs.	558	558	568	568	1126	1126
Panel B: Pre-versus post-period of non-state-owned MLS						
Economic consequences						
SG&A ratio	0.176	0.143	0.175	0.141	0.002	0.002
RPT	0.192	0.090	0.202	0.103	−0.010	−0.013**
ROA	0.030	0.026	0.036	0.033	−0.006*	−0.007**
Asset utilization efficiency	0.638	0.517	0.644	0.508	−0.006	0.009
CG and firm-level controls						
Top1	0.452	0.463	0.321	0.299	0.131***	0.164***
Con_tran	0.000	0.000	0.134	0.000	−0.134***	0.000***
Board	2.086	2.197	2.091	2.197	−0.005	0.000
Inde_rate	0.378	0.357	0.375	0.357	0.003	0.000
Dual	0.335	0.000	0.341	0.000	−0.007	0.000
Mngshr	0.184	0.056	0.149	0.071	0.034***	−0.015
Size	21.475	21.313	21.845	21.736	−0.370***	−0.423***
Lev	0.409	0.408	0.416	0.406	−0.007	0.002
Sales growth	0.178	0.106	0.285	0.136	−0.107***	−0.030**
Tangi	0.938	0.953	0.893	0.935	0.045***	0.018***
No. of obs.	499	499	501	501	1000	1000
Panel C: Pre-versus post-period of state-owned MLS						
Economic consequences						
SG&A ratio	0.137	0.093	0.131	0.100	0.005	−0.007
RPT	0.206	0.067	0.351	0.191	−0.145**	−0.124***
ROA	0.016	0.018	0.021	0.026	−0.005	−0.008
Asset utilization efficiency	0.581	0.445	0.642	0.563	−0.061	−0.118

Table 4 (continued)

	Pre-period		Post-period		Mean_diff	Median_diff
	Mean	Median	Mean	Median		
CG and firm-level controls						
Top1	0.361	0.353	0.326	0.300	0.035	0.053
Con_tran	0.000	0.000	0.269	0.000	−0.269***	0.000***
Board	2.075	2.079	2.103	2.197	−0.029	−0.118
Inde_rate	0.374	0.333	0.368	0.333	0.007	0.000
Dual	0.322	0.000	0.194	0.000	0.128	0.000
Mngshr	0.072	0.000	0.079	0.000	−0.007	0.000
Size	21.380	21.36	21.622	21.802	−0.243	−0.442
Lev	0.501	0.538	0.511	0.547	−0.010	−0.009
Sales growth	0.104	0.063	0.328	0.116	−0.224*	−0.053
Tangi	0.949	0.958	0.939	0.951	0.010	0.007
No. of obs.	59	59	67	67	126	126

This table exhibits the univariate tests for treated firms before versus after the presence of MLS. Panel A reports the results for all treated firms, whereas Panel B and C present the output for non-state-owned and state-owned MLS firms, respectively. We employ a parametric *t*-test as well as a nonparametric Wilcoxon test to investigate the significance of differences before versus after the presence of MLS. The variables are as defined in Table 1

Significance levels 0.1, 0.05, and 0.01 are denoted by *, **, and ***, respectively

of MLS, but the change in *asset utilization efficiency* is not significant. In addition, after the introduction of other large shareholders, the controlling shareholder significantly holds fewer outstanding shares in treated firms. In terms of firm characteristics, the size and sales growth of treated firms increase, while the tangibility of assets decreases after the entry of MLS. Furthermore, we examine whether the difference before and after the entry of MLS depends on the identity of the second largest shareholder. In both subsamples of the non-state-owned MLS and state-owned MLS, we find that the difference of SG&A expenses is not significant between the pre- and post-MLS periods. Moreover, the presence of state-owned MLS is associated with a significant increase in related-party transactions. Conversely, *ROA* is promoted in the subsample of non-state-owned MLS after the introduction of MLS, while this effect in state-owned MLS is non-significant.

4 Empirical results

In this section, we empirically test the economic outcome of the presence of MLS using the PSM sample. At the outset, we examine the correlation between our explanatory variables and control variables. It shows that the correlation coefficients are not high when

using 0.7 as the cutoff level to decide whether two variables can enter the regression at the same time (not tabulated).[5] In the following sections, we explore the effects of state-owned MLS and non-state-owned MLS on various agency problems as well as firm performance and further examine the role of state-owned MLS on the cost of political control.

4.1 The effect of MLS on agency problems and firm performance

In this section, we empirically examine the role of MLS in mitigating agency problems, including principal-agent and principal–principal conflicts of interests. More precisely, we use the SG&A expense ratio in Table 5 and related-party transactions in Table 6 to capture principal-agent and principal–principal conflict of interests, respectively. To distinguish the effects of different types of MLS, in each table, we first present the regression output for the PSM sample, followed by firms with non-state-owned MLS, and finally for firms with state-owned MLS. The sample of firms with non-state-owned MLS and the corresponding benchmark firms consists of 1884 firm-year observations, while the sample of firms with state-owned MLS and the corresponding benchmark firms consists of 248 firm-year observations. This split-sample analysis should enable us to make a detailed examination of whether the identity of a new blockholder influences the governance role of MLS. Finally, for each model, we report the results by adding key variables and CG variables together with industry and year dummies in the first column, while all variables are added in the second column.

As shown in the first two columns of Table 5, we observe a strong negative relationship between the presence of MLS and the ratio of SG&A expenses in the PSM sample. Considering the identity of newly entered blockholders, there is also a significant effect of non-state-owned MLS in mitigating principal-agent conflict of interests in Chinese listed privately controlled firms. This finding is consistent with *Hypothesis 1a* in Sect. 2, where we expect a pronounced influence of non-state-owned MLS in alleviating the managerial incentive problem because of an alleviation of the free rider problem and an effective monitoring of non-state-owned MLS on top managers. However, we do not find a significant effect of the entry of a newly blockholder on SG&A expenses in the subsample of state-owned MLS, which supports *Hypothesis 2a* to some extent. This finding suggests that the entry of state-owned MLS does not mitigate principal-agent conflict of interests in Chinese listed privately controlled firms, probably because state-owned large shareholders spend little effort preventing managerial discretion. With respect to CG controls, we find a strong negative relationship between *Top1* and the *SG&A ratio*. This finding is consistent with prior research, which argues that a concentrated ownership structure can relieve the conflict of interests between managers and shareholders (see, e.g., Ang et al. 2000). We also find that a higher ratio of independent directors in the subsample of state-owned MLS efficiently lowers the *SG&A ratio* in Chinese listed privately controlled firms. Regarding firm-level controls, we observe that a larger firm size and more debt financing are associated with a lower ratio of SG&A expenses in Chinese listed privately controlled firms. Moreover, lower *SG&A ratios* are observed in firms with more tangible assets.

Next, as shown in Table 6, the presence of state-owned MLS aggravates related-party transactions in Chinese listed privately controlled firms, while no significant effect is

[5] The outcomes of all additional tests that are discussed but not shown in the paper can be obtained from the authors upon request.

Table 5 Principal-agent conflict of interests: SG&A ratio

	PSM sample		Non-state-owned MLS		State-owned MLS	
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	0.235**	0.953***	0.089	0.880***	1.062***	1.536***
	(2.279)	(6.764)	(0.926)	(5.589)	(4.333)	(4.499)
The presence of MLS						
Treat	0.000	−0.009	0.007	0.001	−0.068*	−0.080**
	(0.001)	(−0.829)	(0.533)	(0.107)	(−1.793)	(−2.318)
Post	0.004	0.006	0.001	0.012	−0.026	−0.022
	(0.583)	(0.727)	(0.147)	(1.403)	(−0.959)	(−0.820)
Treat * Post	−0.017*	−0.021**	−0.019*	−0.026***	−0.004	−0.001
	(−1.783)	(−2.420)	(−1.903)	(−2.942)	(−0.149)	(−0.047)
CG and firm-level controls						
Top1	−0.075**	−0.061**	−0.060*	−0.062**	−0.126	−0.078
	(−2.386)	(−2.283)	(−1.698)	(−2.142)	(−1.497)	(−1.179)
Con_tran	0.033	0.018	0.026	0.016	0.026	0.054
	(1.619)	(0.946)	(1.122)	(0.795)	(0.667)	(1.367)
Board	−0.034	0.024	0.003	0.060**	−0.279***	−0.204***
	(−1.078)	(0.888)	(0.087)	(2.366)	(−4.358)	(−2.845)
Inde_rate	0.069	0.109	0.154	0.215**	−0.673**	−0.422*
	(0.597)	(1.172)	(1.388)	(2.262)	(−2.223)	(−1.709)
Dual	−0.002	−0.009	−0.013	−0.009	−0.042	−0.050*
	(−0.199)	(−1.094)	(−1.385)	(−1.143)	(−1.574)	(−1.881)
Mngshr	0.094***	−0.013	0.054**	−0.014	0.108	−0.026
	(3.638)	(−0.556)	(2.261)	(−0.635)	(1.030)	(−0.279)
Size		−0.025***		−0.027***		−0.019*
		(−4.027)		(−3.889)		(−1.686)
Lev		−0.174***		−0.177***		−0.175**
		(−5.865)		(−6.161)		(−2.193)
Sales growth		−0.019**		−0.018**		−0.013
		(−2.503)		(−2.047)		(−1.060)
Tangi		−0.256***		−0.238***		−0.266*
		(−4.794)		(−4.243)		(−1.827)
No. of obs.	2132	2132	1884	1884	248	248
Adj. R-square	0.030	0.290	0.160	0.311	0.320	0.407

This table presents the analysis on the principal-agent conflict of interests as captured by the *SG&A ratio*, i.e., the ratio of selling, general, and administrative expenses divided by total sales. We report the results separately for the PSM sample, non-state-owned MLS firms, and state-owned MLS firms, respectively. Non-state-owned MLS firms are Chinese listed privately controlled firms who introduce a non-state-owned blockholder, while state-owned MLS firms are Chinese listed privately controlled firms who introduce a state-owned blockholder. *Treat* is a dummy variable that equals one for firms experiencing a change from a single large shareholder to MLS, and zero otherwise. *Post* is a dummy variable that equals one in the post-period of MLS, and zero otherwise. Regression models include industry and year fixed-effects, clustering standard errors at the firm level. All other test variables are as defined in Table 1

t-statistics are reported between parentheses underneath coefficients. Significance levels 0.1, 0.05, and 0.01 are denoted by *, **, and ***, respectively

Table 6 Principal-principal conflict of interests: related-party transactions

	PSM sample		Non-state-owned MLS		State-owned MLS	
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	0.128	0.533*	−0.030	0.379	0.842	0.983
	(0.672)	(1.698)	(−0.171)	(1.165)	(1.426)	(1.181)
The presence of MLS						
Treat	−0.005	−0.012	−0.012	−0.015	−0.003	0.033
	(−0.192)	(−0.467)	(−0.400)	(−0.554)	(−0.052)	(0.551)
Post	0.015	−0.019	−0.005	−0.037	0.069	0.030
	(0.583)	(−0.735)	(−0.188)	(−1.333)	(0.940)	(0.489)
Treat*Post	−0.006	0.027	−0.016	0.015	0.154*	0.186**
	(−0.213)	(0.989)	(−0.554)	(0.525)	(1.657)	(2.139)
CG and firm-level controls						
Top1	0.147**	0.232***	0.158*	0.232***	0.002	0.081
	(1.967)	(3.100)	(1.898)	(2.802)	(0.013)	(0.486)
Con_tran	0.091**	0.078**	0.102***	0.090**	−0.165	−0.162
	(2.407)	(2.093)	(2.611)	(2.333)	(−1.367)	(−1.667)
Board	0.031	0.041	0.028	0.033	0.005	−0.031
	(0.641)	(0.800)	(0.555)	(0.619)	(0.031)	(−0.189)
Inde_rate	0.318	0.340*	0.281	0.304	0.625	0.454
	(1.539)	(1.714)	(1.309)	(1.483)	(0.771)	(0.611)
Dual	−0.000	−0.008	0.007	−0.003	−0.000	0.025
	(−0.021)	(−0.449)	(0.328)	(−0.169)	(−0.006)	(0.405)
Mngshr	−0.249***	−0.204***	−0.229***	−0.191***	−0.336**	−0.119
	(−5.132)	(−4.353)	(−4.434)	(−3.908)	(−2.342)	(−0.807)
Size		−0.033***		−0.036**		0.020
		(−2.665)		(−2.534)		(0.715)
Lev		0.430***		0.441***		0.336**
		(6.148)		(5.715)		(2.446)
Sales growth		−0.005		0.011		−0.131***
		(−0.292)		(0.610)		(−5.801)
Tangi		−0.022		0.038		−0.744
		(−0.186)		(0.362)		(−1.076)
No. of obs.	2132	2132	1884	1884	248	248
Adj. R-square	0.056	0.097	0.057	0.101	0.142	0.203

This table presents the analysis on the principal–principal conflict of interests as captured by related-party transactions, i.e., the ratio of potentially expropriated related-party transactions scaled by total assets. We report the results separately for the PSM sample, non-state-owned MLS firms, and state-owned MLS firms, respectively. Non-state-owned MLS firms are Chinese listed privately controlled firms who introduce a non-state-owned blockholder, while state-owned MLS firms are Chinese listed privately controlled firms who introduce a state-owned blockholder. *Treat* is a dummy variable that equals one for firms experiencing a change from a single large shareholder to MLS, and zero otherwise. *Post* is a dummy variable that equals one in the post-period of MLS, and zero otherwise. Regression models include industry and year fixed-effects, clustering standard errors at the firm level. All other test variables are as defined in Table 1

t-statistics are reported between parentheses underneath coefficients. Significance levels 0.1, 0.05, and 0.01 are denoted by *, **, and ***, respectively

observed if the new blockholder is a non-government entity. This result supports *Hypothesis 2b,* to some extent, where we argue that the positive effect of state-owned MLS in alleviating principal–principal conflict of interests may be impaired by their political and social goals. Further, this result suggests that the monitoring role of non-state-owned MLS in Chinese listed privately controlled firms is not well-exerted, possibly because of the homogenous identity of large shareholders. With regard to CG and firm-level controls, we find a positive coefficient of *Top1* on related-party transactions, which indicates that a large fraction of shares owned by the controlling shareholder aggravates tunneling (see also Claessens et al. 2000). However, managerial shares can effectively reduce the expropriation of controlling shareholder, particularly, in the non-state-owned MLS sample. Additionally, we find that Chinese listed privately controlled firms are more inclined to conduct related-party transactions benefiting parent companies when they are leveraged and have a lower sales growth rate. Overall, the explanatory power of the regression models reaches 31.1% and 20.3% using *SG&A ratio* and *RPT* as the dependent variable in the non-state-owned MLS and state-owned MLS subsamples, respectively.

In addition, to further explore *Hypothesis 1b*, we divide non-state-owned MLS into financial MLS and non-financial MLS to demonstrate the importance of shareholder heterogeneity. Therefore, financial MLS and non-financial MLS are defined as privately controlled firms with financial institutions as large shareholders and with non-financial institutions as large shareholders, amounting to 451 and 1433 firm-year observations, respectively. Therefore, we re-examine the effect of non-state-owned MLS on related-party transactions in Table 7. Interestingly, we now discern a significantly negative coefficient between financial non-state-owned MLS and related-party transactions in Chinese listed privately controlled firms. In contrast, in the subsample of non-financial non-state-owned MLS, we even observe a marginally positive relationship between MLS and related-party transactions. Thus, this result indicates that the presence of MLS with different identities more effectively mitigates tunneling by the controlling shareholder, supporting the argument of shareholder heterogeneity. In other words, large shareholders with different identities are less likely to share common interests and can form a coalition to expropriate the interests of minority investors. Next, to check whether the number of financial MLS matters in curbing incentive problems, in columns 5 and 6 of Table 7, we further divide our sample of financial non-state-owned MLS into two subsamples according to the number of financial large shareholders (more than one versus only one), using 5% as the cutoff to identity MLS. We find that, in both of these two subsamples, related-party transactions are significantly alleviated. In other words, the impact of financial investors in curbing related-party transactions is comparable across the subsamples having one versus more than one financial large shareholders. When testing the difference of coefficients between these two samples, we find a non-significant difference (p value equal to 0.146).

Finally, to gauge the economic outcome of having different types of MLS in Chinese listed privately controlled firms, we empirically investigate the effects of MLS on firm performance, as measured by *ROA* and *asset utilization efficiency*. Table 8 presents the empirical results using *ROA* and *asset utilization efficiency* as dependent variables in Panels A and B, respectively. We find that the presence of MLS enhances firm performance, manifested in a higher *ROA* and *asset utilization efficiency*, driven by the subsample of non-state-owned MLS. However, state-owned MLS do not promote firm performance. Therefore, from the standpoint of internal governance, our results suggest that the presence of non-state-owned MLS improves a firm's performance. This performance enhancement is possibly due to a mitigation of agency problems, such as a reduction in principal-agent conflicts in non-state-owned MLS. In addition, we observe that more shareholdings by the

Table 7 Financial versus non-financial non-state-owned MLS on related-party transactions

	Financial MLS		Non-financial MLS		Number of financial MLS	
					More than one	Only one
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	0.022	0.300	−0.068	0.338	1.140	0.199
	(0.071)	(0.598)	(−0.325)	(0.861)	(0.514)	(0.403)
The presence of MLS						
Treat	0.099**	0.102**	−0.045	−0.051	0.378***	0.051
	(2.087)	(2.381)	(−1.275)	(−1.462)	(4.974)	(1.237)
Post	0.029	0.028	−0.031	−0.071**	0.104	0.031
	(0.465)	(0.473)	(−0.932)	(−2.134)	(0.878)	(0.408)
Treat * Post	−0.157***	−0.158***	0.031	0.069**	−0.341***	−0.129**
	(−3.117)	(−3.325)	(0.892)	(2.026)	(−3.233)	(−2.465)
CG and firm-level controls						
Top1	0.091	0.193	0.193*	0.271***	0.930***	0.012
	(0.660)	(1.397)	(1.951)	(2.724)	(3.301)	(0.109)
Con_tran	0.015	0.006	0.109**	0.094**	0.082	−0.013
	(0.228)	(0.091)	(2.556)	(2.233)	(0.582)	(−0.184)
Board	−0.058	−0.037	0.042	0.045	0.274	−0.020
	(−0.629)	(−0.415)	(0.734)	(0.731)	(0.403)	(−0.223)
Inde_rate	0.206	0.250	0.275	0.325	0.167	0.398
	(0.598)	(0.782)	(1.019)	(1.260)	(0.102)	(1.315)
Dual	−0.039	−0.044	0.020	0.007	−0.060	−0.036
	(−1.051)	(−1.263)	(0.818)	(0.319)	(−0.744)	(−0.936)
Mngshr	−0.080	−0.115	−0.276***	−0.218***	−0.417	0.008
	(−0.817)	(−1.118)	(−4.200)	(−3.585)	(−1.566)	(0.076)
Size		−0.045**		−0.034**	−0.080	−0.043**
		(−2.258)		(−2.038)	(−1.313)	(−2.062)
Lev		0.419***		0.464***	0.313	0.454***
		(3.684)		(4.892)	(0.941)	(3.386)
Sales growth		0.030		0.008	0.083	0.026
		(0.974)		(0.364)	(1.141)	(0.688)
Tangi		0.305		0.015	−0.519	0.402*
		(1.459)		(0.126)	(−0.933)	(1.754)
No. of obs.	451	451	1433	1433	85	366
Adj. R-square	0.034	0.082	0.075	0.119	0.150	0.101

This table presents the analysis on principal–principal conflict of interests, captured by related-party transactions for financial non-state-owned and non-financial non-state-owned large shareholders in Chinese listed privately controlled firms. In addition, we explore how the number of financial non-state-owned MLS affects related-party transactions by dividing the sample of financial MLS into more than one financial large shareholders versus only one financial large shareholder. *Treat* is a dummy variable that equals one for firms experiencing a change from a single large shareholder to MLS, and zero otherwise. *Post* is a dummy variable that equals one in the post-period of MLS, and zero otherwise. Regression models include industry and year fixed-effects, clustering standard errors at the firm level. All other test variables are as defined in Table 1

t-statistics are reported between parentheses underneath coefficients. Significance levels 0.1, 0.05, and 0.01 are denoted by *, **, and ***, respectively

Table 8 Firm performance: ROA and asset utilization efficiency

	PSM sample		Non-state-owned MLS		State-owned MLS	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: ROA						
Intercept	−0.078**	−0.164***	−0.080**	−0.199***	0.032	0.132
	(−2.124)	(−3.179)	(−2.111)	(−3.578)	(0.352)	(1.405)
The presence of MLS						
Treat	−0.004	−0.002	−0.005	−0.004	0.019	0.016
	(−0.993)	(−0.614)	(−1.207)	(−0.929)	(1.598)	(1.265)
Post	−0.009**	−0.003	−0.007	−0.002	−0.008	−0.003
	(−2.170)	(−0.807)	(−1.515)	(−0.386)	(−0.618)	(−0.236)
Treat * Post	0.016***	0.009**	0.017***	0.010**	0.003	−0.000
	(3.852)	(2.272)	(3.763)	(2.446)	(0.181)	(−0.014)
CG and firm-level controls						
Top1	0.056***	0.038***	0.057***	0.041***	0.088***	0.073***
	(4.970)	(3.582)	(4.545)	(3.529)	(3.265)	(3.026)
Con_tran	0.002	0.005	0.003	0.006	−0.006	0.000
	(0.342)	(0.787)	(0.382)	(0.873)	(−0.243)	(0.014)
Board	0.012	0.007	0.018*	0.012	−0.032	−0.024
	(1.267)	(0.791)	(1.838)	(1.309)	(−0.972)	(−0.916)
Inde_rate	0.026	0.012	0.036	0.022	−0.114	−0.073
	(0.716)	(0.360)	(0.963)	(0.641)	(−0.997)	(−0.696)
Dual	−0.002	−0.001	−0.002	−0.001	−0.010	−0.007
	(−0.705)	(−0.306)	(−0.643)	(−0.304)	(−0.632)	(−0.472)
Mngshr	0.014*	0.007	0.009	0.006	0.073**	0.026
	(1.681)	(0.871)	(1.074)	(0.677)	(2.551)	(0.985)
Size		0.007***		0.008***		0.002
		(3.376)		(3.663)		(0.390)
Lev		−0.074***		−0.069***		−0.092***
		(−7.525)		(−6.511)		(−3.191)
Sales growth		0.012***		0.012***		0.009*
		(4.355)		(3.893)		(1.852)
Tangi		0.000		0.004		−0.105*
		(0.022)		(0.201)		(−1.684)
No. of obs.	2132	2132	1884	1884	248	248
Adj. R-square	0.069	0.126	0.068	0.121	0.107	0.172
Panel B: Asset utilization efficiency						
Intercept	0.208	−0.726	0.414	−0.452	−0.716	−2.266**
	(0.600)	(−1.206)	(1.123)	(−0.663)	(−0.690)	(−2.174)
The presence of MLS						
Treat	−0.034	−0.025	−0.030	−0.023	−0.067	−0.044
	(−0.863)	(−0.642)	(−0.710)	(−0.558)	(−0.498)	(−0.356)
Post	0.003	−0.008	0.009	−0.005	0.084	0.105
	(0.090)	(−0.249)	(0.217)	(−0.114)	(0.793)	(1.106)
Treat * Post	0.078**	0.073**	0.071**	0.073**	0.086	0.046
	(2.346)	(2.196)	(2.074)	(2.123)	(0.704)	(0.378)

Table 8 (continued)

	PSM sample		Non-state-owned MLS		State-owned MLS	
	(1)	(2)	(3)	(4)	(5)	(6)
CG and firm-level controls						
Top1	0.511***	0.478***	0.467***	0.465***	0.622**	0.270
	(4.016)	(4.058)	(3.384)	(3.600)	(2.055)	(0.896)
Board	0.013	0.022	0.023	0.037	0.137	0.043
	(0.218)	(0.371)	(0.368)	(0.586)	(0.558)	(0.218)
Inde_rate	0.119	0.035	0.071	−0.003	0.292	−0.007
	(1.107)	(0.333)	(0.616)	(−0.028)	(1.025)	(−0.026)
Dual	−0.216	−0.353	−0.421	−0.520	1.042	0.144
	(−0.607)	(−1.038)	(−1.110)	(−1.423)	(1.019)	(0.152)
Mngshr	−0.016	−0.018	−0.019	−0.024	0.160	0.220*
	(−0.568)	(−0.639)	(−0.647)	(−0.846)	(1.255)	(1.717)
Con_tran	−0.121	−0.038	−0.107	−0.032	−0.274	−0.005
	(−1.465)	(−0.457)	(−1.259)	(−0.382)	(−0.807)	(−0.013)
Size		0.040*		0.035		0.099**
		(1.669)		(1.241)		(2.553)
Lev		0.163		0.198*		0.130
		(1.526)		(1.717)		(0.568)
Sales growth		0.078***		0.059**		0.152**
		(3.100)		(2.323)		(2.155)
Tangi		0.209		0.187		0.608
		(1.403)		(1.255)		(1.094)
No. of obs.	2132	2132	1884	1884	248	248
Adj. R-square	0.223	0.246	0.238	0.257	0.276	0.357

This table presents the analysis on the relation between MLS and firm performance. Panel A and Panel B use *ROA* and asset utilization efficiency as the dependent variable, respectively. We report the results separately for the PSM sample, non-state-owned MLS firms, and state-owned MLS firms. Non-state-owned MLS firms are Chinese listed privately controlled firms who introduce a non-state-owned blockholder, while state-owned MLS firms are Chinese listed privately controlled firms who introduce a state-owned blockholder. *Treat* is a dummy variable that equals one for firms experiencing a change from a single large shareholder to MLS, and zero otherwise. *Post* is a dummy variable that equals one in the post-period of MLS, and zero otherwise. Regressions include industry and year fixed-effects, clustering standard errors at firm level. All variables are defined in Table 1

t-statistics reported between parentheses underneath coefficients. Significance levels 0.1, 0.05, and 0.01 are denoted by *, **, and ***, respectively

ultimate controller are associated with better firm performance, as evidenced by a higher *ROA* and *asset utilization efficiency*. Regarding firm-level controls, we find that firm size and the sales growth rate have positive relationships with *ROA* and *asset utilization efficiency*. In general, our proxies for the presence of MLS together with the control variables have a joint explanatory power of 12.1% for *ROA* and 25.7% for *asset utilization efficiency* in the PSM sample, respectively.

4.2 Further analysis: effect of MLS on the cost of political control

It has been documented that firms with state ownership are frequently required by bureaucrats to excessively invest in unprofitable projects and initiate fewer lay-offs to relieve the pressure of employment and GDP growth, which induce the cost of political control (Dong and Putterman 2003). As compensation, state-owned MLS may give Chinese listed privately controlled firms preferential treatment, such as easier access to debt financing, tax breaks, and subsidies. Hence, in a further analysis, we examine the effect of state-owned MLS on affecting a specific agency problem induced by the government's political or social pursuits. Therefore, we investigate whether state-owned MLS increase the cost of political control in Chinese listed privately controlled firms, as captured by overinvestment, as well as facilitate firms' access to economic resources, as captured by the *subsidy ratio*.

We refer to the methodology in Richardson (2006) to calculate overinvestment (*Overinvestment*) in order to gauge the cost of the political control of large state-owned shareholders. Therefore, overinvestment is defined as investment expenditures beyond what is required to maintain existing assets and to finance expected new investment in positive NPV projects. In particular, Richardson (2006) decomposes new investment expenditures into overinvestment in negative NPV projects and expected investment expenditures, where the latter varies with the firm's growth opportunities, financing constraints, and industry affiliation, among other factors. Thus, learning from Richardson (2006), we use the following model to estimate overinvestment:

$$\begin{aligned} I_{new,t} = {} & \beta_0 + \beta_1 Growth_{i,t-1} + \beta_2 Lev_{i,t-1} + \beta_3 Cash_{i,t-1} + \beta_4 Age_{i,t-1} + \beta_5 Size_{i,t-1} \\ & + \beta_6 Ret_{i,t-1} + \beta_7 I_{new,t-1} + Industry + Year + \varepsilon_{i,t} \end{aligned} \tag{2}$$

where $I_{new,t}$ is new investment expenditures, calculated as the total investment expenditures (the sum of capital expenditures and acquisition expenditures minus receipts from the sale of property, plant, and equipment) less the investment expenditures required to keep assets in place (measured as amortization and depreciation). The investment expenditure terms are deflated by the average total assets at the beginning and end of the year. $Growth_{i,t-1}$ measures the growth opportunity, using the rate of sales growth as a proxy. $Lev_{i,t-1}$ is calculated as the ratio of total liabilities to total assets. $Cash_{i,t-1}$ is measured as the ratio of cash and its equivalents to total assets. $Age_{i,t-1}$ is a firm's listing age in years. $Size_{i,t-1}$ is calculated as the natural logarithm of total assets. $Ret_{i,t-1}$ is the stock return during the year. One-year lagged new investment expenditures, $I_{new,t-1}$ is added to the regression model as well. Finally, to account for year and industry effects, we control for year and industry dummies, based on the two-digit CSRC code. The fitted value from the above regression presents the expected level of new investment, and the unexplained portion (residual) presents the estimated inefficient investment. Therefore, we construct a variable *Overinvestment*, which equals the residual if the residual is larger than zero and equals zero if the residual is smaller than zero. In addition, we use the ratio of subsidies scaled by total sales (*Subsidy ratio)* to measure the helping hand of state-owned large shareholders.

Since our measurement of overinvestment is truncated, we employ a Tobit model to examine the effect of MLS on overinvestment. Panel A of Table 9 presents the empirical results on the effect of MLS on overinvestment. We find that the presence of state-owned MLS is associated with a higher degree of overinvestment in Chinese listed privately controlled firms. Conversely, the entry of non-state-owned MLS does not induce a significant change in overinvestment. This finding thus suggests that Chinese listed privately controlled firms with MLS suffer more overinvestment when the second largest

Table 9 Helping hand versus grabbing hand of the government: overinvestment and subsidy ratio

	PSM sample		Non-state-owned MLS		State-owned MLS			
					Full		PC	NO_PC
	(1)	(2)	(3)	(3)	(4)	(6)	(7)	(8)
Panel A: Overinvestment								
Intercept	0.011	0.043	0.024	0.630***	−0.097	0.059	0.630***	0.016
	(0.502)	(1.166)	(0.972)	(2.728)	(−1.098)	(0.518)	(2.728)	(0.165)
The presence of MLS								
Treat	−0.003	−0.004	−0.004	−0.004	0.005	0.004	−0.018	0.003
	(−1.100)	(−1.198)	(−1.118)	(−1.195)	(0.429)	(0.346)	(−1.400)	(0.267)
Post	0.003	0.003	0.004	0.004	−0.009	−0.015*	−0.026	−0.008
	(0.820)	(0.715)	(1.081)	(1.045)	(−1.017)	(−1.663)	(−1.249)	(−0.852)
Treat * Post	0.007*	0.008*	0.005	0.005	0.029*	0.032*	−0.046	0.036**
	(1.711)	(1.820)	(1.150)	(1.241)	(1.704)	(1.909)	(−1.435)	(2.111)
CG and firm-level controls								
Top1	0.022**	0.024***	0.016*	0.017*	0.082***	0.101***	−0.043	0.095***
	(2.467)	(2.648)	(1.807)	(1.913)	(2.932)	(3.204)	(−1.197)	(2.814)
Con_tran	0.006	0.006	0.010	0.010	−0.025	−0.025	0.037	−0.018
	(0.974)	(0.916)	(1.443)	(1.374)	(−1.218)	(−1.149)	(1.071)	(−0.734)
Board	−0.002	−0.000	−0.002	−0.000	0.008	0.019	−0.066	0.024
	(−0.323)	(−0.039)	(−0.284)	(−0.028)	(0.296)	(0.827)	(−1.308)	(1.002)
Inde_rate	0.022	0.025	0.016	0.019	0.162	0.161	−0.220	0.266
	(0.818)	(0.903)	(0.590)	(0.680)	(1.287)	(1.208)	(−1.398)	(1.651)
Dual	0.006**	0.006**	0.006**	0.006**	0.002	0.003	−0.106***	0.009
	(2.342)	(2.313)	(2.336)	(2.342)	(0.131)	(0.249)	(−3.396)	(0.842)
Mngshr	−0.002	−0.003	0.001	−0.000	−0.026	−0.031	−0.879***	−0.033
	(−0.318)	(−0.495)	(0.109)	(−0.073)	(−0.767)	(−0.780)	(−8.843)	(−0.957)
Size		−0.002		−0.001		−0.007	−0.012*	−0.007
		(−1.075)		(−0.848)		(−1.494)	(−1.950)	(−1.299)
Lev		0.004		0.002		0.024	−0.176***	0.040
		(0.484)		(0.188)		(0.960)	(−4.784)	(1.501)
Sales growth		−0.000		−0.001		0.004	0.005	0.023**
		(−0.219)		(−0.801)		(0.563)	(0.606)	(2.003)
Tangi		−0.008		−0.005		−0.070	−0.031	−0.083
		(−0.500)		(−0.334)		(−1.420)	(−0.253)	(−1.428)
No. of obs.	2132	2132	1884	1884	248	248	69	179
Pse R-square	−0.011	−0.011	−0.011	−0.011	−0.050	−0.057	−0.306	−0.089
Panel B: Subsidy ratio								
Intercept	0.016	0.036**	0.014	0.032**	0.001	0.044	0.052	0.059
	(1.384)	(2.421)	(1.087)	(2.025)	(0.041)	(1.008)	(0.547)	(1.158)
The presence of MLS								
Treat	0.001	0.001	0.001	0.001	−0.001	−0.001	0.007	−0.005
	(0.878)	(0.793)	(0.971)	(0.910)	(−0.121)	(−0.238)	(1.762)	(−0.957)
Post	0.001	0.001	0.001	0.001	−0.005	−0.005	0.002	−0.007
	(0.620)	(1.273)	(0.544)	(1.215)	(−1.279)	(−1.368)	(0.156)	(−1.540)
Treat * Post	−0.000	−0.001	−0.002	−0.002	0.014*	0.015*	−0.005	0.020**
	(−0.151)	(−0.454)	(−1.191)	(−1.574)	(1.807)	(1.894)	(−0.597)	(2.091)

Table 9 (continued)

	PSM sample		Non-state-owned MLS		State-owned MLS			
					Full		PC	NO_PC
	(1)	(2)	(3)	(3)	(4)	(6)	(7)	(8)
CG and firm-level controls								
Top1	−0.006*	−0.006*	−0.007**	−0.008***	0.000	0.006	0.002	0.004
	(−1.749)	(−1.905)	(−2.525)	(−2.842)	(0.008)	(0.479)	(0.078)	(0.215)
Con_tran	−0.001	−0.001	−0.001	−0.001	−0.010	−0.007	0.001	−0.007
	(−0.531)	(−0.505)	(−0.469)	(−0.515)	(−1.275)	(−1.033)	(0.188)	(−0.751)
Board	−0.001	0.001	−0.001	0.000	0.013	0.019**	−0.005	0.014
	(−0.224)	(0.286)	(−0.386)	(0.076)	(1.420)	(2.259)	(−0.154)	(1.467)
Inde_rate	−0.002	0.001	0.004	0.006	−0.026	−0.007	0.044	−0.032
	(−0.140)	(0.053)	(0.368)	(0.503)	(−0.797)	(−0.207)	(0.463)	(−0.840)
Dual	−0.003***	−0.003***	−0.003***	−0.003***	−0.006	−0.006	−0.024	−0.007
	(−3.327)	(−3.214)	(−3.399)	(−3.225)	(−1.111)	(−1.079)	(−1.334)	(−0.920)
Mngshr	−0.000	−0.003	0.001	−0.002	−0.004	−0.013	0.240***	−0.007
	(−0.031)	(−1.015)	(0.199)	(−0.715)	(−0.382)	(−1.112)	(−5.937)	(−0.568)
Size		−0.000		−0.000		−0.002	−0.003	−0.001
		(−0.798)		(−0.577)		(−0.917)	(−1.343)	(−0.506)
Lev		−0.010***		−0.012***		−0.009	−0.026	−0.010
		(−2.861)		(−3.133)		(−0.975)	(−0.665)	(−0.830)
Sales growth		−0.001		−0.001		−0.002	−0.003	−0.003
		(−1.297)		(−0.790)		(−1.310)	(−0.726)	(−1.221)
Tangi		−0.008		−0.007		−0.028	0.027	−0.035
		(−1.539)		(−1.308)		(−1.368)	(0.637)	(−1.142)
No. of obs.	2132	2132	1884	1884	248	248	69	179
Adj. R-square	0.147	0.162	0.162	0.180	0.152	0.165	0.169	0.139

This table presents the analysis on the grabbing hand and helping hand of the government, as captured by overinvestment and subsidy ratio in Panel A and B, respectively. We report the results separately for the PSM sample, non-state-owned MLS firms, and state-owned MLS firms, respectively. For state-owned MLS, we further divide the sample into firms with political connected executives (*PC*) and without political connected executives (*NO_PC*). *Treat* is a dummy variable that equals one for firms experiencing a change from a single large shareholder to MLS, and zero otherwise. *Post* is a dummy variable that equals one in the post-period of MLS, and zero otherwise. Regression models include industry and year fixed-effects, clustering standard errors at the firm level. All other test variables are as defined in Table 1

t-statistics are reported between parentheses underneath coefficients. Significance levels 0.1, 0.05, and 0.01 are denoted by *, **, and ***, respectively

shareholder is a state-owned entity, likely because state-owned shareholders as MLS may urge listed privately controlled firms to adopt strategies that help the government to achieve political or social goals. This situation is especially true since the Chinese government still largely intervenes in business and controls key resources such as the operating licenses, lands, and bank loans, thereby creating an imbalance in governance between the privately controlled investors and state-owned large shareholders. In addition, we test whether the above relationship is contingent to state ownership or financial constraints (not shown). We find that the relationship between state-owned MLS and

overinvestment is more pronounced in subsample of low percentage of state ownership. Because larger political costs imposed on listed privately controlled firms also harm the interests of state-owned entities as large shareholders, it can be deduced that their presence induces overinvestment more often in firms with lower state ownership. Besides, the positive relationship between state MLS and overinvestment is pronounced in the subsample of high financial constraints. So, when introducing state-owned MLS, listed privately controlled firms facing severe financial constraints are more likely to overinvest to achieve government's social and political goals.

Next, in addition to the grabbing hand, state-owned MLS may also provide a helping hand. For example, Cull and Xu (2005) provide evidence that politically connected firms have preferential access to the credit market relative to their non-connected counterparts. Similarly, Agrawal and Knoeber (2001) find that politically connected firms receive preferential treatment in awarding government contracts, and Faccio et al. (2006) suggest that politically connected firms are more likely to be bailed out than their non-connected counterparts. Therefore, the introduction of a government-related entity as another large shareholder is one way for Chinese listed privately controlled firms to forge a closer relationship with the government. In other words, the presence of state-owned large shareholders can bring Chinese listed privately controlled firms more resources through a "blood" tie with the government. Therefore, to better understand the influence of the government on Chinese listed privately controlled firms after the entry of state-owned MLS, we examine the relationship between the entry of state-owned MLS and the *subsidy ratio*, defined as the ratio of subsidies to total sales. Panel B in Table 9 presents the empirical results. We discern that Chinese listed privately controlled firms with state-owned MLS have easy access to subsidies. In contrast, the presence of non-state-owned MLS has no significant influence on the magnitude of subsidies. Moreover, we further add the excess *SG&A ratio* as a control in the regression to rule out the explanation that privately controlled firms spend excess sales and administrative expenses to entertain government officials in order to obtain more subsidies. Our finding remains robust when adding this extra control. Overall, we find that even though the presence of state-owned MLS makes Chinese listed privately controlled firms more likely to involve in the pursuit of political goals, such as overinvesting in government projects, it also brings them more subsidies from the state.

Finally, to examine whether the presence of politically affiliated managers makes a difference in the helping versus grabbing hand of state MLS, in columns 7 and 8 of Panels A and B of Table 9, we further divide the sample of state-owned MLS into two groups—with managerial political connection (*PC*) and without managerial political connection (*NO_PC*) before the entry of state MLS. More precisely, we defined a firm as politically connected if the chairman of its board or the general manager formerly (currently) served (serves) in one of the following posts before MLS entry: (1) government official, (2) member of the Chinese People's Congress, (3) member of the Chinese People's Political Consultative Conference, or (4) military official. We find that, only in the subsample without political connection, overinvestment is exacerbated, and subsidies are increased. In other words, if there are politically connected managers *ex ante*, the expected role of the observed state-owned MLS will be largely discounted. It thereby suggests that politically connected executives and state-owned MLS are two mutually exclusive means by which the government can influence privately controlled firms.

Table 10 Placebo test

	(1) SGA	(2) RPT	(3) ROA	(4) Asset utilization efficiency
Treat	0.012	0.010	−0.000	−0.036
	(1.029)	(0.382)	(−0.062)	(−0.806)
Post	0.014	0.063	0.005	0.080*
	(1.227)	(0.837)	(0.823)	(1.896)
Treat * Post	− 0.004	−0.081	0.002	0.019
	(−0.408)	(−1.041)	(0.372)	(0.506)
Controls	Yes	Yes	Yes	Yes
No. of obs.	586	586	586	586
Adj. R-square	0.314	0.046	0.140	0.347

This table presents the results of placebo tests for the effects of MLS entry on principal-agent and principal–principal conflict of interests and firm performance. Specifically, we report the results from a DID model, in which the pseudo-event year is now assumed to equal two years before actual MLS entry. For example, for a firm with MLS entry in 2010, we consider 2008 as the pseudo-event year, making the pseudo pre-period starting in 2007 and the pseudo post-period starting in 2009. For brevity, we only report the result of PSM sample. *Treat* is a dummy variable that equals one for treated firms that experiencing a change from a single large shareholder to MLS and equals zero for the benchmark firms. *Post* is a dummy variable equal to one for the pseudo post-period and zero for the pseudo pre-period. Regression models include industry and year fixed effects, with standard errors clustered at the firm level. All other test and control variables are defined in Table 1

t-statistics are reported between parentheses underneath coefficients. Significance levels 0.1, 0.05, and 0.01 are denoted by *, **, and ***, respectively

4.3 Placebo test

In this section, we develop a placebo test with a pseudo MLS entry year to further assess the parallel trend assumption underlying our DID design. In the absence of MLS entry, we expect a non-significant difference in the average change in a firm's economic outcome between the treated and benchmark groups. Our placebo test restricts the analysis to the pre-period of MLS and sets the pseudo presence year as 2 years before the actual entry year of MLS. For example, for a firm that had MLS since 2010, we set the pseudo-event year as 2008, which makes the pseudo pre-period begin in 2007 and the pseudo post-period begin in 2009. We redefine *Post* as a dummy equal to one for the pseudo post-period and zero for the pseudo pre-period. Table 10 reports the results by re-estimating the analyses presented in Tables 5, 6, 7 and 8. For brevity, we show only the results for the PSM sample. We find that our variable of interest, *Post * Treat*, becomes non-significant for all dependent variables. This result is consistent with the parallel trend assumption, suggesting that, in the absence of MLS, our treated and benchmark groups exhibit a similar trend in terms of firms' economic outcomes during the pre-period. This result also confirms that the entry of MLS plays a crucial role in corporate governance and firm performance.

4.4 Robustness checks

As a first extra test, we use administrative expenses scaled by total sales as another proxy for principal-agent conflicts. Consistent with the *SG&A ratio*, the results of this new proxy show that non-state-owned MLS reduce administrative expenses, while state-owned MLS do not reduce these expenses. Next, we distinguish between different types of related-party transactions to better capture the potential tunneling by the controlling shareholder. In particular, we divide the overall ratio of related-party transactions into the ratio of related sales, i.e., the sales of goods and services to related parties scaled by total sales, and the ratio of related purchases, i.e., the purchases of goods and services from related parties relative to operating costs. The results using these two additional variables are in line with those reported in Tables 6 and 7 (not shown). Additionally, we use the industry and year adjusted related-party transactions (*Adj. RPT*), i.e., subtracting the mean value of *RPT* in the same industry and year, as an alternative to capture the tunneling activities by the dominant owner. Our main conclusions on related-party transactions remain robust. More precisely, we find that state-owned MLS aggravate the magnitude of industry-adjusted *RPT* in Chinese listed privately controlled firms, while the presence of financial non-state-owned MLS reduces the ratio of industry-adjusted *RPT*. Additionally, we use net income divided by total equity (*ROE*) and earnings before interest and tax (*EBIT*) divided by total assets to capture the performance of Chinese listed privately controlled firms. Our results in Table 8 remain robust. The entry of non-state-owned MLS increases *ROE* and *EBIT*, while state-owned MLS are not associated with significant changes in these two variables. Moreover, if we examine the effect of MLS on overinvestment by using a continuous variable of residuals from Eq. (2), we again observe a significant effect of state-owned MLS in exacerbating overinvestment.

In our DID approach, to alleviate the concerns regarding the sensitivity of our results to different sampling intervals, we use an alternative period that incorporates the fourth year of entrance of MLS as the post-period, i.e., $[-3, +3]$ by excluding year 0 instead of using a sampling period $[-3, +2]$, to repeat the analysis. Besides, we use a logit model instead of a probit regression to measure the propensity score. Overall, our results remain robust in these additional checks. Additionally, to deal with the potential problem of sample selection bias, we run our regression by using Heckman two-stage model (not shown). In this manner, we add the one-year lagged industry-specific fraction of Chinese listed privately controlled firms with MLS ownership in the first-stage selection equation. The reason is that the odds that an investor buys a block of shares in a listed firm without MLS are higher if MLS ownership is frequently observed among industry peers (see also Jiang et al. 2018). In the second stage, we then add the inverse Mills ratio (IMR) to the panel data models, in which the key explanatory variable is *Change*, i.e., equal to one for the treated firms after the MLS entry, and zero in the pre-entry years. The results from Heckman two-stage regressions are consistent with those of PSM-DID model, except that we now observe a non-significant effect of non-state-owned MLS in mitigating managerial discretion problem.

Next, we further examine whether the appointment of MLS-affiliated directors affects the governance role of MLS in Chinese listed privately controlled firms (not shown). In particular, we collect the personal profile of directors from the annual report to identify whether they previously (currently) worked (work) in the firm of newly entered shareholders. Though our findings on the role of MLS in curbing principal-agent and principal–principal conflicts of interests prove to be comparable across the subsample with versus without

MLS-affiliated directors, we indeed observe that the non-state-owned MLS promote firm performance when they appoint board members, while state-owned MLS do not have such an effect. Furthermore, using a sample of non-state-owned MLS, we further analyze the influence of managerial political connection on principal-agent conflict of interests manifested in *SG&A ratio*. Our empirical results (not tabulated) again suggest a comparable effect of the entry of non-state-owned MLS in reducing SG&A expenses across the subsample with versus without politically connected managers.

Finally, we test our proposition in reverse by using a sample of Chinese listed SOEs that introduce non-state-owned MLS, which also witness a simultaneous decline in state ownership. We indeed find that the presence of non-state-owned MLS helps to reduce SG&A expenses and the magnitude of overinvestment (not shown). Yet, the impact of non-state-owned MLS in mitigating related-party transactions is non-significant after they enter SOEs. This may be explained by the unbalanced power between the state as dominant owner and other non-state-owned large shareholders, due to the government's control over key resources and its intervention in business.

5 Discussion and conclusion

Utilizing a sample of Chinese listed privately controlled firms from 2006 to 2017, this paper adopts a DID approach to empirically investigate the effect of MLS on various agency problems and firm performance. The positive effect of MLS and the inefficient role of the government on corporate governance motivate us to examine whether the entry of state-owned MLS could play an efficient governance role and thereby reduce agency problems. Specifically, we compare non-state-owned MLS with state-owned MLS to better capture the importance of shareholder identity/type on the governance role of MLS in Chinese listed privately controlled firms.

Our empirical results show that the entry of non-state-owned MLS effectively alleviates the conflict of interests between managers and shareholders in Chinese listed privately controlled firms, as evidenced by a lower *SG&A ratio.* However, no significant effect is observed in the case of principal–principal conflict of interests when *RPT* are used as a proxy. The insignificant effect of non-state-owned MLS on reducing related-party transactions is partly due to the lack of shareholder heterogeneity, which may result in the collusion of large shareholders. Indeed, when classifying non-state-owned MLS into financial and non-financial MLS, we find a negative effect of financial non-state-owned MLS on related-party transactions in Chinese listed privately controlled firms; however, this effect is positive in the case of non-financial non-state-owned MLS. In addition, we find that state-owned MLS in privately controlled firms have no positive effect in reducing the *SG&A ratio* but even exacerbate related-party transactions. At the same time, the entry of state-owned MLS positively affects overinvestment and subsidies, and these two effects are pronounced when top executives are not politically connected before the entry of state MLS. Finally, the presence of non-state-owned MLS improves privately controlled firms' performance, as manifested in a higher *ROA* and *asset utilization efficiency*, while state-owned MLS have no such effect.

Arguably, the findings of this article may shed some theoretical light on the governance role of MLS with respect to shareholder heterogeneity as well as shareholder identity. More precisely, our results show that, in Chinese listed privately controlled firms, the presence of financial non-state-owned MLS could mitigate the expropriation of minority

investors by the dominant owner, while the presence of a non-financial non-state-owned large shareholder cannot realize this effect. This result is in line with literature and supports that shareholder heterogeneity is crucial for MLS to play an effective governance role (see also Maury and Pajuste 2005; Attig et al. 2008; Lin et al. 2016). In other words, when the identity of the second largest shareholder is different from that of the dominant owner, a superior governance mechanism for MLS can be implemented. However, in addition to shareholder heterogeneity, our results further suggest that whether the positive role of MLS can be exerted well also depends on the identity/type of MLS. Specifically, we show that, in Chinese listed privately controlled firms, the presence of state-owned MLS not only has no significant effect on alleviating principal-agent conflict of interests but also aggravates principal–principal conflict of interests. This finding indicates that shareholder heterogeneity is not necessarily associated with the mitigation of agency problems, which also depends on the identity of the other large investor. Indeed, an absence of accountable representative as well as the political and social pursuits borne by state-owned MLS erodes the expected positive influence of MLS (or shareholder heterogeneity of MLS) on corporate governance. In sum, the findings of this article suggest that when exploring the role of MLS, one should not neglect the importance of shareholder identity.

Next, for stock market investors, the findings of this article provide a more comprehensive perspective to understand the grabbing versus helping hand of the government as another large shareholder. The presence of the state-owned entity as the second largest shareholder does not enhance the monitoring of top management; however, it simultaneously exacerbates tunneling behaviors by the dominant owner. Specifically, for Chinese listed privately controlled firms, the entry of a state-owned entity as a large shareholder induces the grabbing hand of the government through overinvestment. Notably, although these firms also benefit from easier access to subsidies, Chinese listed privately controlled firms with state-owned MLS do not experience an improvement in firm performance. Thus, these results indicate that the fundamental and crucial performance enhancement of Chinese listed privately controlled firms is more likely to be related to an alleviation of agency problems instead of a broader resource base that can be provided by government control/political connection.

Finally, for policymakers, our findings provide some implications for the concurrent ownership reforms in China, particularly the 2015 mixed ownership reform, which different types of capital were encouraged to be introduced to a firm. By its very nature, this reform can be regarded as a process of changing the ownership structure from a single large shareholder to MLS, which, to some extent, is similar to our research. In particular, the findings of this study suggest that to achieve the expected outcome, the introduction of different-type shareholders is conducive to corporate governance, but at the same time, when introducing state-owned large shareholders, political intervention should be curbed in order to enhance the positive role of MLS.

Acknowledgements We would like to thank the editor and the anonymous reviewers for suggestions that substantially improved the article. We also would like to thank Shaoqing Kang, Zheng Qiao, Wenzhou Qu, Zhe Shen, Shinong Wu, Yuhui Wu, Yujia Yi, Yevgeny Mugerman, Fang Wan, Gady Jacoby, and participants of the 2019 cross country perspectives in finance conference for their suggestions and comments on an earlier draft of this article. Lihong Wang acknowledges the Chinese National Funding of Social Sciences (19BGL075), Humanities and Social Science Fund of Ministry of Education of China (18YJC630181), and the National Natural Science Foundation of China (71502150) for financial support. Sen Lin acknowledges the National Natural Science Foundation of China (NSFC-71790601, 71532012) for financial support.

Appendix

	Pre-match	Post-match
Panel A: Probit regression used to calculate the propensity score		
Intercept	0.683	0.632
	(1.07)	(0.86)
Size	−0.144***	−0.120***
	(−5.36)	(−3.91)
EBIT	−1.238***	−0.429
	(−2.67)	(−0.70)
Top1	0.366***	0.144
	(2.75)	(0.94)
Lev	0.847***	0.521***
	(6.50)	(3.07)
Sales growth	−0.005	−0.063
	(−0.09)	(−0.92)
Tangi	−0.115	0.321
	(−0.42)	(0.91)
MB	0.056	0.071
	(1.49)	(1.57)
SOE	−0.097**	0.047
	(−2.13)	(0.84)
Pseudo R^2	0.071	0.055
N	17,246	3583

Variable	Mean value of treated firm	Mean value of benchmark firm	Mean-diff
Panel B: Test of the effectiveness of PSM			
Size			
Pre-match	21.930	21.913	0.017
Post-match	21.930	21.930	−0.000
EBIT			
Pre-match	0.050	0.059	−0.010***
Post-match	0.050	0.052	−0.003
Top1			
Pre-match	0.401	0.409	−0.008*
Post-match	0.401	0.431	−0.030***
Lev			
Pre-match	0.471	0.449	0.021***
Post-match	0.471	0.485	−0.014**
Sales growth			
Pre-match	0.216	0.195	0.022**
Post-match	0.216	0.198	0.019
Tangi			
Pre-match	0.929	0.939	−0.011***
Post-match	0.929	0.939	−0.011***

Variable	Mean value of treated firm	Mean value of benchmark firm	Mean-diff
MB			
Pre-match	0.984	0.943	0.041*
Post-match	0.984	0.939	0.044
SOE			
Pre-match	0.407	0.490	−0.084***
Post-match	0.407	0.421	−0.015

This table presents the procedure to develop propensity-score-matched (PSM) benchmark firms. The PSM approach involves pairing treated and control firms based on similar observable characteristics. Specifically, we implement this procedure by first running a Probit regression to estimate the probability of being a treated firm using the data in year $t-1$, i.e., the year before the entry of multiple large shareholders. Next, we match each treated firm to the control firms with the same year and industry using the nearest neighbor matching technique without replacement. In Panel A, the first column reports the estimation results of the Probit model. The dependent variable is a dummy variable indicating treated firms. *Size* is the natural logarithm of the book value of total assets. *EBIT* is earnings before interest and tax scaled by total assets. *Top1* is the shareholding by the controlling shareholder relative to total shares outstanding. *Lev* is the ratio of total liabilities to total assets. *Sales growth* is the rate of sales growth. *Tangi* is the ratio of tangible assets to total assets. *BM* is the book value of total assets divided by the market value of equity. *SOE* is a dummy variable, equal to one if a firm's ultimate controller belongs to the government entity, and zero otherwise. Besides, in Panel B, we compare the univariate distribution of control variables used to estimate the propensity score. Regression models include industry and year fixed effects, clustering standard errors at the firm level

t-statistics are reported between parentheses underneath coefficients. Significance levels 0.1, 0.05, and 0.01 are denoted by *, **, and ***, respectively

References

Agrawal A, Knoeber CR (2001) Do some outside directors play a political role? J Law Econ 44(1):179–198. https://doi.org/10.1086/320271

Ang JS, Cole RA, Lin JW (2000) Agency costs and ownership structure. J Finance 55(1):81–106. https://doi.org/10.1111/0022-1082.00201

Attig N, Guedhami O, Mishra D (2008) Multiple large shareholders, control contests, and implied cost of equity. J Corp Finance 14(5):721–737. https://doi.org/10.1016/j.jcorpfin.2008.08.008

Attig N, Ghoul SE, Guedhami O, Rizeanu S (2013) The governance role of multiple large shareholders: evidence from the valuation of cash holdings. J Manag Gov 17(2):419–451. https://doi.org/10.1007/s10997-011-9184-3

Barroso CR, Burkert M, Dávila A, Oyon D (2016) Shareholder protection: the role of multiple large shareholders. Corp Gov Int Rev 24(2):105–129. https://doi.org/10.1111/corg.12131

Belghitar Y, Clark E, Saeed A (2019) Political connections and corporate financial decision making. Rev Quant Finance Account 53(4):1099–1133. https://doi.org/10.1007/s11156-018-0776-8

Bennedsen M, Wolfenzon D (2000) The balance of power in closely held corporations. J Financ Econ 58(1):113–139. https://doi.org/10.1016/S0304-405X(00)00068-4

Berkman H, Cole RA, Fu LJ (2010) Political connections and minority-shareholder protection: evidence from securities-market regulation in China. J Financ Quant Anal 45(06):1391–1417. https://doi.org/10.1017/S0022109010000608

Boateng A, Huang W (2017) Multiple large shareholders, excess leverage and tunneling: evidence from an emerging market. Corp Gov Int Rev 25(1):58–74. https://doi.org/10.1111/corg.12184

Boubaker S, Sami H (2011) Multiple large shareholders and earnings informativeness. Rev Account Finance 10(3):246–266. https://doi.org/10.1108/14757701111155789

Chaney PK, Faccio M, Parsley D (2011) The quality of accounting information in politically connected firms. J Account Econ 51(1–2):58–76. https://doi.org/10.1016/j.jacceco.2010.07.003

Chen X, Lee CWJ, Li J (2008) Government assisted earnings management in China. J Account Public Policy 27:262–274. https://doi.org/10.1016/j.jaccpubpol.2008.02.005
Chen YC, Hung M, Wang Y (2018) The effect of mandatory CSR disclosure on firm profitability and social externalities: evidence from China. J Account Econ 65(1):169–190. https://doi.org/10.1016/j.jacceco.2017.11.009
Cheung YL, Rau PR, Stouraitis A (2010) Helping hand or grabbing hand? Central vs. local government shareholders in Chinese listed firms. Rev Finance 14(4):669–694. https://doi.org/10.1093/rof/rfp024
Claessens S, Djankov S, Lang LHP (2000) The separation of ownership and control in East Asian corporations. J Financ Econ 58(1–2):81–112. https://doi.org/10.1016/S0304-405X(00)00067-2
Cull R, Xu L (2005) Institutions, ownership, and finance: the determinants of profit reinvestment among Chinese firms. J Financ Econ 77(1):117–146. https://doi.org/10.1016/j.jfineco.2004.05.010
Defond ML, Hung M, Li S, Li Y (2015) Does mandatory IFRS adoption affect crash risk? Account Rev 90(1):265–299. https://doi.org/10.2308/accr-50859
Ding S, Jia C, Wilson C, Wu Z (2015) Political connections and agency conflicts: the roles of owner and manager political influence on executive compensation. Rev Quant Finance Account 45(2):407–434. https://doi.org/10.1007/s11156-014-0441-9
Dong XY, Putterman L (2003) Soft budget constraints, social burdens and labor redundancy in China's state industry. J Comp Econ 31(1):110–133. https://doi.org/10.1016/S0147-5967(02)00012-4
Faccio M, Masulis RW, Mcconnell JJ (2006) Political connections and corporate bailouts. J Finance 61(6):2597–2635. https://doi.org/10.1111/j.1540-6261.2006.01000.x
Huang W (2016) Tunneling through related-party loan guarantees: evidence from a quasi-experiment in China. Rev Quant Finance Account 47(3):857–884. https://doi.org/10.1007/s11156-015-0523-3
Jara-Bertin M, López-Iturriaga FJ, López-de-Foronda Ó (2008) The contest to the control in european family firms: how other shareholders affect firm value. Corp Gov Int Rev 16(3):146–159. https://doi.org/10.1111/j.1467-8683.2008.00677.x
Jiang F, Cai W, Wang X, Zhu B (2018) Multiple large shareholders and corporate investment: evidence from China. J Corp Finance 50((C)):66–83. https://doi.org/10.1016/j.jcorpfin.2018.02.001
La Porta R, Lopez-De-Silanes F, Shleifer A (1999) Corporate ownership around the world. J Finance 54(2):471–517. https://doi.org/10.1111/0022-1082.00115
Laeven L, Levine R (2008) Complex ownership structures and corporate valuations. Rev Financ Stud 21(2):579–604. https://doi.org/10.1093/rfs/hhm068
Lee W, Wang L (2017) Do political connections affect stock price crash risk? Firm-level evidence from China. Rev Quant Finance Account 48(3):643–676. https://doi.org/10.1007/s11156-016-0563-3
Lin JY, Cai F, Li Z (1998) Competition, policy burdens, and state-owned enterprise reform. Am Econ Rev 88(2):422–427
Lin TJ, Tsai HF, Imamah N, Hung JH (2016) Does the identity of multiple large shareholders affect the value of excess cash? Evidence from China. Pac Basin Finance J 40:173–190. https://doi.org/10.1016/j.pacfin.2016.10.007
Maury B, Pajuste A (2005) Multiple large shareholders and firm value. J Bank Finance 29(7):1813–1834. https://doi.org/10.1016/j.jbankfin.2004.07.002
Mishra DR (2011) Multiple large shareholders and corporate risk taking: evidence from East Asia. Corp Gov Int Rev 19(6):507–528. https://doi.org/10.1111/j.1467-8683.2011.00862.x
Pagano M, Roell A (1998) The choice of stock ownership structure: agency costs, monitoring, and the decision to go public. Q J Econ 113(1):187–225. https://doi.org/10.1162/003355398555568
Petersen M (2009) stimating standard errors in finance panel data sets: comparing approaches. Rev Financ Stud 22(1):435–480. https://doi.org/10.1093/rfs/hhn053
Qian Y (1996) Enterprise reform in China: agency problems and political control. Econ Transit 4(2):427–447. https://doi.org/10.1111/j.1468-0351.1996.tb00181.x
Qiang Q (2003) Corporate governance and state-owned shares in China listed companies. J Asian Econ 14:771–783. https://doi.org/10.1016/j.asieco.2003.10.005
Richardson S (2006) Over-investment of free cash flow. Rev Account Stud 11(2–3):159–189. https://doi.org/10.1007/s11142-006-9012-1
Rosenbaum PR, Rubin DB (1984) Reducing bias in observational studies using subclassification on the propensity score. J Am Stat Assoc 79(387):516–524. https://doi.org/10.1080/01621459.1984.10478078
Shleifer A, Vishny RW (1986) Large shareholders and corporate control. J Polit Econ 94(3–1):461–488. https://doi.org/10.1086/261385
Singh M, Davidson WN III (2003) Agency costs, ownership structure and corporate governance mechanisms. J Bank Finance 27(5):793–816. https://doi.org/10.1016/S0378-4266(01)00260-6

Volpin PF (2002) Governance with poor investor protection: evidence from top executive turnover in Italy. J Financ Econ 64(1):61–90. https://doi.org/10.1016/S0304-405X(02)00071-5
Wei Z, Xie F, Zhang S (2005) Ownership structure and firm value in China's privatized firms: 1991–2001. J Financ Quant Anal 40(1):87–108. https://doi.org/10.1017/S0022109000001757
Zwiebel J (1995) Block investment and partial benefits of corporate control. Rev Econ Stud 62(2):161–185. https://doi.org/10.2307/2297801