Essays on corporate governance in Chinese listed firms

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ABSTRACT

This thesis consists of three essays. In the first essay, we investigate government resource allocation through related-party transactions (RPTs) using hand-collected data of RPTs between non-corporate government agencies and state-owned enterprises (SOEs) in China. It shows that more resources are allocated to SOEs with a politically connected chairman of the board, small SOEs and SOEs located in less-developed regions. The results indicate that Chinese governments allocate more resources through RPTs to SOEs with stronger political incentives and promote the new wave of Chinese SOE reform. However, in SOEs with a politically connected chairman, resources obtained through RPTs are only associated with increased investment expenditure and not with SOEs' labour intensity. This essay explores a unique channel of government resource allocation among SOEs and provides evidence to the critical view of government intervention.

The second essay investigates the effects of top executives' reputation concern on earnings quality in China's listed SOEs. Existing studies on executive reputation mainly focus on executives in a competitive executive labour market. Therefore, it is of great interest to examine whether reputation concern matters to top executives in SOEs, whose career development heavily depends on the preference of government bureaucrats. We define chairpersons with concurrent positions in listed SOEs' shareholding firms as "spotlight" executives that may receive more external attention. The evidence shows that "spotlight" executives positively influence the earnings quality of SOEs measured by earnings management via RPTs. Such a positive influence is achieved through the intensive external attention paid to those executives in the spotlight. However, the positive reputation effect becomes insignificant when the political objectives of SOEs are pronounced. Further evidence shows that the positive impact

of "spotlight" executives on earnings quality is shaped by various characteristics of SOEs, such as different types of state control, the industry sectors SOEs come from, firm performance, the timing of seasoned equity offerings external monitoring.

Essay three studies whether and if so, how managerial efficiency influences stock price crash risk in China's listed firms. The evidence suggests that executives with better efficiency can reduce stock price crash risk, and the beneficial effect is achieved through improved firm information transparency and lower excessive risk-taking. Further, the beneficial impact of managerial efficiency on crash risk is more pronounced in SOEs, firms located in less developed regions and firms that pay higher compensation to managers. This essay sheds light on the influence of managerial ability in emerging markets with weak institutions, such as China.

Evidence from the three essays is robust after considering endogeneity issues. The three essays provide important policy implications. First, imposing government intervention on SOEs does not lead to efficient usage of government resources. Second, the spotlight is a powerful mechanism to discipline managerial behaviour in SOEs. In addition, free SOEs from political interference tends to facilitate the monitoring of the spotlight. Third, it is essential for firms in emerging markets, especially SOEs, to adopt methods of evaluating managerial efficiency and select managers that provide better efficiency, as they can not only utilize company resources and produce outputs more efficiently, but also improve firm transparency, reduce excessive risk-taking, and thus reduce stock price crash risk.

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CHAPTER ONE INTRODUCTION

1.1. Motivation and objectives

In the past two decades of the 21st century, the Chinese economy has been growing rapidly, and China has become the world's second-largest economy, just behind the U.S. One of the key features of the Chinese economy is the heavy involvement of the Chinese government (Lim, Wang, & Zeng, 2018). The Chinese government holds close control of vital resources (He, Wan, & Zhou, 2014) and has the discretion to allocate those resources to listed firms via various channels, such as government subsidies (Chen, Cui, Yang, & Zhang, 2018b; Lim et al., 2018) and loans from government-controlled banks (Liu, Pan, & Tian, 2018b; Yeh, Shu, & Chiu, 2013). However, the allocation of government resources through related party transactions (RPTs) remains under-explored. Both Cheung, Jing, Lu, Rau, and Stouraitis (2009a) and Jian and Wong (2010) suggest that listed state-owned enterprises (SOEs) in China are likely to be propped up by their government controlling shareholders through RPTs.

Furthermore, under the relationship-based culture in China, the personal political connection is of great importance to listed firms in accessing government resources. However, most studies focus on private firms (Brockman, Firth, He, Mao, & Rui, 2019; Fan, Wong, & Zhang, 2007b; Li & Zhou, 2015; Lin, Tan, Zhao, & Karim, 2015) and few studies investigate the role of personal political connection of SOEs in government resource allocation. The first essay of the thesis studies the allocation of government resources through RPTs, and mainly examines the role of personal political connection in SOEs.

Another prominent feature of China's economy is the dominance of SOEs in the stock market, especially in strategic industries (Hubbard & Williams, 2017). Exploiting the unique features

of listed SOEs in China, the second essay of the thesis investigates the influence of executive reputation concern on earnings quality.

The literature points out that managers' reputation, an asset highly valued by firm executives (Doukas & Zhang, 2020), is closely associated with earnings quality (Francis, Huang, Rajgopal, & Zang, 2008; Qian, Gao, & Tsang, 2015). However, the influence of executive reputation concern on earnings quality is still under debate. There are mainly two theories attempting to explain the association between executive reputation and earnings quality (Francis et al., 2008). The efficient contracting theory states that executives are less likely to engage in opportunistic activities, such as earnings manipulation, to avoid reputation losses. Contrarily, the rent extraction theory suggests that executives with higher reputation concerns are more likely to conduct opportunistic behaviours to meet external expectations.

Listed SOEs in China provide a unique setting to explore the influence of executive reputation concern on earnings quality. First, the executive labour market of SOEs in China is relatively enclosed with a high cost of exiting (Chen, Kim, Li, & Liang, 2018a), which may induce more significant reputation concerns of SOE executives. Second, SOE executives have faced strict scrutiny from the market and the governments, especially since the initiation of the anti-corruption campaign in late 2012. Third, the political objectives of SOEs may sometimes induce earnings manipulation and deteriorate earnings quality (Chen, Cheng, Hao, & Liu, 2020). These features of listed SOEs allow us to examine further the influence of executive reputation concern under the setting where political objectives are strong.

Finally, managers with superior managerial efficiency can accumulate greater reputational capital by efficiently utilising firm resources (Demerjian, Lewis-Western, & McVay, 2017; Doukas & Zhang, 2020; Haider, Singh, & Sultana, 2021). At the same time, a high stock price crash risk is detrimental to investors' wealth and the reputation of managers (Jiang, Cai,

Nofsinger, & Zheng, 2020). Given that the literature has not yet achieved a conclusive opinion on the influence of executive reputation concern on firm behaviour, the third essay of this thesis investigates whether managers with better efficiency affect stock price crash risk due to reputation concerns.

Unlike most studies of managerial efficiency that focus on the U.S. market, essay three examines the association between managerial efficiency and stock price crash risk in China's listed firms. Unlike the individualistic culture in the U.S. that induces risk-taking, the collectivist culture in China promotes risk-aversion (Dang, Faff, Luong, & Nguyen, 2019; Li, Griffin, Yue, & Zhao, 2013). Moreover, managers' reputation concerns can be amplified by China's SOEs' enclosed executive labour market (Chen et al., 2018a) and less developed regions (Cordeiro, He, Conyon, & Shaw, 2013). Hence, managers in China's listed firms may be more cautious to avoid opportunistic behaviours, leading to low stock price crash risk.

1.2. Essay one

Essay one explores government resource allocation through RPTs. Using a sample of listed SOEs in China consisting of 7836 firm-year observations and hand-collected data of government-related transactions (GRTs) from 2008 to 2016, this essay finds that government non-corporate agencies are more likely to allocate resources to SOEs with a politically connected chairperson on board through RPTs. This result remains robust after various endogeneity checks, including controlling for multi-fixed effects, the propensity-score matching (PSM) analysis, the difference-in-differences (DIDs) analysis and the two-stage least squares (2SLS) instrumental variable (IV) analysis. This essay also finds that more resources are allocated to well-performing SOEs, small SOEs and SOEs located in less-developed regions. These results are consistent with the objectives of the new wave of China's SOE reforms. For instance, more resources are allocated to weaker SOEs and SOEs in less

developed regions to reduce regional disparity and achieve the "all-around well-off society". Essay one then examines how politically connected chairpersons in SOEs utilize resources obtained from GRTs. Evidence shows that resources from GRTs are used to increase capital investment rather than to enhance innovation, pay dividends, or improve sales growth. No evidence is found that politically connected chairpersons in SOEs use resources from GRTs to increase labour intensity. Furthermore, government subsidy is adopted as an alternative channel through which the government allocates resources to SOEs, and its results are similar to GRTs. Specifically, SOEs with a politically connected chairman, well-performing SOEs and small SOEs receive more government subsidies, and government subsidies are not associated with SOEs' economic outputs or labour intensity.

Essay one first contributes to the literature of RPT. Current evidence suggests that RPTs can serve as a channel for related counterparties to either expropriate wealth from listed firms (Berkman, Cole, & Fu, 2009; Cheung, Rau, & Stouraitis, 2009b; Djankov, La Porta, Lopez-de-Silanes, & Shleifer, 2008; Kohlbeck & Mayhew, 2017), or prop up listed firms (Cheung et al., 2009a; Friedman, Johnson, & Mitton, 2003). This essay provides evidence of the propping-up function of RPTs. Second, the literature on executive political connection heavily focuses on private firms (Cao, Pan, Qian, & Tian, 2017; Chen, Li, Su, & Sun, 2011a; Cheng, 2017; Li, Meng, Wang, & Zhou, 2008) and there is scarce evidence of the significance of executive political connection in SOEs (Ding, Jia, Wu, & Zhang, 2014; Hung, Jiang, Liu, Tu, & Wang, 2017). Results of this essay contribute to the literature that personal political connection matters to SOEs. Third, current studies suggest that executives with personal political connections are appointed to SOEs to enhance government control and facilitate political and social objectives (Fan et al., 2007b; Lee & Wang, 2017; Wang, 2015). Such political intervention negatively influences firm value (Chen, Li, Luo, & Zhang, 2017b; Zhang, Marquis, & Qiao, 2016) and efficiency (Chen, Sun, Tang, & Wu, 2011c). In line with this argument, the results of this essay

show that resources allocated to SOEs via GRTs have little positive impact on SOEs' economic outputs or labour intensity.

1.3. Essay two

This essay investigates the impact of executive reputation concern on earnings quality by focusing on "spotlight" top executives in China's listed SOEs. "Spotlight" top executives are defined as the chairmen of listed SOEs who have concurrent positions in both listed SOEs and their shareholding corporation. "Spotlight" top executives can be reflected as the representatives of the governments in listed SOEs. Due to their special connection with government controlling shareholders, "spotlight" top executives are more capable of conducting RPTs with their government controlling shareholders, and RPTs can be used by government controlling shareholders to either tunnel or prop up earnings of listed firms, thus inducing earnings manipulation (Jian & Wong, 2010; Liu & Lu, 2007). Hence, increased external attention may be paid to "spotlight" top executives concerning their easy access to RPTs and potential earnings manipulation, thus amplifying their sensitivity to reputation concern and earnings management, primarily through RPTs.

Two measures are employed to proxy earnings quality in this essay. The first measure is discretionary related-party account receivables, which focuses on earnings manipulation via RPTs (Jian & Wong, 2010). Since RPTs are strictly monitored by regulators and highly visible (Cheung et al., 2009a; Cheung, Rau, & Stouraitis, 2006; Jian & Wong, 2010), manipulating earnings via RPTs is more detectable and would damage the reputation of "spotlight" top executives. The second measure is discretionary accruals (Jones, 1991), which measures the overall earnings quality.

Using a sample of listed SOEs in China consisting of 7,653 firm-year observations, essay two finds that "spotlight" top executives are negatively associated with discretionary related-party

account receivables but not with discretionary accruals. The results indicate that "spotlight" top executives avoid manipulating earnings through RPTs since the risk of detection is high and the potential damage to their reputation is strong. The result remains robust in the change-in-change analysis, 2SLS IV analysis and PSM analysis that mitigates endogeneity concerns. Then, this essay further explores the mechanisms through which "spotlight" top executives reduce discretionary related-party account receivables. By employing a 2SLS approach, we find that "spotlight" top executives are associated with more analysts following and site visits of institutional shareholders, and the increased external attention, in turn, leads to reduced discretionary related-party account receivables. However, the impact of "spotlight" top executives on earnings quality is subject to the political objectives of SOEs. For instance, the results show that the reduction in discretionary related-party account receivables becomes insignificant in SOEs located in provinces with lower GDP growth rates due to local governments' strong incentive to induce earnings manipulation of SOEs to contribute to local GDP growth; and in the last year of a provincial government official's tenure, as the benefit of earnings manipulation for government officials is more than the risk of detection. Moreover, as China's anti-corruption campaign significantly tightened the scrutiny over government officials, including SOE top executives (Zhang, 2018), evidence shows that the impact of "spotlight" top executives on earnings quality is more pronounced after the initiation of the anti-corruption campaign. Lastly, this essay examines the heterogeneity of the influence of "spotlight" top executives. The results show that the impact of "spotlight" top executives on earnings quality is more salient in SOEs controlled by the local governments, in SOEs that belong to non-strategic industries, in SOEs with less incentive to beat performance benchmarks or launch seasoned equity offerings and in SOEs with weak external monitoring.

This essay contributes to the literature in the following ways. First, by focusing on a unique labour market where the exiting cost is high, this essay provides empirical supports to the

efficient contracting theory regarding the effects of executive reputation concern. Second, evidence of this essay shows that in SOEs, the influence of "spotlight" executives on earnings quality is shaped by political objectives, such as local governments' GDP growth incentive, local government officials' career concerns and the anti-corruption campaign. Third, by identifying "spotlight" top executives as those that are sensitive to reputation concerns, this essay suggests that specific executive characteristics, such as having a concurrent position in listed SOEs shareholding firms, may attract more external attention, thus inducing reputation concerns. Fourth, adding to the literature on the influence of external attention on firm behaviours, the results of this essay show that increased external attention is the mechanism through which "spotlight" top executives improve earnings quality in SOEs. Last, this essay contributes to the RPT literature by identifying RPTs as a risky channel of earnings manipulation since they are strictly monitored and highly visible.

1.4. Essay three

Essay three uses a sample of listed firms in China that contains 7,141 firm-year observations and finds that managers with higher managerial efficiency can reduce stock price crash risk. The robustness of this result is checked by adopting the IV 2SLS approach and using alternative measures of managerial efficiency. The mechanism analysis shows that managerial efficiency improves firm information transparency and reporting timeliness, thus reducing stock price crash risk. In addition, better managerial efficiency is also associated with less overinvestment and industry adjusted ROA volatility. The reduced excessive risk-taking, in turn, leads to lower stock price crash risk. Lastly, the heterogeneity analysis results suggest that the negative association between managerial efficiency and stock price crash risk is more prominent in SOEs, in firms located in less developed regions, in firms followed by fewer financial analysts and in firms that pay higher CEO compensation.

This essay makes the following contributions to the literature. First, this essay enriches the literature that studies the influence of managerial characteristics on stock price crash risk by documenting a negative association between managerial efficiency and stock price crash risk. Second, the literature has not yet drawn conclusions regarding the impact of executive reputation concern on firm behaviour. The results of this essay provide further evidence that supports the efficient contracting theory of executive reputation concern. Third, it is well established in the literature that there is a positive association between managerial efficiency (Demerjian, Lev, Lewis-Western, & McVay, 2013; García-Meca & García-Sánchez, 2018; Haider et al., 2021; Huang & Sun, 2017) and firm information transparency and better firm transparency hinders mangers from hoarding bad news (Chen, Kim, & Yao, 2017a; Francis, Hasan, & Li, 2016; Hutton, Marcus, & Tehranian, 2009). This essay connects the two streams of studies and finds that improved information transparency is a channel through which managerial efficiency reduces crash risk. Fourth, by comparing the results with Habib and Hasan (2017) and Cui, Chen, Zhang, and Zhu (2019), this essay highlights the importance of exploring the role of managerial efficiency in emerging markets.

1.5. Research output from PhD study

Essay one: Government resource allocation through related-party transactions: Evidence from China

- Presented at New Zealand Finance Colloquium (NZFC), Lincoln University, New Zealand, 2018.
- Presented at The School of Economics and Finance Seminar, Massey University, New Zealand, 2018
- Presented at Financial Management Association Asia/Pacific Conference, Ton Duc Thang University, Vietnam, 2019

Other outputs:

- The voice of minority shareholders: Online voting and corporate social responsibility. Published in *Research in International Business and Finance* (SSCI indexed): Feng, Y., Pan, Y., Wang, L., & Sensoy, A. (2021).
- Building eco-friendly corporations: The role of minority shareholders. Revised and resubmitted to *Journal of Business Ethics* (SSCI indexed, FT50) after the third-round review: Yao, S., Pan, Y., Wang, L, Sensoy, A., & Cheng, F. (2021).

1.6. Structure of the thesis

The structure of the thesis is organized as follows. Chapter 2 presents the first essay, which investigates the allocation of government resources in China's listed SOEs through RPTs. Chapter 3 discusses the second essay, which studies the influence of executive reputation concern on earnings quality in China's listed SOEs. The third essay that studies the influence of managerial efficiency on stock price crash risk is presented in Chapter 4. Chapter 5 concludes the thesis by outlining the main findings and implications of each of the three essays and discusses the limitations of the thesis and future research directions.

CHAPTER TWO ESSAY ONE

Government resource allocation through related-party transactions: Evidence from China

Abstract:

Using the unique hand-collected data of related-party transactions (RPTs) between government non-corporate agencies and state-owned enterprises (SOEs) in China, we investigate government resource allocation and its impacts. We show that Chinese governments are more likely to allocate resources to SOEs with a politically connected chairperson of the board through RPTs. The result remains robust after considering endogeneity concerns. Additionally, more resources are allocated to small SOEs and to SOEs located in less-developed regions to promote the Chinese SOE reform. In SOEs with a politically connected chairperson, resources obtained through RPTs are only associated with increased investment expenditure but have little impact on SOEs' innovation, dividends, sales growth or labour intensity.

Keywords: Related-party transactions; Political connection; State-owned enterprises; Political intervention

JEL classification: G30; G38

2.1. Introduction

The Chinese governments hold close control of vital resources (He et al., 2014) and have considerable discretion in allocating resources to listed firms (Lim et al., 2018; Su, Fung, Huang, & Shen, 2014). The literature has documented and investigated various channels through which the Chinese governments allocate resources to listed firms, such as government subsidies (Chen et al., 2018b; Lim et al., 2018) and loans from government-controlled banks (Liu et al., 2018b; Yeh et al., 2013). In this paper, we study government resources allocation through related-party transactions (RPTs) by focusing on the RPTs between government non-corporate agencies and state-owned enterprises (SOEs) (government-related transactions, or GRTs hereafter).

The literature has documented that personal political connections increase privately owned firms' access to various resources (Brockman et al., 2019; Fan et al., 2007b; Li & Zhou, 2015; Lin et al., 2015). However, few studies investigate whether personal political connections matter to SOEs which naturally have political connections via ownership. Studies argue that SOEs are all owned by the government, and thus they have equal access to government-controlled resources (Hu, Karim, Lin, & Tan, 2019; Lin et al., 2015). In this study, we mainly examine whether SOEs with personal political connections have better access to government-controlled resources.

We hand collect GRT data from 2008 to 2016. First, SOEs and non-SOEs are identified by checking the ultimate controllers of listed firms in China. Listed firms with a government non-corporate agency as the ultimate controller, e.g., local governments, government ministries, government bureaus, state asset investment bureaus, state asset management bureaus, research institutions and state-owned banks, are identified as

SOEs and included in our sample analysis[1]. We then carefully read the background of all counterparties to the RPTs of SOEs and manually identify those conducted with government non-corporate agencies as GRTs. Following Cheung et al. (2009a), we fill out the transactions that prop up listed SOEs as the indicator for government resource allocation through RPTs in this study.

Government subsidies are widely used to study government resource allocation (Chen et al., 2018b; Lim et al., 2018). Compared with government subsidies, GRT receives strict monitoring, and our summary statistics support this notion that less than 8% of the firm-year observations have conducted GRTs in our sample, while more than 98% of the sample SOEs have received government subsidies. Since RPTs are strictly monitored by the government regulations and stock exchanges, the transfer of resources to SOEs via GRTs is a highly observable channel that can serve as a unique setting to study governments' resource allocation behaviour.

We employ GRTs as a channel through which the Chinese governments allocate resources to listed SOEs for another two reasons. First, although RPTs can be used by controlling shareholders to expropriate resources from listed firms (Berkman et al., 2009; Cheung et al., 2009b; Djankov et al., 2008; Kohlbeck & Mayhew, 2017), they can also serve as a channel for related counterparties to prop up listed firms (Cheung et al., 2009a; Friedman et al., 2003), and more importantly, propping up through RPTs is more prevalent in China's SOEs (Jian & Wong, 2010; Lo, Wong, & Firth, 2010). Second, government non-corporate agencies have little incentive to expropriate listed SOEs because any monetary benefits would accrue to taxpayers rather than government

[1] Following Delios, Wu, and Zhou (2006), we define these seven categories of entities as government non-corporate agencies. We exclude listed firms that are ultimately controlled by SOEs in our sample since they are indirectly controlled by the government.

officials themselves (Berkman et al., 2009). On the contrary, SOEs are more likely to benefit from GRTs since government non-corporate agencies have strong incentives to allocate resources to SOEs to pursue social and political objectives (Shleifer & Vishny, 1994), such as maintaining employment (Li & Yamada, 2015; Liang & Chun, 2012).

As the largest emerging economy, China provides an interesting setting to explore government resource allocation through RPTs. First, China has a *guanxi* (relationship)-based culture, where social connections, such as personal political connections, are of great importance in conducting business transactions (Brockman et al., 2019; Hu, Li, Duncan, & Xu, 2020). More importantly, Chinese governments tend to appoint executives with personal political connections to SOEs[2] to enhance government control and implement political and social objectives (Fan et al., 2007b; Lee & Wang, 2017; Wang, 2015). Allocation of government-controlled resources may be influenced by such political intervention and thus results in more resources allocated to SOEs with personal political connections. Second, the reform of Chinese SOEs is an ongoing process. State ownership has been resuscitated by governments globally to cope with uncertainties following the 2008 financial crisis (Megginson, 2017), despite accusations of hampering firm efficiency and performance (Chen, Firth, Xin, & Xu, 2008; Chen et al., 2011c; Fang, Hu, & Yang, 2018). In China, listed firms remain largely dominated by SOEs, especially in strategic industries such as utilities, oil and gas, and mining sectors (Hubbard & Williams, 2017). The third plenum of the eighteenth National Congress in November 2013 marked a new stage of China's SOE reforms. Among the new reform objectives, a stated goal has been to sustain and strengthen larger SOEs to create "national champions". In addition, since the 2000s,

[2] According to our sample, more than 30% of the top executives in Chinese SOEs are politically connected according to their prior working experience.

the “great western development” programme has seen the focus of China’s economic development shift from the booming economies in coastal regions to in favour of the western and interior regions (Lai, 2002). An unresolved question is whether the new reform wave has resulted in the Chinese government allocating resources to the winners (large and well-performing SOEs) or alternatively to the small and/or underperforming SOEs located in the western regions.

In this study, we investigate three aspects of government resource allocation towards Chinese SOEs. First, do Chinese governments allocate more resources to SOEs with personal political connections? Second, does resource allocation through RPTs promote the new wave of SOE reform objectives? Third, do the resources gained through RPTs affect SOEs’ behaviour and outputs?

Using the hand-collected GRTs from 2008 to 2016, we find that SOEs with personal political connections are more likely to obtain resources through GRTs, indicating that Chinese governments are more likely to allocate resources to SOEs with personal political connections. The robustness of this result is supported by various endogeneity tests, including multi-fixed effects, propensity score matching (PSM) analysis, difference-in-difference (DID) analysis and 2-stage least squares (2SLS) instrumental variable (IV) analysis.

In addition, government agencies allocate more resources to small SOEs and SOEs in less developed regions. We argue that these results are in line with the objectives of China’s reforms, e.g., reducing regional disparity and achieving an “all-round well-off society” by sustaining the weaker SOEs, particularly in less developed regions. We then examine, under political intervention, how do SOEs utilize resources gained from GRTs. Our results show that the politically connected top executives appointed by the

government tend to use resources gained from GRTs to increase investments instead of promoting innovation, paying out dividends, or improving sales growth. However, we fail to find any evidence that politically connected executives or the resources obtained from GRTs facilitate the achievement of SOEs' social and political objectives measured by labour intensity. Furthermore, we employ government subsidy as an alternative channel through which government allocate resources to SOEs. Consistent with the results of GRTs, we find that SOEs with politically connected top executives, as well as small and better-performing SOEs are more likely to receive government subsidies. The evidence also shows that government subsidies are not associated with SOEs' economic outputs or labour intensity.

Our paper contributes to the literature in the following ways. First, we contribute to the RPT literature by focusing on the RPTs between government non-corporate agencies and listed SOEs. RPTs may serve as a channel for related counterparties to expropriate resources from listed firms (Berkman et al., 2009; Cheung et al., 2009b; Djankov et al., 2008; Kohlbeck & Mayhew, 2017), while listed firms may also be propped up via RPTs (Cheung et al., 2009a; Friedman et al., 2003). We add evidence to the propping-up explanation associated with RPTs, finding that government non-corporate agencies allocate resources to SOEs via GRTs. Second, we contribute the literature on executive political connection. The literature suggests that executives in China's SOEs are appointed by the government to enhance government control (Fan et al., 2007b; Lee & Wang, 2017; Wang, 2015). Consistent with this argument, we consider the appointing of politically connected top executives in China's listed SOEs as a reflection of government intervention and find that government non-corporate agencies tend to allocate more resources to listed SOEs that have politically connected top executives. Our evidence contributes to the literature that personal political connections also

matters to SOEs that have political connections naturally via ownership. Third, existing studies find that government intervention tends to have a negative influence on firm value (Chen et al., 2017b; Zhang, Lijun, Zhang, & Yi, 2016) and efficiency (Chen et al., 2011c). Our results show that under political intervention, the resources gained from GRTs, as well as government subsidies, have little positive influence on SOEs' economic outputs or labour intensity.

The remainder of this study is organized as follows. Section 2 consists of a review of the literature and proposed hypotheses. Section 3 summarizes the data collection and variable construction. Section 4 reports the empirical results, and Section 5 concludes.

2.2. Literature review and hypothesis development

2.2.1. Related-party transactions

An RPT is defined as a transaction that is conducted between a firm and its related legal institutions or persons. Listed firms' related legal institutions mainly include their shareholders, ultimate controllers, the subsidiaries of their shareholders, the subsidiaries of their own, and the affiliated companies in which the listed firms own more than 5% shares. Related persons mainly include the listed firms' or its subsidiaries' shareholders (who own at least 5% shares of the firm), board directors, top executives and their close relatives (such as partners, parents, siblings and in-laws) (Peng, Wei, & Yang, 2011).

The China Securities Regulatory Commission (CSRC) has issued various regulations regarding listed firms' conduction and reporting of RPTs since 1997. Transactions conducted between a listed firm and its related legal institutions are required to be reported to the stock exchanges within two days after the signing of the transaction agreement and to be disclosed in the firm's annual report, if transactions are worth more

than RMB 3 million or 0.5% of net assets. This requirement applies to transactions conducted between a listed firm and its related persons if the transaction is worth more than RMB 300,000. For RPTs that are worth more than RMB 30 million or 5% of net assets, whichever is higher, the transactions are required to be priced or audited by independent auditors and approved in shareholder meetings where related parties are not eligible to vote.

Several studies show that RPTs may serve as a channel for related counterparties to expropriate resources from listed firms (Berkman et al., 2009; Cheung et al., 2009b; Djankov et al., 2008; Kohlbeck & Mayhew, 2017). Another strand of the literature shows that listed firms may benefit from RPTs (Cheung et al., 2009a; Friedman et al., 2003). Numerous characteristics of listed firms and their related parties have been found to influence the tendency to expropriate or prop up listed firms through RPTs. For example, financially distressed firms are more likely to benefit from RPTs than financially healthy firms (Allen, Qian, Tu, & Yu, 2019; Fisman & Wang, 2010; Peng et al., 2011). Efficient corporate governance mechanisms have been found to protect listed firms from being expropriated through RPTs (Jiang, Rao, & Yue, 2015; Wang, 2015). Chinese firms that are more likely to be propped up through RPTs have higher state ownership (Cheung et al., 2009a). In addition, Cheung et al. (2009b) suggest that the identity and intentions of the related counterparty matter. They examine the RPTs conducted between listed Chinese SOEs and their counterparties and find that counterparties controlled by local governments tend to expropriate listed firms while counterparties controlled by the central government are more likely to prop up listed firms via RPTs. Berkman et al. (2009) find that state non-corporate agencies have little incentive to expropriate listed firms since any monetary benefits would accrue to taxpayers rather than government officials themselves.

2.2.2. Hypothesis development

Due to the *guanxi*-based culture, social connections, such as personal political connections, are of great importance in conducting business transactions in China, given institutional and legislative flaws (Brockman et al., 2019; Harding, 2013; Hu et al., 2020). However, executive political connections play different roles in privately owned firms and SOEs. In China, privately owned firms face severe financial constraints (Cull, Li, Sun, & Xu, 2015; Deng, Zeng, & Zhu, 2017; Megginson, Ullah, & Wei, 2014). To partially relieve financial constraints and gain better access to state-controlled resources, privately owned firms in China actively build personal political connections. The literature has documented those executive political connections can assist private firms in accessing various resources, such as long-term bank loans (Fan et al., 2007b), tax benefits (Chen, Huang, Liu, & Wang, 2019; Wu, Wu, Zhou, & Wu, 2012), equity financing (Brockman et al., 2019; Li & Zhou, 2015) and government subsidies (Lin et al., 2015).

In SOEs, government controlling shareholders could appoint politically connected executives as the representatives of their interests (Wang, 2015). Due to their strong political incentives, executives with personal political connections may exacerbate the conflicts between state owners and minority shareholders (Fan et al., 2007b; Lee & Wang, 2017). Nevertheless, it is unclear whether Chinese governments allocate more resources to SOEs with politically connected executives. A few studies argue that all SOEs are owned by the government and thus have equal access to government-controlled resources (Hu et al., 2019; Lin et al., 2015). Nevertheless, other studies suggest that more resources and beneficial treatments are given to SOEs with politically connected executives by the government (Ding et al., 2014; Huang, Duan, & Zhu, 2017).

We conjecture that Chinese governments are more likely to allocate resources through GRTs to listed SOEs with politically connected top executives and the reasons are threefold. First, the literature suggests that social networks may improve information flows, especially in relationship-based societies with weak legal systems such as China (Cohen, Frazzini, & Malloy, 2010). To better monitor and control SOEs and pursue political objectives (Lee & Wang, 2017), Chinese governments tend to appoint politically connected executives in SOEs since they can better implement government-assigned tasks due to reduced information asymmetry (Tihanyi, Aguilera, Heugens, van Essen, Sauerwald, Duran, & Turturea, 2019).

Second, government authorities may allocate more resources to SOEs with personal political connections because executives with a prior career history in government authorities are familiar with the bureaucratic systems, administrative procedures, and macro perspectives taken by government bureaucrats. Therefore, they may share similar ideologies and aspirations with government bureaucrats, which facilitate the implementation of government policies (Du, Tang, & Young, 2012).

Third, unlike privately owned firms with shareholder wealth maximization as the primary objective, SOEs are assigned objectives that can be either economic or political orientated (Boubakri, Cosset, & Saffar, 2008). As SOE reforms proceed, more tasks are assigned to SOEs; hence stronger government oversight is crucial to ensure that SOEs comprehend and execute government tasks (Garnaut, Song, & Fang, 2018). One example of enhanced government oversight is the 2017 formal embedding of the Communist Party of China (CPC) into every SOEs' corporate governance system[3].

[3] The Chinese government requires that all important strategic decisions must be made by the SOE's CPC committee in which the chairman of the SOE also serves as the chairman of the committee.

Chairpersons in SOEs are appointed by the government to ensure the execution and accomplishment of political objectives (Liu, Luo, & Tian, 2017). Evidence shows that SOEs with personal political connections get higher evaluation scores from the State-Owned Assets Supervision and Administration Commission of China (SASAC) (Du et al., 2012). By fulfilling government targets, SOE executives accumulate political achievements and enjoy potential political promotion; thus, they are motivated to fulfil political interests (Pan & Tian, 2017). Empirical evidence shows that politically connected SOE executives are more likely to be promoted (Tihanyi et al., 2019).

Overall, we expect that SOEs with a politically connected chairperson are more likely to obtain resources from the government through GRTs for three reasons. First, personal connections built via prior working experience are valuable due to the importance of social networks. Second, Chinese governments may allocate more resources to SOEs with personal political connections because those executives possess a career history in government authorities, whereby government officials are more likely to share similar ideologies and aspirations. Third, to enhance the oversight of SOEs, Chinese governments are more likely to allocate resources to SOEs with a politically connected chairperson, as they may have greater incentives to pursue political promotion. Therefore, we propose our first hypothesis that:

Hypothesis 1 (H1): SOEs with personal political connections are more likely to receive resources through GRTs.

China's SOE reform is an ongoing and successive process[4]. Chinese governments may have different focuses due to the ever-changing reform objectives since the SOE

[4] For detailed information of China's SOE reform, please see Garnaut et al. (2018).

reforms first launched in the late 1970s. Chinese governments may allocate resources to facilitate social and political objectives (Huang & Du, 2017; Lim et al., 2018), such as tasks assigned to them in China's SOE reforms.

In the early 1980s, the first stage of SOE reforms attempted to explore solutions to enhance SOEs' productivity and profitability by granting autonomy to SOEs while keeping state ownership intact, known as the "crossing the river by feeling the stones" strategy. Tremendous fiscal and monetary supports were given by Chinese governments to SOEs during that period (Garnaut et al., 2018). However, the expected outcomes of the first stage of SOE reforms were not fully achieved due to significant government interference and inefficient institutional environments. To address these issues, the second stage of SOE reforms was launched in 1992 and focused on ownership transformation of large and profitable SOEs through China's partial share-issue privatization (SIP). "Grasping the large, letting go of the small" (*zhuada fangxiao*) was adopted in 1997. Large, well-performing SOEs were retained by the government to maintain control of the national economy, while relatively small and poor-performing SOEs were privatized through various methods (Garnaut et al., 2018). The third stage of SOE reforms was initiated in 2003 to further develop large, better-performing SOEs, especially those in strategic industries. Aligned with such objectives, the SASAC was established to facilitate the accumulation of state-owned assets of SOEs; regulatory entry barriers were created to protect SOEs in strategic industries (Garnaut et al., 2018); large, better-performing SOEs were given preferential access to state-controlled resources, such as bank loans (Fan et al., 2007b) and lands (Chen et al., 2011a).

Strategies assigned to SOEs in the new reform wave include: "creating national champions" by strengthening large SOEs to build China's economic image; implementing the "great western development" (*xibu dakaifa*) programme to reduce regional disparity; and achieving an "all-round well-off society" to maintain social stability (Garnaut et al., 2018). Thus, we expect that large and better-performing SOEs are more likely to receive resources through GRTs to promote the "creating national champions" strategy. In addition, the disparity is a serious concern among SOEs located in different regions (Lai, 2002). Compared with SOEs located in developed coastal regions, which are more market-oriented and have easier access to resources, SOEs in less developed regions are less productive and more financially constrained (Lai, 2002). Therefore, aligned with the "great western development" strategy, we expect Chinese governments are more likely to allocate resources to SOEs in less developed regions. Therefore, we propose our second hypothesis that:

Hypothesis 2 (H2): Large, well-performing SOEs and SOEs located in less developed regions are more likely to receive resources through GRTs.

2.3. Data and variables

2.3.1. Sample construction

The data of executive political connections, corporate governance, firm performance, and other firm characteristics are collected from the CSMAR database. We use the NERI index to proxy regional market development. The NERI index is derived from the "Marketization index of China's provinces: NERI report 2018" by Wang, Fan, and Hu (2018)[5]. The sample consists of non-financial SOEs listed on the Shanghai and the

[5] In their report, they calculate and report the NERI (National Economic Research Institute) index that measures the degree to which a regional economy is market oriented. The index consists of 4 sub-indices that measure the development of: the non-state economy; the local production market; financial, labour

Shenzhen Stock Exchanges from 2008 to 2016. We exclude SOEs listed on the Chinext board[6] and observations with missing information, and winsorize the top and bottom percentile of observations, leaving a final sample of 7,836 firm-year observations.

2.3.2. Defining GRTs that allocate resources to SOEs

We first identify SOEs as listed firms with a government non-corporate agency as the ultimate controller. Following Delios et al. (2006), we classify the ultimate controller of listed firms into 16 categories and consider seven of them as government non-corporate agencies[7], namely, local governments, government ministries, government bureaus, state asset investment bureaus, state asset management bureaus, research institutions and state-owned banks[8]. Then, since the CSMAR database provides the names of both parties of each RPTs, we carefully read the names of the related counterparties of the RPTs and search online for their background and manually identify those that are non-corporate agencies based on the criteria of Delios et al. (2006). RPTs conducted between listed SOEs and government non-corporate agencies are identified as GRTs.

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and intangible markets; and the intermediary industry and legal environment. We apply the aggregated index (denoted as the NERI Index) to proxy the heterogeneous institutional environment in different provinces/regions.

[6] Firms listed on the Chinext are usually small/median high-tech companies that are less likely to be SOEs (Zhang & Wang, 2015). According to our data, less than 3% of the Chinext firms are SOEs. Moreover, we did not identify any Chinext firms had conducted GRTs with government noncorporate agencies.

[7] Our identification of government non-corporate agencies covers all levels (central, provincial, municipal and county) of government agencies.

[8] Delios et al. (2006) classify the ownership identities of China's listed firms into 16 categories and consider eight of them as government agencies, including local governments, government ministries, government bureaus, industry companies, state asset investment bureaus, state asset management bureaus, research institutions and state-owned banks. Among them, industry companies owned by government ministries are classified as government agencies since they are assumed to remain under the influence of the government. However, after the implementation of SIPs, the NTS reform and other economic reforms, industry companies have become much more market oriented. To identify government agencies in a strict manner, we exclude industry companies and narrow the government non-corporate agency identification down to the seven categories of government agencies. We exclude listed firms that are ultimately controlled by SOEs in our sample since they are indirectly controlled by the government.

GRTs are further classified into those benefit SOEs, and those clearly expropriate SOEs following the methodology in Cheung et al. (2009a). If a given SOE conducting a GRT that provided cash, assets, or other benefits (e.g., loans or loan guarantees issued by the SOE) to a government non-corporate agency without receiving compensation, then the GRT is considered as expropriating wealth from the SOE minority shareholders for the benefit of the government agency. Other GRTs are identified as GRTs that are more likely to benefit SOEs. We identify GRTs that benefit SOEs (hereafter, beneficial GRTs) as RPTs that government non-corporate agencies allocate resources to listed SOEs. We report the distribution of beneficial GRTs in Table 2.1. In total, there are 2,125 beneficial GRTs (transactions) conducted from 2008 to 2016 by our sample firms, which are aggregated as 592 firm-year observations (due to multiple transactions in the same firm-year). This preliminary result is in line with Berkman et al. (2009) that government non-corporate agencies lack an incentive to expropriate listed firms via RPTs for monetary objectives.

Panel A of Table 2.1 reports the distribution of beneficial GRTs by year. In general, the number of beneficial GRTs increased throughout the sample period. Panel B of Table 2.1 reports the distribution of beneficial GRTs by industry. Our industry classification is based on the Guidance for Industry Classification of Listed Companies (2001) released by the China Securities Regulatory Commission (CSRC). We note that in the last column of Table 2.1, more beneficial GRTs are conducted in certain strategic industries, such as mass communication, arts, and education, social services and agriculture industries, which only accounts for 2.09%, 2.72% and 1.91% of the observations, have 31.1%, 16.4% and 16.0% of all beneficial GRTs observations, respectively. On the other hand, SOEs in manufactory and wholesale and retail trade

industries account for 50.06% and 7.21% of the observations, only have 4.89% and 5.2% of the beneficial GRTs observations, respectively.

(Insert Table 2.1 here)

2.3.3. Variable construction

We construct three variables to proxy government resource allocation through beneficial GRTs to listed SOEs, namely *G_B_D*, *G_B_F* and *G_B_M*. *G_B_D* is a dummy variable that takes the value of one if the SOE has engaged in beneficial GRTs in a year and zero otherwise. *G_B_F* is calculated as the natural logarithm of the number of beneficial GRTs beneficial conducted in a year plus one. *G_B_M* is the total RMB value of beneficial GRTs conducted by a given SOE in a year scaled by its total assets[9].

A firm's personal political connection is measured by *Pchair*, a dummy variable that equals one if the chairperson[10] of the board has previous government or military working experience and zero otherwise (Faccio, Masulis, & McConnell, 2006; Fan et al., 2007b). We expect *Pchair* to be positively associated with the measures of resources allocation through beneficial GRTs, supporting **H1**. *Firm Size* is the natural logarithm of total assets. Firm performance is proxied by return on assets (denoted as *ROA*). *ROA* is calculated as a firm's net profit over total assets. Aligned with the Chinese government goal of creating "national champions", we expect *Firm Size* and *ROA* to be

[9] We also use alternative measures of GRT conduct, namely the likelihood, frequency and amount of GRTs that clearly benefit SOEs, as robustness checks. If a given SOE conducting a GRT that received cash, assets, or other benefits (e.g., loans or loan guarantees issued by a government non-corporate agency) from a government non-corporate agency without providing compensation, then the GRT is considered as clearly benefiting the SOE. Results of the robustness checks provide quantitatively similar results and are available upon request.

[10] We focus on the political connections of chairpersons in essay one since in Chinese listed firms, the chairman is considered more important than CEOs and the chairmen are also involved in day-to-day decision making (Firth, Fung, & Rui, 2006). We also employ the political connections of CEOs as an alternative measure. The results reported in Appendix A.3 are similar wo those of politically connected chairpersons.

positively associated with the measures of beneficial GRT conduction. We apply the *NERI Index* to measure regional market development. The *NERI Index* measures the extent to which the regional marketization of China's 31 provinces/regions. A larger *NERI Index* indicates better regional marketization. Following the government policy to reduce the disparity between developed and less developed regions, we conjecture that SOEs in less developed regions are more likely to receive government resources through GRTs than those in developed regions. Therefore, the *NERI Index* is expected to be negatively associated with the measures of beneficial GRT conduction.

The variables *Duality*, *Independence* and *Board Size* control for SOEs' internal corporate governance. *Duality* is a dummy variable that equals one if the chairman of the board also serves as the firm's CEO and zero otherwise. *Board Size* is calculated as the natural logarithm of the total number of board directors. *Independence* is the ratio of the number of independent directors over the total number of board directors. *Leverage* is the ratio of total debt over total assets. *Tobin's Q* measures firms' growth opportunities, calculated as the sum of the book value of debt and the market value of equity over the book value of total assets. *Top 1* and *Institution* are proxies used to control for ownership structure. *Top 1* is the percentage ownership of the largest shareholder, while *Institution* is the percentage of institutional investors' ownership. *Big4* is a dummy variable that equals one if the listed SOE is audited by one of the international "Big 4" audit firms and zero otherwise. *Crosslisting* is a dummy variable that equals one if the listed SOE is cross-listed on the Hong Kong or foreign exchange and zero otherwise. The definitions of all variables are shown in Appendix A.1.

2.4. Empirical results

2.4.1. Summary statistics

Table 2.2 summarizes the descriptive statistics of the variables. Panel A reports the mean, median, minimum, maximum, standard deviation and range of the variables. It shows that 7.6% of the firm-year observations have beneficial GRTs, while 31.3% of the firm-year observations have a politically connected chairman of the board.

The whole sample is then split into two groups comprised of firms that engage in beneficial GRTs and those that do not. We compare the mean and median of variables that may affect firms' engagement in beneficial GRTs. The mean and median differences are tested using the *t*-test and Wilcoxon rank-sum test, respectively. From Panel B of Table 2.2, we observe that SOEs with politically connected chairpersons are more likely to undertake beneficial GRTs. In addition, smaller SOEs are more likely to undertake beneficial GRTs compared with large SOEs. The significant difference in the median value of ROA indicates that better-performing SOEs are more likely to conduct beneficial GRTs. In addition, SOEs located in less-developed regions are more likely to engage in beneficial GRTs.

(Insert Table 2.2 here)

2.4.2. Determinants of beneficial GRTs

To investigate determinants of resource allocation through beneficial GRTs to SOEs, the following model is specified as our baseline model controlling for industry and year effects [11]:

[11] Correlations between the variables are reported in Appendix A.2. We notice that the independent variables used in model (2.1) are not highly correlated with one another. Therefore, multicollinearity is not serious concern in this study. Moreover, the dependent and independent variables are measured in the same period (year *t*) due to the concern of chairperson changes. We also use one-period lag of

$$
\begin{aligned}
Beneficial\ GRT_{i,t} &= \beta_0 + \beta_1 Pchair_{i,t} + \beta_2 Firm\ Size_{i,t} + \beta_3 ROA_{i,t} + \beta_4 NERI\ Index_{i,t} \\
&+ \beta_5 Duality_{i,t} + \beta_6 Board\ Size_{i,t} + \beta_7 Independence_{i,t} \\
&+ \beta_8 Leverage_{i,t} + \beta_9 Tobin's\ Q_{i,t} + \beta_{10} Institution_{i,t} + \beta_{11} Top1_{i,t} \\
&+ \beta_{12} Big4_{i,t} + \beta_{13} Crosslisting_{i,t} + Industry\ dummies \\
&+ Year\ fixed\ effects + \varepsilon_{i,t} \qquad (2.1)
\end{aligned}
$$

In Table 2.3, we report the results of the baseline regression analysis. *Pchair* is positively associated with all three measures of beneficial GRTs, and the results are all statistically significant at the 1% level after controlling for industry and year effects. The coefficient of *Pchair* in column (1) (0.328) indicates that that SOEs with a politically connected chairman are 32.8% more likely to engage in beneficial GRTs. The frequency of the transactions is statistically higher, and the transaction value is also statistically greater for SOEs with politically connected chairpersons. In terms of economic significance, having a politically connected chairperson increases the frequency of beneficial GRT conduction by 2.7% (the coefficient of *Pchair* in column (2) is 0.027), and increases the value of beneficial GRTs by 0.5% (the coefficient of *Pchair* in column (3) is 0.005). This is equivalent to 29% of the mean value of *G_B_F* and over 105% of the mean of *G_B_M*[12]. Thus, Chinese governments are more likely to allocate resources to SOEs with personal political connections through GRTs. *Hypothesis 1* is supported by our results.

ROA is positively associated with all three measures of beneficial GRTs. However, the coefficient is only statistically significant in column (1) (at the 1% level). Therefore, the results of *ROA* do not fully support our hypothesis that beneficial GRT conduction

independent variables (year *t-1*) as a robustness check. The results (reported in Appendix A.4) are similar with those reported in Table 2.3.

[12] Following Fauver, Hung, Li, and Taboada (2017), the economic significance of the coefficients of *Pchair* is calculated as the coefficient divided by the mean of the dependent variable.

is in line with the government's policy to support better performing SOEs and the objective of creating "national champions". The coefficients on *Firm Size* are all negative and significant in the three columns in Table 2.3, indicating that smaller SOEs are more likely to be allocated with resources by noncorporate government agencies through GRTs. We conjecture that the government may financially support small and weak SOEs to improve competition and support social objectives. We further note that the *NERI Index* is negatively associated with the three measures of beneficial GRT conduction, and the coefficients are significant both at the 1% level in columns (1) and (2) and at the 5% level in column (3). Hence, the negative relationship between the *NERI Index* and beneficial GRT conduction indicates that resources are more likely to be allocated to SOEs in less developed regions. This result is consistent with our expectation that resource allocation through GRTs is aligned with the objective of promoting the "great western development" programme[13].

We address industry effects by adding eleven industry dummies. We find that government non-corporate agencies are more likely to transfer resources to SOEs through GRTs to several industries. Among those industries, mining, construction, transportation, information, mass communication industries are clearly defined as the strategic or pillar industry by the State Council in 2006[14]. Regarding control variables, we find that *Leverage* is positively associated with SOE's beneficial GRT, and the

[13] We also test the association between chairperson political connection and beneficial GRTs in different SOEs. The results (reported in Appendix A.5) show that SOEs with a politically connected chairman are more likely to receive resources from GRTs if they have smaller firm size, poorer performance, and are located in less developed regions. The results further indicates that beneficial GRT conduction is not necessarily in line with the government's policy to create "national champions", but to support weak SOEs and SOEs in less developed regions to improve competition and reduce regional disparity.

[14] A list of strategic and pillar industries was suggested by the State Council in 2006 as a guideline for SASAC to enhance state dominance (Garnaut et al., 2018). Strategic industries include national defence, power generating and distribution, oil and petrochemicals, telecommunication, coal, civil aviation, and shipping industries. Pillar industries include machinery, automobiles, IT, construction, steel, basic metals, chemicals, land surveying, and research and development industries.

results are statistically significant at the 5% level in columns (1) and (3). This result suggests that government agencies tend to assist financially distressed SOEs. We also find that *Institution, Top1* and *Crosslisting* are negatively associated with the measures of beneficial GRT conduction. *Big4* is positively associated with all measures of beneficial GRT.

Overall, the results of our baseline regression indicate that SOEs with personal political connections are more likely to receive government-controlled resources through GRTs. Moreover, government non-corporate agencies appear to allocate resources to SOEs to small SOEs and SOEs located in less developed regions to improve competition and reduce regional disparity.

(Insert Table 2.3 here)

2.4.3. Robustness checks

The Chinese government holds the authority to appoint the board chairman to SOEs, while chairpersons are not given the freedom to choose SOEs. Therefore, reverse causality should not be a major concern in our study. However, there may be other unobserved factors that affect the conduction of GRTs, such as personal connections with government officials established via other channels rather than prior working experience. Moreover, observable differences may exist between firms with a politically connected chairperson and those without a personal political connection. We adopt multi-fixed effects models, propensity score matching (PSM) analysis, difference-in-difference (DID) analysis and 2-stage least squares (2SLS) instrumental variable (IV) analysis to mitigate the influence of potential endogeneity.

2.4.3.1. Multi-fixed effects models

we first control for firm fixed effects and industry×year dummies in our baseline regression and re-examine the results. Table 2.4 presents the results of the baseline regression model with firm fixed effects and industry×year dummies. Although some of the coefficients on the main independent variables become insignificant, the results in Table 2.4 remain largely robust relative to those presented in Table 2.3. That is, SOEs with personal political connections, small SOEs, and firms located in less-developed regions are more likely to be allocated with resources by the government through the conduct of beneficial GRTs.

(Insert Table 2.4 here)

2.4.3.2. Propensity score matching

There may be observable differences between firms with and without a politically connected chairperson. We use the propensity score matching approach to partially resolve the issue. The probability of listed SOEs having a politically connected chairman is estimated based on the following logistic model:

$$Pchair_{i,t} = \beta_0 + \beta_1 Firm\ Size_{i,t} + \beta_2 ROA_{i,t} + \beta_3 NERI\ Index_{i,tSOE} + \beta_4 Duality_{i,t} + \beta_5 Board\ Size_{i,t} + \beta_6 Independence_{i,t} + \beta_7 Leverage_{i,t} + \beta_8 Tobin's\ Q_{i,t} + \beta_9 Institution_{i,t} + \beta_{10} Top1_{i,t} + \beta_{11} Big4_{i,t} + \beta_{12} Crosslisting_{i,t} + \varepsilon_{i,t} \quad (2.2)$$

The results from the pre-matched logistic model are presented in column (1), Panel A of Table 2.5. SOEs with a larger size, better performance, larger boards, higher Tobin's Q, less institutional ownership, lower ownership concentration, and cross-listed are more likely to have a politically connected chairperson. Then, by applying the nearest-neighbour propensity score one-to-one approach, each SOE with a politically connected

chairperson is matched with the most similar SOE without such a connection. To improve the matching accuracy, we exclude the pairs with a propensity score difference larger than 1%. We conduct two diagnostic tests to ensure the matching accuracy. First, we re-conduct the logistic analysis using the propensity score-matched sample. The results are reported in column (2), Panel A of Table 2.5. All coefficients on independent variables in the post-matched logistic model become much smaller and insignificant, suggesting no observable difference between treatment and control SOEs after matching. Second, we compare each of the characteristics of SOEs with and without politically connected chairpersons using *t*-tests. The pre-matched *t*-tests results are reported in Panel B of Table 2.5, revealing that SOEs are significantly different on various characteristics depending on whether or not they have a politically connected chairperson. The post-matched *t*-tests results are reported in Panel C of Table 2.5, which show no significant difference between SOEs with and without a politically connected chairperson in the propensity score-matched sample.

We then re-estimate the baseline regression analysis controlling for industry and year fixed effects using the propensity score-matched sample. The results are reported in Panel D of Table 2.5. It shows that the coefficients on *Pchair* remain positive, while the relationship between *Firm Size*, the *NERI Index* and the measures of beneficial GRT conduction remains negative. In general, the results of the propensity score matching analysis confirm that the results of Table 2.3 are robust.

(Insert Table 2.5 here)

2.4.3.3. DID analysis

In this section, we conduct a DID analysis in the propensity score-matched sample to mitigate the concern that our baseline regression results may be driven by unobserved factors.

In December 2012, the Central Commission for Discipline Inspection (CCDI), the discipline agency of the Chinese Party of Communist (CPC), announced the "Eight-point Policy" regulation and initiated the unprecedented anti-corruption campaign in Chinese history. By targeting corrupted government officials at all levels, the anti-corruption campaign has achieved fruitful results. By the end of 2013, more than 182,000 officials of the government or the party had been inspected or convicted of being corrupted (Pan & Tian, 2017). Thus, the initiation of the anti-corruption campaign can be used as an exogenous shock that dramatically changed the political environment in China since the potential cost of corruption significantly increased. Under such circumstances, when transferring resources to SOEs, government agencies will be more cautious and avoid the "grey" channels as they may be suspicious in the eye of CCDI. On the contrary, resources are more likely to be transferred via related-party transactions since such transactions are under strict monitoring of CSRC and auditors. Therefore, we expect a stronger positive association between personal political connection in SOEs and beneficial GRT conduction after the initiation of the anti-corruption campaign.

A difference-in-difference (DID) approach is applied to test the effect of the anti-corruption campaign on the relation between personal political connection and resource allocation. Before conducting the DID analysis, we examine whether the parallel trends assumption is satisfied. To conduct the parallel trends test, we regress the measures of

GRT conduction on the treatment variable (*Pchair*) interacted with the five year dummies (*Before*$_{-2}$, *Before*$_{-1}$, *Current*, *After*$_{+1}$ and *After*$_{+2}$ that indicates 2011, 2012, 2013, 2014 and 2015), which represent a five-year window surrounding the anti-corruption campaign. Results of the parallel trends test are reported in Panel A of Table 2.6, which show that the coefficients of the interaction terms are all insignificant before the anti-corruption campaign, suggesting that the treatment and control firms share similar trends in conducting beneficial GRTs before the initiation of the anti-corruption campaign. Therefore, the parallel trend assumption of DID analysis is valid.

We then conduct the DID analysis and report the results in Panel B of Table 2.6. The propensity score-matched sample is used in this analysis to create balanced treatment and control groups. The first two columns report the average change in the conduction of GRTs for the SOEs with a politically connected chairperson and SOEs without a politically connected chairperson, respectively. We observe that SOEs with a politically connected chairman engage in more beneficial GRTs after the anti-corruption campaign, while such change is not significant for SOEs without a politically connected chairperson. The last column reports the DID estimators. We notice that all DID estimators are positive and significant at the 1% significance level, indicating that government agencies are more likely to transfer resources to SOEs with a politically connected chairperson after the anti-corruption campaign.

(Insert Table 2.6 here)

2.4.3.4. Instrumental variable

In this section, we apply the IV-2SLS approach to further mitigate the endogeneity concern. We employ the provincial level data of people's opinion towards political

intervention, which is obtained from the Chinese General Social Survey (CGSS)[15] (2010-2016), to construct the instrumental variable. The survey question relating to people's opinions towards political intervention is: "The government should not interfere when someone releases a statement in a public place that criticizes the government. Do you agree?". Respondents answer this question by choosing from one of the following five options: "completely agree", "relatively agree", "not sure", "relatively disagree", and "completely disagree". We assign scores of 5, 4, 3, 2 and 1 to the options from "completely agree" to "completely disagree", respectively. The scores are averaged at the province level and used as the instrumental variable, denoted as *IV*. The larger value of *IV* indicates stronger opposition to government intervention, while the smaller value of *IV* suggests higher tolerance of government intervention. We conjecture that *IV* is less likely to have a direct effect on GRTs because it is constructed based on survey data and the survey is targeted at common citizens. That is, common citizens's view on the following survey question will not directly influence GRTs in SOEs. We first regress *Pchair* on *IV* and the control variables specified in model (2.1). We expect *IV* to be negatively associated with *Pchair* since, in provinces where people are more tolerant of government intervention, it is more likely that the government appoints a politically connected chairperson to SOEs to exert political intervention.

The IV test results are reported in Table 2.7[16], column (1). As expected, *IV* is negatively related to *Pchair*, and the result is statistically significant at the 1% level, suggesting that Chinese governments are more likely to appoint a politically connected chairperson to SOEs in provinces where tolerance to government intervention is high. The Cragg-

[15] CGSS is the earliest national, representative, and continuous survey project conducted by the Public Opinion Research Institute (PORI) of Renmin University of China since 2003.
[16] Due to data availability of CGSS, we include observations from 2010 to 2016 to implement the IV-2SLS analysis.

Donald Wlad F statistic is 16.549, which is larger than 16.38, and the Stock and Yogo (2005) weak ID test critical value is significant at the 10% level, indicating that our instrument variable is not weak. Moreover, the Kleibergen-Paap rk LM statistic for the under-identification test is statistically significant at the 1% level, suggesting that the model is not under-identified. The fitted values from the first stage regression are then collected and used as the independent variable in the second stage analysis. The results of second-stage regressions are reported in Table 2.7, columns (2) to (4). The coefficients of *Fitted_Pchair* are positive in all three columns and are statistically significant at the 5% level in columns (1) and (2). Therefore, our IV-2SLS analysis results support the baseline result in Table 2.3 that government non-corporate agencies allocate more resources to SOEs with personal political connections.

(Insert Table 2.7 here)

2.4.4. Political connection, beneficial GRTs and SOE's economic outputs

In this section, we investigate the outputs of the resources obtained through GRTs, especially in SOEs with a politically connected chairperson. Based on the missions assigned to SOEs by the third plenum of the eighteenth National Congress in November 2013, SOEs are required to be more corporatized and at the same time more politicized (Garnaut et al., 2018). Hence, we first examine whether resources obtained through GRTs leads to improved SOEs' economic outputs measured by investments, R&D expenditure, dividend policy and sales growth. Capital investment behaviour is measured by *InvExp*, which is calculated as the ratio of investment expenditure (cash paid for fixed assets, intangible assets and other long-term assets less cash received from selling these assets) over total assets at the beginning of the year. R&D investment is measured by *R&D*, which is calculated as a firm's R&D expenditure scaled by total

sales. Dividend pay-out is proxied by *Dividend*, which is calculated as cash dividends scaled by total assets. Sales growth is measured as the annual growth rate of sales, denoted as *Sales growth*. It is reasonable to expect SOEs' outputs to improve due to the resources received via GRTs. *Pchair*, *G_B_D* and the interaction term *Pchair*G_B_D* are employed as the key explanatory variables. We suspect that the effect of receiving resources from GRTs may not be observed immediately within the same year, and hence we examine SOEs' economic outputs in the following year. To address multicollinearity concerns, we first regress *Pchair*, *G_B_D* and the interaction term on firm output measures in the following year without control variables and control for firm fixed effects and include industry-year dummies.

The results reported in Table 2.8, columns (1) to (4) show that *Pchair* is positively associated with capital investment and dividend pay-out, and the results are statistically significant at the 10% level. *G_B_D* is not significantly associated with any economic outputs. The interaction term, *Pchair*G_B_D*, is positively associated with capital investment while negatively associated with dividend pay-out, and the results are statistically significant at the 1% level and 10% level, respectively. We then include all control variables in model (2.1) for robustness checks in columns (5) to (8). *Pchair* remains significantly and positively (at the 5% significance level) related to capital investment, while it is not significantly associated with dividend pay-out in column (7). The results of *G_B_D* and the interaction term remain robust from columns (1) to (4). These results suggest that resources obtained from GRTs, in general, are not associated with improved economic outputs, except the increased capital investments.

(Insert Table 2.8 there)

2.4.5. Political connection, beneficial GRTs and SOEs' labour intensity

We further examine whether SOEs, especially SOEs with a politically connected chairman, utilize resources gained from GRTs to achieve social and political objectives. Maintaining employment is acknowledged as one of the main social targets that SOEs are required to achieve. Past literature documents that labour intensity in SOEs is significantly higher than privately-owned firms (Li & Yamada, 2015; Peng et al., 2011).

Thus, we study whether SOEs use resources gained from GRTs to achieve social and political objectives by examining the relationship between *Pchair*, *G_B_D* and firm labour intensity. Labour intensity (*Labour*) is calculated as the number of employees in the SOE divided by its total assets, then scaled by 10^6 (Li & Yamada, 2015). Following the method adopted in Table 2.4, we first regress SOEs' labour intensity on *Pchair*, *G_B_D* and the interaction term with firm fixed effects and industry-year dummies without control variables to avoid multicollinearity concerns. The results are reported in Table 2.9, column (1). We then re-run the regression with all control variables in model (2.1) and report the result in Table 2.5, column (2). Results show that the coefficients on *Pchair*, *G_B_M* and the interaction term in both columns are statistically insignificant, indicating that neither personal political connection nor resources obtained from GRTs increase employment in SOEs.

(Insert Table 2.9 here)

2.4.6. Alternative channel of government resource allocation: government subsidy

2.4.6.1. Determinants of government subsidy

In this study, we employ the conduct of beneficial GRTs as the main metric to measure government resource allocation. There are other channels through which government agencies can transfer wealth to SOEs in addition to the conduct of GRTs. To examine

the robustness of our results, we apply government subsidies as an alternative channel of government resource allocation. We construct *Subsidy1* and *Subsidy2*, calculated as government subsidies received scaled by total assets and total sales, respectively, and adopt them as the additional measures of resource allocation to rerun the baseline regression. The results are shown in Table 2.10. The coefficients on *Pchair* are both positive and significant in columns (1) and (2). *Firm Size* is negatively associated with both subsidy measures, and the coefficients are significant at the 1% level. *ROA* is also positively related to both measures of government subsidy, and the result in column (1) is significant at the 1% level. These results are consistent with the baseline findings. However, contrasting with the results in Table 2.3, the coefficients on *NERI Index* are positive and significant in both columns (1) and (2). We conjecture that the difference may be explained by the different intensity of monitoring over these two channels of government resource allocation. Compared with GRT, which receives strict monitoring, government subsidies are relatively loosely monitored and thus may be given to SOEs for various reasons[17]. Our summary statistics report that less than 8% of the firm-year observations have GRT conductions, while more than 98% of the sample SOEs have received government subsidies[18].

Overall, the results from using an alternative channel of government resource allocation are qualitatively similar to those reported in Table 2.3. Government non-corporate agencies are more likely to allocate resources to SOEs with a personally-connected chairperson, as well as small and better-performing SOEs. We acknowledge that besides GRTs and government subsidies, there are other channels through which

[17] Government subsidies may be given to SOEs in certain regions (Wu, 2017) and industries (Liu, Chen, Liu, & Yu, 2019a) and serve various purposes, such as alleviating financial distress (Tao, Sun, Zhu, & Yang, 2017), promoting corporate social responsibility (Liu, Quan, Xu, & Forrest, 2019b) and encouraging innovation (Liu et al., 2019a).

[18] This is not tabulated in Table 2.2, but available upon request.

government can allocate resources, and different channels may serve a variety of purposes to achieve different objectives. We leave this issue to future studies.

(Insert Table 2.10 here)

2.4.6.2. Political connection, government subsidies and SOE's economic outputs

We also investigate the utilization of government subsidies by SOEs, especially SOEs with a politically connected chairman. Following the method adopted in Table 2.4, we first regress SOEs' economic outputs on *Pchair*, *High_Subsidy* and their interaction term with firm fixed effects and industry-year dummies without control variables. The results are reported in Table 2.11, columns (1) to (4). *High_Subsidy* is a dummy variable that equals one if *Subsidy1* is larger than its industry median and zero otherwise. We then re-estimate the regressions with all control variables in model (2.1) included and report the results in Table 2.11, column (5) to (8). The results of *Pchair* are similar to those reported in Table 2.4, that politically connected chairpersons in SOEs make more investments. *High_subsidy* is positively associated with R&D expenditure in the following year, which is consistent with the finding of Liu et al. (2019a) that Chinese governments tend to give subsidies to firms to encourage innovation. The coefficients of the interaction term *Pchair*High_Subsidy* are statistically insignificant in all columns, indicating that government subsidies are not efficiently used by politically connected chairmen in SOEs to improve economic outputs.

(Insert Table 2.11 here)

2.4.6.3. Political connection, government subsidies and SOEs' labour intensity

We then examine if government subsidies are used by SOEs, especially SOEs with a politically connected chairperson, to increase employment. Using the same method

adopted in Table 2.5, we first regress SOEs' labour intensity on *Pchair*, *High_Subsidy* and the interaction term with firm fixed effects and industry-year dummies without control variables and report the results in Table 2.12, column (1). We then rerun the regression with all control variables specified in model (2.1) and report the result in Table 2.8, column (2). Similar to the results in Table 2.5, results in Table 2.12 show that personal political connection and government subsidies are not associated with SOEs' labour intensity.

(Insert Table 2.12 here)

2.5. Conclusion

In this paper, we utilize the unique hand-collected data of GRTs to study government resource allocation through RPTs among China's SOEs. First, we find that government non-corporate agencies are more likely to allocate resources to SOEs with personal political connections. The result remains robust after conducting various robustness tests. Second, in line with China's new wave of SOE reform strategies, the governments tend to allocate more resources to small SOEs and SOEs located in less-developed regions. Third, we examine whether the resources gained from GRTs would promote the financial and social outputs of SOEs. We find that in SOEs with a politically connected chairperson, resources obtained from GRTs are only associated with increased capital investment. We fail to find evidence that executive political connection or the resources obtained from GRTs facilitate SOEs' social and political objectives. Furthermore, we employ government subsidy as an alternative channel through which the governments allocate resources to SOEs. Consistent with the results of GRTs, we find that SOEs with a politically connected chairperson, as well as small and better-performing SOEs are more likely to receive government subsidies. The

evidence also shows that government subsidies are not associated with SOEs' economic outputs or labour intensity. Our evidence highlights that personal political connection matters to SOEs who have political connections naturally through ownership. In addition, the IV we constructed using survey data may contribute to the literature in terms of constructing valid IVs for political connection measures.

2.6. Tables

Table 2. 1. Distribution of beneficial GRTs

This table reports the distribution of beneficial GRTs by year and industry.

Panel A. Distribution of GRTs by year					
Year	No. of SOEs with beneficial GRTs (1)	Percentage of beneficial GRTs	No. of firm-year observations (2)	Percentage of each year	(1) / (2)
2008	50	8.45%	825	10.53%	6.06%
2009	59	9.97%	831	10.60%	7.10%
2010	47	7.94%	872	11.13%	5.39%
2011	50	8.45%	878	11.20%	5.69%
2012	60	10.14%	890	11.36%	6.74%
2013	75	12.67%	884	11.28%	8.48%
2014	82	13.85%	884	11.28%	9.28%
2015	84	14.19%	882	11.26%	9.52%
2016	85	14.36%	890	11.36%	9.55%
Total	592	100.00%	7836	100.00%	7.54%
Panel B. Distribution of GRTs by industry					
Industry	No. of SOEs with beneficial GRTs (1)	Percentage of beneficial GRTs	No. of firm-year observations (2)	Percentage of each industry	(1) / (2)
Agriculture	24	4.05%	150	1.91%	16.00%
Mining	37	6.25%	369	4.71%	10.03%
Manufacturing	192	32.43%	3923	50.06%	4.89%
Utilities	42	7.09%	638	8.14%	6.58%
Construction	20	3.38%	205	2.62%	9.76%
Transportation	41	6.93%	542	6.92%	7.56%
Information	44	7.43%	360	4.59%	12.22%
Wholesale and Retail Trade	29	4.90%	558	7.12%	5.20%
Real Estate	35	5.91%	487	6.21%	7.19%
Social Services	35	5.91%	213	2.72%	16.43%
Mass Communication, Arts, and Education	51	8.61%	164	2.09%	31.10%
Conglomerate	42	7.09%	227	2.90%	18.50%
Total	592	100.00%	7836	100.00%	7.55%

Table 2. 2. Summary statistics and univariate analysis

Panel A of Table 2.2 shows the summary statistics of the key variables used in this study. Panel B of Table 2.2 reports *t*-test and Wilcoxon rank-sum *z*-test results comparing the differences between the SOEs that conducted beneficial GRTs and those SOEs without such transactions. Definitions of variables are in Appendix A.1. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Summary statistics of key variables

Variables	No. of observations	Mean	Median	Min	Max	STD	Range
G_B_D	7,836	0.076	0.000	0.000	1.000	0.264	1.000
G_B_F	7,836	0.093	0.000	0.000	3.664	0.372	3.664
G_B_M	7,836	0.005	0.000	0.000	1.928	0.049	1.928
Pchair	7,836	0.313	0.000	0.000	1.000	0.464	1.000
Firm Size	7,836	22.498	22.306	17.998	28.509	1.400	10.511
ROA	7,836	0.027	0.027	-0.979	0.664	0.065	1.643
NERI Index	7,836	7.105	7.090	-0.230	10.000	1.811	10.230
Duality	7,836	0.098	0.000	0.000	1.000	0.297	1.000
Board Size	7,836	2.359	2.303	1.609	3.584	0.255	1.974
Independence	7,836	0.370	0.353	0.143	0.800	0.068	0.657
Leverage	7,836	0.533	0.546	0.010	1.997	0.209	1.986
Tobin's Q	7,836	1.828	1.471	0.704	9.997	1.094	9.293
Institution	7,836	0.073	0.035	0.000	0.861	0.116	0.861
Top 1	7,836	0.395	0.390	0.036	0.891	0.157	0.855
Big4	7,836	0.098	0.000	0.000	1.000	0.297	1.000
Crosslisting	7,836	0.062	0.000	0.000	1.000	0.242	1.000
Subsidy1	7,836	0.006	0.002	0.000	0.337	0.014	0.337
Subsidy2	7,836	0.013	0.004	0.000	0.847	0.042	0.847

Panel B. Comparison between SOEs that conduct beneficial GRTs and those that do not

	No. of observations if *G_B_D*=1	Mean if *G_B_D* =1	Median if *G_B_D* =1	No. of observations if *G_B_D* =0	Mean if *G_B_D* =0	Median if *G_B_D* =0	*t*-test	Wilcoxon rank-sum *z*-test
		(1)	(2)		(3)	(4)	Difference (1)-(3)	Difference (2)-(4)
Pchair	592	0.41	0.000	7,244	0.305	0.000	0.105***	0.000***
Firm Size	592	22.253	22.099	7,244	22.518	22.330	-0.265***	-0.231***
ROA	592	0.031	0.030	7,244	0.027	0.027	0.004	0.003*
NERI Index	592	6.931	7.010	7,244	7.119	7.090	-0.189**	-0.08
Duality	592	0.073	0.000	7,244	0.100	0.000	-0.027**	0.000**
Board Size	592	2.366	2.303	7,244	2.359	2.303	0.007	0.000
Independence	592	0.366	0.333	7,244	0.370	0.353	-0.005	-0.020*
Leverage	592	0.518	0.533	7,244	0.535	0.546	-0.017*	-0.013
Tobin's Q	592	2.032	1.624	7,244	1.811	1.460	0.221***	0.164***
Institution	592	0.056	0.033	7,244	0.074	0.035	-0.018***	-0.002
Top 1	592	0.352	0.338	7,244	0.399	0.394	-0.047***	-0.056***
Big4	592	0.086	0.000	7,244	0.099	0.000	-0.013	0.000
Crosslisting	592	0.024	0.000	7,244	0.066	0.000	-0.042***	0.000***

Table 2. 3. Baseline regression

Table 2.3 presents the results of the baseline regression testing the determinants of beneficial GRT conduction. Industry dummies take the value of 1 if the firm operates in the corresponding industries and 0 otherwise. *G_B_D* is a dummy variable that takes the value of 1 if the SOE has engaged in beneficial GRTs, and 0 otherwise. *G_B_F* is calculated as the natural logarithm of the number of beneficial GRTs conducted in a year plus one. *G_B_M* is the total RMB value of beneficial GRTs conducted by an SOE in the year scaled by total assets. *Pchair* is a dummy variable that equals 1 if the chairman in the listed SOE is politically connected and 0 otherwise. Definitions of other variables are in Appendix A.1. *z*-statistics (*t*-statistics) are calculated based on robust standard errors and are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Variables	(1) *G_B_D*	(2) *G_B_F*	(3) *G_B_M*
Pchair	0.328***	0.027***	0.005***
	(3.452)	(2.715)	(3.049)
Firm Size	-0.168***	-0.008*	-0.003***
	(-3.036)	(-1.827)	(-3.923)
ROA	2.532***	0.104	0.005
	(3.194)	(1.560)	(0.492)
NERI Index	-0.095***	-0.014***	-0.001**
	(-3.266)	(-4.544)	(-2.334)
Duality	-0.461***	-0.046***	-0.003*
	(-2.677)	(-4.575)	(-1.797)
Board Size	-0.085	-0.007	0.001
	(-0.466)	(-0.474)	(0.476)
Independence	-1.092	-0.102*	-0.015**
	(-1.553)	(-1.659)	(-2.074)
Leverage	0.643**	0.024	0.011**
	(2.521)	(0.923)	(2.095)
Tobin's Q	0.043	0.006	0.001
	(0.865)	(1.261)	(1.004)
Institution	-1.682***	-0.106***	-0.001
	(-3.209)	(-5.352)	(-0.270)
Top1	-2.177***	-0.128***	-0.001
	(-6.912)	(-4.888)	(-0.413)
Big4	0.808***	0.074***	0.008***
	(4.487)	(3.825)	(3.502)
Crosslisting	-1.109***	-0.069***	-0.002
	(-3.954)	(-4.346)	(-1.201)
Agriculture	1.078***	0.231***	-0.002
	(3.527)	(3.521)	(-0.734)
Mining	1.044***	0.080***	0.003
	(3.573)	(2.935)	(1.140)
Manufacturing	-0.069	-0.008	0.001
	(-0.330)	(-0.651)	(0.238)
Utilities	0.266	0.018	0.003
	(1.025)	(1.054)	(0.870)
Construction	0.875***	0.102***	0.002
	(2.703)	(2.844)	(0.797)
Transportation	0.604**	0.053***	0.003
	(2.371)	(2.701)	(1.035)

Information	0.966***	0.093***	-0.002
	(3.773)	(3.834)	(-0.655)
Real Estate	0.459*	0.040**	0.002
	(1.747)	(2.035)	(0.699)
Social Services	1.189***	0.129***	0.003
	(4.324)	(3.783)	(1.004)
Mass communication, arts, and education	2.271***	0.448***	0.011**
	(8.351)	(6.657)	(2.314)
Conglomerate	1.374***	0.162***	0.007
	(5.209)	(4.539)	(1.447)
Constant	2.031*	0.425***	0.079***
	(1.689)	(4.097)	(5.124)
Year FE	Yes	Yes	Yes
Observations	7,836	7,836	7,836
Pseudo R^2 /Adjusted R^2	0.094	0.061	0.010

Table 2. 4. Multi-fixed effects models

Table 2.4 reports the results of the baseline regression controlling for firm fixed effects and industry-year dummy variables. *G_B_D* is a dummy variable that takes the value of one if the SOE has engaged in beneficial GRTs in the year and zero otherwise. *G_B_F* is calculated as the natural logarithm of the number of beneficial GRTs conducted in a year plus one. *G_B_M* is the total RMB value of beneficial GRTs conducted by an SOE in the year scaled by total assets. *Pchair* is a dummy variable that equals 1 if the chairman in the listed SOE is politically connected and 0 otherwise. Definitions of variables are in Appendix A.1. *z*-statistics (*t*-statistics) are calculated based on robust standard errors and are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)
Variables	*G_B_D*	*G_B_F*	*G_B_M*
Pchair	0.329***	0.008	0.005**
	(3.448)	(0.925)	(2.492)
Firm Size	-0.084	-0.001	-0.006***
	(-1.556)	(-0.110)	(-2.585)
ROA	2.558***	0.064	0.012
	(3.234)	(1.377)	(0.810)
NERI Index	-0.091***	0.007	-0.001
	(-3.046)	(1.002)	(-0.481)
Duality	-0.325*	-0.007	-0.002
	(-1.871)	(-0.733)	(-1.258)
Board Size	-0.156	-0.026*	0.000
	(-0.863)	(-1.790)	(0.142)
Independence	-1.225*	-0.004	-0.009
	(-1.698)	(-0.082)	(-0.914)
Leverage	0.384	0.039	0.000
	(1.447)	(1.302)	(0.003)
Tobin's Q	0.048	-0.005	-0.001*
	(0.980)	(-1.119)	(-1.677)
Institution	-1.830***	0.017	0.009
	(-3.456)	(0.329)	(0.862)
Top1	-2.529***	0.132**	0.007
	(-7.771)	(2.467)	(0.610)
Big4	0.769***	0.044*	0.001
	(4.288)	(1.817)	(0.371)
Crosslisting	-1.179***	-0.067***	-0.000
	(-4.209)	(-4.076)	(-0.193)
Constant	1.270	0.089	0.151**
	(1.073)	(0.379)	(2.525)
Firm FE	No	Yes	Yes
Industry×Year	Yes	Yes	Yes
Observations	7,836	7,836	7,836
Pseudo R^2 /Adjusted R^2	0.101	0.702	0.222

Table 2. 5. Propensity score matching analysis

Table 2.5 presents the results of a propensity score matching analysis. Panel A reports the parameter estimates from the logit model used to estimate propensity scores. *Pchair* is the dependent variable, which is a dummy variable that equals 1 if the chairman in the listed SOE is politically connected and 0 otherwise. Panels B and C present the univariate comparisons of characteristics between SOEs with a politically connected chairman of the board and those without a politically connected chairman of the board and the corresponding *t*-values in both pre- and post-match samples. Panel D reports the results of re-estimating the regression in Table 2.3 using the propensity score-matched sample. *G_B_D* is a dummy variable that takes the value of one if the SOE has engaged in beneficial GRTs in the year and zero otherwise. *G_B_F* is calculated as the natural logarithm of the number of beneficial GRTs conducted in a year plus one. *G_B_M* is the total RMB value of beneficial GRTs conducted by an SOE in the year scaled by total assets. Definitions of variables are in Appendix A.1. *z*-statistics (*t*-statistics) are calculated based on robust standard errors and are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Pre-matched propensity score regression and post-matched regression

	Dependent Variable: *Pchair*	
	(1)	(2)
	Pre-match	Post-match
Firm size	0.146***	-0.013
	(5.316)	(-0.390)
ROA	1.718***	0.642
	(3.207)	(1.064)
NERI Index	-0.015	0.004
	(-0.952)	(0.212)
Duality	0.124	0.100
	(1.486)	(0.993)
Board size	0.266***	-0.041
	(2.600)	(-0.333)
Independent ratio	0.195	0.402
	(0.521)	(0.875)
Leverage	-0.162	-0.003
	(-1.043)	(-0.015)
Tobin's Q	0.056*	-0.005
	(1.911)	(-0.135)
Institution	-0.649***	0.061
	(-2.737)	(0.204)
Top1	-0.711***	0.091
	(-4.019)	(0.434)
Big4	-0.040	-0.067
	(-0.404)	(-0.541)
Crosslisting	0.401***	0.082
	(3.387)	(0.544)
Constant	-3.782***	-0.068
	(-5.962)	(-0.089)
Firm FE	No	No

Industry×Year	Yes	Yes
Observations	7,826	4,478
Pseudo R^2	0.053	0.002

Panel B. Pre-matched differences in SOE characteristics between politically connected and unconnected SOEs

Variables	No. of observations if *Pchair*=1	Mean if *Pchair*=1	No. of observations if *Pchair*=0	Mean if *Pchair*=0	Mean Difference	*t*-value
Firm Size	2,454	22.615	5,382	22.445	0.170***	5.007
ROA	2,454	0.034	5,382	0.024	0.010***	6.039
NERI Index	2,454	7.110	5,382	7.103	0.008	0.172
Duality	2,454	0.100	5,382	0.097	0.003	0.419
Board Size	2,454	2.376	5,382	2.352	0.024***	3.848
Independence	2,454	0.371	5,382	0.37	0.001	0.544
Leverage	2,454	0.531	5,382	0.535	-0.004	-0.752
Tobin's Q	2,454	1.752	5,382	1.862	-0.111***	-4.159
Institution	2,454	0.067	5,382	0.075	-0.008***	-2.999
Top 1	2,454	0.394	5,382	0.396	-0.002	-0.468
Big4	2,454	0.118	5,382	0.089	0.029***	4.058
Crosslisting	2,454	0.086	5,382	0.051	0.035***	5.940

Panel C. Post-matched differences in SOE characteristics between politically connected and unconnected SOEs

Variables	No. of observations if *Pchair*=1	Mean if *Pchair*=1	No. of observations if *Pchair*=0	Mean if *Pchair*=0	Mean Difference	*t*-value
Firm Size	2,239	22.574	2,239	22.564	0.009	0.223
ROA	2,239	0.032	2,239	0.030	0.002	1.360
NERI Index	2,239	7.119	2,239	7.097	0.022	0.403
Duality	2,239	0.106	2,239	0.097	0.009	0.988
Board Size	2,239	2.367	2,239	2.369	-0.002	-0.272
Independence	2,239	0.372	2,239	0.369	0.002	1.096
Leverage	2,239	0.539	2,239	0.543	-0.004	-0.593
Tobin's Q	2,239	1.764	2,239	1.747	0.017	0.555
Institution	2,239	0.068	2,239	0.067	0.001	0.260
Top 1	2,239	0.390	2,239	0.388	0.002	0.526
Big4	2,239	0.100	2,239	0.100	-0.001	-0.100
Crosslisting	2,239	0.065	2,239	0.061	0.004	0.553

Panel D. Matched sample regression analysis

Variables	(1) *G_B_D*	(2) *G_B_F*	(3) *G_B_M*
Pchair	0.256**	0.024**	0.005***
	(2.140)	(2.256)	(2.813)
Firm size	-0.266***	-0.019***	-0.004***
	(-3.808)	(-3.614)	(-3.139)
ROA	1.640	-0.039	-0.019
	(1.583)	(-0.404)	(-1.022)
NERI Index	-0.055	-0.015***	-0.001**
	(-1.452)	(-3.538)	(-2.027)
Duality	-0.402*	-0.042***	-0.002
	(-1.780)	(-3.510)	(-0.933)
Board size	0.510**	0.054***	0.006
	(2.247)	(2.593)	(1.305)
Independent ratio	-2.140**	-0.185**	-0.022**
	(-2.221)	(-2.398)	(-2.085)
Leverage	0.695*	-0.007	0.009
	(1.955)	(-0.171)	(1.102)
Tobin's Q	0.053	0.002	0.002
	(0.781)	(0.268)	(1.398)
Institution	-1.171*	-0.101***	0.002
	(-1.667)	(-3.240)	(0.262)
Top1	-1.525***	-0.039	0.004
	(-3.415)	(-1.134)	(0.828)
Big4	0.782***	0.061***	0.009***
	(3.423)	(2.866)	(2.684)
Crosslisting	-0.652**	-0.037**	-0.000
	(-2.054)	(-2.275)	(-0.034)
Constant	9.567***	0.527***	0.085***
	(3.114)	(4.435)	(4.111)
Firm FE	No	No	No
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	4,470	4,478	4,478

Table 2. 6. Difference-in-difference analysis in propensity score-matched sample

Table 2.6 presents the results of the DID analysis in the propensity score-matched sample. Panel A reports the results of the parallel trend test. *G_B_D* is a dummy variable that takes the value of one if the SOE has engaged in beneficial GRTs in the year and zero otherwise. *G_B_F* is calculated as the natural logarithm of the number of beneficial GRTs conducted in a year plus one. *G_B_M* is the total RMB value of beneficial GRTs conducted by an SOE in the year scaled by total assets. *Pchair* is a dummy variable that equals 1 if the chairman in the listed SOE is politically connected and 0 otherwise. $Before_{-2}$, $Before_{-1}$, *Current*, $After_{+1}$ and $After_{+2}$ are five year dummy variables that create a five-year window around the anti-corruption campaign. Other variables are defined in Appendix A.1. Panel B reports the DID analysis results. *t*-statistics are calculated and are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% confidence levels, respectively.

Panel A. Parallel trend test

	(1)	(2)	(3)
Variables	*G_B_D*	*G_B_F*	*G_B_M*
*Pchair*Before*$_{-2}$	-0.007	-0.000	0.002
	(-0.331)	(-0.006)	(0.474)
*Pchair*Before*$_{-1}$	-0.005	0.023	0.002
	(-0.221)	(0.733)	(0.447)
*Pchair*Current*	0.022	0.039	0.019***
	(1.014)	(1.275)	(4.701)
*Pchair*After*$_{+1}$	0.058***	0.084***	0.014***
	(2.636)	(2.658)	(3.346)
*Pchair*After*$_{+2}$	0.041*	0.058*	0.001
	(1.732)	(1.713)	(0.281)
Before$_{-2}$	-0.014	-0.021	-0.002
	(-1.136)	(-1.167)	(-0.884)
Before$_{-1}$	-0.001	-0.017	-0.001
	(-0.100)	(-0.970)	(-0.484)
Current	0.008	-0.004	-0.002
	(0.655)	(-0.226)	(-0.725)
After$_{+1}$	0.003	-0.005	-0.003
	(0.255)	(-0.304)	(-1.200)
After$_{+2}$	0.016	0.015	-0.000
	(1.339)	(0.907)	(-0.167)
Pchair	0.027***	0.028**	0.002
	(2.674)	(1.999)	(1.005)
Constant	0.067***	0.088***	0.004***
	(11.944)	(10.941)	(4.112)
Observations	7,836	7,836	7,836
Adjusted R^2	0.006	0.005	0.007

Panel B. Difference-Difference Test

	Mean Treatment Difference (after-before)	Mean Control Difference (after-before)	Mean DiD Estimator (treat-control)
G_B_D	0.018***	0.009*	0.019***
	(2.765)	(1.658)	(3.628)
G_B_F	0.024***	0.008	0.027***
	(2.581)	(1.181)	(3.791)
G_B_M	0.005**	0.000	0.005***
	(2.303)	(0.030)	(3.942)

Table 2. 7. Instrumental variable

Table 2.7 reports the results of the IV-2SLS analysis. The first-stage regression result is reported in column (1). *Pchair* is the dependent variable, which is a dummy variable that equals 1 if the chairman in the listed SOE is politically connected and 0 otherwise. *IV* is the instrumental variable, which measures people' opposition to government intervention in each province. The second-stage results are reported in columns (2) to (4). *G_B_D* is a dummy variable that takes the value of one if the SOE has engaged in beneficial GRTs in the year and zero otherwise. *G_B_F* is calculated as the natural logarithm of the number of beneficial GRTs conducted in a year plus one. *G_B_M* is the total RMB value of beneficial GRTs conducted by an SOE in the year scaled by total assets. *Fitted_Pchair* is the fitted values obtained from the first-stage regression. Other variable descriptions are summarised in Appendix A.1. *t*-statistics are calculated based on robust standard errors and are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	First-stage	Second-stage		
	(1)	(2)	(3)	(4)
Variables	*Pchair*	*G_B_D*	*G_B_F*	*G_B_M*
IV	-0.119***			
	(-3.973)			
Fitted_Pchair		0.214**	0.374**	0.043
		(2.012)	(2.177)	(1.425)
Firm Size	0.030***	-0.016***	-0.023***	-0.004***
	(4.614)	(-4.426)	(-3.810)	(-3.018)
ROA	0.441***	-0.034	-0.091	-0.008
	(4.109)	(-0.550)	(-0.981)	(-0.505)
NERI Index	0.008*	0.003**	0.002	0.000
	(1.876)	(2.410)	(1.230)	(0.215)
Duality	0.040**	-0.013	-0.023*	-0.003*
	(1.993)	(-1.523)	(-1.855)	(-1.876)
Board Size	0.049**	-0.020**	-0.024*	-0.000
	(2.091)	(-2.087)	(-1.706)	(-0.236)
Independence	0.045	-0.027	-0.054	-0.003
	(0.539)	(-0.901)	(-1.215)	(-0.348)
Leverage	-0.023	0.069***	0.102***	0.023***
	(-0.640)	(4.994)	(4.148)	(3.083)
Tobin's Q	0.008	-0.007***	-0.008**	-0.000
	(1.316)	(-3.361)	(-2.394)	(-0.241)
Institution	-0.127***	-0.000	0.018	0.002
	(-2.641)	(-0.025)	(0.613)	(0.462)
Top1	-0.159***	-0.008	0.015	0.004
	(-3.963)	(-0.382)	(0.493)	(0.942)
Big4	-0.008	0.020**	0.033**	0.003**
	(-0.358)	(2.297)	(2.143)	(2.411)
Crosslisting	0.083***	-0.033***	-0.054***	-0.003
	(2.907)	(-2.692)	(-2.599)	(-1.158)
Constant	-0.173	0.308***	0.403***	0.059***
	(-0.859)	(4.364)	(3.478)	(2.948)
Cragg-Donald Wald F statistics (for Weak identification test)	16.549			
Kleibergen-Paap rk LM statistic (for Underidentification test)	15.936***			

Firm FE	NO	No	No	No
Industry×Year	Yes	Yes	Yes	Yes
Observations	6,044	6,044	6,044	6,044

Table 2. 8. Political connection, beneficial GRTs and SOEs' economic outputs

Table 2.8 reports the influence of political connection and beneficial GRTs on the economic outputs of listed SOEs. Columns (1) to (4) report the regressions conducted without control variables; columns (5) to (8) report the regressions conducted with control variables. *InvExp* is calculated as the ratio of investment expenditure (cash paid for fixed assets, intangible assets and other long-term assets less cash received from selling these assets) over total assets at the beginning of the year. *R&D* is calculated as a firm's R&D expenditure scaled by total sales. *Dividend* is calculated as cash dividends scaled by total assets. *Sales Growth* is measured as the annual growth rate of sales. *Pchair* is a dummy variable that equals 1 if the chairman in the listed SOE is politically connected and 0 otherwise. *G_B_D* is a dummy variable that takes the value of one if the SOE has engaged in beneficial GRTs in the year and zero otherwise. Other variable descriptions are summarised in Appendix A.1. *t*-statistics are calculated based on robust standard errors and are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Without control variables				With control variables			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	$InvExp_{t+1}$	$R\&D_{t+1}$	$Dividend_{t+1}$	$Sales\ Growth_{t+1}$	$InvExp_{t+1}$	$R\&D_{t+1}$	$Dividend_{t+1}$	$Sales\ Growth_{t+1}$
Pchair	0.013*	-0.001	0.001*	-0.033	0.016**	-0.001	0.001	-0.013
	(1.745)	(-1.163)	(1.916)	(-1.070)	(2.018)	(-1.408)	(1.571)	(-0.431)
G_B_D	-0.033	-0.000	-0.000	0.025	-0.031	-0.000	0.000	0.024
	(-1.571)	(-0.326)	(-0.137)	(0.432)	(-1.488)	(-0.324)	(0.039)	(0.404)
*Pchair*G_B_D*	0.076***	0.001	-0.002*	0.161	0.071***	0.001	-0.002**	0.162
	(2.867)	(0.995)	(-1.781)	(1.388)	(2.707)	(1.042)	(-2.058)	(1.421)
Constant	-0.047***	0.014***	0.009***	0.116***	1.207***	-0.038**	0.002	6.726***
	(-6.093)	(30.017)	(28.977)	(6.616)	(4.739)	(-2.115)	(0.206)	(5.485)
Controls	No	No	No	No	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry×Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,720	6,722	6,722	6,712	6,720	6,722	6,722	6,712
Adjusted R^2	0.398	0.707	0.641	0.046	0.402	0.709	0.653	0.082

Table 2. 9. Political connection, beneficial GRTs and SOEs' labour intensity

Table 2.9 examines the influence of political connection and beneficial GRTs on SOEs' labour intensity. *Labour* is the proxy of SOEs' labour intensity, which is measured as an SOE's number of employees divided by its total assets, scaled by 10^6. *Pchair* is a dummy variable that equals 1 if the chairman in the listed SOE is politically connected and 0 otherwise. *G_B_D* is a dummy variable that takes the value of one if the SOE has engaged in beneficial GRTs in the year and zero otherwise. Other variable descriptions are summarised in Appendix A.1. *t*-statistics are calculated based on robust standard errors and are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Variables	(1) $Labour_{t+1}$	(2) $Labour_{t+1}$
Pchair	-0.027	-0.016
	(-1.240)	(-0.750)
G_B_D	0.039	0.038
	(0.985)	(0.929)
*Pchair*G_B_D*	0.022	0.014
	(0.359)	(0.219)
Firm Size		-0.182***
		(-5.073)
ROA		-0.045
		(-0.268)
NERI Index		0.062***
		(3.492)
Duality		0.023
		(0.780)
Board Size		-0.026
		(-0.471)
Independence		0.080
		(0.920)
Leverage		0.256**
		(2.203)
Tobin's Q		-0.017
		(-1.398)
Institution		-0.349**
		(-2.213)
Top1		-0.176
		(-1.246)
Big4		-0.030
		(-0.897)
Crosslisting		0.121
		(1.238)
Constant	0.609***	4.312***
	(35.859)	(5.498)
Controls	No	Yes
Firm FE	Yes	Yes
Industry×Year	Yes	Yes
Observations	6,722	6,722
Adjusted R^2	0.474	0.477

Table 2. 10. Determinants of government subsidy

Table 2.10 presents the results of employing alternative channels of government resource allocation. *Subsidy1* is calculated as government subsidy over total assets; *Subsidy2* is measured as government subsidy over total sales. *Pchair* is a dummy variable that equals 1 if the chairman in the listed SOE is politically connected and 0 otherwise. Definition of other variables can be found in Appendix A.1. *t*-statistics are calculated based on robust standard errors and are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% confidence levels, respectively.

	(1)	(2)
Variables	*Subsidy1*	*Subsidy2*
Pchair	0.001**	0.002*
	(2.079)	(1.920)
Firm Size	-0.002***	-0.003***
	(-7.695)	(-5.075)
ROA	0.017***	0.006
	(3.991)	(0.526)
NERI Index	0.001***	0.001**
	(5.877)	(2.373)
Duality	-0.001	-0.001
	(-1.377)	(-1.131)
Board Size	0.001	0.002
	(1.207)	(1.315)
Independence	0.002	0.006
	(0.716)	(0.817)
Leverage	0.008***	0.013**
	(4.462)	(2.296)
Tobin's Q	-0.000	0.000
	(-0.458)	(0.038)
Institution	-0.002	-0.006*
	(-1.641)	(-1.722)
Top1	-0.003**	-0.007***
	(-2.371)	(-3.052)
Big4	0.002*	0.003
	(1.730)	(1.412)
Crosslisting	0.001	-0.000
	(0.837)	(-0.264)
Agriculture	0.005***	0.011***
	(6.752)	(5.115)
Mining	0.006***	0.012***
	(15.593)	(10.988)
Manufacturing	0.006***	0.022***
	(6.496)	(7.031)
Utilities	0.001***	0.003***
	(3.844)	(3.853)
Construction	0.003***	0.011***
	(7.797)	(8.212)

Transportation	0.009***	0.013***
	(13.446)	(10.656)
Information	-0.000	0.008***
	(-0.962)	(2.893)
Real Estate	0.005***	0.013***
	(4.048)	(5.540)
Social Services	0.007***	0.018***
	(8.487)	(5.409)
Mass communication, arts, and education	0.002***	0.006***
	(3.887)	(5.607)
Conglomerate	0.016***	0.032***
	(6.244)	(6.361)
Constant	0.028***	0.058***
	(7.989)	(5.244)
Year FE	Yes	Yes
Observations	7,836	7,836
Adjusted R^2	0.055	0.027

Table 2. 11. Political connection, government subsidies and SOEs' economic outputs

Table 2.11 reports the influence of political connection and government subsidies on the economic outputs of listed SOEs. Columns (1) to (4) report the regressions conducted without control variables; columns (5) to (8) report the regressions conducted with control variables. *InvExp* is calculated as the ratio of investment expenditure (cash paid for fixed assets, intangible assets and other long-term assets less cash received from selling these assets) over total assets at the beginning of the year. *R&D* is calculated as a firm's R&D expenditure scaled by total sales. *Dividend* is calculated as cash dividends scaled by total assets. *Sales Growth* is measured as the annual growth rate of sales. *Pchair* is a dummy variable that equals 1 if the chairman in the listed SOE is politically connected and 0 otherwise. *High_Subsidy* is a dummy variable that equals 1 if the SOE receives government subsidy more than sample median and 0 otherwise. Other variable descriptions are summarised in Appendix A.1. *t*-statistics are calculated based on robust standard errors and are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Variables	(1) $InvExp_{t+1}$	(2) $R\&D_{t+1}$	(3) $Dividend_{t+1}$	(4) $Sales\ Growth_{t+1}$	(5) $InvExp_{t+1}$	(6) $R\&D_{t+1}$	(7) $Dividend_{t+1}$	(8) $Sales\ Growth_{t+1}$
Pchair	0.025**	-0.000	0.001	-0.015	0.027***	-0.000	0.001	0.012
	(2.528)	(-0.577)	(1.526)	(-0.398)	(2.733)	(-0.880)	(1.044)	(0.322)
High_Subsidy	-0.001	0.001**	-0.001*	0.050*	-0.001	0.001**	-0.001	0.046
	(-0.234)	(1.973)	(-1.650)	(1.678)	(-0.128)	(2.137)	(-1.587)	(1.623)
*Pchair*High_Subsidy*	-0.012	-0.000	-0.000	-0.011	-0.013	-0.000	-0.000	-0.024
	(-1.177)	(-0.603)	(-0.352)	(-0.267)	(-1.260)	(-0.601)	(-0.068)	(-0.606)
Constant	-0.048***	0.013***	0.009***	0.093***	1.228***	-0.038**	0.002	6.742***
	(-5.622)	(27.119)	(24.664)	(3.815)	(4.811)	(-2.139)	(0.201)	(5.474)
Controls	No	No	No	No	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry×Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,720	6,722	6,722	6,712	6,720	6,722	6,722	6,712
Adjusted R^2	0.396	0.707	0.641	0.045	0.401	0.710	0.653	0.081

Table 2. 12. Political connection, government subsidies and SOEs' labour intensity

Table 2.12 examines the influence of political connection and government subsidies on SOEs' labour intensity. *Labour* is the proxy of SOEs' labour intensity, which is measured as an SOE's number of employees divided by its total assets, scaled by 10^6. *Pchair* is a dummy variable that equals 1 if the chairman in the listed SOE is politically connected and 0 otherwise. *High_Subsidy* is a dummy variable that equals 1 if the SOE receives government subsidy more than sample median and 0 otherwise. Other variable descriptions are summarised in Appendix A.1. *t*-statistics are calculated based on robust standard errors and are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Variables	(1) $Labour_{t+1}$	(2) $Labour_{t+1}$
Pchair	-0.012	-0.000
	(-0.478)	(-0.008)
High_Subsidy	0.073	0.067
	(1.075)	(0.983)
*Pchair*High_Subsidy*	-0.026	-0.030
	(-0.554)	(-0.650)
Firm Size		-0.182***
		(-5.043)
ROA		-0.039
		(-0.231)
NERI Index		0.061***
		(3.292)
Duality		0.018
		(0.628)
Board Size		-0.027
		(-0.497)
Independence		0.083
		(0.939)
Leverage		0.261**
		(2.244)
Tobin's Q		-0.016
		(-1.313)
Institution		-0.331**
		(-2.170)
Top1		-0.162
		(-1.171)
Big4		-0.028
		(-0.848)
Crosslisting		0.127
		(1.272)
Constant	0.572***	4.271***
	(16.118)	(5.350)
Controls	No	Yes
Firm FE	Yes	Yes
Industry×Year	Yes	Yes
Observations	6,722	6,722
Adjusted R^2	0.475	0.477

CHAPTER THREE ESSAY TWO

"Spotlight" top executives and earnings quality, reputation vs political objectives: Evidence from China's state-owned enterprises

Abstract:

We investigate the effects of top executives' reputation concern on earnings quality in China's listed state-owned enterprises (SOEs). We define chairpersons with concurrent positions in listed SOEs and their shareholding firms as "spotlight" top executives, as they may receive more external attention. Our results show that "spotlight" executives reduce earnings manipulation through related-party transactions, and the result remains robust after controlling for endogeneity concerns. Such a positive influence on earnings quality is exerted through the mechanism of increased external attention paid to these "spotlight" chairpersons due to their dual positions. However, the positive reputation effect is subject to the political objectives associated with SOEs and is more pronounced after the initiation of the anti-corruption campaign. Further evidence shows that the positive impact of "spotlight" executives is shaped by various characteristics of SOEs, such as different types of state control, the industry sectors SOEs come from, firm performance, the timing of seasoned equity offerings and external monitoring.

Keywords: Earnings quality; Reputation; Political objectives; State-owned enterprises; Related-party transaction;

JEL code: G3, M41, M43

3.1. Introduction

Reputation is considered a valuable asset by executives as it is associated with the current job status and future career prospects of a manager (Doukas & Zhang, 2020). Firm earnings quality is an important factor that affects executive reputation (Ali & Zhang, 2015; Allen, Qian, & Qian, 2005; Francis et al., 2008; Qian et al., 2015). Two theories are widely used to explain the association between executive reputation and earnings quality (Francis et al., 2008). According to the efficient contracting theory, executives may try to avoid manipulating earnings to preserve their reputational capital (Francis et al., 2008), which improves earnings quality. While the rent extraction theory suggests that executives may engage in opportunistic activities, such as tax avoidance (Duan, Ding, Hou, & Zhang, 2018) and earnings smoothing (Doukas & Zhang, 2020), to beat performance benchmarks and meet the expectations of investors.

We focus on top executives in China's state-owned enterprises (SOEs) and identify those who have a concurrent position in listed SOEs and their shareholding firms[19] as "spotlight" executives. We examine the influence of executive reputation concern on earnings quality due to the unique settings of China's professional labour market. First, the market is not as liquid as in developed economies, and the cost of exiting the market is high, given that the government has the ultimate control to appoint top executives in listed SOEs. Second, both reputation and political capital are important to SOE executives, and therefore, they have strong incentives to fulfil political objectives (Chen et al., 2020; Liu & Lu, 2007). Third, external attention is intensive due to the dual positions of these "spotlight" executives in both listed SOEs and shareholding firms.

[19] These shareholding firms of listed SOEs can be either corporations or, in a few cases (less than 1% of "spotlight" top executives), non-corporate government agencies. The results are similar with those reported in this paper if non-corporate government agencies are not considered as listed SOEs' shareholding firms.

We focus on "spotlight" executives in China's SOEs due to the following reasons. First, SOE executives are concerned about their reputation due to the uniqueness of SOEs' executive labour market. Most of the existing studies that examine the influence of reputation concern on managerial decision-making are conducted based on the setting that executives are in a highly liquid executive labour market where reputation is valuable in securing future jobs (Doukas & Zhang, 2020; Francis et al., 2008). However, executives in China's SOEs compete in a relatively enclosed executive labour market (Chen et al., 2018a). Leaving this labour market, either voluntarily or involuntarily, implies losing not only the authority, prestige, monetary and non-monetary rewards that are hard to obtain in other labour markets, but also the opportunity to move forward in the political system as this labour market is hard to re-enter after leaving[20] (Chen et al., 2018a). Due to the high cost of exiting the labour market, SOE executives may be more cautious regarding opportunistic behaviours that can potentially sabotage their reputation (Xie, 2015), such as earnings manipulation.

Second and more importantly, we identify "spotlight" top executives as the Chairman of the board[21] in the listed SOEs who have a concurrent position in their shareholding firms. Serving as an executive in both listed SOEs and their shareholding firms, "spotlight" executives can be considered a special connection between government controlling shareholders and listed SOEs[22]. Therefore, they are expected to be more capable of conducting related-party transactions (RPTs) with their government controlling shareholders, and RPTs can be used by government controlling shareholders to tunnel or prop up earnings of listed SOEs (Jian &

[20] Chen et al. (2018a) also suggest that the total benefits received by executives in China's SOEs is not necessarily lower than those received by executives in the private firms, which, combined with the enclosed nature of SOEs' executive labor market, hinders SOE executives from moving to the private section.
[21] We focus on chairpersons to identify "spotlight" executives because in SOEs, chairperson is the highest ranked full-time position that in charge of all important decision makings (Cheng & Leung, 2012).
[22] We use the chairperson that holds concurrent position in the listed SOE's largest shareholding firms as an alternative to ensure that "spotlight" executives represent the incentives of government controlling shareholders. According to our statistics, 59.3% of the "spotlight" executives hold concurrent position in the listed SOEs' largest shareholding firms. Please see section 3.3 for details.

Wong, 2010). In this case, "spotlight" executives may attract more external attention, for example, from financial analysts and institutional investors, which may, in turn, induce more reputation concern. According to our sample, over 67% of the firm-year observations have a "spotlight" top executive. The prevalence of "spotlight" executives in China's SOEs provide us with a unique setting and opportunity to examine whether and how executives' reputation concern influences the earnings quality of listed SOEs.

Third, executives in SOEs face tight scrutiny from both the market and the government. On the one hand, due to the continuous development of Chinese financial markets, monitoring mechanisms, for example, financial analysts (Cang, Chu, & Lin, 2014) and institutional investors (Guo & Ma, 2015), has been playing a significant role in disciplining managerial opportunistic behaviour. On the other hand, top executives in SOEs are subject to strict monitoring from the government, especially since the implementation of the anti-corruption campaign in 2013 (Zhang, 2018). For instance, since the initiation of the anti-corruption campaign, at least 124 SOE executives were investigated and ended their careers until April 2015[23]. As the crash down of corruption significantly enhances the monitoring efficiency of government institutions and market regulators, top executives in SOEs can be more cautious in engaging in opportunistic behaviours, such as earnings manipulation (Lei & Wang, 2019).

Fourth, the political objectives of SOEs may induce earnings manipulation and thus harm earnings quality. Different from private-owned firms, whose major objective is profit maximization, SOEs in China also serve the function of fulfilling government assigned political objectives (Li & Yamada, 2015; Peng et al., 2011). Moreover, top executives in SOEs are also motivated to achieve these objectives as the promotion/demotion decision of SOEs' top executives is at the discretion of the government (Cao, Lemmon, Pan, Qian, & Tian, 2018a).

[23] Retrieved from http://www.xinhuanet.com/politics/2015-04/08/c_127665315.htm (in Chinese).

SOEs' political objectives may induce earnings manipulations and have conflicts with executives' reputational concerns. For example, in provinces with lower GDP growth rates, listed SOEs are motivated by provincial government officials to increase their earnings manipulation activities and contribute to the boosting of local GDP growth (Chen et al., 2020).

Therefore, given the career concerns, the special connection they provide between listed SOEs and shareholding firms, tight scrutiny and political objectives faced by spotlight SOE top executives, it is of great interest to study the impact of reputation concern of spotlight executives in SOEs on earning quality.

We adopt two measures to proxy earnings quality. We particularly focus on the first measure that proxies earnings management via RPTs. There are three reasons for examining earnings quality by utilizing RPTs. First, RPT is considered a common venue for earnings management in China, especially for SOEs (Jian & Wong, 2010; Lo et al., 2010; Munir, Saleh, Jaffar, & Yatim, 2013). Second, RPTs are transparent and strictly monitored by regulations (Cheung et al., 2009a; Cheung et al., 2006; Jian & Wong, 2010). For instance, the *Companies Law*[24], *Securities Law*, and the rules and regulations of the China Security Regulatory Committee (CSRC) and stock exchanges all contain provisions regarding related sales, where manipulated sales prices and accruals serve as the source of earnings manipulation, especially in SOEs (Jian & Wong, 2010; Lo et al., 2010; Munir et al., 2013). Therefore, manipulations achieved via related sales provide an interesting measure to examine the tradeoffs between reputation

[24] The *Companies Law* of China has stipulated that related directors must excuse themselves from voting on resolutions concerning the related parties. However, as the most powerful executive in SOEs' decision making, the highest ranked official (if the chairperson has bureaucratic ranks), and the representative of the government controlling shareholder, the chairperson has invisible influence on the decisions of other directors. Moreover, provisions of the *Companies Law* regarding RPTs mainly aims to prevent controlling shareholders, ultimate controllers, directors, supervisors and senior management from using their relationships to harm the interests of the company. Avoiding earnings manipulation through RPTs is less of a concern in the eye of regulations. To further mitigate this concern, we employ "spotlight" CEOs as an alternative measure of "spotlight" executives. The results reported in Appendix B.4 show that "spotlight" CEOs are also associated lower level of earnings manipulation through RPTs.

concern and political capital building and maintenance for SOE executives. Third, given the dual positions of spotlight top executives in the SOEs and all SOEs are connected through government ownership, it is easier for them to conduct RPTs if they want to, and therefore attracting more attention from external monitoring. Following the method of Jian and Wong (2010), we calculate discretionary related-party accounts receivables as the measure of SOEs' earnings manipulation through RPTs. In addition, we adopt the discretional accruals of Jones (1991) as a measure of overall earnings quality and compare the results with earnings management via RPTs.

Our results show that "spotlight" top executives significantly reduce discretionary related-party accounts receivables, but they are not associated with discretionary accruals. We employ change-in-change analysis, 2-stage-least-squares (2SLS) instrumental variable (IV) analysis and propensity score matching (PSM) to mitigate endogeneity concerns and find that the results remain robust. We interpret the results as that "spotlight" executives are motivated to avoid manipulating earnings through RPTs due to the high detection risk, which will hurt their reputation strongly. We apply a 2-stage-least-squares (2SLS) estimate to further understand the mechanisms through which "spotlight" executives reduce discretionary related-party accounts receivables and examine whether reputation concern explains the negative relationship between "spotlight" executives and discretionary related-party accounts receivables. It is found that "spotlight" executives tend to attract more external attention (more analyst following and institutional investors' site visits), and such attention, in turn, leads to reduced related-party accounts receivables in SOEs. Our results also show that the positive impact of "spotlight" executives on earnings quality becomes insignificant when political objectives are stronger, i.e., in SOEs located in provinces with lower GDP growth rates, in provincial government officials' tenure other than the last year. These results indicate that "spotlight" executives are more likely to manipulate earnings through RPTs if local government officials have a strong

incentive to induce earnings manipulation of SOEs to contribute to local GDP growth, and when the benefit of earnings manipulation for government officials is more than the risk of detection. Moreover, the negative association between "spotlight" executives and discretionary related-party accounts receivables is more pronounced in the post-anti-corruption period. We conclude that the positive effect of executive reputation concern is subject to political objectives faced by SOE executives. Lastly, our heterogeneity analysis results show that the positive impact of "spotlight" executives on earnings quality is more pronounced in SOEs controlled by the local governments, in SOEs in non-strategic industries, in SOEs that have no intention to beat performance benchmarks or launch seasoned equity offerings (SEOs) and in SOEs with weaker external monitoring.

This paper contributes to the literature in the following ways. First, we add to the debating of the effects of executive reputation concern in a unique labour market where the exiting cost is high. Our evidence supports the efficient contract theory that unethical activities are risky and costly to executives (Ali & Zhang, 2015; Haider et al., 2021), and therefore, they reduce opportunistic activities to protect their reputations. Second, using a sample of China's listed SOEs, although we find that executives' reputation concern has a positive impact on earnings quality., such impact is shaped by political objectives associated with SOEs, such as local governments' incentive to boost GDP growth, local government officials' career concerns and government policy (anti-corruption campaign). Third, literature uses the level of reputational capital to loss, such as executives' accomplishments (award-winning) (Lee, Arthurs, Lee, & Cho, 2020), or competencies, e.g., managerial ability (Demerjian et al., 2013; Doukas & Zhang, 2020), to identify executives' sensitivity to reputational concerns. By considering "spotlight" executives in SOEs as those who are more likely to attract external attention, we suggest certain executive characteristics, such as having a concurrent position in listed SOEs' shareholding firms in this study, may induce more reputation concerns. Fourth, the literature suggests that

external attention may influence the behaviours of firm managers (Borghesi, Houston, & Naranjo, 2014; Chung, Firth, & Kim, 2002; Yu, 2008; Zhang, Tong, Su, & Cui, 2015). Our results show that increased external attention from analysts and institutional investors is a mechanism through which "spotlight" executives improve earnings quality in SOEs, which provide further evidence to the influence of external attention. Lastly, the literature suggests that RPT is a common venue for earnings management (Jian & Wong, 2010; Lo et al., 2010; Munir et al., 2013). We further contribute to this literature by emphasizing the strict monitoring on and high visibility of RPTs and identifying RPT as a highly risky channel of earnings manipulation.

The remainder of this paper is structured as follows: Section 2 briefly summarizes the literature and proposes hypotheses; Section 3 introduces the data collection and variable construction; Section 4 reports the empirical results, and Section 5 concludes.

3.2. Literature review and hypothesis development

Earnings should provide genuine information about a firm's financial performance and reflect the consequences of firm decisions (Dechow, Ge, & Schrand, 2010), and its quality depends on various factors (Gaio, 2010). Research has studied the influence of various firm characteristics on earnings quality. For example, it is found that firm size, investment opportunities (Gaio, 2010), the establishment of audit committees and better corporate governance (Jiang, Lee, & Anandarajan, 2008) are positively associated with earnings quality. Personal traits of managers and board directors are also suggested to influence earnings quality. For instance, studies find that firms have more female directors, and female managers tend to have better earnings quality (Krishnan & Parsons, 2008; Srinidhi, Gul, & Tsui, 2011; Zalata, Ntim, Aboud, & Gyapong, 2019). The literature also shows that external governance and macroeconomics factors, such as external auditing (Francis & Wang, 2008), regional economic

development (Chen et al., 2020), political stability and government effectiveness (Harymawan & Nowland, 2016), have a significant impact on firms' earnings quality.

We focus on the impact of executives' reputation concern on the earnings quality of listed Chinese SOEs. There are two streams of theories that explain why executives' reputation concerns may affect the earnings quality of the firms they run (Francis et al., 2008). The rent extraction theory states that reputed managers may over-emphasize their personal reputation for career enhancement, which in turn induces opportunistic activities, for example, earnings manipulation (Francis et al., 2008). Francis et al. (2008) suggest that it is likely that reputed managers may reduce the quality of accruals to meet earnings targets. Aligned with the rent extraction theory, Duan et al. (2018) proxy a CEO's publicity using the search volume index of the CEO's full name plus the tickers of the firm he runs and find that managers that receive more external attention tend to engage in more tax avoidance activities to meet expectations of investors. Doukas and Zhang (2020) document that managers with higher ability tend to conduct more earnings smoothing activities before acquisitions to signal their ability to the market.

The other theory, e.g., the efficient contracting theory suggests that reputed managers are more likely to enhance earning quality for two reasons. First, reputed managers have more incentive to build up reputational capital through their consistent ethical behaviours, to protect their own human capital (Francis et al., 2008). If misstatement of earnings is detected and exposed, the reputation that managers dedicate themselves to building may be tarnished (Ali & Zhang, 2015). Due to such concern, managers are expected to maintain a high standard of earnings quality. Second, reputed managers, who tend to be knowledgeable, have strong incentives to avoid activities that worsen earning quality to lower the cost of capital (Francis et al., 2008). Consistent with the efficient contracting theory, Ali and Zhang (2015) show that CEOs in their

later years are more sensitive to the reduction of reputational capital, and therefore, more reluctant to manipulate earnings. Haider et al. (2021) also suggest that more capable CEOs prefer conservative accounting approaches to avoid reputational losses.

We expect that "spotlight" executives in SOEs, as proposed by the efficient contracting theory, have strong incentives to avoid activities that may worsen earnings quality for two reasons. First, SOE executives, including "spotlight" executives, are in a relatively enclosed executive labour market (Chen et al., 2018a). As such, it is too costly for them to engage in earnings manipulation. Opportunistic behaviours, such as earnings management, may potentially sabotage executives' reputations (Xie, 2015) and thus their positions and future development in the professional labour market. Exiting the labour market for SOE executives, either voluntarily or involuntarily, means losing not only the authority, prestige, monetary and non-monetary rewards that are hard to obtain in other labour markets, but also the opportunity to move forward in the political system as the labour market for SOE executives is hard to re-enter after leaving (Chen et al., 2018a). Therefore, to preserve the reputational and political capital that is hard to build and maintain (Groves, Hong, McMillan, & Naughton, 1995), SOE executives may have strong incentives to avoid earnings manipulation, especially through channels that are more likely to be detected, such as RPTs.

Second and more importantly, compared with other SOE executives, "spotlight" executives are appointed by the government to listed SOEs while holding positions in the SOEs' shareholding firms. Hence, they can be reflected as representatives of the government in listed SOEs and may raise external attention concerning potential earnings manipulation activities. RPTs can be used by government controlling shareholders to tunnel or prop up earnings of listed SOEs and thus induce earnings manipulation in listed SOEs (Jian & Wong, 2010; Liu & Lu, 2007). Due to having concurrent positions in listed SOEs' shareholding firms, "spotlight" executives

have more capacity to engage in earnings manipulation through RPTs than executives only serve in the listed SOEs. Therefore, serving as the information intermediaries between companies and investors (Yu, 2008), financial analysts are more likely to follow firms with "spotlight" executives. Institutional investors may also pay extra attention to SOEs with "spotlight" executives due to concerns about their investment (Chung et al., 2002; Huang & Zhu, 2015). Evidence shows that in China, both analysts (Chen, Ding, Hou, & Johan, 2016b; Yu, 2008) and institutional investors (Chung et al., 2002) are able to effectively identify earnings manipulation activities. "Spotlight" executives are more sensitive to the information released by financial analysts and institutional investors due to their intensive reputation concern. Hence, "Spotlight" executives in SOEs are expected to be more concerned about their reputations, which are related to both their reputational capital and political capital. Thus they are more cautious in manipulating earnings because they attract more attention from financial analysts and institutional investors who are expected to be more capable to detect earnings manipulation. Based on above discussions, we expect a positive association between "spotlight" executives and earnings quality in China's listed SOEs and propose our hypotheses as follows:

Hypothesis 1 (**H1**): "Spotlight" executives in SOEs have a positive impact on earnings quality.

Hypothesis 2 (**H2**): "Spotlight" executives improve earnings quality in SOEs due to the increased attention of financial analysts and institutional investors.

Different from private firms, in which value maximation is the primary goal, SOEs in China also serve the function of fulfilling political objectives assigned by the government (Li & Yamada, 2015; Peng et al., 2011). These political objectives may sometimes induce earnings management in SOEs (Chen et al., 2020). For example, in provinces with lower GDP growth rates, listed SOEs are likely to be motivated by provincial government officials to increase short-term gains to boost local GDP growth, which induces earnings manipulation activities

(Chen et al., 2020). On the other hand, political objectives may sometimes prevent earnings manipulation in SOEs. For instance, provincial government officials may be reluctant to induce SOEs to manipulate earnings in the last year of their tenure since the cost of exposure may exceed the benefit of boosting local GDP.

Although the government has given operational autonomy to SOEs, it retains the discretion to evaluate SOE top executives in SOEs (Fan, Lau, & Young, 2007a). Hence, SOE executives have strong incentives to fulfil political objectives, even by manipulating earnings, to please their superiors for potential promotion opportunities or to avoid losing their political capital (Chen et al., 2020; Liu & Lu, 2007). When the benefits of accomplishing government assigned tasks outweigh the cost of reputation damage, spotlight" executives could please government bureaucrats by manipulating short-term gains. Therefore, we expect that the positive impact of "spotlight" executives on earnings quality may be subject to political objectives of SOEs. We propose the third hypothesis that:

Hypothesis 3 (H3): The positive impact of "spotlight" executives on earnings quality is shaped by political objectives.

3.3. Data and methodology

3.3.1. Sample description

Data used in this paper is collected from the CSMAR database. We include non-financial SOEs listed on the Shanghai and the Shenzhen Stock Exchanges from 2008 to 2016 in our sample. We delete observations with missing information and winsorize all continuous variables at the top and bottom 2% level to mitigate the concern of extreme variable values[25]. Our final sample consists of 1084 SOEs and 7653 firm-year observations.

[25] We winsorize all continuous variables at the top and bottom 2% level because 1% winsorization does not remove all extreme values of *Disc_RPT*.

3.3.2. Variable construction

We employ two measures to proxy the earnings quality of listed SOEs. Literature indicates that firms use related party transactions for earnings manipulation. Marchini, Mazza, and Medioli (2018) find evidence that listed firms in Italy use related sales to manipulate earnings. Chen, Cheng, and Xiao (2011b) find that in Chinese firms, increased pre-IPO firm performance is attributed to RPTs, and post-IPO long-term underperformance is associated with decreased RPTs. They suggest that RPT is a source of earnings management. Jian and Wong (2010) also show that government controlling shareholders in China tend to use related sales to prop up earnings of listed SOEs. Hence, we use discretionary related-party accounts receivable, denoted as *RPT_DACC*, as the first measure of earnings quality. *RPT_DACC* is calculated based on the method of Jian and Wong (2010). We first regress the change in related-party accounts receivables on the change of related sales based on the cross-sectional Jones (1991) model for each industry-year[26] combination:

$$\frac{\Delta\, Related\ party\ account\ receivabl_{\ i,t}}{Asset_{\ i,t-1}} = \alpha_0 + \alpha_1 \frac{1}{Assets_{i,t-1}} + \alpha_2 \frac{\Delta\, Related\ sales_{i,t}}{Asset_{\ i,t-1}} + \alpha_3 \frac{PPE_{i,t}}{Asset_{\ i,t-1}} + \varepsilon_{i,t} \quad (3.1)$$

where $\Delta Related\text{-}party\ account\ receivable_{i,t}$ is the change in related-party account receivables for firm *i* in year *t*, $Assets_{i,t-1}$ is total assets of firm *i* in year *t-1*, $\Delta Related\ sales_{i,t}$ denotes the change in related sales for firm *i* in year *t*, $PPE_{i,t}$ measures the property, plant, and equipment of firm *i* in year *t*. The residual term of model (3.1) is then retrieved as *RPT_DACC*[27]. A smaller value of *RPT_DACC* suggests less earnings manipulation conducted through RPTs and thus better earnings quality.

[26]Our industry classification is based on the Guidance for Industry Classification of Listed Companies (2006) released by the China Security Regulatory Committee (CSRC).

[27] We also employ total related-party account receivables scaled by total assets as an alternative measure of *RPT_DACC*. The results are similar to those of *RPT_DACC* and are available upon request.

Discretionary accruals are employed as the second measurement of the earnings quality of listed SOEs, denoted as *DACC*. Discretionary accruals are calculated based on the modified Jones (1991) model:

$$\frac{TA_{i,t}}{Asset_{i,t-1}} = \alpha + \beta_1 \frac{1}{Ass_{i,t-1}} + \beta_2 \frac{\Delta Sales_{i,t}}{Assets_{i,t-1}} + \beta_3 \frac{PPE_{i,t}}{Assets_{i,t-1}} + \varepsilon_{i,t} \quad (3.2)$$

where $TA_{i,t}$ refers to total accruals for firm i in year t, which is calculated as $(\Delta CA_{i,t}-\Delta Cash_{i,t})-(\Delta CL_{i,t}-\Delta STD_{i,t})-DEP_{i,t}$. $\Delta CA_{i,t}$ is the change in current assets for firm i in year t, $\Delta Cash_{i,t}$ is the change in cash and cash equivalent for firm i in year t, $\Delta CL_{i,t}$ is the change in current liability for firm i in year t, $\Delta STD_{i,t}$ is the change in short-term debt for firm i in year t and $DEP_{i,t}$ denotes the depreciation and amortization for firm i in year t. $\Delta Sales_{i,t}$ is the change in sales revenue for firm i in year t. We first conduct ordinary least squares (OLS) regressions to estimate model (3.2) for each industry-year combination. The residual term of model (3.2) is then retrieved as *DACC*. A smaller value of *DACC* indicates less earnings manipulation, thus better earnings quality.

We identify "spotlight" executives using a dummy variable, SE, which equals 1 if the chairperson holds concurrent positions in the listed SOE's shareholding firms and 0 otherwise. To ensure that "spotlight" executives are indeed the representatives of the government controlling shareholders, we also use *SE_Largest*, a dummy variable that takes the value of 1 if the chairperson holds concurrent positions in the listed SOE's largest shareholding firms and 0 otherwise, as an alternative measure of *SE* to perform robustness analysis.

We control for various factors that may influence the earnings quality of listed firms based on the previous literature (Aishah Hashim & Devi, 2008; Chen et al., 2020; Francis & Wang, 2008; Gaio, 2010; Jiang et al., 2008; Krishnan & Parsons, 2008; Vafeas, 2005). We use *Gender*, *Age* and *Tenure* to control the characteristics of chairpersons in listed SOEs. *Gender* is a dummy

variable that equals 1 if the chairperson is male and 0 otherwise. *Age* is calculated as the natural logarithm of the chairperson's age. *Tenure* is the natural logarithm of the chairperson's tenure. We then employ *Leverage*, *Size*, *Firm Age*, *ROA, Top1* and *Separation* to control for firm characteristics of the listed SOEs. *Leverage* is the leverage ratio, calculated as total debt over total assets. *Size* is the natural logarithm of total assets. *Firm Age* is the natural logarithm of firm age since establishment. *ROA* is the return on assets, measured as net income over total assets. *Top1* is the percentage shareholding of the largest shareholder. *Separation* is the divergence of voting and cash flow rights of controlling shareholders. *Independence*, *Board Size* and *Duality* are variables used to control corporate governance. *Independence* is the independence of listed SOEs' audit committee, which is measured as the percentage of independent members in a firm's audit and accounting committee. *Board Size* is the natural logarithm of the number of board directors. *Duality* is a dummy variable that equals 1 if the chairperson is also the CEO of the same firm and 0 otherwise. Furthermore, *H/B* proxies the cross-listing of listed SOEs, which is a dummy variable that equals 1 if the listed firm has shares cross-listed in the Hong Kong or any foreign stock markets and 0 otherwise. *Big4* is a dummy variable that equals 1 if the listed firm hires an international Big-4 audit firm and 0 otherwise. *CF_Nega* is a dummy variable that equals 1 if the listed firm generates negative operating cash flow in the observation year and 0 otherwise. *GDP_Incen* identifies the local governments' incentive to induce SOEs' earnings management activities for GDP growth. It is a dummy variable that equals 1 if the province's GDP growth rate is lower than the national average level and 0 otherwise. Definition of all variables is shown in Appendix B.1.

3.3.3. Summary statistics

Descriptive statistics of the variables are summarised in Table 3.1. We report the mean, median, minimum, maximum and standard deviation of variables[28]. The mean of *SE* is 0.682, indicating that 68.2% of the firm-year observations have "spotlight" executives. The mean of *SE_Largest* is 0.593, suggesting that 59.3% of the observations have a chairperson that holds a concurrent position in the listed SOEs' largest shareholding firms. Comparing the means of *SE* and *SE_Largest*, we confirm that the majority of "spotlight" executives' concurrent positions are in the listed SOEs' largest shareholding firm. The distributions of *SE* and *SE_Largest* are reported in Appendix B.2.

We then divide the full sample into two groups to compare SOEs with and without a "spotlight" executive. *t*-test and Wilcoxon rank-sum test are employed to test the differences of mean and median of variables between the two groups. Based on the results presented in Table 3.2, we observe that the mean and median of *RPT_DACC* of SOEs that have a "spotlight" executive are significantly lower than those without such an executive. The result suggests that SOEs with "spotlight" executives tend to have a lower level of discretionary related-party accounts receivables. However, the differences in the mean and median of *DACC* between the two groups are not statistically significant, indicating that the overall earnings quality of SOEs with a "spotlight" executive is not necessarily better than SOEs without a "spotlight" executive. In addition, SOEs with a "spotlight" executive tend to have larger size, better performance, higher level of largest shareholding, and are more likely to have diverged voting rights and cash flow rights, cross-listed in other markets and hire a Big4 audit firm.

(Insert Table 3.1 here)

[28] For *Age*, *Tenure*, *Size*, *Firm Age* and *Board Size*, the original values of these variables are used to compute summary statistics. The natural logged values of these variables are used in the regression analyses.

(Insert Table 3.2 here)

3.4. Empirical results

3.4.1. Baseline regression

To examine the influence of "spotlight" executives on SOEs' earnings quality, the following equation is specified as the baseline model[29]:

$$\begin{aligned} EQ_{i,t} = {} & \alpha_0 + \beta_1 SE_{i,t} + \beta_2 Gender_{i,t} + \beta_3 Age_{i,t} + \beta_4 Tenure_{i,t} + \beta_5 Leverage_{i,t} + \beta_6 Size_{i,t} \\ & + \beta_7 Firm\ Age_{i,t} + \beta_8 ROA_{i,t} + \beta_9 Top1_{i,t} + \beta_{10} Seperation_{i,t} \\ & + \beta_{11} Independence_{i,t} + \beta_{12} Board\ Size_{i,t} + \beta_{13} Duality_{i,t} + \beta_{14} H/B_{i,t} \\ & + \beta_{15} Big4_{i,t} + \beta_{16} CF\_Nega_{i,t} + \beta_{17} GDP\_Incen_{i,t} \\ & + Industry \times year\ fixed\ effects + Firm\ Fixed\ Effects + \varepsilon_{i,t} \end{aligned} \quad (3.3)$$

We control for industry and year fixed effects as well as firm fixed effects and report the baseline regression results in Panel A of Table 3.3. In column (1), *SE* is negatively associated with *RPT_DACC,* and the result is statistically significant at the 1% level. It indicates that the presence of "spotlight" executives reduces discretionary related accounts receivable of listed SOEs and thus has a positive influence on earnings quality. However, in column (2), *SE* is not significantly associated with *DACC*, indicating the presence of "spotlight" executives in SOEs do not necessarily improve the overall earnings quality of SOEs. We argue that the results are due to the high visibility and strict regulator monitoring of RPTs in SOEs. First, since RPTs are strictly monitored and highly visible to the market, earnings manipulation through RPTs are more easily detected and may cause collateral reputational damage to both parties of the

[29] Correlations between the variables are reported in Appendix B.3. We notice that the independent variables used in model (3.3) are not highly correlated with one another. SE is negatively correlated with RPT_DACC. Moreover, the dependent and independent variables are measured in the same period (year *t*) due to the concern of chairperson changes. We also use one-period lag of independent variables (year *t-1*) as a robustness check. The results (reported in Appendix B.5) are similar with those reported in Table 3.3.

transactions. Compared with *RPT_DACC*, *DACC* is relatively less visible and harder to detect. Second, RPTs are closely monitored by government authorities (Cheung et al., 2009a; Cheung et al., 2006; Jian & Wong, 2010). For instance, the *Companies Law*, *Securities Law*, and the rules and regulations of the CSRC and stock exchanges all contain provisions regarding related sales, where manipulated sales prices and accruals serve as the source of earnings manipulation, especially in SOEs (Jian & Wong, 2010; Lo et al., 2010; Munir et al., 2013). Therefore, as chairpersons of listed SOEs, "spotlight" executives are more sensitive to government regulations, thus priorly avoiding discretionary accruals generated from RPTs.

Regarding control variables, we find that *CF_Nega* is positively related to both dependent variables and the results are both statistically significant. The results indicate that listed SOEs are more likely to manipulate earnings if they have negative operating cash flows.

We then replace *SE* with *SE_Largest* in model (3.3) as a robustness check and report the results in Panel B of Table 3.3. Similarly, *SE_Largest* has a negative association with *RPT_DACC,* and the result is statistically significant at the 1% level. Overall, our **H1** is partially supported by the results that "spotlight" executives reduce earnings manipulation through RPTs, possibly due to reputation concerns, although they do not improve the opaque measurement of earnings quality, e.g., DACC.

(Insert Table 3.3 here)

3.4.2. Mechanisms

To estimate **H2**, a 2SLS approach is applied to examine if "spotlight" executives improve SOEs' earnings quality due to the increased external attention caused by the concurrent position. We employ analyst following and institutional investors' site visits as proxies for external attention from analysts and institutional investors. Evidence suggests that firms followed by more analysts tend to engage less in earnings management (Yu, 2008), and site visits help

institutional investors acquire firm information (Jiang & Yuan, 2018). In the first stage, we examine if the presence of "spotlight" executives is associated with more analyst following or more institutional investors' site visits by regressing *Analyst*, *Institutions* and *Visits* separately on *SE* with the inclusion of control variables specified in model (3.3). *Analyst* is the number of analysts following the SOE in a year; *Institutions* is calculated as the natural logarithm of one plus the number of institutions that visit the SOE in a year. *Visits* is measured as the natural logarithm of one plus the number of institutional visits that the SOE hosts in a year. In the second stage analysis, we use the predicted values of *Analyst*, *Institutions* and *Visits*, obtained from the first stage estimations as the independent variables of interest, denoted as *Fit_Analyst*, *Fit_Institutions* and *Fit_Visits*, and re-run the baseline analysis. The results of *Analyst*, *Institutions* and *Visits* are reported in Panels A, B and C of Table 3.4, respectively[30]. The first stage result is reported in the first column in each panel, and the second stage results are reported in columns (2) and (3) in each panel. In column (1) of Panel A, Table 3.4, we find a significant positive association between *SE* and *Analyst*, suggesting that SOEs have "spotlight" executives attract more analyst coverage. The second stage results show that the fitted value of *Analyst* from the first stage analysis is negatively associated with *RPT_DACC* but not *DACC*. Similarly, results in Panel B and Panel C show that *SE* is positively related to *Institutions* and *Visits* and that *Fit_Institutions* and *Fit_Visits* are negatively related to *RPT_DACC* while are not associated with *DACC*. Therefore, our results generally support Hypothesis 2 that reputation concern due to external attention serves as the mechanism through which "spotlight" executives in SOEs reduce discretionary related-party accounts receivables.

(Insert Table 3.4 here)

[30] Due to date availability of institutional investors' site visit, only Shenzhen listed SOEs are included in the analyses in Panel B and Panel C of Table 3.4.

3.4.3. Robustness checks

3.4.3.1. Change-in change-analysis

To mitigate the concern of reverse causality and unobserved factors, we utilize the loss of "spotlight" executives in SOEs and perform a change-in-change analysis. Specifically, we define *Lose_SE* as a dummy variable that equals 1 if a "spotlight" executive is replaced by a "non-spotlight" executive in an SOE and 0 otherwise. Then we regress the change of earnings quality measures on *Lose_SE* and control variables with the inclusion of industry and year fixed effects. Results reported in Table 3.5 reveal that losing a "spotlight" executive in SOEs is positively associated with the change of *RPT_DACC*, which is consistent with the result of the baseline regression.

(Insert Table 3.5 here)

3.4.3.2. Instrumental variable

We also employ the IV-2SLS approach to further mitigate endogeneity concerns. The instrumental variable, denoted as *IV*, captures the importance of the state sector to the provincial economy. It is calculated as the ratio of the total assets of all state-owned industrial enterprises to the total assets of all private industrial enterprises by province and year. The higher IV value indicates the greater importance of the state sector to the provincial economy. In provinces where the state sector is more important, the governments are more likely to appoint their representatives in SOEs to enhance control. However, the importance of the state sector to the provincial economy is unlikely to have a direct influence on firms' earnings manipulation through RPTs since it is a historical institutional setting mainly due to the geographical feature of the region (Feng, Tang, Yang, & Zhang, 2008). Therefore, we expect *IV* to be positively related to *SE*. The IV-2SLS analysis results are reported in Table 3.6. In column (1), *IV* is positively associated with *SE* and the result is statistically significant at the

1% level. The result indicates that SOEs located in provinces where the state sector is more important are more likely to have "spotlight" top executives. The Cragg-Donald Wald F statistic is 78.244, which is larger than 16.38, and the Stock and Yogo (2005) weak ID test critical value is significant at the 10% level, indicating that our instrument variable is not weak. In addition, the Anderson LM statistic of the Anderson canonical correlations test is large and statistically significant at the 1% level, suggesting that the model is not under-identified. The fitted values of the first stage regression are then collected and used the independent variable in the second stage regression. The results of the second-stage regressions are reported in columns (2) and (3) of Table 3.6. *Fit_SE* is negatively associated with *RPT_DACC,* and the result is statistically significant at the 5% level, while it is not significantly associated with *DACC*. The results are consistent with the baseline regression results reported in Table 3.3.

(Insert Table 3.6 here)

3.4.3.3. Propensity score matching

We also perform propensity score matching analysis to mitigate the concern of self-selection bias. The probability of listed SOEs having a "spotlight" top executive is estimated by regressing *SE* on various firm and regional level characteristics based on the logit model below:

$$\begin{aligned} Non\_SE_{i,t} = {} & \alpha_0 + \beta_1 Leverage_{i,t} + \beta_2 Size_{i,t} + \beta_3 Firm\ Age_{i,t} + \beta_4 ROA_{i,t} + \beta_5 Top1_{i,t} \\ & + \beta_6 Seperation_{i,t} + \beta_7 Independence_{i,t} + \beta_8 Board\ Size_{i,t} + \beta_9 Duality_{i,t} \\ & + \beta_{10} H/B_{i,t} + \beta_{11} Big4_{i,t} + \beta_{12} CF\_Nega_{i,t} + \beta_{13} GDP\_Incen_{i,t} \\ & + Industry\ fixed\ effects + Year\ Fixed\ Effects + \varepsilon_{i,t} \end{aligned} \quad (3.4)$$

Non_SE is a dummy variable that equals 1 if the chairperson does not hold a concurrent position in the listed SOE's shareholding firms and 0 otherwise. Results of the logit model analysis are reported in column (1), Panel A of Table 3.7, which show that *Size*, *ROA*, *Top1*,

Separation, *Independence*, *Board Size*, *Duality* and *CF_Nega* are significantly associated with Non_SE. Then, applying the nearest-neighbour propensity score one-to-one approach, each SOE without a "spotlight" top executive is matched with the most similar SOE with a "spotlight" top executive. Pairs that have a propensity score difference larger than 1% are excluded from the matched sample to improve matching accuracy. To ensure matching accuracy, we first re-run the logistic analysis based on model (3.4) using the propensity score-matched sample. The results are presented in column (2), Panel A of Table 3.7, which show that the coefficients of all independent variables are statistically insignificant. Second, we compare the characteristics of SOEs with and without a "spotlight" top executive using *t*-tests. The pre-matched *t*-tests results are reported in Panel B of Table 3.7, while the results of the post-matched t-test are reported in Panel C of Table 3.7. We observe significant differences between SOEs with a "spotlight" top executive and those without becoming insignificant after the propensity score matching. We then re-estimate the baseline regression analysis using the propensity score-matched sample. The results are reported in Panel D of Table 3.7. The results show that *SE* remains negatively associated with RPT_DACC (significant at the 5% level) while insignificantly associated with DACC, consistent with the results in Table 3.3.

(Insert Table 3.7 here)

3.4.4. Political objectives

3.4.4.1.GDP growth incentive of provincial governments

As discussed earlier, political objectives may impact earnings manipulation in SOEs, such as provincial governments' incentive to induce SOE earnings management activities for GDP growth (Chen et al., 2020). The central government in China provides economic autonomy to provincial governments to achieve targeted economic growth and has the discretion to promote top provincial government officials (Blanchard & Shleifer, 2001). This leads to severe

competition among provincial government officials due to scarce promotion opportunities (Blanchard & Shleifer, 2001; Jin, Qian, & Weingast, 2005). Given that provincial GDP growth is an essential factor for provincial government officials' promotion (Chen, Li, & Zhou, 2005; Li & Zhou, 2005), Chen et al. (2020) find that listed firms, especially listed SOEs, in provinces with GDP growth rate lower than the national level are induced by the provincial governments to increase their earnings management activities. Based on **H3**, we expect that in provinces with lower GDP growth rates, the positive influence of "spotlight" executives on earnings quality is weakened by provincial governments' incentive to achieve the GDP target. That is, the GDP incentives of provincial governments will triumph "spotlight" executives' concern of reputation.

To test our expectation, the listed SOE sample is split into two sets of subsamples based on the value of *GDP_Incen*. Provinces that have *GDP_Incen* equals 1 (provincial GDP growth rate is lower than the national average) tend to have stronger incentives to urge local SOEs to manipulate earnings. We then perform *t*-tests in both subsamples to examine whether the mean of province-year adjusted *RPT_DACC* (*Adj_RPT_DACC*) or province-year adjusted *DACC* (*Adj_DACC*) is significantly different in SOEs with and without "spotlight" executives. The results are reported in Table 3.8. For SOEs located in provinces with a GDP growth rate lower than the national level (GDP_Incen equals 1), as suggested by the insignificant differences in the subsample analysis, having a "spotlight" executive does not result in better earnings quality. On the other hand, in provinces with the GDP growth rate higher than the national level, SOEs with a "spotlight" executive have significantly lower *Adj_RPT_DACC* than those without a "spotlight" executive.

(Insert Table 3.8 here)

3.4.4.2.Turnover of government officials

When evaluating the economic performance of provincial government officials, the central government is more interested in the officials' average performance throughout their tenure than their last-year performance (Li & Zhou, 2005). It is reasonable that Local SOEs' earnings management will damage government officials' reputations rather than increase their likelihood of promotion. Therefore, provincial governments may be reluctant to induce SOEs to manipulate earnings in the last year of their tenure since the cost of potential negative exposure exceeds the benefit of boosting local GDP. Consequently, we expect that the positive influence of "spotlight" executives on earnings quality of SOEs is less pronounced in the last year of the provincial government official's tenure as the incentives of local government are aligned with the desire of "spotlight" executives to preserve reputation.

Similarly, we conduct subsample *t*-tests on *Adj_RPT_DACC* and *Adj_DACC* to estimate our expectations. Observations in the last year of local provincial government officials' tenure are included in a subsample, and other observations are included in the other subsample. Results of the subsample *t*-tests are reported in Table 3.9. We see that in the last year of provincial government officials' tenure, *Adj_RPT_DACC* of SOEs with a "spotlight" executive is significantly lower than that of SOEs without a "spotlight" executive. Such difference is not observed from observations in other periods. We find an insignificant difference for *Adj_DACC* between SOEs with and without a "spotlight" executive. Therefore, our subsample *t*-tests results support the notion that the positive influence of "spotlight" executives on SOEs' earnings quality is more significant when political objectives are aligned with "spotlight" executives' reputation concerns.

(Insert Table 3.9 here)

3.4.4.3.Anti-corruption campaign

In December 2012, signalled by the Central Commission for Discipline Inspection (CCDI)'s announcement of the "Eight-point Policy" regulation, President Xi Jinping initiated the anti-corruption campaign in China, which is the most intense anti-corruption campaign in China's history. By the end of 2013, more than 182,000 officials of the government or the CCP party had been inspected or convicted of being corrupted (Pan & Tian, 2017). Since the initiation of the anti-corruption campaign, government officials at all levels, including top executives in SOEs, have been under more strict scrutiny from the CCDI and the public (Zhang, 2018). Under such circumstances, "spotlight" executives may be more cautious regarding earnings manipulation activities due to the higher risk of detection (Lei & Wang, 2019). Hence, we expect that the negative association between "spotlight" executives and earnings manipulation is more pronounced after the initiation of the anti-corruption campaign (after 2013). We split the sample into two subsamples, e.g., observations before 2013 are included in the pre-anti-corruption subsample, and observations after 2013 (including 2013) are included in the post-anti-corruption subsample.

The subsample analysis results are reported in Table 3.10. Before the anti-corruption campaign, *SE* is not statistically associated with neither *RPT_DACC* nor *DACC*. In the post-anti-corruption period, *SE* is negatively associated with *RPT_DACC* while positively associated with *DACC*. The results are statistically significant at the 10% and 5% levels, respectively. The negative association between *SE* and *RPT_DACC* is expected since earnings manipulation through RPTs is highly visible and may expose both the SOEs and government agencies to detection risk and reputational loss. However, the positive association between *SE* and *DACC* suggests that "spotlight" executives conduct more earnings manipulation in a more hidden way in the post-anti-corruption period. We conjecture that this result may be explained by two reasons. First, compared with manipulating earnings through RPTs, other methods of earnings

management are less likely to be detected. Second, as suggested by Li, Xu, Dong, Chan, and Lin (2021) and Cao, Wang, and Zhou (2018b), under the inspection of the CCDI, government officials are motivated to pressurize SOEs within their jurisdictions to hide bad news and generate good news to impress the central inspection team. Hence, "spotlight" executives may have to take risk and boost their performance through opaque earnings management. At the same time, "spotlight" executives will avoid earnings management activities via the highly visible channels, such as RPTs.

(Insert Table 3.10 here)

Overall, our results in Table 3.8, Table 3.9 and Table 3.10 are consistent with our **H3** that the positive influence of "spotlight" executives on earnings quality in SOEs is shaped by political objectives.

3.4.5. Heterogeneity analysis

3.4.5.1. Central SOEs and SOEs in strategic industries

SOEs controlled by the central government are essentially different from those controlled by the local governments (Li & Xia, 2018). Compared with local SOEs, central SOEs are usually large in size and leaders in their industry (Liu, Uchida, & Gao, 2014; Wu et al., 2012). They have access to more resources and more central government support (Sun, Tong, & Tong, 2002; Wang, Wong, & Xia, 2008; Wang, Braam, Reimsbach, & Wang, 2020), thus might be less likely to use earnings manipulation to boost performance. Similarly, SOEs in strategic industries are less likely to boost performance through earnings manipulation because they are more likely to receive government subsidies (Chen, Lee, & Li, 2008; Wu & Cheng, 2011). Therefore, we anticipate that the influence of "spotlight" executives in central SOEs and SOEs in strategic industries on earnings quality may be weaker since these SOEs are less likely to engage in earnings manipulation. To examine our expectations, we divide the SOE sample into

two sets of subsamples. The first set of subsamples differentiates central SOEs from local SOEs. Specifically, central SOEs are ultimately controlled by the central government entities, such as the State Council, the Ministry of Finance and the central State-owned Asset Supervision and Administration Commission; local SOEs are ultimately controlled by the local governments and its various entities, such as the local finance bureaus and local State-owned Asset Management Bureaus. The second set of subsamples separates SOEs into strategic and non-strategic industries. SOEs that belong to the mining, steel, telecommunications, utilities, transportation, oil industries are included in the Strategic industry subsample and other SOEs are included in the Non-strategic industry subsample (Ben-Nasr, Boubakri, & Cosset, 2015; Boubakri, Cosset, & Guedhami, 2009). Results of the subsample analyses are reported in Table 3.11. In panel A, the association- between *SE* and earnings quality is insignificant in the Central SOEs subsample, while *SE* is negatively and significantly associated with *RPT_DACC* in the local SOEs subsample (statistically significant at the 1% level). Similarly, in Panel B, *SE* is not significantly related to earnings quality in SOEs in strategic industries, while it is negatively associated with *RPT_DACC* in SOEs in non-strategic industries (statistically significant at the 1% level). Therefore, the results support our expectation that the positive influence of "spotlight" executives on earnings quality is more pronounced in local SOEs and SOEs in non-strategic industries.

(Insert Table 3.11 here)

3.4.5.2.Firm-level incentives of earnings management

The literature on earnings management suggests that listed firms may have strong incentives to manipulate earnings under certain circumstances. For instance, earnings manipulation is more prevalent in firms that intend to beat certain performance benchmarks (Zang, 2012) or prepare to launch seasoned equity offerings (Cohen & Zarowin, 2010). Under such

circumstances, "spotlight" executives' desire of preserving their reputation and maintain ethical reporting may be weakened. Since the political promotion of SOE executives can be closely associated with the SOEs' profitability (Cao et al., 2018a), SOE executives, including "spotlight" executives, are concerned about beating certain performance benchmarks. Moreover, the CSRC requires listed firms to have an average return on equity (ROE) of no less than 6% in three consecutive years prior to SEOs. Thus, to successfully obtain the rights to issue SEOs and beat performance benchmarks, "spotlight" executives may occasionally rely on earnings management, and their positive impact on earnings quality may be less significant. To test our assumption, we construct two sets of subsamples based on the value of *Suspect* and *SEO* to test the influence of "spotlight" executives on SOEs' earnings quality under these circumstances. *Suspect* is a dummy variable that equals 1 if the firm-year's net income/lagged total assets is positive but smaller than 0.5% and 0 otherwise. When *Suspect* equals 1, it suggests that the SOE has a higher possibility of conducting earnings management to maintain positive earnings (Zhu, Lu, Shan, & Zhang, 2015). *SEO* is a dummy variable that equals 1 if the observation year is one of the three years prior to a seasoned equity offering and 0 otherwise (Chi, Liao, & Chen, 2016). The results of subsample analyses are reported in Table 3.12. In the first two columns of both Panel A and Panel B, when *Suspect* and *SEO* take the value of 1, the coefficients of *SE* are all statistically insignificant, indicating that "spotlight" executives do not improve earnings quality of SOEs if they have strong incentives to beat performance benchmarks. On the other hand, in Panel A, *SE* is negatively associated with *RPT_DACC* if *Suspect* equals 0; and in Panel B, *SE* is negatively associated with *RPT_DACC* if *SEO* equals 0. The results suggest that "spotlight" executives are less effective in reducing discretionary related-party account receivables of SOEs when beating performance benchmarks is their priority.

(Insert Table 3.12 here)

3.4.5.3.External monitoring

High-quality external auditing is proven to be effective in restraining earnings management activities of China's listed firms (Francis & Wang, 2008; Lennox, Wang, & Wu, 2018). Moreover, in China, listed firms with foreign ownership tend to have better earnings quality since foreign shareholders tend to improve corporate governance and information transparency (Ben-Nasr et al., 2015). Therefore, since SOEs with high quality of external monitoring tend to have higher earnings quality, such monitoring effect may substitute the positive influence of "spotlight" executives and lead to an insignificant influence of "spotlight" executives in SOEs with efficient external monitoring. We construct two sets of subsamples to examine our assumption. The first set of subsamples is constructed based on whether a firm hires an international Big4 audit firm, and the second set of subsamples is constructed based on the value of *H/B*. SOEs that have Big4 auditors or have shares cross-listed in the overseas markets are more likely to have stricter external monitoring. The results are shown in Table 3.13. Panel A reports the results of subsample analysis on Big4 auditor. For SOEs that hire Big4 auditors, *SE* is negatively related to *RPT_DACC,* and the result is only statistically significant at the 10% level. For SOEs with non-Big4 auditors, *SE* is also negatively associated with *RPT_DACC,* and the result is much more significant, at the 1% significance level. The results suggest that "spotlight" executives are more effective in improving earnings quality in SOEs with non-Big4 auditors. Panel B reports the results of subsample analysis on cross-listing. In the first two columns, if H/B equals 1, the coefficients of *SE* are both insignificant, while *SE* is significantly and negatively associated with *RPT_DACC* in column (3), suggesting that "spotlight" executives reduce discretionary related-party account receivables of SOEs that do not have foreign shareholders. Therefore, we conclude that the influence "spotlight" executives may serve as a substitute for high-quality external monitoring.

(Insert Table 3.13 here)

3.5. Conclusion

In this paper, we study the impact of executive reputation concern on earnings quality by focusing on "spotlight" executives in listed SOEs. First, we find that "spotlight" executives significantly reduce discretionary related account receivables. However, the impact of "spotlight" executives on firm overall earnings quality is insignificant. The results suggest that "spotlight" executives have a positive impact on SOEs' earnings quality that is affected by RPTs because RPTs are strictly monitored by regulators, and intensive earnings manipulation through RPTs may cause collateral reputational damage to both parties of the transactions. Second, we find that the positive effect of "spotlight" executives on earnings quality can be explained by intensive external attention from financial analysts and institutional investors paid to them. Third, we find evidence that the positive impact of "spotlight" executives on earnings quality is shaped by the government's political objectives. The positive influence of "spotlight" executives on earnings quality is weaker in provinces with stronger GDP distortion incentives. Fourth, "spotlight" executives reduce discretionary related account receivables more significantly after the initiation of the anti-corruption campaign in 2013. Lastly, we examine the heterogeneity of the impact of "spotlight" executives. As a result, the positive influence of "spotlight" executives is more pronounced in SOEs controlled by local governments, SOEs in non-strategic industries, and SOEs that have no intention to beat performance benchmarks or launch seasoned equity offerings (SEOs) and in SOEs with weaker external monitoring.

3.6. Tables

Table 3. 1. Summary statistics

Table 3.1 shows the summary statistics of the study. We report the mean, median, minimum, maximum, and standard deviation of variables. For *Age, Tenure, Size, Firm Age* and *Board Size*, the original values of these variables are used to compute summary statistics. The natural logged values of these variables are used in the regression analyses.

Variables	Observations	Mean	Median	Min	Max	STD
RPT_DACC	7,653	0.008	-0.001	-0.073	0.127	0.045
DACC	7,653	0.005	0.002	-0.261	0.283	0.134
SE	7,653	0.682	1.000	0.000	1.000	0.466
SE_Largest	7,653	0.593	1.000	0.000	1.000	0.491
Gender	7,653	0.97	1.000	0.000	1.000	0.172
Age	7,653	52.372	52.000	43.000	61.000	5.152
Tenure	7,653	6.062	5.000	2.000	14.000	3.463
Leverage	7,653	0.529	0.542	0.173	0.844	0.193
Size (in billions)	7,653	12.119	4.612	0.706	71.582	17.804
Firm Age	7,653	13.63	14.000	3.000	22.000	5.112
ROA	7,653	0.029	0.027	-0.072	0.114	0.043
Top1	7,653	0.39	0.387	0.157	0.651	0.145
Separation	7,653	0.042	0.000	0.000	0.214	0.072
Independence	7,653	0.653	0.667	0.000	1.000	0.183
Board Size	7,653	10.805	10.000	7.000	17.000	2.538
Duality	7,653	0.099	0.000	0.000	1.000	0.299
H/B	7,653	0.054	0.000	0.000	1.000	0.226
Big4	7,653	0.093	0.000	0.000	1.000	0.291
CF_Nega	7,653	0.231	0.000	0.000	1.000	0.421
GDP_Incen	7,653	0.42	0.000	0.000	1.000	0.494

Table 3. 2. Univariate analysis

Table 3.2 reports *t*-test and Wilcoxon rank-sum *z*-test results comparing the differences between the SOEs that have a "spotlight" executive and SOEs that do not have a "spotlight" executive. Definitions of variables are in Appendix B.1. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Variables	Observations if *SE*=1	Mean if *SE*=1 (1)	Median if *SE*=1 (2)	Observations if *SE*=0	Mean if *SE*=0 (3)	Median if *SE*=0 (4)	*t*-test Difference (1)-(3)	Wilcoxon rank-sum *z*-test Difference (2)-(4)
RPT_DACC	5,223	0.007	-0.001	2,430	0.010	0.000	-0.003***	-0.001***
DACC	5,223	0.006	0.002	2,430	0.004	0.001	0.002	0.001
Gender	5,223	0.975	1.000	2,430	0.957	1.000	0.018***	0.000***
Age	5,223	3.953	3.951	2,430	3.954	3.951	-0.001	-0.001
Tenure	5,223	1.656	1.609	2,430	1.602	1.609	0.054***	0.000***
Leverage	5,223	0.530	0.539	2,430	0.527	0.548	0.003	-0.009
Size	5,223	22.477	22.329	2,430	22.251	22.077	0.226***	0.252***
Firm Age	5,223	2.511	2.639	2,430	2.507	2.708	0.004	-0.069**
ROA	5,223	0.031	0.028	2,430	0.026	0.024	0.005***	0.004***
Top1	5,223	0.404	0.408	2,430	0.358	0.340	0.046***	0.068***
Separation	5,223	0.047	0.000	2,430	0.032	0.000	0.015***	0.000***
Independence	5,223	0.658	0.667	2,430	0.643	0.667	0.015***	0.000***
Board Size	5,223	2.345	2.303	2,430	2.373	2.398	-0.028***	-0.095***
Duality	5,223	0.069	0.000	2,430	0.164	0.000	-0.095***	0.000***
H/B	5,223	0.059	0.000	2,430	0.043	0.000	0.016***	0.000***
Big4	5,223	0.102	0.000	2,430	0.073	0.000	0.029***	0.000***
CF_Nega	5,223	0.229	0.000	2,430	0.235	0.000	-0.006	0.000
GDP_Incen	5,223	0.427	0.000	2,430	0.404	0.000	0.023*	0.000*

Table 3. 3. Baseline regression

Table 3.3 presents the results of the baseline regressions. Panel A reports the influence of "spotlight" executives on the SOEs' earnings quality. *RPT_DACC* is discretionary related-party accounts receivable. *DACC* is discretionary accruals. *SE* is a dummy variable that equals 1 if the chairperson holds a concurrent position in the listed SOE's shareholding firms and 0 otherwise. Panel B reports the influence of chairpersons that have a concurrent position in the SOEs' largest shareholding firm/institution on the SOEs' earnings quality. *SE_Largest* is a dummy variable that equals 1 if the chairperson holds a current position in the listed SOE's largest shareholding firm/institution and 0 otherwise. Definitions of variables other are in Appendix B.1. *t*-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Chairpersons that have concurrent positions in the SOEs' shareholding firms

	(1)	(2)
Variables	*RPT_DACC*	*DACC*
SE	-0.005***	0.001
	(-3.729)	(0.134)
Gender	0.004	0.007
	(1.046)	(0.500)
Age	0.010	-0.040*
	(1.498)	(-1.706)
Tenure	-0.001	-0.003
	(-0.917)	(-0.774)
Leverage	0.008	-0.191***
	(1.366)	(-9.785)
Size	0.006***	0.020***
	(4.129)	(3.968)
Firm Age	-0.023***	0.003
	(-5.602)	(0.253)
ROA	0.029*	0.341***
	(1.769)	(6.130)
Top1	-0.003	-0.047
	(-0.313)	(-1.409)
Separation	-0.016	0.076
	(-0.962)	(1.377)
Independence	0.005	0.011
	(1.506)	(1.044)
Board Size	0.007**	0.009
	(2.412)	(0.889)
Duality	-0.003	-0.011
	(-1.237)	(-1.481)
H/B	-0.003	-0.009
	(-0.195)	(-0.204)
Big4	0.004	0.005
	(0.896)	(0.304)
CF_Nega	0.003**	0.046***
	(2.325)	(10.661)
GDP_Incen	0.000	0.003
	(0.077)	(0.647)
Constant	-0.126***	-0.249*
	(-2.959)	(-1.719)
Firm FE	Yes	Yes

Industry×Year	Yes	Yes
Observations	7,653	7,653
Adjusted R^2	0.320	0.123

Panel B. Chairpersons that have concurrent positions in the SOEs' largest shareholding firm/institution

	(1)	(2)
Variables	*RPT_DACC*	*DACC*
SE_Largest	-0.004***	-0.002
	(-3.072)	(-0.487)
Gender	0.004	0.007
	(1.013)	(0.499)
Age	0.011	-0.041*
	(1.620)	(-1.752)
Tenure	-0.001	-0.003
	(-1.006)	(-0.724)
Leverage	0.008	-0.191***
	(1.398)	(-9.793)
Size	0.006***	0.020***
	(3.994)	(3.973)
Firm Age	-0.023***	0.004
	(-5.607)	(0.262)
ROA	0.030*	0.342***
	(1.821)	(6.144)
Top1	-0.002	-0.046
	(-0.202)	(-1.366)
Separation	-0.017	0.076
	(-1.029)	(1.388)
Independence	0.005	0.011
	(1.456)	(1.045)
Board Size	0.007**	0.008
	(2.539)	(0.831)
Duality	-0.002	-0.012
	(-1.108)	(-1.560)
H/B	-0.003	-0.009
	(-0.263)	(-0.211)
Big4	0.004	0.005
	(0.889)	(0.301)
CF_Nega	0.003**	0.046***
	(2.343)	(10.669)
GDP_Incen	0.000	0.003
	(0.079)	(0.654)
Constant	-0.127***	-0.243*
	(-2.972)	(-1.681)
Firm FE	Yes	Yes
Industry×Year	Yes	Yes
Observations	7,653	7,653
Adjusted R^2	0.320	0.123

Table 3. 4. Mechanisms

Table 3.4 presents the results of the 2SLS mechanism analyses. The first stage analysis result is reported in column (1) in each panel. Results of the second stage regressions are shown in columns (2) to (3) in each panel. Panel A reports the results on analyst following. *Analyst* is measured by the number of analysts following the SOE. *RPT_DACC* is discretionary related-party accounts receivable. *DACC* is discretionary accruals. *SE* is a dummy variable that equals 1 if the chairperson holds a concurrent position in the listed SOE's shareholding firms and 0 otherwise. *Fit_Analyst* is the fitted values obtained from column (1) of Panel A. Panel B reports the results on the number of institutions that visited the SOE. *Institutions* is calculated as the natural logarithm of the number of institutions that visited the SOE in a year plus one. *Fit_Institutions* is the fitted values obtained from column (1) of Panel B. Panel C reports the results on the number of institutional visits. *Visits* is measured as the natural logarithm of the number of institutional visits that the SOE received in a year plus one. *Fit_Visits* is the fitted values obtained from column (1) of Panel C. Definitions of other variables are in Appendix B.1. *t*-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Analyst following

Variable	(1) *Analyst*	(2) *RPT_DACC*	(3) *DACC*
SE	0.312*		
	(1.766)		
Fit_Analyst		-0.017***	0.002
		(-3.729)	(0.134)
Gender	0.387	0.011**	0.006
	(0.744)	(2.408)	(0.408)
Age	-0.470	0.002	-0.039
	(-0.543)	(0.328)	(-1.554)
Tenure	0.349**	0.005**	-0.004
	(2.517)	(2.426)	(-0.532)
Leverage	-1.745**	-0.021**	-0.188***
	(-2.395)	(-2.172)	(-5.651)
Size	2.238***	0.043***	0.015
	(12.115)	(4.264)	(0.438)
Firm Age	-3.317***	-0.078***	0.010
	(-6.498)	(-5.086)	(0.196)
ROA	39.911***	0.695***	0.260
	(19.259)	(3.871)	(0.426)
Top1	-1.187	-0.023**	-0.044
	(-0.959)	(-2.082)	(-1.190)
Separation	-1.735	-0.045**	0.079
	(-0.848)	(-2.512)	(1.314)
Independence	-0.563	-0.005	0.012
	(-1.420)	(-1.170)	(0.903)
Board Size	-1.054***	-0.011*	0.011
	(-2.881)	(-1.832)	(0.553)
Duality	-0.311	-0.008***	-0.010
	(-1.109)	(-2.864)	(-1.118)
H/B	-7.829***	-0.133***	0.007
	(-4.783)	(-3.571)	(0.055)
Big4	1.361**	0.027***	0.002
	(2.211)	(3.477)	(0.085)
CF_Nega	0.283*	0.008***	0.046***
	(1.744)	(4.256)	(7.459)
GDP_Incen	-0.097	-0.002	0.003

	(-0.659)	(-1.236)	(0.655)
Constant	-31.753***	-0.656***	-0.184
	(-5.895)	(-4.490)	(-0.371)
Firm FE	Yes	Yes	Yes
Industry×Year	Yes	Yes	Yes
Observations	7,653	7,653	7,653
Adjusted R^2	0.754	0.320	0.123

Panel B. Number of institutions that visited the SOE

	(1)	(2)	(3)
Variables	*Institutions*	*RPT_DACC*	*DACC*
SE	0.092*		
	(1.794)		
Fit_Institutions		-0.065***	0.125
		(-2.811)	(1.630)
Gender	-0.089	0.003	-0.022
	(-0.507)	(0.418)	(-0.900)
Age	-0.395	-0.022	0.010
	(-1.535)	(-1.448)	(0.203)
Tenure	0.001	-0.001	-0.002
	(0.024)	(-0.643)	(-0.358)
Leverage	-0.683***	-0.028	-0.050
	(-3.196)	(-1.493)	(-0.815)
Size	0.535***	0.037***	-0.044
	(10.110)	(2.946)	(-1.048)
Firm Age	-0.235**	-0.038***	0.022
	(-2.064)	(-5.288)	(0.942)
ROA	0.791	0.131***	0.305***
	(1.296)	(4.130)	(2.911)
Top1	-1.021***	-0.081***	0.146
	(-2.825)	(-2.920)	(1.582)
Separation	-0.526	-0.023	0.063
	(-0.907)	(-0.885)	(0.724)
Independence	0.278**	0.023***	-0.004
	(2.364)	(2.782)	(-0.140)
Board Size	-0.159	0.003	0.045**
	(-1.475)	(0.477)	(2.202)
Duality	-0.059	-0.005	0.007
	(-0.721)	(-1.306)	(0.599)
H/B	-0.496	-0.020	0.024
	(-1.460)	(-1.081)	(0.405)
Big4	-0.049	-0.005	0.019
	(-0.247)	(-0.618)	(0.699)
CF_Nega	0.018	0.003	0.039***
	(0.365)	(1.520)	(5.703)
GDP_Incen	-0.204***	-0.013**	0.024
	(-4.958)	(-2.518)	(1.426)
Constant	-7.369***	-0.530***	0.563
	(-4.745)	(-2.968)	(0.953)
Firm FE	Yes	Yes	Yes
Industry×Year	Yes	Yes	Yes
Observations	3,469	3,469	3,469
Adjusted R^2	0.607	0.290	0.112

Panel C. Number of institutional visits

Variables	(1) *Visits*	(2) *RPT_DACC*	(3) *DACC*
SE	0.070**		
	(2.215)		
Fit_Visits		-0.086***	0.166
		(-2.811)	(1.630)
Gender	-0.038	0.006	-0.027
	(-0.350)	(0.776)	(-1.120)
Age	-0.218	-0.015	-0.003
	(-1.384)	(-1.104)	(-0.074)
Tenure	0.018	0.000	-0.005
	(0.716)	(0.208)	(-0.795)
Leverage	-0.393***	-0.017	-0.071
	(-2.994)	(-1.109)	(-1.395)
Size	0.274***	0.026***	-0.022
	(8.426)	(2.979)	(-0.769)
Firm Age	-0.084	-0.030***	0.007
	(-1.197)	(-5.553)	(0.377)
ROA	0.301	0.105***	0.354***
	(0.804)	(3.855)	(3.931)
Top1	-0.466**	-0.055***	0.095
	(-2.104)	(-2.665)	(1.394)
Separation	-0.166	-0.003	0.025
	(-0.467)	(-0.139)	(0.309)
Independence	0.118	0.015**	0.012
	(1.629)	(2.410)	(0.565)
Board Size	-0.093	0.005	0.040**
	(-1.399)	(0.954)	(2.171)
Duality	-0.084*	-0.008*	0.014
	(-1.677)	(-1.871)	(0.950)
H/B	-0.418**	-0.023	0.031
	(-2.004)	(-1.226)	(0.499)
Big4	-0.025	-0.004	0.017
	(-0.203)	(-0.492)	(0.628)
CF_Nega	0.001	0.002	0.042***
	(0.040)	(1.021)	(6.094)
GDP_Incen	-0.141***	-0.012**	0.022
	(-5.608)	(-2.479)	(1.400)
Constant	-3.698***	-0.367***	0.251
	(-3.882)	(-2.907)	(0.600)
Firm FE	Yes	Yes	Yes
Industry×Year	Yes	Yes	Yes
Observations	3,469	3,469	3,469
Adjusted R^2	0.591	0.290	0.112

Table 3. 5. Change in change analysis

Table 3.5 presents the results of the change-in-change analysis. Δ denotes the change of variables. *RPT_DACC* is discretionary related-party accounts receivable. *DACC* is discretionary accruals. *Lose_SE* is defined as a dummy variable that equals 1 if a "spotlight" executives is replaced by a "non-spotlight" chairman. Definitions of other variables are in Appendix B.1. *t*-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Variables	(1) *ΔRPT_DACC*	(2) *ΔDACC*
Lose_SE	0.006*	0.001
	(1.944)	(0.154)
Gender	0.001	0.002
	(0.269)	(0.229)
Age	-0.005	-0.021
	(-1.097)	(-1.426)
Tenure	0.001	-0.002
	(1.526)	(-0.682)
Leverage	-0.003	0.015
	(-1.113)	(1.446)
Size	0.001***	0.001
	(2.721)	(0.613)
Firm Age	0.002*	0.003
	(1.950)	(0.871)
ROA	0.003	0.530***
	(0.170)	(8.568)
Top1	0.001	-0.014
	(0.534)	(-1.602)
Separation	0.004	0.013
	(0.849)	(0.788)
Independence	0.005	0.009
	(1.620)	(0.952)
Board Size	0.007**	0.022**
	(2.438)	(2.513)
Duality	-0.002	-0.010*
	(-1.018)	(-1.877)
H/B	-0.002	-0.006
	(-1.342)	(-1.126)
Big4	0.000	-0.006
	(0.275)	(-1.266)
CF_Nega	0.006***	0.041***
	(3.158)	(7.337)
GDP_Incen	-0.000	0.001
	(-0.116)	(0.205)
Constant	-0.061***	-0.066
	(-3.350)	(-1.050)
Industry FE	Yes	Yes
Year FE	Yes	Yes
Observations	6,569	6,569
Adjusted R^2	0.115	0.043

Table 3. 6. Instrumental variable

Table 3.6 reports the results of the IV-2SLS analysis. The first stage result is presented in column (1). *SE* is a dummy variable that equals 1 if the chairperson holds a concurrent position in the listed SOE's shareholding firms and 0 otherwise. *IV* is the ratio of the total assets of all state-owned industrial enterprises to the total assets of all private industrial enterprises by province and year. The second stage analysis results are reported in columns (2) and (3). *RPT_DACC* is discretionary related-party accounts receivable. *DACC* is discretionary accruals. *Fit_SE* is the fitted values obtained from the first stage regression. Definitions of other variables are in Appendix B.1. *t*-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	First-stage	Second-stage	
	(1)	(2)	(3)
Variables	*SE*	*DACC_RPT*	*DACC*
IV	0.009***		
	(8.846)		
Fit_SE		-0.020**	-0.041
		(-2.043)	(-1.252)
Gender	0.105***	-0.004	0.013
	(3.483)	(-1.350)	(1.375)
Age	-0.195***	0.011**	-0.036**
	(-3.855)	(2.223)	(-2.289)
Tenure	0.053***	-0.002*	-0.004
	(5.584)	(-1.698)	(-1.259)
Leverage	0.032	0.005*	-0.059***
	(0.923)	(1.788)	(-5.799)
Size	0.030***	0.001	0.013***
	(5.321)	(1.162)	(6.712)
Firm Age	0.037***	0.001	-0.004
	(3.313)	(0.832)	(-1.264)
ROA	0.408***	0.084***	0.138***
	(2.799)	(6.299)	(3.136)
Top1	0.335***	-0.006	-0.026
	(8.539)	(-1.251)	(-1.566)
Separation	0.536***	-0.012	0.057**
	(7.226)	(-1.461)	(2.099)
Independence	0.077***	-0.002	0.025***
	(2.669)	(-0.849)	(2.893)
Board Size	-0.143***	0.007***	0.001
	(-5.910)	(2.776)	(0.123)
Duality	-0.220***	0.005*	-0.018**
	(-12.670)	(1.679)	(-2.065)
H/B	0.018	-0.003	0.001
	(0.651)	(-1.322)	(0.071)
Big4	-0.038*	-0.000	-0.015**
	(-1.766)	(-0.255)	(-2.406)
CF_Nega	0.019	0.006***	0.033***
	(1.460)	(4.819)	(8.510)
GDP_Incen	0.005	0.000	0.000
	(0.499)	(0.106)	(0.063)
Constant	0.589***	0.019	-0.195***
	(2.604)	(0.940)	(-2.859)
Cragg-Donald Wald F statistics	78.244		

(for Weak identification test)			
Anderson LM statistic	79.130***		
(for Underidentification test)			
Firm FE	No	No	No
Industry×Year	Yes	Yes	Yes
Observations	7,653	7,653	7,653

Table 3. 7. Propensity score matching analysis

Table 3.7 presents the results of the propensity score matching analysis. Panel A reports the parameter estimates from the logit model used to estimate propensity scores. *SE* is the dependent variable, which is a dummy variable that equals 1 if the chairperson holds a concurrent position in the listed SOE's shareholding firms and 0 otherwise. Panels B and C present the univariate comparisons of characteristics between SOEs with a "spotlight" executive and those without a "spotlight" executive and the corresponding *t*-values in both pre- and post-match samples. Panel D reports the results of re-estimating the regression in Table 3.3 using the propensity score-matched sample. *RPT_DACC* is discretionary related-party accounts receivable. *DACC* is discretionary accruals. Definitions of other variables are in Appendix B.1. *z*-statistics (*t*-statistics) are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Pre-matched propensity score regression and post-matched regression

	(1)	(2)
Variables	*Non_SE*	*Non_SE*
Leverage	-0.218	-0.001
	(-0.716)	(-0.003)
Size	-0.153***	-0.047
	(-2.860)	(-0.785)
Firm Age	-0.094	0.082
	(-0.943)	(0.676)
ROA	-2.097**	0.687
	(-2.080)	(0.546)
Top1	-2.405***	0.306
	(-6.323)	(0.681)
Separation	-1.269*	-0.227
	(-1.804)	(-0.286)
Independence	-0.391**	0.299
	(-2.026)	(1.146)
Board Size	0.717***	0.166
	(3.880)	(0.730)
Duality	0.781***	0.056
	(5.410)	(0.206)
H/B	0.041	-0.088
	(0.158)	(-0.295)
Big4	0.215	0.127
	(1.075)	(0.566)
CF_Nega	-0.123*	0.103
	(-1.649)	(1.084)
GDP_Incen	-0.015	-0.015
	(-0.200)	(-0.169)
Constant	3.570***	1.416
	(3.028)	(0.856)
Industry FE	Yes	Yes
Year FE	Yes	Yes
Observations	7,653	4,362
Pseudo R^2	0.060	0.004

Panel B. Pre-matched differences

Variables	No. of observations if *SE*=1	Mean if *SE*=1	No. of observations if *SE*=0	Mean if *SE*=0	Mean Difference
Leverage	5223	0.530	2430	0.527	0.003
Size	5223	22.477	2430	22.251	0.226***
Firm Age	5223	2.511	2430	2.507	0.004
ROA	5223	0.031	2430	0.026	0.005***
Top1	5223	0.404	2430	0.358	0.046***
Separation	5223	0.047	2430	0.032	0.015***
Independence	5223	0.658	2430	0.643	0.015***
Board Size	5223	2.345	2430	2.373	-0.028***
Duality	5223	0.069	2430	0.164	-0.095***
H/B	5223	0.059	2430	0.043	0.016***
Big4	5223	0.102	2430	0.073	0.029***
CF_Nega	5223	0.229	2430	0.235	-0.006
GDP_Incen	5223	0.427	2430	0.404	0.023*

Panel C. Post-matched differences

Variables	No. of observations if *SE*=1	Mean if *SE*=1	No. of observations if *SE*=0	Mean if *SE*=0	Mean Difference
Leverage	2182	0.529	2182	0.525	0.004
Size	2182	22.313	2182	22.287	0.026
Firm Age	2182	2.510	2182	2.512	-0.002
ROA	2182	0.027	2182	0.027	0.000
Top1	2182	0.366	2182	0.367	-0.001
Separation	2182	0.033	2182	0.034	-0.001
Independence	2182	0.648	2182	0.646	0.002
Board Size	2182	2.364	2182	2.368	-0.004
Duality	2182	0.096	2182	0.092	0.004
H/B	2182	0.050	2182	0.047	0.003
Big4	2182	0.075	2182	0.080	-0.005
CF_Nega	2182	0.224	2182	0.236	-0.012
GDP_Incen	2182	0.398	2182	0.407	-0.009

Panel D. Matched sample regression analysis

Variables	(1) *RPT_DACC*	(2) *DACC*
SE	-0.004**	-0.000
	(-2.143)	(-0.070)
Gender	0.003	0.014
	(0.461)	(0.717)
Age	0.012	-0.077**
	(1.287)	(-2.314)
Tenure	-0.000	0.004
	(-0.304)	(0.669)
Leverage	0.017**	-0.173***
	(1.986)	(-6.054)
Size	0.010***	0.016**
	(4.670)	(2.265)
Firm Age	-0.024***	-0.003
	(-4.254)	(-0.160)
ROA	0.008	0.378***
	(0.323)	(4.701)
Top1	-0.005	-0.043
	(-0.366)	(-0.856)
Separation	-0.027	0.089
	(-1.098)	(1.059)
Independence	0.005	0.008
	(1.115)	(0.542)
Board Size	0.007*	-0.009
	(1.805)	(-0.623)
Duality	-0.005	0.002
	(-1.319)	(0.197)
H/B	-0.004	0.011
	(-0.261)	(0.199)
Big4	-0.001	-0.004
	(-0.081)	(-0.161)
CF_Nega	0.005**	0.048***
	(2.442)	(7.588)
GDP_Incen	-0.001	0.005
	(-0.626)	(0.843)
Constant	-0.219***	0.006
	(-3.604)	(0.029)
Firm FE	Yes	Yes
Industry×Year	Yes	Yes
Observations	4,364	4,364
Adjusted R^2	0.313	0.086

Table 3. 8. Government GDP incentive

Table 3.8 shows the *t*-tests results of the influence of "spotlight" executives on earnings quality in provinces with different GDP growth incentives. *SE* is a dummy variable that equals 1 if the chairperson holds a concurrent position in the listed SOE's shareholding firms and 0 otherwise. *Adj_RPT_DACC* is the province-year adjusted discretionary related-party accounts receivable. *Adj_DACC* is the province-year adjusted discretionary accruals. Definitions of other variables are in Appendix B.1. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	GDP_Incen=1				
	(1) Observations	(2) Mean if *SE*=1	(3) Observations	(4) Mean if *SE*=0	(5) Difference (2)-(4)
Adj_RPT_DACC	2,231	0.026	982	0.036	-0.010
Adj_DACC	2,231	0.035	982	0.063	-0.028
	GDP_Incen=0				
	(1) Observations	(2) Mean if *SE*=1	(3) Observations	(4) Mean if *SE*=0	(5) Difference (2)-(4)
Adj_RPT_DACC	2,992	0.012	1,448	0.031	-0.019***
Adj_DACC	2,992	0.021	1,448	-0.001	0.022

Table 3. 9. Government official turnovers

Table 3.9 reports the *t*-tests results of the influence of "spotlight" executives on earnings quality in either the last year of the provincial government official's tenure or in other periods. *SE* is a dummy variable that equals 1 if the chairperson holds a concurrent position in the listed SOE's shareholding firms and 0 otherwise. *Adj_RPT_DACC* is the province-year adjusted discretionary related-party accounts receivable. *Adj_DACC* is the province-year adjusted discretionary accruals. Definitions of variables are in Appendix B.1. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Last year of government official tenure					
	(1)	(2)	(3)	(4)	(5)
	Observations	Mean if *SE*=1	Observations	Mean if *SE*=0	Difference (2)-(4)
Ajd_RPT_DACC	1,457	0.018	638	0.039	-0.021***
Ajd_DACC	1,457	0.026	638	0.035	-0.009
Other periods					
	(1)	(2)	(3)	(4)	(5)
	Observations	Mean if *SE*=1	Observations	Mean if *SE*=0	Difference (2)-(4)
Ajd_RPT_DACC	3,044	0.019	1,357	0.026	-0.007
Ajd_DACC	3,044	0.037	1,357	0.022	0.015

Table 3. 10. Anti-corruption campaign

Table 3.10 presents the subperiod analysis of the effects of the anti-corruption campaign. *RPT_DACC* is discretionary related-party accounts receivable. *DACC* is discretionary accruals. *SE* is a dummy variable that equals 1 if the chairperson holds a concurrent position in the listed SOE's shareholding firms and 0 otherwise. Definitions of other variables are in Appendix B.1. *t*-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Pre-anti-corruption		Post-anti-corruption	
	(1)	(2)	(3)	(4)
Variables	*RPT_DACC*	*DACC*	*RPT_DACC*	*DACC*
SE	-0.003	-0.006	-0.005*	0.015**
	(-1.528)	(-0.673)	(-1.850)	(2.194)
Constant	-0.093	-0.389	-0.102	-0.218
	(-1.300)	(-1.317)	(-1.105)	(-0.861)
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Industry×Year	Yes	Yes	Yes	Yes
Observations	4,092	4,064	3,609	3,589
Adjusted R^2	0.390	0.083	0.244	0.188

Table 3. 11. Heterogeneity analysis: central SOEs and strategic industries

Table 3.11 reports the heterogeneity analysis on central ownership and rights divergence using subsample analysis. Panel A shows the results of subsample analysis on central and local SOEs. *RPT_DACC* is discretionary related-party accounts receivable. *DACC* is discretionary accruals. *SE* is a dummy variable that equals 1 if the chairperson holds a concurrent position in the listed SOE's shareholding firms and 0 otherwise. *Central* is a dummy variable that equals 1 if the listed firm is ultimately owned by the central government and 0 otherwise. Panel B reports the results of subsample analysis on SOEs in strategic and non-strategic industries. Definitions of variables are in Appendix B.1. *t*-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Central vs local SOEs

	Central=1		*Central*=0	
	(1)	(2)	(3)	(4)
Variables	*RPT_DACC*	*DACC*	*RPT_DACC*	*DACC*
SE	-0.003	0.004	-0.006***	0.000
	(-1.246)	(0.442)	(-3.411)	(0.021)
Constant	0.026	-0.339	-0.168***	-0.232
	(0.287)	(-1.172)	(-3.366)	(-1.336)
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Industry×Year	Yes	Yes	Yes	Yes
Observations	2,182	2,182	5,471	5,471
Adjusted R^2	0.303	0.139	0.330	0.121

Panel B. Strategic industry vs non-strategic industry

	Strategic industry		Non-strategic industry	
	(1)	(2)	(3)	(4)
Variables	*RPT_DACC*	*DACC*	*RPT_DACC*	*DACC*
SE	-0.003	-0.006	-0.006***	0.002
	(-1.028)	(-0.737)	(-3.491)	(0.410)
Constant	-0.096	-0.379	-0.138***	-0.223
	(-1.188)	(-1.350)	(-2.768)	(-1.320)
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Industry×Year	Yes	Yes	Yes	Yes
Observations	1,721	1,721	5,932	5,932
Adjusted R^2	0.070	0.047	0.350	0.136

Table 3. 12. Heterogeneity analysis, firm-level incentives

Table 3.12 reports the heterogeneity analysis on firm-level incentives of earnings management using subsample analysis. Panel A presents the subsample analysis on firm performance. *RPT_DACC* is discretionary related-party accounts receivable. *DACC* is discretionary accruals. *SE* is a dummy variable that equals 1 if the chairperson holds a concurrent position in the listed SOE's shareholding firms and 0 otherwise. *Suspect* is a dummy variable that equals 1 if net income/lagged total assets is positive but smaller than 0.5% and 0 otherwise. Panel B presents the subsample analysis on seasoned equity offerings. *SEO* is a dummy variable that equals 1 if the observation year is one of the three years prior to a seasoned equity offering and 0 otherwise. Definitions of other variables are in Appendix B.1. *t*-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Suspect

	Suspect=1		*Suspect*=0	
	(1)	(2)	(3)	(4)
Variables	*RPT_DACC*	*DACC*	*RPT_DACC*	*DACC*
SE	-0.013	-0.045	-0.005***	0.000
	(-1.096)	(-1.409)	(-3.239)	(-0.083)
Constant	-0.538	0.296	-0.104**	-0.229
	(-0.996)	(0.211)	(-2.372)	(-1.510)
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Industry×Year	Yes	Yes	Yes	Yes
Observations	516	516	7,137	7,137
Adjusted R^2	0.066	0.175	0.324	0.117

Panel B. SEO

	SEO=1		*SEO*=0	
	(1)	(2)	(3)	(4)
Variables	*RPT_DACC*	*DACC*	*RPT_DACC*	*DACC*
SE	-0.004	0.016	-0.006***	-0.003
	(-1.124)	(1.389)	(-3.218)	(-0.516)
Constant	-0.101	-0.393	-0.141**	-0.319*
	(-0.934)	(-1.053)	(-2.485)	(-1.687)
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Industry×Year	Yes	Yes	Yes	Yes
Observations	1,971	1,971	5,682	5,682
Adjusted R^2	0.244	0.115	0.322	0.124

Table 3. 13. Heterogeneity analysis, external monitoring

Table 3.13 reports the heterogeneity analysis on external monitoring using subsample analysis. Panel A presents the subsample analysis on Big-4 auditors. *RPT_DACC* is discretionary related-party accounts receivable. *DACC* is discretionary accruals. *SE* is a dummy variable that equals 1 if the chairperson holds a concurrent position in the listed SOE's shareholding firms and 0 otherwise. *Big4* is a dummy variable that equals 1 if the listed firm hires Big-4 auditors and 0 otherwise. Panel B presents the subsample analysis on cross-listing. *H/B* is a dummy variable that equals 1 if the listed firm has shares listed in Hong Kong or any foreign stock markets and 0 otherwise. Definitions of other variables are in Appendix B.1. *t*-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Big4 auditor

	Big4=1		*Big4*=0	
	(1)	(2)	(3)	(4)
Variables	*RPT_DACC*	*DACC*	*RPT_DACC*	*DACC*
SE	-0.008*	-0.005	-0.005***	0.001
	(-1.771)	(-0.373)	(-3.677)	(0.193)
Constant	-0.048	0.504	-0.125***	-0.270*
	(-0.217)	(0.744)	(-2.826)	(-1.788)
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Industry×Year	Yes	Yes	Yes	Yes
Observations	713	713	6,940	6,940
Adjusted R^2	0.535	0.370	0.308	0.112

Panel B. H/B

	H/B=1		*H/B*=0	
	(1)	(2)	(3)	(4)
Variables	*RPT_DACC*	*DACC*	*RPT_DACC*	*DACC*
SE	-0.007	0.020	-0.005***	0.000
	(-1.320)	(1.155)	(-3.647)	(0.006)
Constant	-0.415	0.674	-0.127***	-0.261*
	(-1.487)	(0.782)	(-2.914)	(-1.756)
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Industry×Year	Yes	Yes	Yes	Yes
Observations	412	412	7,241	7,241
Adjusted R^2	0.523	0.336	0.314	0.117

CHAPTER FOUR ESSAY THREE

Managerial efficiency and stock price crash risk: Evidence from China

Abstract:

We examine whether and, if so, how managerial efficiency influences stock price crash risk in Chinese listed firms. We find that superior managerial efficiency reduces stock price crash risk. Our mechanism analysis shows the beneficial effect is achieved through improved information transparency and reduced excessive risk-taking due to superior managerial efficiency. Furthermore, we show that the managerial efficiency effect is more pronounced in state-owned enterprises (SOEs), firms located in less developed regions, firms with less analyst coverage and firms that pay higher CEO compensation. Our results shed light on the influence of managerial efficiency in emerging markets, such as China.

Key words: managerial efficiency, crash risk, information transparency, excessive risk-taking

JEL code: G32, M12

4.1. Introduction

Firm managers may withhold bad news from investors (Ball, 2009; Graham, Harvey, & Rajgopal, 2005). However, once bad news is accumulated to a tipping point, managers have to release the bad news all at once, causing the stock price to crash (Hutton et al., 2009; Jin & Myers, 2006; Kim, Li, & Zhang, 2011b). Motivated by the notion that firm behaviours and outcomes are intensively influenced by managers' idiosyncratic characteristics (Bertrand & Schoar, 2003; Hambrick & Mason, 1984), a growing number of studies on stock price crash risk have shifted their focus from firm-level characteristics to manager personal traits. For instance, recent studies document that managers' age (Andreou, Louca, & Petrou, 2016a), gender (Li & Zeng, 2019), executive power (Al Mamun, Balachandran, & Duong, 2020), cultural background (Fu & Zhang, 2019) and overconfidence (Kim, Wang, & Zhang, 2016) are significantly associated with stock price crash risk. This paper investigates whether and how managerial efficiency, one of the most important characteristics of firm managers, influences stock price crash risk in Chinese listed firms.

Firm managers with superior managerial efficiency tend to have a greater reputation due to their capability to generate higher revenue through efficient utilization of resources (Demerjian, Lev, & McVay, 2012). They have strong incentives to preserve their reputation (Demerjian et al., 2017; Doukas & Zhang, 2020; Haider et al., 2021) since a superior reputation can help efficient managers to earn greater lifelong compensation (Demerjian et al., 2012; Fee & Hadlock, 2003). According to the efficient contracting theory, reputed managers tend to avoid opportunistic behaviours to maintain their reputation (Francis et al., 2008). Hence, we suspect high-efficiency managers can reduce stock price crash risk due to their reputation concerns.

We further study the mechanisms that explain the impact of managerial efficiency on crash risk, namely information transparency and excessive risk-taking. Poor information

transparency induces managers' bad news hoarding behaviour and thus may result in higher stock price crash risk (Hutton et al., 2009; Jin & Myers, 2006; Kothari, Shu, & Wysocki, 2009). On the other hand, as risky projects introduce more firm-specific risks (Habib & Hasan, 2017; Jia, 2018), excessive risk-taking of managers may accumulate firm bad news and lead to extremely negative tail risk once bad news is eventually released to the public.

We utilize the data of Chinese listed firms to examine the relationship between managerial efficiency and stock price crash risk for two reasons. First, current literature on managerial efficiency heavily focuses on the U.S. market, and little attention is paid to the significance of managerial efficiency in other markets. However, as suggested by Anggraini and Sholihin (2021), it is also of great importance to investigate managerial efficiency in other markets since it may exert different influences on firm behaviours under different institutional settings. For instance, cultural background plays a significant role in explaining managerial decisions (Sarah, Carlson, & Scofield, 2017). In the U.S., where individualism culture is prevalent, evidence suggests that efficient managers tend to be more overconfident, thus increasing stock price crash risk (Cui et al., 2019; Habib & Hasan, 2017). However, China's collectivism culture promotes risk-aversion (Dang et al., 2019; Li et al., 2013) and may amplify efficient managers' reputation concern, which mitigates opportunistic behaviours that may increase stock price crash risk. Second, the state dominance in Chinese stock market (Hubbard & Williams, 2017) and large regional disparity provide an interesting institutional setting and heterogeneity in efficient managers' reputation concern to analyse the influence of managerial efficiency. Specifically, the executive labour market in SOEs and less developed regions are relatively enclosed, which amplifies the reputation concern of efficient managers (Chen et al., 2018a; Cordeiro et al., 2013).

We employ the managerial efficiency ranking developed by Demerjian et al. (2012) to proxy managerial efficiency. The managerial efficiency measure developed by Demerjian et al. (2012) quantifies managers' ability and effectiveness to generate sales given firm resources relative to their industry peers. It is expected that managers with higher managerial efficiency can produce more sales than less efficient managers given a certain set of resources. This measure reflects the aggregated outcome of various observable and unobservable managerial traits, such as managers' past experiences and psychological characteristics (Doukas & Zhang, 2020). It also has a direct impact on stock price crash risk since inefficient use of resources is more likely to lead to corporate failures and bad news, thereby increasing the possibility of stock prick crash. More importantly, it is an ideal proxy of managerial reputation concern since previous measures of manager's reputation (e.g., past performance) also reflect significant aspects of the firm that do not necessarily attribute to the managers (Demerjian et al., 2012). Following Xu, Jiang, Chan, and Yi (2013) and Hutton et al. (2009), we use two measures, namely the negative coefficient of skewness and the down-to-up volatility, to proxy crash risk.

Our results show that there is a negative association between managerial efficiency and stock price crash risk, suggesting that managers with higher managerial efficiency can reduce stock price crash risk. We adopt the instrumental variable (IV) 2-stage least squares (2SLS) approach to address endogeneity and construct alternative measures of managerial efficiency for robustness checks, and the baseline result still holds. We then employ the 2SLS approach to investigate the channels through which managerial efficiency reduces crash risk. We find that higher managerial efficiency is associated with better firm transparency and reporting timeliness. As such, improved information transparency reduces stock price crash risk. We also find that higher managerial efficiency is associated with less overinvestment and industry adjusted performance volatility. The reduced excessive risk-taking also results in lower crash risk. Hence, we conjecture that improved information transparency and reduced excessive risk-

taking are the two channels through which managerial efficiency reduces crash risk. Furthermore, we test the heterogeneity of the effects of managerial efficiency on crash risk. We find that the negative impact of managerial efficiency on crash risk is more pronounced in SOEs. As SOE managers compete in a relatively closed professional labour market with high exiting costs (Chen et al., 2018a), they are less likely to engage in opportunistic activities that induce stock price crashes. The results of heterogeneity analysis also show that the beneficial effect of managerial efficiency is more salient in firms located in less developed regions, firms followed by fewer analysts or firms that pay higher CEO compensation.

Our finding that managerial efficiency can reduce stock price crash risk contradicts the evidence from the U.S. market (Cui et al. (2019); (Habib & Hasan, 2017). Both studies argue that superior managerial efficiency leads to higher overconfidence, which results in higher stock price crash risk. We argue that the differential impact of managerial efficiency in China compared with that in the U.S. is because of two reasons. First, managers in China are from a collectivist culture that emphasizes avoiding uncertainty and harmonization. Thus, managers in Chinese listed firms are discouraged from taking excessive risks due to the cultural enforces compared to managers from an individualistic culture, such as the U.S. (Dang et al., 2019; Li et al., 2013). Second, our evidence shows that the negative influence of managerial efficiency on stock prick crash risk is more salient in SOEs. Unlike firm managers in the U.S., who are in a highly liquid executive labour market, managers of Chinese SOEs compete in a relatively enclosed executive labour market with high exiting costs (Chen et al., 2018a). Hence, they can be more conservative in hoarding bad news.

This paper contributes to the literature in several ways. First, we provide evidence to the literature by documenting a negative association between managerial efficiency and crash risk and suggest that reputation concern restrains efficient managers from hoarding bad news. In

this way, we expand the studies that investigate the influence of managers' personal traits on stock price crash risk, such as age (Andreou et al., 2016a), cultural background (Fu & Zhang, 2019) and overconfidence (Kim et al., 2016). Second, the effect of executive reputation concern is still under debate by scholars. The rent extraction theory states that reputable managers tend to conduct opportunistic activities, such as tax avoidance (Duan et al., 2018) and earnings smoothing (Doukas & Zhang, 2020), to meet high external expectations, as such, to preserve their reputation. The efficient contracting theory suggests that reputable managers tend to avoid opportunistic behaviours that may potentially damage their reputation (Francis et al., 2008). Our result provides further evidence to support the efficient contracting theory of executive reputation concern. Third, we provide mechanisms that explain the negative relationship between managerial efficiency and crash risk. The positive association between managerial efficiency and firm information transparency (Demerjian et al., 2013; García-Meca & García-Sánchez, 2018; Haider et al., 2021; Huang & Sun, 2017), and the negative association between information transparency and crash risk (Chen et al., 2017a; Francis et al., 2016; Hutton et al., 2009) are widely documented by the literature. We link the two streams of literature and provide direct evidence that improved information transparency is a channel through which managerial efficiency reduces crash risk. Last, our results indicate that managerial efficiency may exert different influence on firms under different institutional and cultural settings. By comparing our results with Habib and Hasan (2017) and Cui et al. (2019), our study highlights the importance of cultural enforces and political interference in corporate finance studies, and contributes to the studies of managerial efficiency in emerging markets.

The reminder of the paper is structured as follows. Section 2 reviews the relevant literature and proposes hypotheses; Section 3 introduces the sample and variable construction; Section 4 shows and discusses the empirical results and section 5 concludes.

4.2. Hypothesis development

As one of the most prominent manager characteristics, managerial efficiency has been widely investigated by the literature and is found to have an influence on various firm behaviours, such as firm risk taking (Andreou, Philip, & Robejsek, 2016b; Koijen, 2014; Yung & Chen, 2018), financial reporting quality (García-Meca & García-Sánchez, 2018; Haider et al., 2021; Wang, Chen, Chin, & Zheng, 2017), investment efficiency (Andreou, Karasamani, Louca, & Ehrlich, 2017; Gan, 2019; Habib & Hasan, 2017; Lee, Wang, Chiu, & Tien, 2018), tax avoidance (Koester, Shevlin, & Wangerin, 2017; Park, Ko, Jung, & Lee, 2016), dividend policy (Jiraporn, Leelalai, & Tong, 2016), innovation (Chen, Podolski, & Veeraraghavan, 2015), firm performance (Chen & Lin, 2018; Cox Justin, 2017) and corporate social responsibility (Yuan, Tian, Lu, & Yu, 2019).

More importantly, different from their less efficient counterparties, high-efficiency managers tend to have a greater reputation for their efficient utilization of firm resources to generate revenue (Demerjian et al., 2017; Doukas & Zhang, 2020; Haider et al., 2021). Maintaining a superior reputation can help efficient managers to obtain greater compensations throughout their career (Demerjian et al., 2012; Fee & Hadlock, 2003). As suggested by the efficient contracting theory (Francis et al., 2008), managers concerned about reputational losses are more likely to avoid opportunistic behaviours to preserve their reputational capital. Consistent with this theory, Haider et al. (2021) show that efficient managers tend to adopt conservative reporting approaches to avoid reputational losses.

The literature of stock price crash risk generally attributes stock price crashes to managers' bad news hoarding behaviours. Firm managers tend to hide bad news from the public to pursue personal benefits or protect their jobs (Ball, 2009; Graham et al., 2005). Once bad news is accumulated to a tipping point, managers may have to release the bad news all at once, causing

the stock price to crash (Hutton et al., 2009; Jin & Myers, 2006; Kim et al., 2011b). High stock price crash risk is not only harmful to investors' wealth but also causes significant damage to the trustworthiness of firms and the reputation of managers (Jiang et al., 2020). Therefore, reputation concerns may discipline managers to avoid bad news boarding and thus result in a lower stock price crash risk. Jiang et al. (2020) find evidence that compared with family firms with a non-family member chairman, family firms with a family member chairman are less likely to hide bad news from the public and tend to have lower stock price crash risk since family member chairpersons are more sensitive to reputation concerns. Hence, we expect that efficient managers, who are more sensitive to reputational losses, may be less likely to hoard bad news and thus have a lower stock price crash risk. Based on the above discussions, we propose our first hypothesis as follows:

Hypothesis 1 (H1): Managerial efficiency reduces stock price crash risk.

The literature shows that poor information transparency facilitates bad news hoarding of managers (Habib, Hasan, & Jiang, 2018; Ma, Wang, Wu, & Zhang, 2020). In opaque firms, it is easier for managers to conceal bad news without perception of investors for a longer period due to information asymmetry, and stock prices are more likely to crash once the bad news is released collectively (Jia, 2018; Jin & Myers, 2006; Kim et al., 2011b). Using accumulated accruals as a proxy of financial reporting opacity, Hutton et al. (2009) find that firms with more opaque financial reporting tend to have higher crash risk. Francis et al. (2016) define opaque firms as those that conduct more real earnings management and find that more real earnings management leads to greater crash risk. Chen et al. (2017a) also find that a greater level of earnings smoothing is associated with higher stock price crash risk.

Managerial efficiency is suggested to have a positive impact on firm information transparency. This argument is empirically supported by a number of studies. For instance, Huang and Sun

(2017) provide evidence that high-efficiency managers are reluctant to engage in real earnings management since they are more aware of the value-destroying nature of real earnings management. Baik, Brockman, Farber, and Lee (2018) and Petkevich and Prevost (2018) find that managerial efficiency is positively associated with firm information environment and quality. Hasan (2020) find that CEOs with better efficiency tend to improve the readability of firm reports. Additionally, reputation concern also motivates efficient managers to improve firm information transparency. For example, García-Meca and García-Sánchez (2018) document a positive association between managerial efficiency and firm earnings quality. They argue that better CEOs tend to report their earnings more accurately and recognize their losses more timely build a better relationship with shareholders and stakeholders. Haider et al. (2021) find that managerial efficiency is positively associated with accounting conservatism as efficient managers tend to avoid agency conflicts and build a reputation of conservative reporting that is favoured by investors.

Hence, based on the above discussions, we predict that managerial efficiency may positively influence listed firms' information transparency, which in turn reduces stock price crash risk. Our hypotheses are proposed below:

Hypothesis 2 (H2): Improved information transparency is a channel through which managerial efficiency reduces crash risk.

The outcomes of high-risk projects are difficult to predict, and the downside risk of which may lead to corporate failures (Zwiebel, 1995). Hence, excessive risk-taking of managers may result in an accelerated accumulation of bad news, which eventually leads to stock price crashes once bad news is released to the public (Jia, 2018). In line with this argument, Jia (2018) find that compared to firms that engage in innovative activities that merely refine or improve existing technologies, companies that engage in more ground-breaking innovations tend to have a

higher stock price crash risk since ground-breaking innovations are less likely to succeed and may incur a larger number of innovation failures. Andreou et al. (2016a) suggest that younger managers are associated with higher stock price crash risk since they are willing to take more risks to achieve higher compensation early in their career. Kim, Li, and Zhang (2011a) find evidence that the sensitivity of the CFO' option portfolio value to the stock price is positively associated with the firm's crash risk since option holdings induce the myopic behaviour of managers. He (2015) argues that CEO insider debt reduces crash risk since CEO insider debt aligns the interests of managers and debt holders and prevents managers from making risky decisions.

According to the efficient contracting theory (Francis et al., 2008), managers concerned about reputational losses tend to be more conservative in terms of excessive risk-taking to preserve their reputational capital. Consistently, Hirshleifer and Thakor (1992) investigate a model of managers' reputation building and investment policy and find that reputation building leads to relatively conservative investment choices. Haider et al. (2021) suggest that efficient managers tend to adopt conservative and timely reporting approaches to build a better relationship with investors and a reputation of conservative reporting. Wang, Zhou, and Chang (2013) provide evidence from the Chinese market that well-educated managers are associated with lower earnings volatility and efficient managers are generally well-educated (Nuthall, 2001; Nuthall, 2009). Therefore, we conjecture that due to reputation concerns, efficient managers may be less likely to undertake excessive risks, which in turn leads to lower stock price crash risk. Based on the above discussions, we propose our third hypothesis below:

Hypothesis 3 (H3): Reduced excessive risk-taking is a channel through which managerial efficiency reduces stock price crash risk.

4.3. Data and methodology

4.3.1. Sample construction

Data used in this paper is collected from the CSMAR database. We include all firms listed on the Shanghai and Shenzhen Stock Exchanges from 2009 to 2016 in the initial sample. After excluding (1) firms from the financial sector, (2) firms with fewer than 30 weeks of stock return data, (3) B-share and H-share stocks and (4) observations with missing information, the final sample consists of 8,546 firm-year observations. As we use one-year lagged control variables, the regression sample size includes 7,141 observations. The sample size is comparable to other Chinese studies of stock price crash risk (Chen, Xie, You, & Zhang, 2018c; Dai, Lu, & Qi, 2019; Liang, Li, & Gao, 2020; Yu & Mai, 2020) and managerial efficiency (Cheng & Cheung, 2021; Wang et al., 2017). All continuous variables are winsorized at the top and bottom 1% levels.

4.3.2. Variables

4.3.2.1.Stock price crash risk

Following Kim et al. (2011a), Kim et al. (2011b) and Chen, Hong, and Stein (2001), we construct two measures to proxy firm stock price crash risk. Both measures are collected directly from the CSMAR database. CSMAR first calculates firm-specific weekly returns, denoted as $W_{i,t}$, based on the expanded market model below:

$$r_{i,\tau} = \alpha + \beta_{1i} r_{m,\tau-2} + \beta_{2i} r_{m,\tau-1} + \beta_{3i} r_{m,\tau} + \beta_{4i} r_{m,\tau+1} + \beta_{5i} r_{m,\tau+2} + \varepsilon_{i,\tau} \quad (4.1)$$

where $r_{i,\tau}$ is the return of stock i in week τ and $r_{m,\tau}$ is the value-weighted A-share market return in week τ. The firm-specific weekly returns are calculated as the natural logarithm of one plus the residual from the model above ($W_{i,t} = \ln(1 + \varepsilon_{i,\tau})$).

The first measure of stock price crash risk is $Ncskew$, which is defined as the negative conditional return skewness. It is calculated as the negative of the third moments of the firm-specific weekly returns scaled by the standard deviation of firm-specific weekly returns raised to the third power. Specifically, for each firm i in year t,

$$Ncskew_{i,t} = -[n(n-1)^{3/2}\sum W_{i,\tau}^3]/[(n-1)(n-2)(\sum W_{i,\tau}^2)^{\frac{3}{2}}] \quad (4.2)$$

where n is the number of firm-specific weekly returns of firm i in year t. A higher value of $Ncskew$ indicates greater crash risk.

The second measure of crash risk is the down-to-up volatility, denoted as $Duvol$. CSMAR first identifies "down" and "up" weeks for firm i in year t by comparing firm-specific weekly returns with their annual average. If the firm-specific weekly return is below (above) the annual average, this week is identified as the "down" ("up") week. Then, the standard deviation of firm-specific weekly returns in both "down" and "up" weeks is calculated. $Duvol$ is the natural logarithm of the ratio of the standard deviation in the "down" weeks to that in the "up" weeks, specifically, for each firm i in year t,

$$Duvol_{i,t} = ln\left\{[(n_u-1)\sum_{Down} W_{i,\tau}^2]/[(n_d-1)\sum_{Up} W_{i,\tau}^2]\right\} \quad (4.3)$$

where n_u and n_d are the numbers of "up" and "down" weeks in a year. Higher $Duvol$ implies greater stock price crash risk.

4.3.2.2.Managerial efficiency

According to Demerjian et al. (2012), the measure of managerial efficiency is based on the efficiency with which managers generate revenues. Efficient managers are expected to better understand technology and industry trends, reliably predict product demand, invest in higher

value projects and manage their employees more efficiently, thereby generating higher revenue for a given level of resources. We follow the two-step approach developed by Demerjian et al. (2012) to measure managerial efficiency. In the first step, data envelopment analysis (DEA) is used to estimate relative firm efficiency by industry. DEA is a linear programming methodology that measures the relative efficiency of firms by evaluating their inputs relative to their output. The output is net sales. The inputs include cost of goods sold (*COGS*); selling and administrative expenses (*SG&A*); property, plant and equipment (*PPE*); operating lease (*OpsLease*); goodwill (*Goodwill*); and other intangible assets (*OtherIntan*). DEA forms an efficient frontier (the best efficiency that can be practically achieved) based on the amount and mix of these inputs used to generate revenue and provides an ordinal ranking of firm relative efficiency compared to the efficiency frontier. Firms on the frontier are identified as the most efficient in the industry and are assigned a score (θ) of one. The lower the θ, the further the firm is from the frontier and the less efficient the firm is. Firm efficiency is estimated based on the following optimization:

$$max_y \theta = \frac{Sales}{v_1 COGS + {}_2 SG\&A + v_3 PPE + v_4 OpsLease + {}_5 R\&D + v_6 Goodwill + v_7 OtherInta} \quad (4.4)$$

where firm efficiency, θ, takes the value between zero and one. Firms operating on the efficient frontier have a θ of one. A smaller value of θ indicates lower firm efficiency. However, θ is influenced by both firm-specific factors and management characteristics. For instance, a bad managers of a large company may be able to negotiate better terms with suppliers than an efficient manager of a small company. Hence, in the second step, firm-specific factors are removed from the firm efficiency measure. Specifically, using Tobit regression, firm efficiency is regressed on a variety of firm characteristics, including firm size, market share, positive free cash flow, firm age, multi-segment and international operations per industry. The regression model is shown below:

$$Firm\ Efficiency_i = \beta_0 + \beta_1 \ln(Total\ Assets)_i + \beta_2 MarketShare_i +$$
$$\beta_3 PositiveFreeCF_i + \beta_4 Ln(Age)_i + \beta_5 BusinessSegmentConcertration_i +$$
$$\beta_6 ForeignCurrencyIndicator_i + Year\ Indicators_i + \varepsilon_i \quad (4.5)$$

where *ln(Total Assets)* is the natural logarithm of total assets of firm *i* in year *t*; *MarketShare* is the percentage of sales earned by firm *i* in its industry in year *t*; *PositiveFreeCF* is a dummy variable equals 1 if firm *i* has a non-negative free cash flow in year *t* and 0 otherwise; *Ln(Age)* is the natural logarithm of firm age since establishment; *BusinessSegmentConcertration* is the ratio of the sum of squared segment sales to squared total sales for firm *i* in year *t*; *ForeignCurrencyIndicator* is a dummy variable equals 1 if firm *i* has foreign operations in year *t* and 0 otherwise. The residual of the above model captures managerial efficiency. To address the concern that the residuals still contain other unidentified drivers of firm efficiency, Demerjian et al. (2012) conduct a number of validity tests to assess the measure of managerial efficiency. First, the measure of managerial efficiency is economically and significantly associated with manager fixed effects. Second, the measure is negatively associated with the announcement return to CEO departures. Third, the appointing of a more efficient manager is associated with better subsequent firm performance.

Following Huang and Sun (2017) and Doukas and Zhang (2020), we create decile ranks of managerial efficiency by industry and year to make managerial efficiency more comparable across industry and time and remove the concern of outliers. The ranks of managerial efficiency, denoted as *ME*, is used as the proxy of managerial efficiency in our analysis.

4.3.2.3.Control variables

Following Chen et al. (2001), Hutton et al. (2009) and Xu et al. (2013), we control for a variety of variables that potentially influence or predict stock price crash risk. *Leverage* is the book value of liability scaled by the book value of total assets. *Firm Size* is the natural logarithm of

total assets. *ROA* is defined as net income over total assets. *Tobin's Q* is measured as the market value of total assets scaled by the book value of total assets. *Top1* is the shareholding percentage of the largest shareholder. *GDP* is the provincial GDP growth rate. |*DACC*| is defined as the absolute value of discretionary accruals as estimated from the modified Jones (1991) model. *Dturn* proxies investor heterogeneity, which is the detrended stock trading volume. *Ret* is the average firm-specific weekly return over the past year. *Sigma* is the standard deviation of the past firm-specific stock weekly returns. SOE is a dummy variable that equals 1 if the listed firm is ultimately controlled by the government or an SOE and 0 otherwise. Detailed definitions of variables are shown in Appendix C.1.

4.3.3. Methodology

To examine the influence of managerial efficiency on stock price crash risk, we construct the following regression model:

$$\begin{aligned} Crash\ Risk_{i,t} = {} & \alpha + \beta_1 ME_{i,t} + \beta_2 Leverage_{i,t-1} + \beta_3 Firm\ Size_{i,t-1} + \beta_4 ROA_{i,t-1} \\ & + \beta_5 Tobin's\ Q_{i,t-1} + \beta_6 Top1_{i,t-1} + \beta_7 GDP_{i,t-1} + \beta_8 |DACC|_{i,t-1} \\ & + \beta_9 Dturn_{i,t-1} + \beta_{10} Ret_{i,t-1} + \beta_{11} Sigma_{i,t-1} + \beta_{12} SOE_{i,t} + \varepsilon_{i,t} \quad (4.6) \end{aligned}$$

where *Nckew* and *Duvol* are used to proxy crash risk; *ME* is our independent variable of interest. We expect the coefficient of *ME* to be negative to support our **H1**.

4.4. Empirical results

4.4.1. Descriptive statistics

Table 4.1 shows the descriptive statistics. We report the mean, 25th percentile, median, 75th percentile and standard deviation of main variables. The mean and median of *Ncskew* are -0.462 and -0.413, and the mean and median of *Duvol* are -0.335 and -0.330, respectively. The standard deviations of *Ncskew* and *Duvol* are 0.7 and 0.473, respectively, suggesting a high

variance in stock price crash risk across observations. The statistics of crash risk measures are within similar ranges with previous studies, such as Hu et al. (2020) and Xu, Li, Yuan, and Chan (2014). The mean and median of *ME* is 0.635 and 0.609, with a standard deviation of 0.176. The mean of *SOE* dummy is 0.385, indicating that 38.5% of the observations in our sample are SOEs. The descriptive statistics of other variables are also in line with prior studies (Chen et al., 2018c; Wen, Xu, Ouyang, & Kou, 2019).

(Insert Table 4.1 here)

To address the concern of multi-collinearity in our baseline regression model, we report the correlation coefficients among all variables specified in Model (4.6) in Appendix C.2. We notice that the correlation coefficients among all independent variables are smaller than 0.6, indicating that the multi-collinearity issue is not a serious concern in our study.

4.4.2. Baseline regression

The results of baseline regressions are reported in Table 4.2. As suggested by Habib et al. (2018), to establish the association between managers and crash risk, CEO fixed effects need to be included to tract managers who move across firms and the inclusion of firm fixed effects is encouraged to reinforce the validity of results. Therefore, we include firm fixed effects and industry-year fixed effects, CEO and year fixed effects, CEO fixed effect effects and industry-year fixed effects in our baseline regressions and report the results in columns (1) and (2), (3) and (4) and (5) and (6) respectively. In the first two columns, we note that managerial efficiency is negatively associated with both measures of crash risk, and the result is statistically significant at the 5% level in Column (2), where *Duvol* is the dependent variable. In the last four columns, the coefficients of *ME* are all negative and statistically significant, at least at the 10% level. The results indicate that there is a negative association between managerial efficiency and stock price crash risk and support **H1** that firms with efficient managers are

associated with a lower level of stock price crash risk. Additionally, we find that *SOE* dummy is positively associated *Ncskew* and *Duvol*, indicating that compared with private firms, SOEs tend to have greater crash risk. The result is in line with the findings of Liang et al. (2020). We focus on firm fixed effects and industry-year fixed effects to conduct the remainder of the analyses of this paper.

(Insert Table 4.2 here)

4.4.3. Robustness checks

4.4.3.1. Instrumental variable

Our baseline regression results may suffer from potential endogeneity issues, such as omitted variables and reverse causality. For instance, firms may hire better managers to improve information transparency and reduce crash risk. We employ two instrumental variables and the IV-2SLS approach to address endogeneity. The first instrumental variable, *Education* refers to the provincial education quality, which is measured as the number of university students per 100,000 population of the province in which the listed firm is located. We conjecture that listed firms located in provinces that have better education quality tend to hire managers with better managerial efficiency. Meanwhile, regional education quality will not affect the stock price crash risk of listed firms. We first regress *ME* on *Education,* controlling for firm-level and provincial level factors that may influence managerial efficiency. Firm-level factors include *Leverage*, *Firm Size*, *Tobin's Q*, *ROA*, *Top1* and *SOE*. We include *GDP* and *NERI* as provincial-level control variables[31]. *NERI* is the NERI index, which measures the level of regional market development. Data of the NERI index is collected from "Marketisation index of China's provinces: NERI report 2018" (Wang et al. (2018). A larger NERI index indicates better regional market development. The first-stage result is shown in Column (1) of Panel A,

[31] The inclusion of *GDP* and *NERI* does not raise concern for multi-collinearity since they have a correlation coefficient of -0.323.

Table 4.3. As expected, *Education* is positively related to *ME,* and the coefficient is statistically significant at the 5% level. The first stage F statistic is 11.686, which is larger than the critical value of 10 suggested by Staiger and Stock (1994), indicating that our instrumental variable is not weak. Anderson LM statistic of the Anderson canonical correlations test is significant at the 1% level, suggesting that the model is not under-identified. In addition, *ROA* and *Tobin's Q* are significant and positively associated with *ME*, indicating that better performance and higher growth opportunities of listed firms are associated with better managerial efficiency. The fitted values from the first stage regression are then collected and used as the independent variable in the second stage analysis. The results of the second stage regressions are reported in Columns (2) and (3) in Panel A of Table 4.3. We note that the coefficients of *Fit_ME1* are negative and statistically significant at the 5% level in both columns.

Following Demerjian, Lewis-Western, and McVay (2020) and Doukas and Zhang (2020), we use the average industry-adjusted managerial efficiency (denoted as *Ave_ME*) as the second instrumental variable. *Ave_ME* is calculated as the average industry-year adjusted managerial efficiency of other managers in the same province-year. We conjecture that a listed firm located in provinces with a competitive (high average managerial efficiency) manager labour market is more likely to hire efficient managers, while the managerial efficiency of other managers is not associated with the listed firm's crash risk. Similarly, we first regress *ME* on firm-level and provincial level factors that may influence managerial efficiency along with *Ave_ME*. In the first column of Panel B, Table 4.3, we observe *Ave_ME* is positively related to *ME*, and the result is statistically significant at the 1% level. The first stage F statistics and the Anderson LM statistics are large and statistically significant, suggesting that the instrument variable is valid. The fitted value of the first stage is then collected and employed as the independent variable in the second stage. Results in columns (2) and (3) of Panel B in Table 4.3 show that

Fit_ME2 is negatively associated with both measures of crash risk, and the results are statistically significant at the 10% and 5 % levels, respectively.

Overall, our 2SLS IV analysis results support our baseline finding that managers with better managerial efficiency tend to reduce stock price crash risk.

(Insert Table 4.3 here)

4.4.3.2.Alternative measures of managerial efficiency

To track efficient managers that move across firms, following Gan (2019), we calculate a CEO's average managerial efficiency while he or she is the CEO of any firm over the sample periods. We then create a dummy variable that equals 1 if the average efficiency ranking of the CEO throughout his/her career is higher than the 75th percentile and 0 otherwise, as the first alternative measure of managerial efficiency. This alternative measure of managerial efficiency, denoted as *Efficient CEO,* identifies managers with high average efficiency throughout their career (within the sample period). We also apply managerial efficiency scores (*ME_Score*), which are the residuals obtained from model (4.5), as the second alternative measure of managerial efficiency. We then re-perform the baseline regressions (columns (1) and (2) in Table 4.2) by using *Efficient CEO* and *ME_Score* as the key independent variables and report the results in Table 4.4. In the first two columns, *Efficient CEO* is negatively associated with both measures of crash risk, and the result is statistically significant at the 5% level in column (2). In columns (3) and (4), the coefficients of *ME_Score* are both negative, and the coefficient in column (4) is statistically significant at the 5% level. Therefore, our baseline regression results are robust after using alternative measures of managerial efficiency.

(Insert Table 4.4 here)

4.4.4. Channel analysis

In this section, we analyse the channels through which managerial efficiency reduces stock price crash risk in Chinese listed firms. We first study if improved firm transparency is a channel through which efficient managers reduce crash risk. Two variables are constructed to proxy firm transparency. First, following Firth, Wang, and Wong (2015), Boone and White (2015) and Liu, Laing, Cao, and Zhang (2018a), we use the transparency ratings provided by the stock exchanges to construct our first transparency measure. Specifically, the Shanghai and Shenzhen Stock Exchanges evaluate the transparency of listed firms and assign a rating of A, B, C or D for each listed firm in each year (indicating the highest to the lowest level of transparency), based on their corporate governance, operation standards, information disclosure and punishments for violations. Based on the transparency ratings provided by stock exchanges, we create *Transparency* by replacing A, B, C or D with a value of 4, 3, 2 or 1, respectively. The higher the number, the better transparency a firm has. The second measure of information transparency, *Timeliness*, refers to the reporting timeliness of listed firms. It is an inverse measure of firm transparency and is calculated as the natural logarithm of the number of days between the end of a fiscal year and the announcement date of annual reports. A lower value of *Timeliness* indicates more timely communication between firm insiders and external investors, thus implying better transparency. We utilize a 2SLS approach to examine whether firm transparency is a channel through which managerial efficiency reduces crash risk. In the first stage, we examine if better managerial efficiency is associated with higher firm transparency by regressing *Transparency* and *Timeliness* on *ME* and control variables specified in model (4.6), respectively. The predicted values generated from the first stage regressions, which capture the component of information transparency that can be explained by managerial

efficiency[32], are then used as the independent variable in the second stage analysis. Results of the 2SLS channel analysis are shown in Table 4.5. Panel A reports the results of *Transparency,* and Panel B reports the results of *Timeliness*. In column (1) of Panel A, we observe a positive and significant (at the 1% significance level) association between *ME* and *Transparency*, indicating that better managerial efficiency is associated with better firm transparency rankings. In columns (2) and (3) of Panel A, *Fitted_Transparency* is negatively related to both measures of crash risk, and the result is statistically significant at the 5% level in column (3). Similarly, in Panel B, we find that *ME* is negatively associated with *Timeliness*, suggesting that efficient managers tend to release their annual reports in a more timely manner. The result is consistent with the findings of Abernathy, Kubick, and Masli (2018). The coefficients of *Fitted_Timeliness* are both positive in columns (2) and (3) in Panel B and statistically significant at the 5% level in column (3), indicating that efficient managers may reduce crash risk through improving the timeliness of financial reporting. Overall, our channel analysis results support our **H2** that information transparency is a channel through which managers with better efficiency reduce crash risk.

(Insert Table 4.5 here)

To test **H3**, i.e., less excessive risk-taking could be a channel through which managerial efficiency reduces stock price crash risk, we adopt two measures of excessive risk-taking, namely overinvestment and performance volatility. Following Shen, Luo, and Huang (2015), we define overinvestment as whether a listed firm makes investment expenditures more than expected. The actual investment expenditure, *InvExp*, is calculated as the ratio of investment

[32] To mitigate the concern that that the predicted values are not only explained by managerial efficiency, but also explained by control variables, we also follow the method of Ferreira and Laux (2007) and Cosset, Somé, and Valéry (2016) to conduct robustness checks. Specifically, in the first stage, we regress the potential channels on *ME* without control variables. In the second stage, the predicted values of the first stage are used as independent variables of interest and residuals from the first stage are included as control variables in the second stage regressions. The results reported in Appendix C.3 are similar with those reported in Table 4.5.

expenditure (cash paid for fixed assets, intangible assets and other long-term assets less cash received from selling these assets) over total assets at the beginning of the year. We then estimate the following cash flow model in each industry and year (Cleary, Povel, & Raith, 2007) to estimate if observed investment expenditure exceeds its expected value:

$$InvExp_{i,t} = \beta_0 + \beta_1 Tobin's\ Q_{i,t-1} + \beta_2 OCF_{i,t-1} + \varepsilon_{i,t} \qquad (4.7)$$

where *Tobin's Q* is a measure of growth opportunities; *OCF* is the net operating cash flows scaled by total assets at the beginning of the year. The fitted values of model (4.7) represent expected investment expenditure, and the residuals are collected as the difference between the observed investment expenditure and the expected investment expenditure. Following Biddle, Hilary, and Verdi (2009), we create a dummy variable to proxy the listed firms' overinvestment, denoted as *OverInv*, which equals 1 if the residual of model (4.7) is a positive value (actual investment expenditure exceeds its expected value) and 0 otherwise. Second, performance volatility is a widely used measure of corporate risk-taking in the finance literature as it captures the risks embedded in firm operations (Faccio, Marchica, & Mura, 2016). Hence, following Li et al. (2013) and Yung and Chen (2018), we calculate the standard deviation of return on assets over 3-year overlapping windows (e.g., the standard deviation of return on assets of a firm in 2010 is calculated based on its return on assets in 2010, 2011 and 2012). To measure excessive risk-taking, we further calculate the industry adjusted performance volatility, denoted as *Std_ROA*, as the firms' performance volatility minus the industry median. Results of the 2SLS channel analysis are reported in Table 4.6[33]. In column (1) of both Panel A and Panel B, *ME* is negatively associated with *OverInv* and *Std_ROA*, and the results are statistically significant at the 1% and 5% levels respectively, indicating that managerial efficiency is associated with lower likelihood of overinvestment and excess performance

[33] Similarly, we utilize the method of Ferreira and Laux (2007) and Cosset et al. (2016) to conduct robustness checks. The results in Appendix C.4 are similar with those reported in Table 4.6.

volatility. In columns (2) and (3) of both Panel A and Panel B, *Fitted_OverInv* and *Fitted_Std_ROA* are positively and significantly associated with both measures of crash risk, suggesting that reduced excessive risk-taking is indeed a channel through which efficient managers reduce crash risk. Therefore, **H3** is supported by our results.

(Insert Table 4.6 here)

4.4.5. Heterogeneity analysis

4.4.5.1. SOEs and private firms

Different from managers in the private firms, who are in a relatively liquid executive labour market, SOE managers compete with each other in a labour market that is hard to enter and from which few wish to exit as exiting means losing the authority, prestige, reputation and the opportunity to move forward in the political system (Chen et al., 2018a). As firm performance is one of the most important indicators that the government uses to evaluate SOE executives for potential political promotion (Cao et al., 2018a), efficient SOE managers possess comparative advantages over their less efficient counterparties since their superior managerial efficiency may lead to better firm performance (Demerjian et al., 2012). Hence, as the potential winners in the competition of SOE executives, efficient managers are unlikely to take excessive risks due to the high cost of downside risk. Therefore, we expect that compared with efficient managers in private firms, efficient managers in SOEs are less likely to take excessive risks and, therefore, more likely to reduce crash risk. We conduct a subsample analysis to examine our assumption. Firms ultimately controlled by the government or an SOE are included in the SOE subsample, while other firms are included in the non-SOE subsample. The subsample analysis results reported in Table 4.7 show that *ME* is negatively and significantly associated with both *Ncskew* and *Duvol* in the SOE subsample, while not significantly related to any crash

risk measure in the non-SOE subsample. The results are in line with our expectation that the negative influence of managerial efficiency on crash risk is more pronounced in SOEs.

(Insert Table 4.7 here)

4.4.5.2.Regional development

Firms located in developed regions indicated by a higher level of marketisation may have better information transparency. In these regions, access to resources is less relationship-based and false statements of firms are more likely to be discovered by regulators (Guo, Li, Jiao, & Wang, 2021). Given that better information transparency hinders managers' bad news hoarding, firms located in developed regions may already have lower stock price crash risk[34] , and the influence of managerial efficiency may be less pronounced in these regions. Moreover, in less developed regions, the executive labour market tends to have lower mobility (Cordeiro et al., 2013). Efficient managers in these regions may be more conservative because if they lose their current job due to opportunistic behaviours, they may have difficulty finding a replacement position as good as their current job. Conservativism of efficient managers in these regions may enhance the influence of managerial efficiency on stock price crash risk. Therefore, we predict that the beneficial effect of managerial efficiency on crash risk may be more pronounced in firms located in less developed regions while less pronounced in firms located in developed regions. To examine our assumption, we employ the NERI index to proxy regional marketisation and examine whether the relationship between managerial efficiency and stock price crash risk is subject to regional development disparity. Developed regions are defined as those having a NERI index higher than the median of a given year, and less developed regions as those with the NERI index lower than the median value. Listed firms located in developed regions are included in the High NERI subsample, and those located in less developed regions are included

[34] We conduct analysis to ensure that firms located in developed regions have lower stock price crash risk. Our untabulated result supports this notion.

in the Low NERI subsample. The results of subsample analyses in Table 4.8 show that the negative association between managerial efficiency and crash risk is only statistically significant in firms located in less developed regions, while the relationship becomes insignificant in firms located in developed regions. The results support our expectation that crash risk reduction due to managerial efficiency is more pronounced in less developed regions.

(Insert Table 4.8 here)

4.4.5.3.Analyst following

Financial analysts in China play a monitoring role that promotes the quality of information dissemination (Chen et al., 2016b; Piotroski & Wong, 2012) and discipline managers of firms under their coverage from conducting opportunistic activities (Chen, Cumming, Hou, & Lee, 2016a). Hence, if the monitoring effect of financial analysts can improve firm transparency and discipline managers' opportunistic behaviours, and thus lead to reduced stock price crash risk, the influence of managerial efficiency on stock price crash risk may be weaker in firms with more analysts following. We suspect that the monitoring effect of financial analysts serves as a substitute for managerial efficiency in reducing stock price crash risk. To test our assumption, we split the full sample into two subsamples based on the median value of *Analyst Following*. *Analyst Following* is measured as the natural logarithm of the number of financial analysts that follow a firm. Firms with analyst following lower than the sample median are included in the *Low analyst following* subsample, and the remaining firms are included in the *High analyst following* subsample. The subsample analysis results are reported in Table 4.9. We see that the coefficients of *ME* are statistically insignificant in the *High analyst following* subsample, while *ME* is negatively and significantly associated with *Duvol* in the *Low analyst following* subsample, which supports our expectation that the beneficial effect of managerial efficiency on reducing crash risk is more pronounced in firms followed by fewer financial analysts.

(Insert Table 4.9 here)

4.4.5.4.CEO compensation

As previously mentioned, efficient managers have strong incentives to preserve their reputation since reputation can help them earn higher lifelong compensation (Demerjian et al., 2012; Fee & Hadlock, 2003). Hence, efficient managers that earn more compensation may have greater reputation concerns because they will suffer more monetary losses if they are fired due to opportunistic behaviours and are unable to find a job as good as their previous one due to reputational damage. We predict that the beneficial effect of managerial efficiency on stock price crash risk may be more pronounced in firms that pay higher CEO compensation. Similarly, we adopt a subsample analysis to examine our assumption. The subsamples are constructed based on the industry median of CEO compensation. Firms with CEO compensation higher than the industry median are included in the High CEO compensation subsample, while firms with CEO compensation lower than the industry median are included in the Low CEO compensation subsample. The subsample analysis results are reported in Table 4.10. In the High CEO compensation subsample, the coefficients of *ME* are negative in both columns (1) and (2), and the results are statistically significant at the 10% and 5% levels, respectively. In the Low CEO compensation subsample, the coefficients of *ME* are statistically insignificant in columns (3) and (4). Thus, our expectation that the beneficial effect of managerial efficiency on stock price crash risk is more pronounced in firms where CEOs receive more compensation is supported.

(Insert Table 4.10 here)

4.5. Conclusion

In this paper, we investigate the relationship between managerial efficiency and firm stock price crash risk. We find that managers with higher efficiency tend to reduce the crash risk of

listed firms in China. The results remain robust after mitigating endogeneity concerns and using alternative measures of managerial efficiency. Then, we discover that improved information transparency and reduced excessive risk-taking are both channels through which managerial efficiency reduces crash risk. Lastly, our heterogeneity analyses results show that the negative impact of managerial efficiency on crash risk is more pronounced in SOEs, firms located in less developed regions, firms that are followed by fewer analysts and firms that pay higher CEO compensation, suggesting that the influence of managerial efficiency on crash risk is subject to state control, regional marketization, external monitoring efficiency and CEO compensation.

Our baseline result is opposite to the findings in the U.S., such as Habib and Hasan (2017) and Cui et al. (2019). This study highlights the importance of cultural enforces on managerial behaviour, e.g., individualism culture in the U.S. versus collectivism in China. In addition, the more salient result regarding the impact of managerial efficiency on crash risk refreshes the significant role of political interference in corporate finance.

4.6. Tables

Table 4. 1. Descriptive statistics

This table reports the descriptive statistics of the main variables. Definitions of variables are in Appendix C.1.

Variable	Observations	Mean	P25	P50	P75	Std. dev.
Ncskew	7,141	-0.462	-0.841	-0.413	-0.033	0.700
Duvol	7,141	-0.335	-0.649	-0.330	-0.023	0.473
ME	7,141	0.543	0.300	0.500	0.800	0.285
ME_Score	7,141	0.635	0.501	0.609	0.764	0.176
$Leverage_{t-1}$	7,141	0.443	0.274	0.436	0.604	0.215
$Firm\ Size_{t-1}$	7,141	21.741	20.963	21.632	22.374	1.132
ROA_{t-1}	7,141	0.039	0.013	0.037	0.066	0.057
$Tobin's\ Q_{t-1}$	7,141	2.127	1.275	1.638	2.391	1.486
$Top1_{t-1}$	7,141	0.355	0.235	0.336	0.454	0.149
GDP_{t-1}	7,141	0.121	0.077	0.104	0.158	0.056
$\|DACC\|_{t-1}$	7,141	0.118	0.027	0.076	0.679	0.134
$Dturn_{t-1}$	7,141	0.026	-0.101	0.008	0.145	0.225
Ret_{t-1}	7,141	0.005	-0.003	0.004	0.012	0.012
$Sigma_{t-1}$	7,141	0.069	0.050	0.062	0.082	0.028
SOE	7,141	0.385	0.000	0.000	1.000	0.487

Table 4. 2. Baseline regressions

Table 4.2 reports the results of the baseline regressions. We include firm fixed effects and industry×year dummies, CEO and year fixed effects, CEO fixed effect effects and industry×year dummies in columns (1) to (2), (3) to (4) and (5) to (6), respectively. *Ncskew* is the negative coefficient of skewness. *Duvol* is the down-to-up volatility. *ME* is the managerial efficiency ranking, created based on the managerial score estimated following the Demerjian et al. (2012) DEA model. Detailed definitions of other variables are given in Appendix C.1. *t*-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	*Ncskew*	*Duvol*	*Ncskew*	*Duvol*	*Ncskew*	*Duvol*
ME	-0.131	-0.152**	-0.210*	-0.180**	-0.210*	-0.178**
	(-1.268)	(-2.176)	(-1.694)	(-2.157)	(-1.659)	(-2.080)
$Ncskew_{t-1}$	-0.121***		-0.217***		-0.215***	
	(-8.764)		(-14.495)		(-14.199)	
$Duvol_{t-1}$		-0.128***		-0.217***		-0.217***
		(-9.469)		(-14.827)		(-14.677)
$Leverage_{t-1}$	-0.083	-0.080	-0.162	-0.073	-0.120	-0.031
	(-0.829)	(-1.190)	(-1.292)	(-0.870)	(-0.941)	(-0.359)
$Firm\ Size_{t-1}$	0.070**	0.036*	0.096**	0.034	0.094**	0.037
	(2.440)	(1.829)	(2.540)	(1.339)	(2.428)	(1.401)
ROA_{t-1}	0.111	0.169	0.127	0.223	0.194	0.251
	(0.465)	(1.050)	(0.464)	(1.207)	(0.694)	(1.337)
$Tobin's\ Q_{t-1}$	0.039***	0.026***	0.041***	0.024***	0.043***	0.028***
	(3.499)	(3.516)	(3.281)	(2.792)	(3.299)	(3.194)
$Top1_{t-1}$	0.122	-0.035	0.075	0.003	0.093	-0.002
	(0.712)	(-0.300)	(0.328)	(0.021)	(0.399)	(-0.014)
GDP_{t-1}	-0.398	-0.283	0.125	0.014	-0.035	-0.112
	(-0.946)	(-0.998)	(0.255)	(0.042)	(-0.070)	(-0.332)
$\lvert DACC\rvert_{t-1}$	-0.005	-0.004	0.062	0.056	0.017	0.017
	(-0.068)	(-0.085)	(0.790)	(1.059)	(0.214)	(0.307)
$Dturn_{t-1}$	-0.145**	-0.104***	-0.156***	-0.122***	-0.150**	-0.115***
	(-2.574)	(-2.744)	(-2.585)	(-2.980)	(-2.435)	(-2.772)
Ret_{t-1}	7.328***	5.668***	6.384***	5.530***	6.249***	5.461***
	(4.655)	(5.322)	(3.788)	(4.852)	(3.579)	(4.632)
$Sigma_{t-1}$	1.068	0.359	1.395*	0.745	1.405*	0.665
	(1.496)	(0.751)	(1.783)	(1.421)	(1.748)	(1.237)
SOE	0.170**	0.124**	0.101	0.089	0.105	0.115
	(2.217)	(2.397)	(0.953)	(1.244)	(0.949)	(1.544)
Constant	-2.471***	-1.340***	-2.581***	-1.078*	-2.924***	-1.665**
	(-3.797)	(-3.052)	(-3.136)	(-1.943)	(-2.636)	(-2.231)
Firm FE	Yes	Yes	No	No	No	No
CEO FE	No	No	Yes	Yes	Yes	Yes
Year FE	No	No	Yes	Yes	No	No
Industry×Year	Yes	Yes	No	No	Yes	Yes
Observations	7,141	7,141	7,141	7,141	7,141	7,141
Adjusted R^2	0.094	0.094	0.126	0.129	0.132	0.137

Table 4. 3. Instrumental variable

Table 4.3 reports the 2SLS IV approach analysis. *Ncskew* is the negative coefficient of skewness. *Duvol* is the down-to-up volatility. *ME* is the managerial efficiency ranking, created based on the managerial score estimated following the Demerjian et al. (2012) DEA model. *Education* is the regional education quality, which is measured as the number of university students per 100,000 population of the province in which the listed firm is located. *Fit_ME1* is the fitted values obtained from column (1) in Panel A. *Ave_ME* is calculated as the average industry-year adjusted managerial efficiency of other managers in the same province-year. *Fit_ME2* is the fitted values obtained from column (1) of Panel B. Detailed definitions of other variables are given in Appendix C.1. *t*-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Education

First stage		Second stage		
	(1)		(2)	(3)
Variables	*ME*	Variables	*Ncskew*	*Duvol*
Education	0.036**	*Fit_ME1*	-0.455**	-0.359**
	(2.192)		(-2.122)	(-2.479)
Leverage	0.044***	$Ncskew_{t-1}$	-0.124***	
	(4.419)		(-9.030)	
Firm Size	0.003	$Duvol_{t-1}$		-0.130***
	(0.904)			(-9.658)
ROA	0.951***	$Leverage_{t-1}$	-0.109	-0.096
	(39.211)		(-1.114)	(-1.449)
Tobin's Q	0.002**	$Firm\ Size_{t-1}$	0.066**	0.028
	(2.129)		(2.308)	(1.439)
Top1	0.069***	ROA_{t-1}	0.042	0.110
	(4.025)		(0.183)	(0.701)
GDP	-0.062*	$Tobin's\ Q_{t-1}$	0.039***	0.023***
	(-1.739)		(3.580)	(3.192)
NERI	0.007**	$Top1_{t-1}$	0.091	-0.046
	(2.469)		(0.531)	(-0.395)
SOE	-0.023***	GDP_{t-1}	-0.377	-0.284
	(-2.774)		(-0.910)	(-1.016)
Constant	0.036**	$\|DACC\|_{t-1}$	0.032	0.025
	(2.192)		(0.455)	(0.520)
		$Dturn_{t-1}$	-0.151***	-0.104***
			(-2.723)	(-2.772)
		Ret_{t-1}	7.325***	5.695***
			(4.786)	(5.492)
		$Sigma_{t-1}$	1.131	0.378
			(1.627)	(0.810)
First stage F statistics	11.686***	*SOE*	0.143*	0.105**
(for Weak identification test)			(1.863)	(2.039)
Anderson LM statistic	11.684***	Constant	-1.663***	-0.683
(for Underidentification test)			(-2.664)	(-1.620)
Firm FE	Yes	Firm FE	Yes	Yes
Year FE	Yes	Year FE	Yes	Yes
Observations	8,546	Observations	7,141	7,141
Adjusted R^2	0.777	Adjusted R^2	0.088	0.087

Panel B. Average industry-adjusted managerial efficiency of other managers in a province.

First stage		Second stage		
	(1)		(2)	(3)
Variables	*ME*	Variables	*Ncskew*	*Duvol*
Ave_ME	0.177***	*Fit_ME2*	-0.387*	-0.348**
	(4.134)		(-1.705)	(-2.272)
Leverage	0.043***	$Ncskew_{t-1}$	-0.123***	
	(4.364)		(-9.003)	
Firm Size	0.002	$Duvol_{t-1}$		-0.129***
	(0.775)			(-9.615)
ROA	0.951***	$Leverage_{t-1}$	-0.111	-0.096
	(39.216)		(-1.130)	(-1.451)
Tobin's Q	0.002**	$Firm\ Size_{t-1}$	0.066**	0.027
	(2.014)		(2.311)	(1.434)
Top1	0.072***	ROA_{t-1}	0.034	0.108
	(4.214)		(0.146)	(0.688)
GDP	-0.064*	$Tobin's\ Q_{t-1}$	0.039***	0.023***
	(-1.799)		(3.582)	(3.206)
NERI	0.007**	$Top1_{t-1}$	0.087	-0.045
	(2.257)		(0.504)	(-0.392)
SOE	-0.024***	GDP_{t-1}	-0.372	-0.280
	(-2.895)		(-0.899)	(-1.000)
Constant	0.524***	$\|DACC\|_{t-1}$	0.032	0.024
	(8.317)		(0.445)	(0.511)
		$Dturn_{t-1}$	-0.151***	-0.104***
			(-2.725)	(-2.789)
		Ret_{t-1}	7.246***	5.669***
			(4.734)	(5.467)
		$Sigma_{t-1}$	1.130	0.379
			(1.626)	(0.812)
First stage F statistics	611.311***	*SOE*	0.147*	0.106**
(for Weak identification test)			(1.914)	(2.058)
Anderson LM statistic	565.365***	Constant	-1.711***	-0.690
(for Underidentification test)			(-2.731)	(-1.631)
Firm FE	Yes	Firm FE	Yes	Yes
Year FE	Yes	Year FE	Yes	Yes
Observations	8,546	Observations	7,141	7,141
Adjusted R^2	0.791	Adjusted R^2	0.088	0.087

Table 4. 4. Alternative measures of managerial efficiency

Table 4.4 presents the results on alternative measures of managerial efficiency. *Ncskew* is the negative coefficient of skewness. *Duvol* is the down-to-up volatility. *Efficient CEO* is a dummy variable that equals 1 if the average efficiency ranking of the CEO throughout his/her career is higher than the 75th percentile and 0 otherwise. *ME_Score* is the managerial efficiency score, which are the residuals obtained from model (4.5). Detailed definitions of other variables are given in Appendix C.1. *t*-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
Variables	*Ncskew*	*Duvol*	*Ncskew*	*Duvol*
Efficient CEO	-0.089	-0.071**		
	(-1.633)	(-1.979)		
ME_Score			-0.072	-0.079**
			(-1.315)	(-2.135)
$Ncskew_{t-1}$	-0.129***		-0.116***	
	(-8.898)		(-8.307)	
$Duvol_{t-1}$		-0.133***		-0.124***
		(-9.662)		(-9.047)
$Leverage_{t-1}$	-0.098	-0.100	-0.109	-0.090
	(-0.948)	(-1.476)	(-1.072)	(-1.307)
$Firm\ Size_{t-1}$	0.073**	0.032*	0.071**	0.035*
	(2.452)	(1.647)	(2.453)	(1.793)
ROA_{t-1}	0.082	0.115	0.109	0.166
	(0.336)	(0.715)	(0.448)	(1.013)
$Tobin's\ Q_{t-1}$	0.041***	0.024***	0.040***	0.026***
	(3.604)	(3.180)	(3.506)	(3.379)
$Top1_{t-1}$	0.080	-0.083	0.119	-0.037
	(0.445)	(-0.706)	(0.689)	(-0.320)
GDP_{t-1}	-0.416	-0.297	-0.434	-0.306
	(-0.953)	(-1.035)	(-1.017)	(-1.062)
$\lvert DACC\rvert_{t-1}$	0.029	0.020	-0.011	-0.009
	(0.393)	(0.403)	(-0.153)	(-0.183)
$Dturn_{t-1}$	-0.161***	-0.105***	-0.135**	-0.100***
	(-2.753)	(-2.735)	(-2.350)	(-2.593)
Ret_{t-1}	7.293***	5.556***	7.315***	5.786***
	(4.547)	(5.253)	(4.565)	(5.326)
$Sigma_{t-1}$	1.004	0.364	1.281*	0.478
	(1.370)	(0.761)	(1.772)	(0.983)
SOE	0.159**	0.119**	0.182**	0.129**
	(1.983)	(2.254)	(2.312)	(2.427)
Constant	-2.105***	-0.995**	-2.548***	-1.389***
	(-3.301)	(-2.373)	(-3.907)	(-3.151)
Firm FE	Yes	Yes	Yes	Yes
Industry×Year	Yes	Yes	Yes	Yes
Observations	7,141	7,141	7,141	7,141
Adjusted R^2	0.084	0.085	0.093	0.094

Table 4. 5. Channel analysis: information transparency

Table 4.5 reports the results of channel analysis on information transparency. Panel A presents the results of transparency ranking. Panel B presents the results of reporting timeliness. The first stage results are reported in column (1) in each panel. Results of the second stage regressions are shown in columns (2) and (3) in each panel. *Ncskew* is the negative coefficient of skewness. *Duvol* is the down-to-up volatility. *ME* is the managerial efficiency ranking, created based on the managerial score estimated following the Demerjian et al. (2012) DEA model. *Transparency* is a transparency rating ranging from 1 to 4 based on the transparency ratings provided by the Shenzhen and Shanghai Stock Exchanges. *Timeliness* is the natural logarithm of the number of days between the end of a fiscal year and the announcement date of annual reports. Detailed definitions of other variables are given in Appendix C.1. *t*-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Transparency rating

Variables	(1) *Transparency*	(2) *Ncskew*	(3) *Duvol*
ME	0.482***		
	(6.885)		
Fitted_Transparency		-0.271	-0.315**
		(-1.268)	(-2.182)
$Ncskew_{t-1}$	-0.001	-0.121***	
	(-0.072)	(-8.776)	
$Duvol_{t-1}$			-0.128***
			(-9.487)
$Leverage_{t-1}$	-0.227***	-0.144	-0.152**
	(-3.362)	(-1.340)	(-2.086)
$Firm\ Size_{t-1}$	0.034*	0.080***	0.046**
	(1.711)	(2.705)	(2.328)
ROA_{t-1}	0.898***	0.354	0.452**
	(5.557)	(1.082)	(2.044)
$Tobin's\ Q_{t-1}$	0.001	0.039***	0.027***
	(0.152)	(3.525)	(3.561)
$Top1_{t-1}$	0.255**	0.192	0.046
	(2.194)	(1.052)	(0.373)
GDP_{t-1}	0.228	-0.336	-0.211
	(0.800)	(-0.792)	(-0.739)
$\|DACC\|_{t-1}$	-0.026	-0.012	-0.013
	(-0.526)	(-0.165)	(-0.251)
$Dturn_{t-1}$	-0.100***	-0.172***	-0.136***
	(-2.629)	(-2.817)	(-3.295)
Ret_{t-1}	-1.523	6.915***	5.187***
	(-1.427)	(4.361)	(4.835)
$Sigma_{t-1}$	-0.618	0.900	0.165
	(-1.277)	(1.236)	(0.338)
SOE	-0.068	0.152*	0.103*
	(-1.310)	(1.921)	(1.927)
Constant	2.124***	-1.894**	-0.670
	(4.813)	(-2.246)	(-1.177)
Firm FE	Yes	Yes	Yes
Industry×Year	Yes	Yes	Yes
Observations	7,141	7,141	7,141
Adjusted R^2	0.476	0.094	0.094

Panel B. Reporting timeliness

Variables	(1) *Timeliness*	(2) *Ncskew*	(3) *Duvol*
ME	-0.145***		
	(-3.944)		
Fitted_Timeliness		0.905	1.009**
		(1.268)	(2.101)
$Ncskew_{t-1}$	-0.002	-0.119***	
	(-0.498)	(-8.549)	
$Duvol_{t-1}$			-0.125***
			(-9.209)
$Leverage_{t-1}$	-0.097***	0.005	0.017
	(-2.728)	(0.038)	(0.201)
$Firm\ Size_{t-1}$	0.079***	-0.001	-0.044
	(7.748)	(-0.022)	(-1.017)
ROA_{t-1}	-0.207**	0.298	0.375*
	(-2.440)	(0.998)	(1.866)
$Tobin's\ Q_{t-1}$	0.005	0.035***	0.022***
	(1.180)	(3.004)	(2.787)
$Top1_{t-1}$	-0.005	0.127	-0.030
	(-0.078)	(0.736)	(-0.261)
GDP_{t-1}	0.201	-0.580	-0.486
	(1.343)	(-1.308)	(-1.627)
$\|DACC\|_{t-1}$	0.017	-0.020	-0.021
	(0.638)	(-0.271)	(-0.420)
$Dturn_{t-1}$	-0.027	-0.120**	-0.077*
	(-1.340)	(-2.057)	(-1.944)
Ret_{t-1}	-0.861	8.107***	6.535***
	(-1.540)	(4.689)	(5.591)
$Sigma_{t-1}$	0.485*	0.629	-0.136
	(1.911)	(0.788)	(-0.253)
SOE	0.072***	0.105	0.052
	(2.634)	(1.111)	(0.810)
Constant	2.833***	-5.034**	-4.205***
	(12.257)	(-2.471)	(-3.066)
Firm FE	Yes	Yes	Yes
Industry×Year	Yes	Yes	Yes
Observations	7,141	7,141	7,141
Adjusted R^2	0.251	0.094	0.094

Table 4. 6. Channel analysis: excessive risk-taking

Table 4.6 reports the results of channel analysis on excessive risk-taking. Panel A presents the results of overinvestment. Panel B presents the results of excessive ROA volatility. The first stage results are reported in column (1) in each panel. Results of the second stage regressions are shown in columns (2) and (3) in each panel. *Ncskew* is the negative coefficient of skewness. *Duvol* is the down-to-up volatility. *ME* is the managerial efficiency ranking, created based on the managerial score estimated following the Demerjian et al. (2012) DEA model. *OverInv* is a dummy variable that equals 1 if the firm's investment expenditure is higher than expected. *Std_ROA* is the standard deviation of ROA in a 3-year overlapping window minus the industry median standard deviation of ROA. Detailed definitions of other variables are given in Appendix C.1. *t*-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Overinvestment

Variables	(1) *OverInv*	(2) *Ncskew*	(3) *Duvol*
ME	-0.938***		
	(-5.162)		
Fitted_OverInv		0.779*	0.792***
		(1.678)	(2.669)
$Ncskew_{t-1}$	-0.009	-0.128***	
	(-0.216)	(-8.757)	
$Duvol_{t-1}$			-0.128***
			(-9.417)
$Leverage_{t-1}$	-0.176	-0.046	-0.049
	(-1.083)	(-0.427)	(-0.710)
$Firm\ Size_{t-1}$	-0.038	0.065**	0.026
	(-1.180)	(2.148)	(1.336)
ROA_{t-1}	1.627***	-0.037	-0.054
	(2.941)	(-0.133)	(-0.304)
$Tobin's\ Q_{t-1}$	-0.094***	0.056***	0.038***
	(-4.136)	(3.708)	(3.964)
$Top1_{t-1}$	0.676***	-0.082	-0.216*
	(3.726)	(-0.427)	(-1.759)
GDP_{t-1}	-1.283	-0.244	-0.087
	(-1.342)	(-0.526)	(-0.294)
$\|DACC\|_{t-1}$	-0.686***	0.169	0.158**
	(-3.430)	(1.624)	(2.364)
$Dturn_{t-1}$	0.068	-0.195***	-0.130***
	(0.416)	(-3.257)	(-3.383)
Ret_{t-1}	9.166**	5.675***	3.945***
	(2.010)	(3.111)	(3.368)
$Sigma_{t-1}$	0.991	1.584**	0.648
	(0.501)	(2.095)	(1.343)
SOE	0.045	0.156*	0.113**
	(0.759)	(1.943)	(2.204)
Constant	1.690**	-2.440***	-1.354***
	(2.162)	(-3.391)	(-2.941)
Firm FE	No	Yes	Yes
Industry×Year	Yes	Yes	Yes
Observations	7,016	7,016	7,016
Adjusted/Pseudo R^2	0.0586	0.087	0.090

Panel B. ROA volatility

Variables	(1) *Std_ROA*	(2) *Ncskew*	(3) *Duvol*
ME	-0.034**		
	(-2.053)		
Fitted_Std_ROA		2.512**	4.446**
		(2.031)	(2.237)
$Ncskew_{t-1}$	-0.001	-0.127***	
	(-0.378)	(-8.767)	
$Duvol_{t-1}$			-0.126***
			(-9.269)
$Leverage_{t-1}$	0.052***	-0.231*	-0.324***
	(3.043)	(-1.915)	(-2.746)
$Firm\ Size_{t-1}$	-0.016***	0.112***	0.097***
	(-3.200)	(3.191)	(2.697)
ROA_{t-1}	0.042	-0.028	-0.066
	(1.105)	(-0.115)	(-0.396)
$Tobin's\ Q_{t-1}$	-0.003	0.048***	0.036***
	(-1.508)	(3.984)	(3.832)
$Top1_{t-1}$	-0.038	0.176	0.101
	(-1.237)	(0.944)	(0.722)
GDP_{t-1}	0.030	-0.498	-0.415
	(0.421)	(-1.134)	(-1.454)
$\|DACC\|_{t-1}$	-0.010	0.055	0.070
	(-0.889)	(0.716)	(1.333)
$Dturn_{t-1}$	0.001	-0.161***	-0.107***
	(0.102)	(-2.757)	(-2.859)
Ret_{t-1}	0.124	7.027***	5.017***
	(0.488)	(4.372)	(4.806)
$Sigma_{t-1}$	0.112	0.705	-0.164
	(0.906)	(0.945)	(-0.313)
SOE	0.074***	-0.006	-0.212
	(5.786)	(-0.061)	(-1.340)
Constant	0.355***	-2.941***	-2.385***
	(3.375)	(-3.910)	(-3.124)
Firm FE	Yes	Yes	Yes
Industry×Year	Yes	Yes	Yes
Observations	6,115	6,115	6,115
Adjusted R^2	0.366	0.084	0.087

Table 4. 7. Subsample analysis: SOEs and non-SOEs

Table 4.7 presents the subsample analysis of SOEs and non-SOEs. *Ncskew* is the negative coefficient of skewness. *Duvol* is the down-to-up volatility. *ME* is the managerial efficiency ranking, created based on the managerial score estimated following the Demerjian et al. (2012) DEA model. Detailed definitions of other variables are given in Appendix C.1. *t*-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	SOEs		Non-SOEs	
	(1)	(2)	(3)	(4)
Variables	*Ncskew*	*Duvol*	*Ncskew*	*Duvol*
ME	-0.427**	-0.298**	0.090	-0.032
	(-2.321)	(-2.398)	(0.669)	(-0.358)
$Ncskew_{t-1}$	-0.106***		-0.140***	
	(-4.708)		(-7.741)	
$Duvol_{t-1}$		-0.109***		-0.148***
		(-4.956)		(-8.357)
$Leverage_{t-1}$	-0.298*	-0.220*	-0.008	-0.032
	(-1.719)	(-1.878)	(-0.059)	(-0.370)
$Firm\ Size_{t-1}$	0.068	0.041	0.078**	0.032
	(1.435)	(1.268)	(2.033)	(1.225)
ROA_{t-1}	0.415	0.261	-0.148	0.062
	(1.081)	(1.006)	(-0.467)	(0.290)
$Tobin's\ Q_{t-1}$	0.065***	0.049***	0.034**	0.024**
	(3.180)	(3.534)	(2.425)	(2.541)
$Top1_{t-1}$	0.497	0.230	-0.051	-0.158
	(1.640)	(1.123)	(-0.229)	(-1.055)
GDP_{t-1}	-0.161	-0.042	-0.645	-0.524
	(-0.267)	(-0.104)	(-1.029)	(-1.240)
$\lvert DACC\rvert_{t-1}$	-0.224*	-0.139*	0.119	0.076
	(-1.802)	(-1.658)	(1.263)	(1.206)
$Dturn_{t-1}$	-0.193**	-0.124**	-0.176**	-0.121**
	(-2.070)	(-1.967)	(-2.415)	(-2.467)
Ret_{t-1}	10.679***	8.407***	5.557***	3.926***
	(3.935)	(4.559)	(2.733)	(2.862)
$Sigma_{t-1}$	1.251	-0.154	1.292	0.742
	(1.025)	(-0.187)	(1.418)	(1.218)
Constant	-2.260**	-1.328*	-2.667***	-1.276**
	(-2.071)	(-1.800)	(-3.112)	(-2.210)
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Industry×Year	Yes	Yes	Yes	Yes
Observations	2,749	2,749	4,392	4,392
Adjusted R^2	0.125	0.123	0.085	0.087

Table 4. 8. Subsample analysis: regional development disparity

Table 4.8 reports the subsample analysis of regional development disparity. *Ncskew* is the negative coefficient of skewness. *Duvol* is the down-to-up volatility. *ME* is the managerial efficiency ranking, created based on the managerial score estimated following the Demerjian et al. (2012) DEA model. NERI index measures the level of regional market development in each of China's 31 provinces/regions. Detailed definitions of other variables are given in Appendix C.1. *t*-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Low NERI		High NERI	
	(1)	(2)	(3)	(4)
Variables	*Ncskew*	*Duvol*	*Ncskew*	*Duvol*
ME	-0.199	-0.199**	-0.026	-0.089
	(-1.407)	(-2.081)	(-0.148)	(-0.755)
$Ncskew_{t-1}$	-0.138***		-0.161***	
	(-6.886)		(-7.890)	
$Duvol_{t-1}$		-0.151***		-0.159***
		(-7.708)		(-7.972)
$Leverage_{t-1}$	-0.260*	-0.215**	0.074	0.072
	(-1.876)	(-2.288)	(0.450)	(0.655)
$Firm\ Size_{t-1}$	0.065*	0.039	0.096*	0.037
	(1.673)	(1.472)	(1.784)	(1.029)
ROA_{t-1}	-0.107	0.025	0.441	0.313
	(-0.335)	(0.115)	(1.071)	(1.131)
$Tobin's\ Q_{t-1}$	0.053***	0.035***	0.033*	0.024**
	(3.392)	(3.314)	(1.872)	(2.042)
$Top1_{t-1}$	0.070	-0.067	0.245	0.064
	(0.294)	(-0.417)	(0.841)	(0.324)
GDP_{t-1}	-0.474	-0.285	-1.110	-0.664
	(-0.798)	(-0.710)	(-0.905)	(-0.806)
$\lvert DACC\rvert_{t-1}$	-0.062	-0.056	0.112	0.091
	(-0.622)	(-0.818)	(0.936)	(1.138)
$Dturn_{t-1}$	-0.218***	-0.145***	-0.069	-0.078
	(-2.823)	(-2.775)	(-0.781)	(-1.321)
Ret_{t-1}	6.611***	4.841***	6.732***	5.389***
	(2.910)	(3.144)	(2.844)	(3.380)
$Sigma_{t-1}$	0.497	0.177	1.873*	0.936
	(0.482)	(0.255)	(1.737)	(1.300)
SOE	0.137	0.086	0.299*	0.240**
	(1.435)	(1.341)	(1.835)	(2.190)
Constant	-2.135**	-1.259**	-3.294***	-1.591**
	(-2.424)	(-2.112)	(-2.761)	(-1.986)
Firm FE	Yes	Yes	Yes	Yes
Industry×Year	Yes	Yes	Yes	Yes
Observations	3,597	3,597	3,544	3,544
Adjusted R^2	0.095	0.100	0.096	0.096

Table 4. 9. Subsample analysis: analyst following

Table 4.9 reports the subsample analysis on analysis following. *Ncskew* is the negative coefficient of skewness. *Duvol* is the down-to-up volatility. *ME* is the managerial efficiency ranking, created based on the managerial score estimated following the Demerjian et al. (2012) DEA model. Detailed definitions of other variables are given in Appendix C.1. *t*-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Low analyst following		High analyst following	
	(1)	(2)	(3)	(4)
Variables	*Ncskew*	*Duvol*	*Ncskew*	*Duvol*
ME	-0.082	-0.200**	-0.014	-0.044
	(-0.548)	(-2.030)	(-0.075)	(-0.347)
$Ncskew_{t-1}$	-0.137***		-0.151***	
	(-6.868)		(-6.749)	
$Duvol_{t-1}$		-0.146***		-0.163***
		(-7.357)		(-7.721)
$Leverage_{t-1}$	-0.179	-0.140	0.052	0.048
	(-1.194)	(-1.416)	(0.291)	(0.382)
$Firm\ Size_{t-1}$	0.110**	0.060**	0.036	-0.006
	(2.395)	(1.996)	(0.745)	(-0.168)
ROA_{t-1}	-0.257	-0.064	1.345***	0.932***
	(-0.805)	(-0.302)	(2.824)	(2.819)
$Tobin's\ Q_{t-1}$	0.036**	0.029***	0.033*	0.017
	(2.106)	(2.612)	(1.811)	(1.352)
$Top1_{t-1}$	-0.288	-0.284	-0.083	-0.108
	(-1.078)	(-1.613)	(-0.297)	(-0.559)
GDP_{t-1}	-0.049	-0.140	-0.608	-0.051
	(-0.077)	(-0.336)	(-0.903)	(-0.110)
$\lvert DACC\rvert_{t-1}$	-0.047	-0.034	0.103	0.062
	(-0.430)	(-0.468)	(0.942)	(0.814)
$Dturn_{t-1}$	-0.116	-0.086	-0.180*	-0.126*
	(-1.441)	(-1.618)	(-1.873)	(-1.896)
Ret_{t-1}	9.031***	6.473***	4.471**	3.984**
	(3.475)	(3.763)	(1.996)	(2.558)
$Sigma_{t-1}$	0.960	0.045	1.796	1.031
	(0.883)	(0.063)	(1.629)	(1.356)
SOE	0.116	0.092	0.224	0.223**
	(1.130)	(1.356)	(1.493)	(2.141)
Constant	-3.197***	-1.724**	-1.828*	-0.611
	(-3.148)	(-2.576)	(-1.651)	(-0.795)
Firm FE	Yes	Yes	Yes	Yes
Industry×Year	Yes	Yes	Yes	Yes
Observations	3,869	3,869	3,272	3,272
Adjusted R^2	0.074	0.081	0.128	0.132

Table 4. 10. Subsample analysis: CEO compensation.

Table 4.10 reports the subsample analysis based on CEO compensation. *Ncskew* is the negative coefficient of skewness. *Duvol* is the down-to-up volatility. *ME* is the managerial efficiency ranking, created based on the managerial score estimated following the Demerjian et al. (2012) DEA model. Detailed definitions of other variables are given in Appendix C.1. t-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	High CEO compensation		Low CEO compensation	
	(1)	(2)	(3)	(4)
Variables	*Ncskew*	*Duvol*	*Ncskew*	*Duvol*
ME	-0.267*	-0.219**	-0.155	-0.116
	(-1.712)	(-2.102)	(-0.892)	(-0.995)
$Ncskew_{t-1}$	-0.144***		-0.134***	
	(-6.840)		(-6.619)	
$Duvol_{t-1}$		-0.160***		-0.134***
		(-7.774)		(-6.746)
$Leverage_{t-1}$	0.019	-0.025	-0.261	-0.155
	(0.126)	(-0.250)	(-1.598)	(-1.412)
$Firm\ Size_{t-1}$	0.164***	0.090**	0.053	0.030
	(2.905)	(2.371)	(1.270)	(1.068)
ROA_{t-1}	0.139	0.227	0.087	0.288
	(0.404)	(0.982)	(0.219)	(1.079)
$Tobin's\ Q_{t-1}$	0.055***	0.035***	0.026	0.019
	(3.535)	(3.352)	(1.132)	(1.244)
$Top1_{t-1}$	-0.186	-0.206	0.400*	0.128
	(-0.603)	(-0.993)	(1.646)	(0.781)
GDP_{t-1}	0.391	0.344	-0.792	-0.595
	(0.528)	(0.693)	(-1.368)	(-1.527)
$\lvert DACC\rvert_{t-1}$	-0.019	-0.068	0.054	0.091
	(-0.163)	(-0.884)	(0.504)	(1.262)
$Dturn_{t-1}$	-0.156*	-0.090	-0.066	-0.060
	(-1.917)	(-1.642)	(-0.741)	(-1.001)
Ret_{t-1}	4.624*	3.651**	8.779***	6.891***
	(1.899)	(2.233)	(3.681)	(4.274)
$Sigma_{t-1}$	1.673	0.876	0.596	-0.208
	(1.486)	(1.168)	(0.560)	(-0.292)
SOE	0.113	0.073	0.215*	0.195**
	(0.962)	(0.931)	(1.703)	(2.301)
Constant	-4.436***	-2.505***	-2.049**	-1.243*
	(-3.536)	(-2.980)	(-2.126)	(-1.917)
Firm FE	Yes	Yes	Yes	Yes
Industry×Year	Yes	Yes	Yes	Yes
Observations	3,460	3,460	3,681	3,681
Adjusted R^2	0.082	0.083	0.112	0.126

CHAPTER FIVE CONCLUSION

5.1. Main findings and implications

The first essay explores government resource allocation through RPTs. By using hand-collected data of GRTs, this essay finds that non-corporate government agencies allocate more resources to SOEs with personal political connections. Moreover, more resources are allocated to small SOEs and SOEs located in less-developed regions. These findings are in line with China' SOE reform strategies to improve industry competition (by supporting small SOEs) and reduce regional disparity. This essay further studies how politically connected top executives in SOEs utilize resources gained from RPTs. Results show that apart from increased investment expenditure, resources obtained from RPTs are not associated with other economic outputs or the labour intensity of SOEs. Moreover, the analysis results of government subsidy, an alternative channel that government allocate resources to SOEs, are similar to those of RPTs.

This essay provides evidence of the importance of personal political connection in SOEs. Although all SOEs are connected to the government through state ownership, the government may allocate more resources to SOEs with politically connected top executives since they are appointed by the government to facilitate political objectives. However, consistent with the view that government intervention negatively influences firm value (Zhang, Lijun, Zhang, & Yi, 2016; Chen, Li, Luo, & Zhang, 2017) and efficiency (Chen et al., 2011), this essay suggests that although SOEs with politically connected top executives receive more resources from the government, such government connection does not lead to efficient use of government resources.

Essay two investigates the influence of executive reputation concern on earnings quality in China's listed SOEs. By identifying "spotlight" top executives in SOEs as those who are more sensitive to reputation concerns, this essay finds that "spotlight" executives tend to avoid manipulating earnings through RPTs since RPTs are strictly monitored and highly visible. Increased external attention from financial analysts and institutional investors serves as the channels through which "spotlight" executives improve earnings quality. However, the beneficial influence of "spotlight" executives is shaped by political objectives, such as local governments' GDP growth incentives, local government officials' career concerns and the anti-corruption campaign. Furthermore, this essay also finds that the beneficial influence of "spotlight" top executives on earnings quality is more pronounced in SOEs controlled by local governments, in SOEs that come from non-strategic industries, in SOEs have less intention to beat performance benchmarks or launch seasoned equity offerings and in SOEs with weak external monitoring.

By providing evidence that "spotlight" top executives reduce earnings manipulation achieved through RPTs, this essay suggests that placing executives under the spotlight is an effective mechanism to discipline managerial behaviours. Facing increased external attention, executives under the spotlight can be more cautious regarding opportunistic behaviours. However, political interference in SOEs may weaken the disciplining effect of the spotlight.

Essay three studies the association between managerial efficiency and stock price crash risk in China's listed firms. Results of this essay show that better managerial efficiency reduces stock price crash risk. Such influence is exerted through increased information transparency, reporting timeliness and decreased excessive risk-taking. Lastly, the negative association between managerial efficiency and stock price crash risk is more salient in SOEs, firms in less

developed regions, firms that have fewer analysts following and firms that pay higher CEO compensation.

By highlighting the cultural differences between the U.S. and China, this essay sheds light on the impacts of managerial efficiency in emerging markets. It is important for firms in emerging markets to effectively identify and assess the managerial efficiency of their managers as managers with superior managerial efficiency can benefit firms not only through their efficient use of resources but also through reduced stock price crash risk.

5.2. Limitation and future research

The first essay studies government resource allocation through RPTs to listed SOEs in China. Following the method of Cheung et al. (2009a), RPTs that are more likely to prop up listed SOEs are filled out as the indicator for direct government resource allocation from non-corporate government agencies to listed SOEs. We acknowledge that the government can transfer resources to listed SOEs through other channels, such as government subsidies (Chen et al., 2018b; Lim et al., 2018) or bank loans of government-controlled banks (Liu et al., 2018b; Yeh et al., 2013). It is also possible that RPTs between listed SOEs and other government-controlled firms can be utilized by the government to indirectly inject resources to listed SOEs. Although we use government subsidies as an alternative measure of government resource allocation, we have not studied other possible channels. We leave this issue to future research. Moreover, the identity of the related counter party is of great significance in studying the influence of RPTs. For instance, this essay finds that non-corporate government agencies tend to allocate more resources to listed SOEs with personal political connections. Berkman et al. (2009) find that compared with other types of controlling shareholders, non-corporate government controlling shareholders have little incentive to expropriate wealth from listed

firms. Future research may further explore the nature and influence of RPTs conducted between listed firms and various types of related counter parties.

The second essay defines "Spotlight" executives as chairmen of listed SOEs that have concurrent positions in listed SOEs' shareholding firms. We expect "spotlight" executives in China's listed SOEs to have greater reputation concerns. We acknowledge that such reputation concern may influence other managerial and firm behaviours. For instance, due to reputation concerns, "spotlight" executives may be reluctant to engage in activities that expropriate wealth from minority shareholders. Future research can further explore the influence of "spotlight" executives' reputation concerns.

Essay three contributes to the literature of managerial efficiency by providing evidence in emerging markets, such as China. The results of this essay contradict the evidence found in the U.S. (Cui et al., 2019; Habib & Hasan, 2017). We argue that such contradiction can be explained by the cultural differences between the U.S. and China and the unique executive labour market in China's listed SOEs. Although the literature has established the theoretical background regarding the differences between individualism in the U.S. and collectivism in China, due to the unavailability of data, this essay does not provide empirical evidence on how collectivist culture shapes the influence of efficient managers on crash risk. Future studies may investigate the differential influence of managerial efficiency under different cultural backgrounds.

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APPENDIX A FOR ESSAY ONE

Appendix A.1. Variable Definition

Variable	Definition
G_B_D	A dummy variable that equals 1 if the SOE has conducted GRTs that are more likely to benefit firms in the year and 0 otherwise.
G_B_F	Frequency of GRTs that are more likely to benefit SOEs, calculated as logarithm (number of GRTs that are more likely to benefit firms + 1)
G_B_M	Value (RMB) involved in GRTs that are more likely to benefit firms in the year, scaled by total assets.
Pchair	A dummy variable that equals 1 if the chairman in the listed SOE is politically connected and 0 otherwise.
Firm Size	Natural logarithm of total assets.
ROA	Return on assets, calculated as net profit over total assets.
NERI Index	*NERI Index* measures the extent to which the regional economy in each of China's 31 provinces/regions is market-oriented. For detailed information, please see Wang et al. (2018).
Duality	A dummy variable that equals 1 if the chairman and CEO are the same person in the listed firm, and 0 otherwise.
Board Size	Natural logarithm of the number of board members.
Independence	The ratio of the number of independent directors in a board over the number of board members.
Leverage	The ratio of total debt over total assets.
Tobin's Q	Calculated as (book value of debt + market value of equity) / (book value of debt + book value of equity).
Top1	The shareholding percentage of the largest shareholder.
Institution	The shareholding percentage of institutional shareholders.
Big4	A dummy variable that equals 1 if the firm is audited by one of the "Big 4" auditing firms, and 0 otherwise.
Crosslisting	A dummy variable that equals 1 if the firm is cross-listed in the Hong Kong or foreign stock markets, and 0 otherwise.
InvExp	Investment expenditure, calculated as the ratio of investment expenditure (cash paid for fixed assets, intangible assets and other long-term assets less cash received from selling these assets) over total assets at the beginning of the year.
R&D	A firm's R&D expenses in a year scaled by total sales.
Dividend	Cash dividends scaled by total assets.
Sales growth	The growth rate of a firms' total operating income.
Labour	Labour intensity, measured as a SOEs' number of employees divided by its total assets, scaled by 10^6.
Subsidy1	Government subsidies received scaled by total assets.
Subsidy2	Government subsidies received scaled by total sales.

Appendix A.2. Correlation matrix

This table reports the correlation coefficients between key variables. Definitions of variables are in Appendix A.1. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

		1	2	3	4	5	6	7
1	*G_B_D*	1.000						
2	*G_B_F*	0.871***	1.000					
3	*G_B_M*	0.355***	0.380***	1.000				
4	*Pchair*	0.034**	0.060***	0.054***	1.000			
5	*Firm Size*	-0.030**	-0.050***	-0.038***	0.049***	1.000		
6	*ROA*	-0.038***	0.017	0.011	-0.060***	0.094***	1.000	
7	*NERI Index*	-0.037**	-0.028*	-0.042***	-0.018	0.181***	0.087***	1.000
8	*Duality*	-0.003	-0.024*	-0.034**	-0.030**	-0.038***	-0.010	0.018
9	*Board Size*	-0.028*	0.007	0.010	-0.015	0.210***	0.031**	0.044***
10	*Independence*	0.005	-0.018	-0.016	0.004	0.131***	0.013	0.010
11	*Leverage*	0.063***	-0.021	-0.031**	-0.028*	0.293***	-0.422***	-0.065***
12	*Tobin's Q*	-0.005	0.053***	0.046***	0.013	-0.468***	0.089***	-0.005
13	*Institution*	-0.035**	-0.041***	-0.044***	0.035**	0.082***	0.119***	0.034**
14	*Top1*	-0.050***	-0.079***	-0.047***	-0.012	0.298***	0.107***	0.072***
15	*Big4*	-0.009	-0.011	-0.004	-0.026*	0.428***	0.071***	0.157***
16	*Crosslisting*	-0.033**	-0.046***	-0.044***	-0.000	0.383***	0.012	0.109***

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		8	9	10	11	12	13	14	15	16
1	*G_B_D*									
2	*G_B_F*									
3	*G_B_M*									
4	*Pchair*									
5	*Firm Size*									
6	*ROA*									
7	*NERI Index*									
8	*Duality*	1.000								
9	*Board Size*	-0.042***	1.000							
10	*Independence*	0.021	-0.060***	1.000						
11	*Leverage*	0.012	0.002	0.027*	1.000					
12	*Tobin's Q*	0.002	-0.110***	-0.024*	-0.264***	1.000				
13	*Institution*	-0.003	0.003	-0.040***	-0.033**	0.013	1.000			
14	*Top1*	-0.087***	0.027*	0.067***	-0.025*	-0.135***	0.039***	1.000		
15	*Big4*	-0.013	0.085***	0.072***	0.032**	-0.171***	0.111***	0.143***	1.000	
16	*Crosslisting*	0.013	0.104***	0.063***	0.051***	-0.158***	-0.011	0.089***	0.497***	1.000

Appendix A.3. Politically connected CEO

This table reports the results of politically connected CEOs. *G_B_D* is a dummy variable that takes the value of one if the SOE has engaged in beneficial GRTs in the year and zero otherwise. *G_B_F* is calculated as the natural logarithm of the number of beneficial GRTs conducted in a year plus one. *G_B_M* is the total RMB value of beneficial GRTs conducted by an SOE in the year scaled by total assets. *Pceo* is a dummy variable that equals 1 if the CEO in the listed SOE is politically connected and 0 otherwise. Definitions of variables are in Appendix A.1. *z*-statistics (*t*-statistics) are calculated based on robust standard errors and are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)
Variables	*G_B_D*	*G_B_F*	*G_B_M*
Pceo	0.359***	0.034**	0.004**
	(2.820)	(2.311)	(2.151)
Firm Size	-0.078	-0.002	-0.003***
	(-1.446)	(-0.361)	(-3.436)
ROA	2.698***	0.104	0.006
	(3.435)	(1.562)	(0.599)
NERI Index	-0.093***	-0.014***	-0.001**
	(-3.151)	(-4.430)	(-2.466)
Duality	-0.400**	-0.041***	-0.003**
	(-2.249)	(-3.845)	(-2.191)
Board Size	-0.151	-0.008	0.002
	(-0.841)	(-0.514)	(0.607)
Independence	-1.151	-0.113*	-0.015**
	(-1.603)	(-1.849)	(-2.198)
Leverage	0.392	-0.002	0.010*
	(1.470)	(-0.061)	(1.709)
Tobin's Q	0.048	0.006	0.001
	(0.976)	(1.061)	(1.146)
Institution	-1.882***	-0.125***	-0.002
	(-3.542)	(-6.220)	(-0.506)
Top1	-2.535***	-0.146***	-0.003
	(-7.775)	(-5.340)	(-0.868)
Big4	0.745***	0.067***	0.008***
	(4.209)	(3.517)	(3.461)
Crosslisting	-1.166***	-0.078***	-0.001
	(-4.142)	(-4.773)	(-0.843)
Constant	1.197	0.320***	0.070***
	(1.014)	(3.300)	(4.860)
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	7,836	7,836	7,836
Pseudo R^2 /Adjusted R^2	0.100	0.060	0.011

Appendix A.4. One-year lagged independent variables

This table reports the results of lagged independent variables. *G_B_D* is a dummy variable that takes the value of one if the SOE has engaged in beneficial GRTs in the year and zero otherwise. *G_B_F* is calculated as the natural logarithm of the number of beneficial GRTs conducted in a year plus one. *G_B_M* is the total RMB value of beneficial GRTs conducted by an SOE in the year scaled by total assets. *Pchair* is a dummy variable that equals 1 if the chairman in the listed SOE is politically connected and 0 otherwise. Definitions of variables are in Appendix A.1. *z*-statistics (*t*-statistics) are calculated based on robust standard errors and are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Variables	(1) *G_B_D*	(2) *G_B_F*	(3) *G_B_M*
$Pchair_{t-1}$	0.314***	0.029***	0.003**
	(3.134)	(2.788)	(2.102)
Firm Size $_{t-1}$	-0.108*	-0.004	-0.003***
	(-1.955)	(-0.919)	(-3.632)
ROA $_{t-1}$	2.661***	0.124*	0.007
	(3.248)	(1.840)	(0.688)
NERI Index $_{t-1}$	-0.081**	-0.014***	-0.001
	(-2.506)	(-3.989)	(-1.642)
Duality $_{t-1}$	-0.603***	-0.045***	-0.002
	(-2.920)	(-4.292)	(-1.234)
Board Size $_{t-1}$	-0.019	0.009	0.002
	(-0.097)	(0.486)	(1.102)
Independence $_{t-1}$	-1.252	-0.113*	-0.013
	(-1.590)	(-1.712)	(-1.519)
Leverage $_{t-1}$	0.372	0.007	0.018***
	(1.292)	(0.240)	(2.709)
Tobin's Q $_{t-1}$	0.039	0.004	0.003
	(0.650)	(0.714)	(1.167)
Institution $_{t-1}$	-1.649***	-0.119***	-0.004
	(-3.123)	(-5.488)	(-1.427)
Top1 $_{t-1}$	-2.682***	-0.162***	-0.004
	(-7.664)	(-5.466)	(-0.949)
Big4 $_{t-1}$	0.659***	0.059***	0.006***
	(3.319)	(2.938)	(3.648)
Crosslisting $_{t-1}$	-1.005***	-0.069***	-0.000
	(-3.404)	(-3.951)	(-0.017)
Constant	1.501	0.359***	0.056***
	(1.201)	(3.402)	(4.075)
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	6,722	6,722	6,722
Pseudo R^2 /Adjusted R^2	0.108	0.067	0.016

Appendix A.5. Beneficial GRT conduct by politically connected chairpersons in small SOEs, SOEs with poor performance and SOEs in less developed regions

This table presents the results of the interaction between *Pchair* and *Firm Size, ROA and NERI Index*. *G_B_D* is a dummy variable that takes the value of 1 if the SOE has engaged in beneficial GRTs, and 0 otherwise. *G_B_F* is calculated as the natural logarithm of the number of beneficial GRTs conducted in a year plus one. *G_B_M* is the total RMB value of beneficial GRTs conducted by an SOE in the year scaled by total assets. *Pchair* is a dummy variable that equals 1 if the chairman in the listed SOE is politically connected and 0 otherwise. *Low_Size* is a dummy variable that equals 1 if the SOE's firm size is smaller than median and 0 otherwise. *Low_ROA* is a dummy variable that equals 1 if the SOE's ROA is smaller than median and 0 otherwise. *Low_NERI* is a dummy variable that equals 1 if the SOE is headquartered in a province with a NERI index lower than the median and 0 otherwise. Definitions of other variables are in Appendix A.1. *z*-statistics (*t*-statistics) are calculated based on robust standard errors and are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Firms size				ROA				NERI		
	(1)	(2)	(3)		(1)	(2)	(3)		(1)	(2)	(3)
Variables	*G_B_D*	*G_B_F*	*G_B_M*	Variables	*G_B_D*	*G_B_F*	*G_B_M*	Variables	*G_B_D*	*G_B_F*	*G_B_M*
Pchair	0.209	0.010	0.001	*Pchair*	0.441***	0.036***	0.003*	*Pchair*	0.400***	0.022*	0.002*
	(1.475)	(0.880)	(0.489)		(3.455)	(2.926)	(1.732)		(3.307)	(1.956)	(1.803)
Low_Size	0.238*	0.024**	0.004**	*Low_ROA*	-0.166	0.002	-0.000	*Low_NERI*	0.298**	0.024**	0.000
	(1.755)	(2.152)	(2.240)		(-1.349)	(0.228)	(-0.040)		(2.189)	(2.402)	(0.173)
*Pchair*Low_Size*	0.212	0.043**	0.008***	*Pchair*Low_ROA*	-0.239	-0.014	0.005*	*Pchair*Low_NERI*	-0.142	0.019	0.006**
	(1.130)	(2.232)	(3.370)		(-1.275)	(-0.805)	(1.953)		(-0.749)	(0.917)	(2.520)
Constant	-0.864	0.228***	0.006	Constant	1.077	0.305***	0.067***	Constant	0.903	0.266***	0.068***
	(-1.266)	(3.918)	(0.730)		(0.907)	(2.985)	(4.946)		(0.765)	(2.764)	(4.972)
Controls	Yes	Yes	Yes	Controls	Yes	Yes	Yes	Controls	Yes	Yes	Yes
Industry Dummy	Yes	Yes	Yes	Industry Dummy	Yes	Yes	Yes	Industry Dummy	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Year Dummy	Yes	Yes	Yes	Year Dummy	Yes	Yes	Yes
Observations	7,836	7,836	7,836	Observations	7,836	7,836	7,836	Observations	7,836	7,836	7,836
Pseudo R^2 /Adjusted R^2	0.102	0.062	0.013	Pseudo R^2 /Adjusted R^2	0.100	0.060	0.013	Pseudo R^2 /Adjusted R^2	0.0991	0.058	0.012

APPENDIX B FOR ESSAY TWO

Appendix B.1. Variable definition

Variables	Definition
RPT_DACC	Discretionary related-party accounts receivable, calculated following the method specified by Jian and Wong (2010).
DACC	Discretionary accruals, calculated following the modified Jones (1991) model.
SE	A dummy variable equals 1 if the chairperson holds a concurrent position in the listed SOE's shareholding firms and 0 otherwise.
SE_Largest	A dummy variable that equals 1 if the chairperson holds current position in the listed SOE's largest shareholding firm/institution and 0 otherwise.
Gender	A dummy variable that equals 1 if the chairperson is male and 0 otherwise.
Age	Natural logarithm of the chairperson's age.
Tenure	Natural logarithm of the chairperson's tenure.
Leverage	Total debt over total assets.
Firm Size	Natural logarithm of total assets.
Firm Age	Natural logarithm of firm age since establishment.
ROA	Return on assets, calculated as net income over total assets.
Top1	The percentage shareholding of the largest shareholder.
Separation	The divergence between control rights and cash flow rights of the controlling shareholder.
Independence	The independence of the firm's audit and accounting committee, measured as the percentage of independent members in the firm's audit and accounting committee.
Board Size	Natural logarithm of the number of board directors.
Duality	A dummy variable that equals 1 if the chairperson is also the CEO of the firms and 0 otherwise.
H/B	A dummy variable that equals 1 if the listed firm has shares listed in Hong Kong or any foreign stock markets and 0 otherwise.
Big4	A dummy variable that equals 1 if the listed firm hires Big-4 auditors and 0 otherwise.
CF_Nega	A dummy variable that equals 1 if the listed firm generates negative operating cash flow in the current year and 0 otherwise.
GDP_Incen	Government GDP growth incentive is a dummy variable that equals 1 if for provinces with a GDP growth rate lower than the national average level.
Central	A dummy variable if the listed firm is ultimately owned by the central government and 0 otherwise.
Suspect	A dummy variable that equals 1 if net income/lagged total assets is positive but smaller than 0.5% and 0 otherwise.
SEO	A dummy variable equals 1 if the observation year is one of the three years prior to a seasoned equity offering and 0 otherwise.

Appendix B.2. Distribution of SE and SE_Largest

Panel A. Distribution by year

Year	No. of SE	No. of SE_Largest
2008	516	448
2009	561	488
2010	586	521
2011	606	538
2012	618	541
2013	598	514
2014	578	513
2015	586	507
2016	574	472
Total	5223	4542

Panel B. Distribution by industry

Industry	No. of SE	No. of SE_Largest
Agriculture	47	37
Mining	264	254
Manufacturing	2737	2356
Utility	382	338
Construction	166	146
Wholesale and retail	423	350
Transportation	388	339
Accommodation and catering	50	43
Telecommunication	167	129
Real estate	310	282
Leasing and commercial service	53	46
Scientific research	19	18
Public facility management	64	61
Education	2	2
Health and social work	6	6
Culture, sports and entertainment	80	73
Diversified	65	62
Total	5223	4542

Appendix B.3. Correlation matrix

This table reports the correlation coefficients between key variables. Definitions of variables are in Appendix B.1. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

		1	2	3	4	5	6	7	8	9
1	*RPT_DACC*	1								
2	*DACC*	0.051***	1							
3	*SE*	-0.030**	0.005	1						
4	*SE_Largest*	-0.032**	-0.004	0.823***	1					
5	*Gender*	-0.01	0.009	0.051***	0.042***	1				
6	*Age*	0.037**	-0.007	-0.006	0.003	-0.01	1			
7	*Tenure*	0.01	-0.027*	0.044***	0.056***	-0.019	0.261***	1		
8	*Leverage*	0.019	-0.049***	0.006	0.017	-0.005	-0.062***	0.005	1	
9	*Size*	0.053***	0.057***	0.084***	0.097***	0.004	0.217***	0.034**	0.323***	1
10	*Firm Age*	0.042***	-0.008	0.004	-0.016	-0.018	0.02	0.070***	0.141***	0.072***
11	*ROA*	0.032**	0.033**	0.054***	0.059***	-0.012	0.116***	0.052***	-0.424***	0.062***
12	*Top1*	-0.004	-0.008	0.147***	0.196***	0.028*	0.070***	-0.099***	-0.015	0.283***
13	*Separation*	-0.006	0.011	0.096***	0.059***	0.014	-0.023*	-0.02	0.01	0.013
14	*Independence*	-0.002	0.034**	0.038***	0.038***	0.036**	0.038***	0.029*	0.019	0.090***
15	*Board Size*	0.018	0.038***	-0.058***	-0.058***	0.009	0.037**	-0.067***	0.039***	0.225***
16	*Duality*	-0.001	-0.022	-0.148***	-0.123***	-0.028*	-0.037**	0.058***	0.024*	-0.047***
17	*H/B*	-0.015	0.013	0.032**	0.023*	0.036**	0.102***	-0.026*	0.055***	0.318***
18	*Big4*	0.002	0.003	0.047***	0.031**	0.033**	0.101***	0.003	0.025*	0.380***
19	*CF_Nega*	0.078***	0.076***	-0.007	-0.003	0.007	-0.062***	-0.035**	0.128***	-0.095***
20	*GDP_Incen*	0.046***	0.018	0.022	0.015	0.007	0.058***	-0.01	-0.028*	0.051***

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		10	11	12	13	14	15	16	17	18	19	20
1	*RPT_DACC*											
2	*DACC*											
3	*SE*											
4	*SE_Largest*											
5	*Gender*											
6	*Age*											
7	*Tenure*											
8	*Leverage*											
9	*Size*											
10	*Firm Age*	1.000										
11	*ROA*	-0.115***	1.000									
12	*Top1*	-0.158***	0.122***	1.000								
13	*Separation*	0.052***	0.024*	0.080***	1.000							
14	*Independence*	-0.028*	0.007	0.027*	-0.044***	1.000						
15	*Board Size*	-0.043***	-0.003	-0.006	0.040***	-0.003	1.000					
16	*Duality*	0.006	-0.014	-0.090***	-0.013	0.012	-0.060***	1.000				
17	*H/B*	-0.083***	0.003	0.093***	-0.039***	0.204***	0.091***	0.008	1.000			
18	*Big4*	-0.042***	0.092***	0.145***	0.110***	0.093***	0.083***	-0.024*	0.469***	1.000		
19	*CF_Nega*	0.045***	-0.229***	-0.051***	-0.035**	-0.023*	-0.060***	0.022	-0.041***	-0.081***	1.000	
20	*GDP_Incen*	0.059***	-0.007	0.047***	0.024*	-0.012	0.018	-0.005	0.019	0.081***	0.013	1.000

Appendix B.4. "Spotlight" CEOs

This table presents the results of "spotlight" CEOs. *RPT_DACC* is discretionary related-party accounts receivable. *DACC* is discretionary accruals. *SE_CEO* is a dummy variable that equals 1 if the CEO holds a concurrent position in the listed SOE's shareholding firms and 0 otherwise. Definitions of variables other are in Appendix B.1. *t*-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)
Variables	*RPT_DACC*	*DACC*
SE_CEO	-0.002*	0.007
	(-1.820)	(1.301)
Gender	0.004	0.007
	(1.051)	(0.480)
Age	0.012*	-0.044*
	(1.791)	(-1.903)
Tenure	-0.001	-0.002
	(-1.303)	(-0.646)
Leverage	0.009	-0.187***
	(1.510)	(-9.528)
Size	0.006***	0.020***
	(3.893)	(3.971)
Firm Age	-0.023***	0.003
	(-5.689)	(0.199)
ROA	0.029*	0.337***
	(1.788)	(6.040)
Top1	-0.006	-0.049
	(-0.629)	(-1.476)
Separation	-0.013	0.071
	(-0.774)	(1.285)
Independence	0.005	0.013
	(1.511)	(1.177)
Board Size	0.008***	0.008
	(2.925)	(0.861)
Duality	-0.001	-0.012
	(-0.610)	(-1.636)
H/B	-0.003	-0.008
	(-0.206)	(-0.190)
Big4	0.004	0.005
	(0.917)	(0.312)
CF_Nega	0.003**	0.046***
	(2.353)	(10.600)
GDP_Incen	0.000	0.003
	(0.134)	(0.725)
Constant	-0.131***	-0.233
	(-3.066)	(-1.609)
Firm FE	Yes	Yes
Industry×Year	Yes	Yes
Observations	7,608	7,608
Adjusted R^2	0.316	0.122

Appendix B.5. Lagged independent variables

This table presents the results of lagged independent variables. *RPT_DACC* is discretionary related-party accounts receivable. *DACC* is discretionary accruals. *SE* is a dummy variable that equals 1 if the chairperson holds a concurrent position in the listed SOE's shareholding firms and 0 otherwise. Definitions of variables other are in Appendix B.1. *t*-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)
Variables	*RPT_DACC*	*DACC*
SE_{t-1}	-0.004**	0.002
	(-2.316)	(0.414)
$Gender_{t-1}$	0.003	0.037**
	(0.615)	(2.340)
Age_{t-1}	0.001	-0.003
	(0.156)	(-0.117)
$Tenure_{t-1}$	0.001	0.005
	(0.433)	(1.200)
$Leverage_{t-1}$	0.007	0.195***
	(1.002)	(8.722)
$Size_{t-1}$	0.002	0.006
	(0.971)	(1.047)
Firm Age_{t-1}	-0.018***	-0.029*
	(-3.801)	(-1.879)
ROA_{t-1}	0.004	0.093
	(0.229)	(1.530)
$Top1_{t-1}$	-0.013	0.005
	(-1.141)	(0.128)
$Separation_{t-1}$	0.021	0.088
	(1.167)	(1.415)
$Independence_{t-1}$	0.004	0.017
	(1.135)	(1.417)
Board $Size_{t-1}$	0.003	0.009
	(0.870)	(0.826)
$Duality_{t-1}$	0.001	0.000
	(0.601)	(0.038)
H/B_{t-1}	0.005	-0.042
	(0.370)	(-0.863)
$Big4_{t-1}$	-0.006	-0.003
	(-1.158)	(-0.141)
CF_Nega_{t-1}	-0.003**	-0.005
	(-2.509)	(-1.040)
GDP_Incen_{t-1}	0.001	0.002
	(1.104)	(0.491)
Constant	-0.004	-0.238
	(-0.086)	(-1.422)
Firm FE	Yes	Yes
Industry×Year	Yes	Yes
Observations	6,496	6,496
Adjusted R^2	0.315	0.104

APPENDIX C FOR ESSAY THREE

Appendix C.1. Definition of variables

Variables	Definition
Ncskew	The negative coefficient of skewness, which is measured as the negative of the third moment of firm-specific weekly returns of each year scaled by the standard deviation of firm-specific weekly returns raised to the third power. See Section 3.2.1. for details.
Duvol	The down-to-up volatility. We identify "down" ("up") weeks as those with firm-specific weekly return below (above) the annual average for firm i in year t and calculate the standard deviation of firm-specific weekly return in both "down" and "up" weeks. We then compute the natural logarithm of the ratio of the standard deviation of the down weeks to the standard deviation of the up weeks. See Section 3.2.1. for details.
ME	Managerial efficiency ranking, created based on the managerial efficiency score estimated following the Demerjian et al. (2012) DEA model.
Leverage	Leverage ratio, calculated as the book value of liability scaled by the book value of total assets.
Firm Size	Natural logarithm of total assets.
ROA	Return on assets, calculated as net income over total assets.
Tobin's Q	The market value of total assets scaled by the book value of total assets.
Top1	Shareholding percentage of the largest shareholder.
GDP	Provincial GDP growth rate of the province where the listed firms headquarter is located.
|DACC|	The absolute value of discretionary accruals, estimated from the modified Jones model.
Dturn	Detrended stock trading volume, which is measured as the current year's average monthly stock turnover minus the previous year's average monthly stock turnover. The monthly turnover of a stock is calculated as the monthly trading volume scaled by the number of floating shares in that month.
Ret	The average firm-specific weekly return over the past year.
Sigma	Standard deviation of the past firm-specific weekly returns.
SOE	A dummy variable that equals 1 if the firm's ultimate controller is a government agency or SOEs and 0 otherwise.
Education	Regional education quality, which is measured as the number of university students per 100,000 population of the province in which the listed firm is located.
Efficient CEO	A dummy variable that equals 1 if the average efficiency ranking of the CEO throughout his/her career is higher than the 75th percentile and 0 otherwise.
ME_Score	Managerial efficiency score estimated following the Demerjian et al. (2012) DEA model.
NERI	NERI Index, which measures the level of regional market development in each of China's 31 provinces/regions. For detailed information, please see Wang et al. (2018).
Transparency	A transparency ranking ranging from 1 to 4 based on the transparency ratings provided by the Shenzhen and Shanghai Stock Exchanges.
Timeliness	The natural logarithm of the number of days between the end of a fiscal year and the announcement date of annual reports.
OverInv	A dummy variable that equals 1 if the investment expenditure of a firm is higher than expected and 0 otherwise.
Std_ROA	Industry adjusted standard deviation of ROA in a 3-year overlapping window.

Analyst Following	The natural logarithm of the number of analysts that follow the firm.

Appendix C.2. Correlation matrix

This table reports the correlation coefficients between key variables. Definitions of variables are in Appendix C.1. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Variables		1	2	3	4	5	6	7
1	*Ncskew*	1.000						
2	*Duvol*	0.872***	1.000					
3	*MA*	0.020	0.030*	1.000				
4	$Leverage_{t-1}$	-0.003	-0.009	0.153***	1.000			
5	$Firm\ Size_{t-1}$	-0.012	-0.018	0.071***	0.400***	1.000		
6	ROA_{t-1}	0.060***	0.068***	0.148***	-0.415***	0.043***	1.000	
7	$Tobin's\ Q_{t-1}$	0.078***	0.075***	0.049***	-0.188***	-0.398***	0.093***	1.000
8	$Top1_{t-1}$	-0.001	0.002	0.120***	0.008	0.165***	0.110***	-0.128***
9	GDP_{t-1}	0.035**	0.030*	0.101***	0.066***	-0.127***	0.045***	0.107***
10	$\|DACC\|_{t-1}$	0.024*	0.022	0.023	0.112***	0.022	-0.036**	0.109***
11	$Dturn_{t-1}$	-0.053***	-0.056***	-0.059***	0.009	0.077***	-0.053***	0.200***
12	Ret_{t-1}	-0.119***	-0.141***	-0.021	-0.011	-0.137***	-0.089***	-0.152***
13	$Sigma_{t-1}$	-0.027*	-0.046***	-0.019	0.035**	-0.091***	-0.109***	0.260***
14	*SOE*	-0.028*	-0.031**	0.051***	0.261***	0.283***	-0.115***	-0.101***

(Continuous)

(Continuous) Variables		8	9	10	11	12	13	14
1	*Ncskew*							
2	*Duvol*							
3	*ME*							
4	$Leverage_{t-1}$							
5	$Firm\ Size_{t-1}$							
6	ROA_{t-1}							
7	$Tobin's\ Q_{t-1}$							
8	$Top1_{t-1}$	1.000						
9	GDP_{t-1}	-0.010	1.000					
10	$\|DACC\|_{t-1}$	-0.017	0.019	1.000				
11	$Dturn_{t-1}$	-0.073***	0.007	-0.040***	1.000			
12	Ret_{t-1}	-0.009	-0.344***	-0.049***	-0.066***	1.000		
13	$Sigma_{t-1}$	-0.051***	0.015	0.085***	0.371***	-0.057***	1.000	
14	*SOE*	0.092***	0.118***	0.003	-0.012	-0.066***	-0.028*	1.000

Appendix C.3. Channel analysis: information transparency

This table reports the results of channel analysis on information transparency. Panel A presents the results of transparency ranking. Panel B presents the results of reporting timeliness. The first stage results are reported in column (1) in each panel. Results of the second stage regressions are shown in columns (2) and (3) in each panel. *Ncskew* is the negative coefficient of skewness. *Duvol* is the down-to-up volatility. *ME* is the managerial efficiency ranking, created based on the managerial score estimated following the Demerjian et al. (2012) DEA model. *Transparency* is a transparency rating ranging from 1 to 4 based on the transparency ratings provided by the Shenzhen and Shanghai Stock Exchanges. *Timeliness* is the natural logarithm of the number of days between the end of a fiscal year and the announcement date of annual reports. Detailed definitions of other variables are given in Appendix C.1. *t*-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Transparency rating

	(1)	(2)	(3)
Variables	*Transparency*	*Ncskew*	*Duvol*
ME	0.581***		
	(9.563)		
Fitted_Transparency		-0.233	-0.265**
		(-1.310)	(-2.207)
Residuals		-0.044**	-0.022*
		(-2.265)	(-1.710)
Constant	2.650***	-1.875**	-0.647
	(66.305)	(-2.193)	(-1.121)
Controls	No	Yes	Yes
Firm FE	Yes	Yes	Yes
Industry-Year	Yes	Yes	Yes
Observations	8,546	7,141	7,141
Adjusted R^2	0.432	0.094	0.095

Panel B. Reporting timeliness

	(1)	(2)	(3)
Variables	*Timeliness*	*Ncskew*	*Duvol*
ME	-0.191***		
	(-6.243)		
Fitted_Timeliness		0.683	0.791**
		(1.267)	(2.174)
Residuals		-0.000	-0.002
		(-0.006)	(-0.100)
Constant	4.675***	-5.658**	-5.033***
	(231.539)	(-2.255)	(-2.973)
Controls	No	Yes	Yes
Firm FE	Yes	Yes	Yes
Industry-Year	Yes	Yes	Yes
Observations	8,546	7,141	7,141
Adjusted R^2	0.240	0.093	0.094

Appendix C.4. Channel analysis: excessive risk-taking

This table reports the results of channel analysis on excessive risk-taking. Panel A presents the results of overinvestment. Panel B presents the results of excessive ROA volatility. The first stage results are reported in column (1) in each panel. Results of the second stage regressions are shown in columns (2) and (3) in each panel. *Ncskew* is the negative coefficient of skewness. *Duvol* is the down-to-up volatility. *ME* is the managerial efficiency ranking, created based on the managerial score estimated following the Demerjian et al. (2012) DEA model. *OverInv* is a dummy variable that equals 1 if the firm's investment expenditure is higher than expected. *Std_ROA* is the standard deviation of ROA in a 3-year overlapping window minus the industry median standard deviation of ROA. Detailed definitions of other variables are given in Appendix C.1. *t*-statistics are reported in parentheses. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Overinvestment

	(1)	(2)	(3)
Variables	*OverInv*	*Ncskew*	*Duvol*
ME	-0.791***		
	(-4.980)		
Fitted_OverInv		1.056*	0.938***
		(1.955)	(2.713)
Residuals		0.001	0.000
		(0.090)	(0.019)
Constant	0.307	-2.380***	-1.228***
	(1.195)	(-3.451)	(-2.782)
Controls	No	Yes	Yes
Firm FE	No	Yes	Yes
Industry×Year	Yes	Yes	Yes
Observations	7,712	7,016	7,016
Adjusted/Pseudo R^2	0.0561	0.087	0.090

Panel B. ROA volatility

	(1)	(2)	(3)
Variables	*Std_ROA*	*Ncskew*	*Duvol*
ME	-0.071***		
	(-4.750)		
Fitted_Std_ROA		3.807**	3.226***
		(2.286)	(2.988)
Residuals		-0.014	-0.042
		(-0.145)	(-0.652)
Constant	0.118***	-3.364***	-1.735***
	(10.728)	(-4.576)	(-3.642)
Controls	No	Yes	Yes
Firm FE	Yes	Yes	Yes
Industry×Year	Yes	Yes	Yes
Observations	7,371	6,115	6,115
Adjusted R^2	0.304	0.099	0.098