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China's Closed Pyramidal Managerial Labor Market and the Stock Price Crash Risk

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ABSTRACT: Managers of China's state-owned firms work in a closed pyramidal managerial labor market. They enjoy non-transferable benefits if they choose to stay within this system. The higher up are they in this labor market hierarchy (their political ranks), the fewer are their outside employment opportunities. Due to career and wealth concerns, they are cautious and risk-averse when managing firms. We examine the effect of managers' political ranks on firms' stock price crash risk and find a negative association. This association mainly exists in firms with younger managers and managers with shorter tenure. Further, this effect is only significant in regions with weak market forces, in firms without foreign investors, without political connections, and during periods with no local government leaders' or managers' political promotions. We conclude that the political ranking system reduces the stock price crash risk.

Keywords: internal labor market; political ranks; stock price crash risk; China.

JEL Classifications: G30; J33.

I. INTRODUCTION

A series of recent research suggests that the contract between shareholders and managers can significantly affect stock price crash risk (e.g., Bae, Lim, and Wei 2006; Benmelech, Kandel, and Veronesi 2010; Kim, Li, and Zhang 2011a). We examine how managers' political incentives affect firms' crash risk. In particular, we demonstrate that the contract between the state and managers, as manifested in China's political personnel ranking system, can affect the crash risk.

Within China's progressive political ranking system, managers of state-owned firms work in a relatively closed, although still competitive, internal labor market. They are *de facto* government officials with political ranks. Keeping their current ranks and getting promotions within this system means power, status, reputation, pecuniary and non-pecuniary rewards and benefits, while a departure from this system can leave them with no comparably prestigious employment opportunities. This partially resembles Tullock's (1965) politicians in a bureaucratic system. He describes behaviors of politicians in government organizations, while we examine behaviors of managers who are also politicians. Our setting is a mixture of a political

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bureaucratic system and a market for professional managers. Under this circumstance, managers of state-owned firms are motivated to exercise caution—to achieve performance without making mistakes while keeping their bosses happy. This is especially true for managers with high political ranks in the labor market pyramid. Losses due to failures resulting from risky behaviors are huge. Further, these managers already possess a competitive advantage due to their high ranks and, thus, behave more cautiously (Bronars 1986; Brown, Harlow, and Starks 1996; Chevalier and Ellison 1997). Finally, as progressively fewer people are at the higher rungs of the pyramidal political ranking system, the higher a manager's political rank, the more likely it is that he or she will be strictly monitored by the government. These factors cause managers with high political ranks to exercise caution when managing firms. Cautious and risk-averse managers are less likely to engage in high-risk projects and, therefore, they help reduce stock price crash risk.

Relying on Tullock (1965), we can potentially arrive at the same prediction. He argues that politicians seek promotions by pleasing the sovereign. As politicians' opportunity set is typically limited at high ranks, the more they lack outside employment opportunities, the more likely they are to be evaluated based on politics rather than objective performance criteria. High (low) ranking managers' promotions are more determined by political (economic) performance. High-ranking managers, therefore, are less likely than low-ranking managers to be associated with crashes, as they engage in fewer risky strategies to boost economic performance. Based on these arguments, we predict a negative association between managers' political ranks and stock price crash risk.

Using data of China's publicly listed firms during the period 2005–2012, we test the above prediction. We find that stock price crash risk is lower in state-owned firms where managers have higher political ranks. This negative association between political ranks and the crash risk exists mainly in firms with younger managers and those with shorter tenure. Finally, institutions play a role in affecting how political ranks reduce stock price crash risk. The negative association between political ranks and the crash risk is significant only in regions with weak market forces, in firms without foreign investors, without political connections, and during periods with no local government leaders' or managers' political promotions.

We make the following contributions. First, we expand the research on stock price crash risk using a setting when political mechanisms are embedded into corporate governance. This is not unique to China, as contracts between managers and firms are influenced by political forces all over the world. Benmelech et al. (2010) and Kim et al. (2011a) show that the contract between shareholders and managers can influence the crash risk. We find that in China's state-owned firms, the contract between the state and managers is another factor influencing firms' crash risk. Managers of China's state-owned firms have a double identity, leading to an overlap between political and market contracts in a closed pyramidal managerial labor market. This setting gives us an opportunity to examine a phenomenon that is of general interest.

Second, this study speaks to the roles played by China's tournament-style political ranking system, as well as Tullock's (1965) politicians in a bureaucratic system. Our evidence suggests that both, with different mechanisms, can induce managers to behave with caution, thus reducing risk.

Third, while Qian and Weingast (1997) and Qian and Roland (1998) resort to federalism to explain China's rapid economic growth, they do not explore how federalism ensures the execution of central government's strategies and goals. Blanchard and Shleifer (2001) argue that China's political centralization induces local governments to favor economic growth. Li and Zhou (2005) offer empirical evidence at the regional level, not at the firm level. We conduct an analysis at the firm level and provide evidence associated with the mitigation of risk behind China's economic growth.

Finally, our findings are useful to international investors. As China's economy continues to grow, it is important that foreign investors and regulatory authorities understand China's unique governance of its state-owned firms. Further, many Chinese state-owned firms are also listed in foreign countries. A good understanding of their governance mechanism benefits international investors.

It is important to note that results in this study do not necessarily point to the political ranking system being a governance-enhancing mechanism. While in the context of reducing crash risk, the political ranking system appears to play a positive role, this system can potentially lead to preferential treatments by the government and auditors, which can drive the negative association between political ranks and the crash risk.

The remainder of the paper proceeds as follows. Section II discusses China's institutional background, reviews the literature, and develops the hypothesis. Section III describes sample selection, model design, and descriptive statistics. Section IV discusses regression results. Section V summarizes and concludes.

II. BACKGROUND, LITERATURE, AND HYPOTHESIS DEVELOPMENT

Background for the Political Ranking System

China's Communist Party controls and manages its personnel. Party representatives of state-owned firms can be members of the boards of directors and the committees of supervisors. Party representatives of the boards of directors, committees of supervisors, and managers can also enter the party committee. A way to carry out personnel control is the political ranking system. Therefore, managers of China's state-owned firms receive dual nominations. When they receive offers from firms' boards of directors to be high-level managers, they also receive nominations from the Personnel Organization Department of the Communist Party Commission to be government officials.

Political ranking is originally a product of the planned economy and reflects political positions in the state that firms' managers occupy (L. Li and H. Li 1999). Due to economic, political, and military considerations, state-owned firms were initially assigned political ranks to enable them to be embedded into the national political system. This kind of hierarchy is also a part of China's historical and cultural tradition that is deeply rooted in the society. It fits Granovetter's (1985) economic-sociological theory that economic activities are embedded in social relationships. Political goals are often carried out in the design and allocation of firm ranks. Managers who are assigned to run these firms naturally gain political ranks. Firm rank and manager rank are two sides of the same coin. One side is the rank of the assets under management, while the other side is the rank of the manager.

We cannot access the Party's internal documents to precisely ascertain each manager's political rank. We can only infer a manager's rank by examining the ranks of firms he or she has served or the rank of the firm he or she is serving or the ranks of the government agencies that he or she has served. It is not always the case that firm rank and manager rank are the same. Sometimes, a manager's rank is higher than a firm's rank.

We want to elaborate on two issues here. First, not anyone can be assigned as a manager of a firm with a particular political rank. Normally, he or she needs to at least have occupied a position one rank below or the same rank before he or she can be assigned. Promotions are progressive and promotions beyond one rank are rare, albeit not impossible. Second, it is tempting to know whether it is firm rank or manager rank that is playing a governance role. It is possible that both can play a role. However, as the product market is competitive, a firm cannot perpetually maintain its comparative advantage by just relying on its political rank. Over an extended period of time, if political ranks influence firm performance, then it likely comes from managers rather than firms. Further, if we find that managers' ranks influence firm performance and that this influence varies with managers' traits, such as age and tenure, then this influence should come from managers' ranks rather than from firms' ranks.

Through this political ranking system, managers maintain a natural association with the state or the government. On the one hand, they are constrained and influenced by the multifaceted commands of the government (Bai and Xu 2005; Bai, Lu, and Tao 2006). On the other hand, they may receive various favorable treatments from the government. Within the system, managers can realize migrations from firms to firms, from firms to the government, or from the government to firms. They can also be promoted to higher ranks within their current firms or in other firms through a tournament-style competition within the closed pyramidal managerial labor market.

Internal Labor Market, Tournament, and Risk Preference of Competitors

Managers of China's state-owned firms more or less work in a closed hierarchical internal managerial labor market (Doeringer and Piore 1971). Once they leave this labor market, voluntarily or involuntarily, it is hard for them to get comparably prestigious employment opportunities. An internal labor market often uses the tournament mechanism. In a tournament, many competitors compete for an award. The winner gets a very high prize, while the losers get a low prize or nothing (Lazear and Rosen 1981; Rosen 1986). At different stages of a tournament, participants likely compete based on different criteria and with different goals. However, the ultimate goal is to stay in the game and obtain the chance of competing in the next round. When the cost of monitoring is high, tournaments are cost-effective (Lazear and Rosen 1981). The Chinese government controls a vast number of state-owned firms and faces a high cost of monitoring.

The tournament mechanism affects participants' risk preference. The front runner prefers a low-risk strategy to maintain its current advantage, while the trailing opponent chooses a high-risk strategy to increase its chance of winning (Bronars 1986). Therefore, participants entering a higher level of competition in a tournament, such as managers of higher political ranks in China's state-owned firms, will demonstrate a higher level of risk-aversion as their winner's status is already largely recognized.

Hypothesis Development

State's Goals in the Political Ranking System

The political ranking system has played an important role in transforming China to a Chinese-style market-oriented economy. It is a mixture of a political bureaucratic system and a market for professional managers. This system enables government officials to gain practical experience in running businesses and helps them better understand the operations of the economy. This is important to China as its government makes economic development its priority. Mobility within the system also enables managers of state-owned firms to bid for becoming government officials based on their managerial experience and performance. This enhances the competition mechanism. To a certain extent, state-owned firms play the role of "the incubator for business-savvy officials," where the government observes and cultivates managers and officials.

The political ranking system helps the government reduce the monitoring cost. Due to the importance of state-owned firms to the nation, managers are under tight scrutiny. Under the principle of the "Party Controls and Manages Its Cadres," these firms must be run by politically loyal and competent managers. A mechanism of political ranks and promotions can help the government maintain and improve monitoring efficiency, reduce the information acquisition and processing cost, and gain a good understanding of managers' capability and business experience.

It is tempting to argue that the political ranking system fills the governance void in China. Political goals can bring about political burdens, as well as political benefits (Lin, Cai, and Li 1998), and whether external investors gain or lose is uncertain. The political ranking system can potentially introduce bad incentives and bring unfair privileges to high-ranking managers, leading to selective enforcement, rent seeking, and corruption.

Incentives Provided to Managers within the Political Ranking System

Political ranks often mean benefits to high-level managers of state-owned firms. Benefits associated with political ranks are substantial, including pecuniary benefits such as the right to control resources and a legitimate increase in income and related benefits. They also include non-pecuniary benefits, such as possibilities for promotions (Rosen 1986), spiritual encouragement, and an enhancement in reputation (Baker, Jensen, and Murphy 1988). As for legitimate income and benefits, the effect of political ranks is reflected not only horizontally, but also longitudinally. Horizontally, a high political rank means a wide range and a large amount of benefits. Longitudinally, benefits accompanying managers of state-owned firms can not only be enjoyed during managers' tenure, but also be extended to periods after their retirement.

In absolute terms, benefits provided to managers of state-owned firms, including implicit and explicit forms, are not necessarily lower than explicit benefits provided to managers of non-state-owned firms. Reducing the implicit form of benefits potentially resembles savings to firms, but it may not be feasible as the savings can easily dissipate due to other ensuing costs, for example, the cost of measuring performance, the cost of executing and modifying contracts, etc. In addition, there is some further "wisdom" in introducing the political ranking mechanism. This mechanism successfully separates implicit benefits from explicit benefits, leaving the observable part, explicit benefits, relatively small. This serves the government's political purpose of maintaining a level of seeming equality in the society.

Preference for the Political Ranking System

Normally, a manager advances progressively in the political ranking system. Only by winning the current round can he or she become eligible to enter the competition in the next round. Therefore, gaining the current rank provides an option value for competing for the next rank (Rosen 1986). Further, high ranks can bring enhanced reputation to managers (Baker et al. 1988). China's philosophy and tradition of "officialdom," fostered over 2,000 years of feudalism and Confucianism, further reinforce the attractiveness of political ranks to managers and the people's acceptance of this system.

Similar to government officials, managers of state-owned firms compete in a relatively closed internal labor market (Zhou 2004). This enhances the importance of promotions to managers. It is difficult for them to find comparably prestigious employment opportunities outside the party organization. They are unlikely to voluntarily quit their current positions, given a large chasm between lives within and outside the government. This creates a lock-in effect.[1] Managers of state-owned firms often spend their entire career in this system. This reduces their chance for short-termism and motivates them to pay attention to long-term prospects. There is another factor that fortifies the lock-in effect: information asymmetry—the difficulty for the external labor market to observe, assess, and price the implicit benefits that managers of state-owned firms receive.[2] This further limits managers' ability to find alternative outside employment opportunities. Moreover, compared with non-state-owned firms, state-owned firms exist in a system of multiple objectives. Managerial talent associated with state-owned firms is different from the talent of value maximization of non-state-owned firms. Of course, non-state-owned firms can also share a host of issues faced by state-owned firms, but to a lesser extent. This specificity in managerial talent plays a role in locking in managers within stated-owned firms and reducing their mobility to the external labor market. Preserving current positions and working toward promotions within the state sector is a more viable solution.

[1] Chen, Guan, and Ke (2013) find that managers of state-owned firms have two alternatives when deciding whether to exercise stock options: giving up exercising, but staying with the firms; or exercising, but leaving the firms. Therefore, the relatively closed internal labor market exerts a lock-in effect on managers of state-owned firms.

[2] In developing economies such as China, information asymmetry can also exacerbate rent-seeking behavior, as the probability of detecting such a behavior is low. This adds tension to our story. In the section on alternative mechanisms, we examine this issue.

This causes managers of state-owned firms to be risk-averse. To managers with high political ranks, on the one hand, losses associated with failures resulting from risky behaviors are huge. On the other hand, they already possess a competitive advantage and, thus, behave more cautiously (Bronars 1986; Brown et al. 1996; Chevalier and Ellison 1997). Therefore, high-ranking managers are less likely to take excessive risk and, thus, help reduce stock price crash risk.

There is another, if not unrelated, way that high-ranking managers can reduce risk. Tullock (1965) argues that bureaucrats, as politicians, seek promotions. The only way to obtain promotions is to act in a manner that is rewarded by the sovereign. Pleasing the sovereign is the most important task. Politicians' opportunity set is typically limited, especially among the higher ranks. The more they lack outside employment opportunities, the more they will be evaluated based on politics rather than economic performance. High-ranking managers, thus, are less likely than low-ranking managers to cause crashes, as they lack incentives to engage in risky strategies to boost economic performance.

Based on the above arguments, we propose the following hypothesis:

H: State-owned firms' stock price crash risk is negatively associated with their managers' political ranks.

We need to note potential tensions in this hypothesis. It is not necessarily the case that high-ranking managers are more cautious or transparent. As their promotions are likely to be more of a political, rather than an economic, decision, they will be more responsive to political incentives to suppress bad news. That is, they do not want to report bad news to embarrass their bosses and risk their political capital. Piotroski, Wong, and Zhang (2015) find that there is more suppression around promotions of politicians that are tied to political factions. From a theoretical point of view, in the long run, the greater the ability to suppress bad news, the higher the crash risk (Jin and Myers 2006). Further, Tullock (1965) argues that low-ranking politicians are more likely to be under multiple sovereigns. As the multiple sovereigns will normally compete among themselves and need to rely on the support of low-ranking personnel in this competition, low-ranking politicians have some discretion in choosing among the sovereigns. Therefore, low-ranking politicians can end up relying less on economic performance for promotions, reducing the crash risk.

However, even though we acknowledge the single-multiple sovereign difference between high- and low-ranking politicians, this difference is limited in China's state-owned firms. After all, the Chinese personnel system is vertical with all units under unified leadership. This system resembles a single sovereign situation in which a politician confronted with choices must take two variables into account: the deviation between what he or she wants and what the sovereign will reward, and the probability that the sovereign will reward his or her action (Tullock 1965). Rent seeking and suppressing bad news are associated with cost.

Finally, from an empirical point of view, if managers can reduce firm risk with rent seeking and suppressing bad news, then older managers or managers with longer tenure will enhance the negative association between political ranks and crash risk, as they are more capable at rent seeking and have fewer financial constraints. However, if it is political ranks that influence managers' behaviors through incentives mentioned earlier, then younger managers or managers with shorter tenure would enhance the negative association between political ranks and crash risk, as they have greater room for promotions. Here, we hasten to admit the limitation in this argument. Even though the political ranking system has the potential of reducing the crash risk, we are hesitant to call it a good governance mechanism. Incentives associated with politicians and privileges given to high-ranking managers (officials) can potentially lead to selective enforcement, rent seeking, and corruption.

III. VARIABLE DEFINITIONS AND EMPIRICAL DESIGN

Defining Political Ranks

We hand-collect political ranks of managers from firms' annual reports. Starting from 2004, firms in China are required to report their control charts, where information on firms' highest control entities and the layers of management between the highest control entities and the firms is disclosed. China's listed firms also disclose the occupational history of managers. Using these two sources, we identify political ranks of firms and their managers (chairmen of the boards) using a procedure similar to Liang, Li, D. Chen, and S. Chen (2015). Obtaining a manager's political rank involves two steps. First, we determine a firm's political rank (*Cohi*). We obtain information on a firm's controlling entity. It is either the central, provincial, city- and county-level state-owned Assets Supervision and Administration Commission or a university. Then, based on the control chart between the listed firm and its control entity, we determine a listed firm's political rank. If there are multiple control chains, then we use the chain with the highest level of share ownership. Second, we determine a manager's political rank (*Dshi*). Relying on annual reports and manually collected managers' occupational history, we obtain a manager's current or past highest political rank in firms, groups, or the government. A manager's political rank is the higher of his or her highest current or past political rank or the rank of the firm that he or she manages. We then divide political rank of a manager (or a firm) into four categories: township and section level (*Dshi* or *Cohi* = 1); county and division level (*Dshi* or *Cohi* = 2); department and bureau level (*Dshi* or *Cohi* = 3); and provincial and ministerial level (*Dshi* or *Cohi* = 4).

Defining Stock Price Crash Risk

We measure stock price crash risk following Chen, Hong, and Stein (2001), Hutton, Marcus, and Tehranian (2009), Kim et al. (2011a), and Kim, Li, and Zhang (2011b). This requires first estimating firm-specific weekly return for each firm, *W*, which is the logarithm of 1 plus the residual, $W_{jt} = \ln(1 + \varepsilon_{jt})$, from estimating the following regression:

$$r_{jt} = \alpha_j + b_{1j}r_{mt-2} + b_{2j}r_{mt-1} + b_{3j}r_{mt} + b_{4j}r_{mt+1} + b_{5j}r_{mt+2} + \varepsilon_{jt}, \quad (1)$$

where r_{jt} is Stock *j*'s return during Week *t;* r_{mt-2}, r_{mt-1}, r_{mt}, r_{mt+1}, and r_{mt+2} are market returns during Weeks *t*–2, *t*–1, *t*, *t*+1, and *t*+2, respectively.

Next, we define stock price crash risk in two ways. The first measure is an indicator variable, *Crash*. We consider the distribution of firm-specific weekly return *W*.[3] If there is at least a week in a fiscal year where the return is 2.58 standard deviations below the mean of weekly returns, then the stock is assumed to have experienced a crash in a particular sample year, and we set *Crash* to 1. Otherwise, we set *Crash* to 0.

The second measure is a continuous measure, *Ncskew,* that captures the negative conditional skewness of firm-specific returns. More specifically, *Ncskew* is computed using the formula below:

$$Ncskew_{jt} = -\left[n(n-1)^{3/2}\sum W_{jt}^3\right] / \left[(n-1)(n-2)\left(\sum W_{jt}^2\right)^{3/2}\right], \quad (2)$$

where *W* is firm-specific return estimated using Equation (1), and *n* is the number of weeks used to compute *Ncskew*.

Model Specification

Similar to Chen et al. (2001) and Kim et al. (2011a, 2011b), we estimate the following regressions:

$$Crash_t = \alpha_0 + \alpha_1 Dshi_{t-1} + \alpha_2 Dturn_{t-1} + \alpha_3 Ncskew_{t-1} + \alpha_4 Sigma_{t-1} + \alpha_5 Wret_{t-1} + \alpha_6 Size_{t-1} + \alpha_7 MB_{t-1} + \alpha_8 Lev_{t-1} + \alpha_9 Roa_{t-1} + \alpha_{10} Accm_{t-1} + \varepsilon_t, \quad (3)$$

$$Ncskew_t = \alpha_0 + \alpha_1 Dshi_{t-1} + \alpha_2 Dturn_{t-1} + \alpha_3 Ncskew_{t-1} + \alpha_4 Sigma_{t-1} + \alpha_5 Wret_{t-1} + \alpha_6 Size_{t-1} + \alpha_7 MB_{t-1} + \alpha_8 Lev_{t-1} + \alpha_9 Roa_{t-1} + \alpha_{10} Accm_{t-1} + \varepsilon_t, \quad (4)$$

where, for Firm *i*, $Crash_t$ is an indicator variable for crash risk in Year *t,* and $Ncskew_t$ is a continuous variable for crash risk in Year *t*. $Dshi_{t-1}$ is the political rank for a firm's chairman in Year *t*–1. $Dturn_{t-1}$ is the detrended share turnover in Year *t*–1. $Ncskew_{t-1}$ is negative firm-specific weekly return skewness in Year *t*–1. $Sigma_{t-1}$ is the firm-specific weekly return volatility in Year *t*–1. $Wret_{t-1}$ is the average firm-specific weekly return in Year *t*–1. $Size_{t-1}$ is the logarithmic transformation of a firm's total assets at the end of Year *t*–1. MB_{t-1} is the market-to-book ratio of a firm at the end of Year *t*–1. Lev_{t-1} is a firm's ratio of total liabilities to total assets at the end of Year *t*–1. Roa_{t-1} is a firm's ratio of net income to total assets at the end of Year *t*–1. $Accm_{t-1}$ is the past-three-year moving sum of absolute abnormal accruals ending in Year *t*–1, which equals the sum of absolute abnormal accruals in Years *t*–1, *t*–2, and *t*–3.[4] Our hypothesis suggests that the coefficient on $Dshi_{t-1}$ should be negative ($\alpha_1 <$ 0). We include year and industry indicators to control for year and industry fixed effects.

IV. EMPIRICAL RESULTS

Sample Selection

Our sample period covers eight years, from 2005 to 2012. As our study requires information during the current and the previous years, we also include Year 2004. Data for political ranks of managers from state-owned firms are manually collected

[3] China's accounting rules require all firms to have a fiscal year-end of December 31. April 30 of the subsequent year is the last day for firms to file financial statements. We, therefore, choose a window of May of the current year to April of the subsequent year.

[4] We follow the modified Jones model (Dechow, Sloan, and Sweeney 1995) to estimate the magnitude of earnings management. As listed firms are sometimes few in certain industries, we use the full sample in the estimation model, but control for industries.

TABLE 1

Sample Selection

Panel A: State-Owned Firms

Year	Starting # of Firms	Excluding Firms Less Than Two Years Old	Excluding Financial Firms	Excluding Firms with Missing Variable Values	Final # of Observations
2005	862	51	2	158	651
2006	841	8	2	156	675
2007	814	13	2	116	683
2008	850	18	2	103	727
2009	795	5	3	55	732
2010	718	13	11	44	650
2011	765	19	8	42	696
2012	859	8	15	60	776
Total Observations	6,504	135	45	734	5,590

Panel B: Non-State-Owned Firms

Year	Starting # of Firms	Excluding Firms Less Than Two Years Old	Excluding Financial Firms	Excluding Firms with Missing Variable Values	Final # of Observations
2005	374	48	3	74	249
2006	402	8	4	116	274
2007	481	45	4	130	302
2008	562	85	4	144	329
2009	602	57	4	149	392
2010	686	122	3	192	369
2011	1,001	341	3	235	422
2012	1,242	278	3	463	498
Total Observations	5,350	984	28	1,503	2,835

from China's A-share market that includes both the Shanghai and Shenzhen Stock Exchanges. Other data items are from publicly available databases. Corporate governance data are from China Center of Economic Research (CCER) and financial and accounting data are from China Stock Market and Accounting Research (CSMAR). We start with an initial sample of 6,504 firm-year observations for state-owned firms. We exclude 135 firms with a public listing history of less than two years, and 45 financial firms. We also exclude 734 observations with missing variable values. We are left with 5,590 firm-year observations. For comparison purposes, we obtain 2,835 firm-year observations for non-state-owned firms. Panels A and B of Table 1 provide detailed breakdowns of our sample by year for state-owned and non-state-owned firms.

Descriptive Statistics

Table 2 reports descriptive statistics and correlation coefficients. Panel A shows that the average value of the probability of a stock price crash $Crash_t$ is 0.2195, suggesting that 21.95 percent of our sample firms have experienced at least one crash week per year. The average value of firm-specific return skewness, $Ncskew_t$, is −0.3551 (median is −0.3350). The average of political rank, $Dshi_{t-1}$, is 2.3608, with the 25th percentile at 2 and the 75th percentile at 3, suggesting that there are many county- and division-level managers ($Dshi_{t-1} = 2$).

Table 2, Panel B reports descriptive statistics of $Crash_t$ and $Ncskew_t$ with each category of political rank, $Dshi_{t-1}$. It shows that $Crash_t$ decreases monotonously when $Dshi_{t-1}$ increases from the lowest level to the highest level (0.2434 for $Dshi_{t-1} = 0$; 0.2399 for $Dshi_{t-1} = 1$; 0.2202 for $Dshi_{t-1} = 2$; 0.2147 for $Dshi_{t-1} = 3$; 0.1853 for $Dshi_{t-1} = 4$), providing preliminary support

TABLE 2
Descriptive Statistics and Correlations

Panel A: Descriptive Statistics

Variable	n	Mean	Std	Lower Quartile	Median	Upper Quartile
Ret_t	5,590	0.3725	1.0638	−0.2109	0.0186	0.4691
$Crash_t$	5,590	0.2195	0.4139	0	0	0
$Ncskew_t$	5,590	−0.3551	0.6599	−0.7244	−0.3350	0.0425
$Dshi_{t-1}$	5,590	2.3608	0.8127	2	2	3
$Dturn_{t-1}$	5,590	0.1206	0.0769	0.0584	0.1069	0.1715
$Ncskew_{t-1}$	5,590	−0.3296	0.6730	−0.7039	−0.3238	0.0464
$Sigma_{t-1}$	5,590	0.0474	0.0159	0.0360	0.0450	0.0560
$Wret_{t-1}$	5,590	−0.0012	0.0009	−0.0016	−0.0010	−0.0006
$Size_{t-1}$	5,590	21.8699	1.1592	21.0488	21.7346	22.5415
MB_{t-1}	5,590	3.5475	3.6760	1.6192	2.5598	4.3057
Lev_{t-1}	5,590	0.5291	0.1951	0.3976	0.5392	0.6585
Roa_{t-1}	5,590	0.0283	0.0634	0.0097	0.0285	0.0536
$Accm_{t-1}$	5,590	0.1952	0.1486	0.0960	0.1542	0.2457
$Dsage_{t-1}$	5,560	51.0808	6.4240	46	51	56
$Dstenure_{t-1}$	5,553	2.0267	1.1320	1	2	3

Panel B: $Crash_t$ and $Ncskew_t$ within Each Category of $Dshi_{t-1}$

Rank	n	Variable	Mean	Std	Lower Quartile	Median	Upper Quartile
0	2,835	$Crash_t$	0.2434	0.4292	0	0	0
		$Ncskew_t$	−0.3168	0.6911	−0.7052	−0.2783	0.0854
1	942	$Crash_t$	0.2399	0.4273	0	0	0
		$Ncskew_t$	−0.3581	0.6383	−0.7194	−0.3395	0.0329
2	1,948	$Crash_t$	0.2202	0.4145	0	0	0
		$Ncskew_t$	−0.3519	0.6492	−0.7131	−0.3245	0.0427
3	2,441	$Crash_t$	0.2147	0.4107	0	0	0
		$Ncskew_t$	−0.3579	0.6785	−0.7419	−0.3405	0.0461
4	259	$Crash_t$	0.1853	0.3893	0	0	0
		$Ncskew_t$	−0.3419	0.6439	−0.6886	−0.3243	0.0411

Panel C: Correlations

	A	B	C	D	E	F	G	H	I	J	K	L
A. $Crash_t$	1.0000	0.5270	−0.0244	−0.0890	−0.0084	−0.0774	0.0772	0.0346	0.0365	−0.0105	0.0545	0.0163
		<0.0001	0.0678	<0.0001	0.5292	<0.0001	<0.0001	0.0097	0.0064	0.4331	<0.0001	0.2244
B. $Ncskew_t$	0.5243	1.0000	−0.0016	−0.0746	0.0258	0.0114	−0.0108	0.0738	0.0581	0.0222	0.0950	0.0259
	<0.0001		0.9080	<0.0001	0.0534	0.3932	0.4177	<0.0001	<0.0001	0.0969	<0.0001	0.0529
C. $Dshi_{t-1}$	−0.0259	0.0010	1.0000	−0.0885	0.0021	0.0020	−0.0020	0.2880	−0.0170	−0.0095	0.1175	0.0159
	0.0527	0.9429		<0.0001	0.8730	0.8789	0.8800	<0.0001	0.2046	0.4778	<0.0001	0.2354
D. $Dturn_{t-1}$	−0.0822	−0.0561	−0.0974	1.0000	−0.1684	0.5644	−0.5658	−0.2064	0.2684	0.0104	−0.0883	0.0070
	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.4372	<0.0001	0.6023
E. $Ncskew_{t-1}$	−0.0076	0.0227	0.0002	−0.1533	1.0000	−0.1143	0.1281	0.0227	−0.0159	−0.0054	0.0458	0.0195
	0.5698	0.0891	0.9895	<0.0001		<0.0001	<0.0001	0.0901	0.2343	0.6888	0.0006	0.1448
F. $Sigma_{t-1}$	−0.0681	0.0285	−0.0016	0.5057	−0.0892	1.0000	−0.9999	−0.1281	0.3747	0.1050	−0.0394	0.1204
	<0.0001	0.0330	0.9025	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	0.0032	<0.0001
G. $Wret_{t-1}$	0.0552	−0.0355	−0.0016	−0.4524	0.0973	−0.9703	1.0000	0.1281	−0.3745	−0.1047	0.0399	−0.1199
	<0.0001	0.0080	0.9067	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	0.0028	<0.0001

(continued on next page)

TABLE 2 (continued)

	A	B	C	D	E	F	G	H	I	J	K	L
H. $Size_{t-1}$	0.0317	0.0759	0.3206	−0.2228	0.0179	−0.1403	0.1227	1.0000	−0.1945	0.2534	0.2203	−0.0347
	0.0176	<0.0001	<0.0001	<0.0001	0.1807	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	0.0094
I. MB_{t-1}	0.0260	0.0628	−0.0003	0.1451	−0.0176	0.3201	−0.3226	−0.1508	1.0000	0.0698	0.2005	0.1553
	0.0522	<0.0001	0.9803	<0.0001	0.1883	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001
J. Lev_{t-1}	−0.0080	0.0254	−0.0136	0.0069	0.0069	0.1088	−0.0992	0.2016	0.0694	1.0000	−0.3693	0.1543
	0.5508	0.0575	0.3109	0.6076	0.6067	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001
K. Roa_{t-1}	0.0484	0.0535	0.1199	−0.0823	−0.0014	−0.0573	0.0468	0.2209	0.0511	−0.3874	1.0000	0.0334
	0.0003	<0.0001	<0.0001	<0.0001	0.9190	<0.0001	0.0005	<0.0001	0.0001	<0.0001		0.0125
L. $Accm_{t-1}$	−0.0092	0.0192	0.0272	0.0124	0.0150	0.1246	−0.1137	−0.0131	0.0958	0.1924	−0.0379	1.0000
	0.4907	0.1506	0.0418	0.3546	0.2616	<0.0001	<0.0001	0.3260	<0.0001	<0.0001	0.0046	

The lower triangle contains Pearson correlations and the upper triangle contains Spearmen correlations.

Variable Definitions:
Ret_t = the cumulative stock return in Year *t*, for Firm *i* in Year *t* (or *t*−1);
Crash = an indicator variable for crash risk;
Ncskew = a continuous variable for crash risk;
$Dshi_{t-1}$ = the political rank for a state-owned firm's chairman of the board in Year *t*−1: township and section level ($Dshi_{t-1} = 1$); county and division level ($Dshi_{t-1} = 2$); department and bureau level ($Dshi_{t-1} = 3$); and provincial and ministerial level ($Dshi_{t-1} = 4$). In Panel C, $Dshi_{t-1} = 0$ refers to the political rank for a non-stated firm's chairman of the board;
$Dturn_{t-1}$ = the detrended share turnover in Year *t*−1;
$Ncskew_{t-1}$ = negative firm-specific weekly return skewness in Year *t*−1;
$Sigma_{t-1}$ = the firm-specific weekly return volatility in Year *t*−1;
$Wret_{t-1}$ = the average firm-specific weekly return in Year *t*−1;
$Size_{t-1}$ = the logarithmic transformation of a firm's total assets at the end of Year *t*−1;
MB_{t-1} = the market-to-book ratio of a firm at the end of Year *t*−1;
Lev_{t-1} = a firm's ratio of total liabilities to total assets at the end of Year *t*−1;
Roa_{t-1} = a firm's ratio of net income to total assets at the end of Year *t*−1;
$Accm_{t-1}$ = the three-year moving sum of absolute abnormal accruals ending in Year *t*−1, which equals the sum of absolute abnormal accruals in Years *t*−1, *t*−2, and *t*−3;
$Dsage_{t-1}$ = the age of a firm's chairman of the board in Year *t*−1; and
$Dstenure_{t-1}$ = the tenure of a firm's chairman of the board in Year *t*−1.

for our hypothesis that political ranks are negatively associated with stock price crash risk. A similar pattern for $Ncskew_t$ is not obvious.

Table 2, Panel C reports correlation coefficients among major variables. We find that $Crash_t$ and $Ncskew_t$ are highly correlated (0.5243 Pearson; 0.5270 Spearman). The correlation between managers' political rank $Dshi_{t-1}$ and the indicator for a crash $Crash_t$ is significantly negative (−0.0259 Pearson; −0.0244 Spearman), in line with the prediction of our hypothesis. The correlation between $Ncskew_t$ and $Dshi_{t-1}$ is insignificant.

Association between Political Ranks and Stock Price Crash Risk

Main Association

To test our hypothesis, we estimate Equations (3) and (4) using logit and ordinary least squares (OLS) regressions, respectively. Results are reported in Table 3. All reported z- or t-values are on an adjusted basis using robust standard errors corrected for firm-level clustering (Petersen 2009) and heteroscedasticity (White 1980). The coefficient on $Dshi_{t-1}$ is negative and significant (−0.1195, z = −2.65) when we use $Crash_t$ as the dependent variable. The coefficient on $Dshi_{t-1}$ is negative and significant (−0.0262, t = −2.19) when we use $Ncskew_t$ as the dependent variable.[5] These results support our hypothesis that managers' political ranks are negatively associated with firms' stock price crash risk.[6] Further, the coefficients on $Sigma_{t-1}$ and

[5] It is tempting to examine the effect of manager rank and firm rank simultaneously. As we have discussed earlier, we do not observe managers' ranks directly. We can only infer a manager's rank by examining the ranks of firms that he or she has worked for or the rank of the firm that he or she is working for (or the ranks of the government agencies for which he or she has worked). Therefore, firm rank is an intermediate step that we go through to derive manager rank. Firm rank and manager rank are highly correlated (Pearson = 0.6658, p < 0.0001; Spearman = 0.6545, p < 0.0001). When we include both of them in the regression, none of them are significant. When we include manager rank and the difference between firm rank and manager rank, the effect of manager rank is negative and significant, and the effect of the difference is insignificant.

[6] It is possible that central versus non-central state ownership can pick up a coarse version of political ranks. When we include an indicator for central state ownership in the regressions, its effect is insignificant while the effect of political ranks is unaffected.

TABLE 3

Political Ranks and Crash Risk

Variables	(1) $Crash_t$	(2) $Ncskew_t$
$Dshi_{t-1}$	−0.1195***	−0.0262**
	(−2.65)	(−2.19)
$Dturn_{t-1}$	−1.4011**	−0.5011***
	(−2.08)	(−2.99)
$Ncskew_{t-1}$	−0.0279	0.0215
	(−0.55)	(1.58)
$Sigma_{t-1}$	−1.4587	7.4442***
	(−0.16)	(2.65)
$Wret_{t-1}$	−0.9063	0.5580
	(−0.59)	(1.17)
$Size_{t-1}$	−0.0205	0.0414***
	(−0.51)	(3.75)
MB_{t-1}	0.0069	0.0066*
	(0.59)	(1.95)
Lev_{t-1}	0.0405	0.0263
	(0.19)	(0.47)
Roa_{t-1}	1.4069**	0.2483
	(2.08)	(1.54)
$Accm_{t-1}$	−0.2639	0.0483
	(−1.14)	(0.78)
Constant	−0.5669	−1.4218***
	(−0.61)	(−5.57)
Year Indicators	Yes	Yes
Industry Indicators	Yes	Yes
Observations	5,590	5,590
Pseudo R^2/R^2	0.0460	0.0566
Wald Chi-square/F-value	242.29	9.092

***, **, * Represent significance levels at 1 percent, 5 percent, and 10 percent, respectively.
We control year and industry fixed effects. Reported t-values are on an adjusted basis using robust standard errors corrected for firm-level clustering (Petersen 2009) and heteroscedasticity (White 1980).

Variable Definitions:
$Crash_t$ = an indicator variable for crash risk in Year *t;*
$Ncskew_t$ = a continuous variable for crash risk in Year *t;*
$Dshi_{t-1}$ = the political rank for a state-owned firm's chairman of the board in Year *t*–1: township and section level ($Dshi_{t-1} = 1$); county and division level ($Dshi_{t-1} = 2$); department and bureau level ($Dshi_{t-1} = 3$); and provincial and ministerial level ($Dshi_{t-1} = 4$);
$Dturn_{t-1}$ = the detrended share turnover in Year *t*–1;
$Ncskew_{t-1}$ = negative firm-specific weekly return skewness in Year *t*–1;
$Sigma_{t-1}$ = the firm-specific weekly return volatility in Year *t*–1;
$Wret_{t-1}$ = the average firm-specific weekly return in Year *t*–1;
$Size_{t-1}$ = the logarithmic transformation of a firm's total assets at the end of Year *t*–1;
MB_{t-1} = the market-to-book ratio of a firm at the end of Year *t*–1;
Lev_{t-1} = a firm's ratio of total liabilities to total assets at the end of Year *t*–1;
Roa_{t-1} = a firm's ratio of net income to total assets at the end of Year *t*–1; and
$Accm_{t-1}$ = the three-year moving sum of absolute abnormal accruals ending in Year *t*–1, which equals the sum of absolute abnormal accruals in Years *t*–1, *t*–2, and *t*–3.

MB_{t-1} are positive, consistent with Kim et al. (2011b). Chen et al. (2001) and Kim et al. (2011b) find that the effect of $Ncskew_{t-1}$ on crash risk is positive. However, coefficients on $Ncskew_{t-1}$ are insignificant.[7,8]

[7] The effects of many control variables are insignificant. However, this is consistent with results found in studies done on China (N. Xu, Jiang, Yin, and X. Xu 2012; Li and Liu 2012).

[8] When we use CEO ranks in lieu of chairman ranks, results are weaker. Our sample covers 2006–2008, a period with sharp rises and falls in China's stock market. When we repeat our analysis after excluding observations from 2006–2008, our main inference does not change.

Managers' Age

The effect of managers' age on the association between political ranks and stock price crash risk can come from two sources. First, when a manager ages, his or her chance of getting a further promotion declines (Li and Zhou 2005). Further, even if he or she gets a promotion, the benefits associated with the promotion decline as his or her time horizon is short (close to retirement due to old age). This reduces the attractiveness of a promotion to the manager. In this situation, old managers are more motivated by opportunism, more likely to conceal bad news or obfuscate financial reporting. They are less likely to be held responsible for their former opportunistic behaviors if they manage to exit the system through normal retirement.

Young managers, on the other hand, are more attracted to higher political ranks through promotions than old managers. Therefore, they are more cautious and risk-averse. Further, when a manager is young, he or she has a long future career. Due to reputation and career concerns, his or her tendency for short-termism is lower. In sum, the motivating role of political ranks is more applicable to young managers, given the same rank. This is a horizon problem argument consistent with Kalyta (2009), that managers manage earnings upward during final pre-retirement years, when pension depends on firm performance.

Table 4 presents results of the impact of managers' age, Age_{t-1}, on the association between political ranks and stock price crash risk. We choose a cutoff of 51 years as it is the sample median. When the age of a manager in its logarithm form, $LogAge_{t-1}$, is included in the model alone, its effect is insignificant. Next, we partition our sample based on managers' age. When managers are old ($Age_{t-1} > 51$), the coefficients on $Dshi_{t-1}$ are insignificant, irrespective of whether our dependent variable is $Crash_t$ or $Ncskew_t$. When managers are young ($Age_{t-1} \leq 51$), the coefficients on $Dshi_{t-1}$ are negative and significant (–0.1720, z = –2.55 for $Crash_t$; –0.0329, t = –1.93 for $Ncskew_t$). Therefore, the association between political ranks and crash risk appears to concentrate in firms with relatively young managers. However, differences in the magnitudes of the coefficients between subsamples are insignificant.

Managers' Tenure

Similar to age, managers' tenure can also influence their attitude toward risk. At the initial stage of their career, managers are more likely to be cautious due to career concerns. As they progress in tenure within firms, the chance of future promotions declines (Li and Zhou 2005) and, thus, they become less risk-averse. This is again consistent with Kalyta's (2009) horizon problem argument concerning pre-retirement earnings management. We, therefore, investigate whether and how managers' tenure influences the effect of political ranks on stock price crash risk.

Table 5 provides results of how managers' tenure, $Tenure_{t-1}$, influences the way that political ranks affect stock price crash risk. We choose a cutoff of two years as it is the sample median. When the tenure of a manager in its logarithm form, $LogTenure_{t-1}$, is included in the model alone, its effect is insignificant. Next, we partition our sample based on managers' tenure. The coefficients on $Dshi_{t-1}$ are negative and significant (–0.1316, z = –2.40 using $Crash_t$; –0.0277, t = –1.95 using $Ncskew_t$) for firms with managers at an early stage of tenure ($Tenure_{t-1} \leq 2$). They are insignificant for firms with managers at a late stage of tenure ($Tenure_{t-1} > 2$). Therefore, the association between political ranks and crash risk appears to concentrate in firms with managers at an early stage of tenure. However, differences in the magnitudes of the coefficients between subsamples are insignificant.

Institutions and Political Ranks

Market Forces

As China's internal managerial labor market is not entirely market-driven, we expect the association between political ranks and the crash risk to be more pronounced in regions where market forces do not play a significant role or in industries with less competition.

We first consider regional labor mobility. Managers have better mobility in their employment with more external hiring opportunities (Cremers and Grinstein 2014; Gao, Luo, and Tang 2015). We use the mobility index of Fan, Wang, and Zhu (2010) (National Economic Research Institute, China Reform Foundation), *Mobility Index*. It is approximated by the ratio of external labor force from the countryside to the total local labor force of a city. The greater the value of *Mobility Index,* the more mobile is the local labor force and the less closed is the labor market. We partition our sample by the median (5.91) of *Mobility Index*. Panel A of Table 6 presents results on how labor force mobility influences the way that political ranks affect the stock price crash risk (all controls are included in the regressions, but not tabulated). We find that the coefficients on $Dshi_{t-1}$ are negative and significant (–0.1775, z = –2.84 using $Crash_t$; –0.0411, t = –2.44 using $Ncskew_t$) only when $Mobility\ Index_{t-1} \leq$ 5.91. This finding suggests that the effect of political ranks on reducing stock price crash risk concentrates mainly in regions with low labor force mobility. However, differences in the magnitudes of the coefficients between subsamples are insignificant.

We next consider the role of product market competition or industry concentration that is related to mobility. In a more competitive industry, it is easier for executives to move among firms and, thus, have a high level of mobility (Gao et al. 2015).

TABLE 4

Effect of Managers' Age on the Association between Political Ranks and Crash Risk

Variables	(1) $Crash_t$	(2) $Ncskew_t$	(3) $Crash_t$ $Age_{t-1} > 51$	(4) $Crash_t$ $Age_{t-1} \leq 51$	(5) $Ncskew_t$ $Age_{t-1} > 51$	(6) $Ncskew_t$ $Age_{t-1} \leq 51$
$LogAge_{t-1}$	−0.0475	−0.0155	—	—	—	—
	(−0.16)	(−0.20)				
$Dshi_{t-1}$	—	—	−0.0820	−0.1720**	−0.0213	−0.0329*
			(−1.33)	(−2.55)	(−1.25)	(−1.93)
$Dturn_{t-1}$	−1.2197*	−0.4608***	−2.3026**	−0.4653	−0.3362	−0.5432**
	(−1.82)	(−2.76)	(−2.29)	(−0.50)	(−1.39)	(−2.35)
$Ncskew_{t-1}$	−0.0285	0.0213	−0.0462	−0.0268	0.0189	0.0133
	(−0.56)	(1.56)	(−0.65)	(−0.36)	(0.96)	(0.69)
$Sigma_{t-1}$	−2.3048	7.3294***	7.4161	−6.1771	8.6742**	7.7558**
	(−0.25)	(2.61)	(0.48)	(−0.52)	(2.34)	(1.98)
$Wret_{t-1}$	−0.9926	0.5444	0.6135	−1.6524	0.7840	0.5980
	(−0.64)	(1.14)	(0.22)	(−0.86)	(1.32)	(0.89)
$Size_{t-1}$	−0.0499	0.0350***	0.0142	−0.0507	0.0611***	0.0252*
	(−1.28)	(3.31)	(0.24)	(−0.93)	(3.86)	(1.74)
MB_{t-1}	0.0045	0.0061*	0.0156	0.0016	0.0024	0.0078*
	(0.39)	(1.83)	(0.82)	(0.11)	(0.45)	(1.83)
Lev_{t-1}	0.0672	0.0301	−0.3493	0.2490	−0.0621	0.0855
	(0.32)	(0.54)	(−1.07)	(0.87)	(−0.71)	(1.15)
Roa_{t-1}	1.4787**	0.2579	0.1320	2.5302***	0.4652*	0.2141
	(2.20)	(1.60)	(0.13)	(2.71)	(1.70)	(1.06)
$Accm_{t-1}$	−0.3034	0.0524	−0.7228**	0.2121	−0.0230	0.1518*
	(−1.31)	(0.86)	(−2.08)	(0.64)	(−0.28)	(1.67)
Constant	0.0054	−1.2784***	−1.6769	0.2793	−1.7783***	−1.1689***
	(0.00)	(−3.44)	(−1.25)	(0.22)	(−5.18)	(−3.35)
Year Indicators	Yes	Yes	Yes	Yes	Yes	Yes
Industry Indicators	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,560	5,560	2,733	2,827	2,733	2,827
Pseudo R^2/R^2	0.0449	0.0562	0.0481	0.0541	0.0630	0.0684
Wald Chi-square/F-value	242.01	9.132	131.92	142.28	5.385	6.753

***, **, * Represent significance levels at 1 percent, 5 percent, and 10 percent, respectively.

We control year and industry fixed effects. Reported t-values are on an adjusted basis using robust standard errors corrected for firm-level clustering (Petersen 2009) and heteroscedasticity (White 1980).

Variable Definitions:

$Crash_t$ = an indicator variable for crash risk in Year *t;*
$Ncskew_t$ = a continuous variable for crash risk in Year *t;*
$Dshi_{t-1}$ = the political rank for a state-owned firm's chairman of the board in Year *t*–1: township and section level ($Dshi_{t-1} = 1$); county and division level ($Dshi_{t-1} = 2$); department and bureau level ($Dshi_{t-1} = 3$); and provincial and ministerial level ($Dshi_{t-1} = 4$);
$Dturn_{t-1}$ = the detrended share turnover in Year *t*–1;
$Ncskew_{t-1}$ = negative firm-specific weekly return skewness in Year *t*–1;
$Sigma_{t-1}$ = the firm-specific weekly return volatility in Year *t*–1;
$Wret_{t-1}$ = the average firm-specific weekly return in Year *t*–1;
$Size_{t-1}$ = the logarithmic transformation of a firm's total assets at the end of Year *t*–1;
MB_{t-1} = the market-to-book ratio of a firm at the end of Year *t*–1;
Lev_{t-1} = a firm's ratio of total liabilities to total assets at the end of Year *t*–1;
Roa_{t-1} = a firm's ratio of net income to total assets at the end of Year *t*–1;
$Accm_{t-1}$ = the three-year moving sum of absolute abnormal accruals ending in Year *t*–1, which equals the sum of absolute abnormal accruals in Years *t*–1, *t*–2, and *t*–3;
Age_{t-1} = the age of a firm's chairman of the board in Year *t*–1; and
$LogAge_{t-1}$ = the logarithmic transformation of ($Age_{t-1} + 1$).

TABLE 5

Effect of Managers' Tenure on the Association between Political Ranks and Crash Risk

Variables	(1) $Crash_t$	(2) $Ncskew_t$	(3) $Crash_t$ $Tenure_{t-1} > 2$	(4) $Crash_t$ $Tenure_{t-1} \leq 2$	(5) $Ncskew_t$ $Tenure_{t-1} > 2$	(6) $Ncskew_t$ $Tenure_{t-1} \leq 2$
$LogTenure_{t-1}$	0.1480	0.0205	—	—	—	—
	(1.47)	(0.81)				
$Dshi_{t-1}$	—	—	−0.0977	−0.1316**	−0.0269	−0.0277*
			(−1.16)	(−2.40)	(−1.21)	(−1.95)
$Dturn_{t-1}$	−1.2402*	−0.4543***	−1.1458	−1.3756*	−0.8147***	−0.3288*
	(−1.84)	(−2.72)	(−0.94)	(−1.69)	(−2.84)	(−1.67)
$Ncskew_{t-1}$	−0.0332	0.0206	−0.0318	−0.0309	0.0030	0.0313*
	(−0.65)	(1.51)	(−0.37)	(−0.48)	(0.12)	(1.89)
$Sigma_{t-1}$	−2.1080	7.4440***	29.0089	−8.9824	14.9942***	4.5553
	(−0.23)	(2.63)	(1.45)	(−0.83)	(3.28)	(1.29)
$Wret_{t-1}$	−0.9872	0.5645	5.2960	−2.4992	1.7787**	0.0963
	(−0.63)	(1.18)	(1.43)	(−1.41)	(2.45)	(0.16)
$Size_{t-1}$	−0.0531	0.0348***	0.0200	−0.0376	0.0336*	0.0458***
	(−1.37)	(3.32)	(0.29)	(−0.77)	(1.75)	(3.52)
MB_{t-1}	0.0043	0.0060*	−0.0000	0.0069	0.0031	0.0071*
	(0.37)	(1.79)	(−0.00)	(0.48)	(0.49)	(1.90)
Lev_{t-1}	0.0634	0.0330	0.2680	−0.0575	−0.0967	0.0661
	(0.30)	(0.59)	(0.69)	(−0.23)	(−0.90)	(1.02)
Roa_{t-1}	1.4728**	0.2584	1.9847*	1.4122*	0.2658	0.2774
	(2.18)	(1.60)	(1.82)	(1.70)	(0.77)	(1.53)
$Accm_{t-1}$	−0.2661	0.0522	−0.8339**	−0.0132	−0.1437	0.1535**
	(−1.14)	(0.85)	(−1.98)	(−0.05)	(−1.38)	(1.98)
Constant	−0.2709	−1.3658***	−2.3092	0.0944	−1.3207***	−1.4912***
	(−0.29)	(−5.44)	(−1.42)	(0.08)	(−3.13)	(−5.02)
Year Indicators	Yes	Yes	Yes	Yes	Yes	Yes
Industry Indicators	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,553	5,553	1,716	3,837	1,716	3,837
Pseudo R^2/R^2	0.0457	0.0562	0.0545	0.0522	0.0703	0.0608
Wald Chi-square/F-Value	243.34	9.163	102.30	190.78	3.865	6.720

***, **, * Represent significance levels at 1 percent, 5 percent, and 10 percent, respectively.
We control year and industry fixed effects. Reported t-values are on an adjusted basis using robust standard errors corrected for firm-level clustering (Petersen 2009) and heteroscedasticity (White 1980).

Variable Definitions:
$Crash_t$ = an indicator variable for crash risk in Year *t;*
$Ncskew_t$ = a continuous variable for crash risk in Year *t;*
$Dshi_{t-1}$ = the political rank for a state-owned firm's chairman of the board in Year *t*–1: township and section level ($Dshi_{t-1} = 1$); county and division level ($Dshi_{t-1} = 2$); department and bureau level ($Dshi_{t-1} = 3$); and provincial and ministerial level ($Dshi_{t-1} = 4$);
$Dturn_{t-1}$ = the detrended share turnover in Year *t*–1;
$Ncskew_{t-1}$ = negative firm-specific weekly return skewness in Year *t*–1;
$Sigma_{t-1}$ = the firm-specific weekly return volatility in Year *t*–1;
$Wret_{t-1}$ = the average firm-specific weekly return in Year *t*–1;
$Size_{t-1}$ = the logarithmic transformation of a firm's total assets at the end of Year *t*–1;
MB_{t-1} = the market-to-book ratio of a firm at the end of Year *t*–1;
Lev_{t-1} = a firm's ratio of total liabilities to total assets at the end of Year *t*–1;
Roa_{t-1} = a firm's ratio of net income to total assets at the end of Year *t*–1;
$Accm_{t-1}$ = the three-year moving sum of absolute abnormal accruals ending in Year *t*–1, which equals the sum of absolute abnormal accruals in Years *t*–1, *t*–2, and *t*–3;
$Tenure_{t-1}$ = the tenure of a firm's chairman of the board in Year *t*–1; and
$LogTenure_{t-1}$ = the logarithmic transformation of ($Tenure_{t-1}$ +1).

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TABLE 6

Effects of Institutions on the Association between Political Ranks and Crash Risk

Panel A: Market Forces: Institutional Environment of Labor Market

Variables	(1) $Crash_t$ $Mobility\ Index_{t-1} > 5.91$	(2) $Crash_t$ $Mobility\ Index_{t-1} \leq 5.91$	(3) $Ncskew_t$ $Mobility\ Index_{t-1} > 5.91$	(4) $Ncskew_t$ $Mobility\ Index_{t-1} \leq 5.91$
$Dshi_{t-1}$	−0.0605	−0.1775***	−0.0081	−0.0411**
	(−0.93)	(−2.84)	(−0.47)	(−2.44)

Panel B: Market Forces: Institutional Environment of Product Market

Variables	(1) $Crash_t$ $Herindex_{t-1} < 0.0439$	(2) $Crash_t$ $Herindex_{t-1} \geq 0.0439$	(3) $Ncskew_t$ $Herindex_{t-1} < 0.0439$	(4) $Ncskew_t$ $Herindex_{t-1} \geq 0.0439$
$Dshi_{t-1}$	−0.0841	−0.1594**	−0.0077	−0.0427**
	(−1.28)	(−2.50)	(−0.51)	(−2.35)

Panel C: Foreign Investors: *AB/AH/QFII*

Variables	(1) $Crash_t$ AB or AH or $QFII_{t-1} = 1$	(2) $Crash_t$ $AB = AH = QFII_{t-1} = 0$	(3) $Ncskew_t$ AB or AH or $QFII_{t-1} = 1$	(4) $Ncskew_t$ $AB = AH = QFII_{t-1} = 0$
$Dshi_{t-1}$	0.0261	−0.1601***	−0.0349	−0.0274**
	(0.25)	(−3.16)	(−1.27)	(−2.05)

Panel D: Foreign Investors: *AB/AH*

Variables	(1) $Crash_t$ AB or $AH = 1$	(2) $Crash_t$ $AB = AH = 0$	(3) $Ncskew_t$ AB or $AH = 1$	(4) $Ncskew_t$ $AB = AH = 0$
$Dshi_{t-1}$	0.0053	−0.1300***	−0.0494	−0.0261**
	(0.03)	(−2.71)	(−1.13)	(−2.08)

Panel E: Foreign Investors: *QFII*

Variables	(1) $Crash_t$ $QFII_{t-1} = 1$	(2) $Crash_t$ $QFII_{t-1} = 0$	(3) $Ncskew_t$ $QFII_{t-1} = 1$	(4) $Ncskew_t$ $QFII_{t-1} = 0$
$Dshi_{t-1}$	0.0508	−0.1440***	−0.0492	−0.0240*
	(0.36)	(−3.04)	(−1.54)	(−1.89)

Panel F: Political Connections

Variables	(1) $Crash_t$ $PC_{t-1} = 1$	(2) $Crash_t$ $PC_{t-1} = 0$	(3) $Ncskew_t$ $PC_{t-1} = 1$	(4) $Ncskew_t$ $PC_{t-1} = 0$
$Dshi_{t-1}$	−0.1188	−0.1121**	−0.0157	−0.0266**
	(−0.87)	(−2.31)	(−0.46)	(−2.09)

(continued on next page)

We expect the role of political ranks to be more pronounced for firms in more concentrated industries or those with lower product market competition. Following Dhaliwal, Li, Tsang, and Yang (2011), we define *Herindex,* which is the Herfindahl-Hirschman Index, as the sum of squared fractions of sales of the top 10 percent largest firms in an industry per year. A low value of *Herindex* signifies a high level of product market competition in an industry. Panel B of Table 6 presents results on

TABLE 6 (continued)

Panel G: Promotions: Local Provincial Leaders' Promotions

Variables	**(1)** $Crash_t$ $Promotion_t = 1$ or $Promotion_{t+1} = 1$	**(2)** $Crash_t$ $Promotion_t = 0$ and $Promotion_{t+1} = 0$	**(3)** $Ncskew_t$ $Promotion_t = 1$ or $Promotion_{t+1} = 1$	**(4)** $Ncskew_t$ $Promotion_t = 0$ and $Promotion_{t+1} = 0$
$Dshi_{t-1}$	−0.0841	−0.1358**	−0.0219	−0.0270*
	(−1.12)	(−2.40)	(−1.13)	(−1.76)

Panel H: Promotions: Chairmen's Promotions

Variables	**(1)** $Crash_t$ $Promotion_t = 1$ or $Promotion_{t+1} = 1$	**(2)** $Crash_t$ $Promotion_t = 0$ and $Promotion_{t+1} = 0$	**(3)** $Ncskew_t$ $Promotion_t = 1$ or $Promotion_{t+1} = 1$	**(4)** $Ncskew_t$ $Promotion_t = 0$ and $Promotion_{t+1} = 0$
$Dshi_{t-1}$	0.0105	−0.1180**	−0.0225	−0.0249**
	(0.03)	(−2.57)	(−0.30)	(−2.05)

***, **, * Represent significance levels at 1 percent, 5 percent, and 10 percent, respectively.
We control year and industry fixed effects. Reported t-values are on an adjusted basis using robust standard errors corrected for firm-level clustering (Petersen 2009) and heteroscedasticity (White 1980). We also have year and industry fixed effects. To conserve space, we do not report results for control variables.

Variable Definitions:
$Crash_t$ = an indicator variable for crash risk in Year *t;*
$Ncskew_t$ = a continuous variable for crash risk in Year *t;*
$Dshi_{t-1}$ = the political rank for a state-owned firm's chairman of the board in Year *t*–1: township and section level ($Dshi_{t-1} = 1$); county and division level ($Dshi_{t-1} = 2$); department and bureau level ($Dshi_{t-1} = 3$); and provincial and ministerial level ($Dshi_{t-1} = 4$);
$Dturn_{t-1}$ = the detrended share turnover in Year *t*–1;
$Ncskew_{t-1}$ = negative firm-specific weekly return skewness in Year *t*–1;
$Sigma_{t-1}$ = the firm-specific weekly return volatility in Year *t*–1;
$Wret_{t-1}$ = the average firm-specific weekly return in Year *t*–1;
$Size_{t-1}$ = the logarithmic transformation of a firm's total assets at the end of Year *t*–1;
MB_{t-1} = the market-to-book ratio of a firm at the end of Year *t*–1;
Lev_{t-1} = a firm's ratio of total liabilities to total assets at the end of Year *t*–1;
Roa_{t-1} = a firm's ratio of net income to total assets at the end of Year *t*–1;
$Accm_{t-1}$ = the three-year moving sum of absolute abnormal accruals ending in Year *t*–1, which equals the sum of absolute abnormal accruals in Years *t*–1, *t*–2, and *t*–3;
$Mobility\ Index_{t-1}$ = the index of labor mobility per province in Year *t*–1;
$Herindex_{t-1}$ = Herfindahl-Hirschman Index, which is the sum of the squared fractions of sales of the top 10 percent largest firms in an industry in Year *t*–1;
AB_{t-1} = an indicator variable that equals 1 for a firm with B-shares, and 0 otherwise, in Year *t*–1;
AH_{t-1} = an indicator variable that equals 1 for a firm with H-shares, and 0 otherwise, in Year *t*–1;
$QFII_{t-1}$ = an indicator variable that equals 1 for a firm with Qualified Foreign Institutional Investors (QFIIs), and 0 otherwise, in Year *t*–1;
PC_{t-1} = an indicator variable that equals 1 for a firm with political connection, and 0 otherwise, in Year *t*–1; and
Promotion = 1 if the leader of the province where a firm is located (or its chairman) receives a promotion, and 0 otherwise.

how product market competition influences the way that political ranks affect the stock price crash risk. We choose a cutoff of 0.0439 as it is the sample median of *Herindex*. The coefficients on $Dshi_{t-1}$ are negative and significant (–0.1594, z = −2.50 using $Crash_t$; −0.0427, t = −2.35 using $Ncskew_t$) only in industries with $Herindex_{t-1} \geq 0.0439$. Therefore, the role of political ranks in reducing stock price crash risk works only in industries with low product market competition or high industry concentration. However, differences in the magnitudes of the coefficients between subsamples are insignificant.

Foreign Investors

As the political ranking system is not an entirely market-oriented system, the presence of foreign investors, especially those from market economies with better developed institutions, can potentially mitigate the association between political ranks and the crash risk. Better developed institutions can potentially negate the effect of a closed pyramidal internal managerial labor market, making managerial talent more fluid between the government and the private sectors. We expect the effect of political ranks to attenuate for firms with a portion of their equity shares held by foreign investors.

Foreign investors can invest in China's domestic B-share market. H-shares are shares of mainland firms listed in the Hong Kong Stock Exchange. Qualified Foreign Institutional Investors (QFIIs) can also invest in China's domestic stock market. We examine the impact of the presence of B-shares, H-shares, and QFIIs on the association between political ranks and crash risk. AB_{t-1} is an indicator that equals 1 for a firm with B-shares, and 0 otherwise. AH_{t-1} is an indicator that equals 1 for a firm with H-shares, and 0 otherwise. $QFII_{t-1}$ is an indicator that equals 1 for a firm with QFIIs, and 0 otherwise.

Panel C of Table 6 presents results on how *AB*/*AH*/*QFII* influence the way that political ranks affect stock price crash risk (all controls are included in the regressions, but not tabulated to save space). The coefficients on $Dshi_{t-1}$ are negative and significant (−0.1601, z = −3.16 using $Crash_t$; −0.0274, t = −2.05 using $Ncskew_t$) only when *AB* = *AH* = *QFII* = 0. Panel D of Table 6 presents results on how *AB*/*AH* influence the way that political ranks affect stock price crash risk. The coefficients on $Dshi_{t-1}$ are negative and significant (−0.1300, z = −2.71 using $Crash_t$; −0.0261, t = −2.08 using $Ncskew_t$) only when *AB* = *AH* = 0. Panel E of Table 6 presents results on how *QFII* influences the way that political ranks affect stock price crash risk. The coefficients on $Dshi_{t-1}$ are negative and significant (−0.1440, z = −3.04 using $Crash_t$; −0.0240, t = −1.89 using $Ncskew_t$) only when *QFII* = 0. Differences in the magnitudes of the coefficients between firms with and without foreign investors are insignificant. In sum, political ranks play a significant role in reducing firm-level crash risk only for firms without B-shares, H-shares, or QFIIs, that is, without foreign investors.

Political Connections

Political connections can serve as a safety net that mitigates managers' incentive to be cautious when their ranks are high. We, therefore, consider the effect of political connections on the association between political ranks and stock price crash risk. Following Fan, Wong, and Zhang (2007), we define PC_{t-1} as an indicator that equals 1 for a firm with political connections, and 0 otherwise. Panel F of Table 6 presents results on how political connections influence the way that political ranks affect the crash risk (all controls are included in the regressions, but not tabulated to save space). The coefficients on $Dshi_{t-1}$ are negative and significant (−0.1121, z = −2.31 using $Crash_t$; −0.0266, t = −2.09 using $Ncskew_t$) only when $PC_{t-1} = 0$ (no political connections). Differences in the magnitudes of the coefficients between firms with and without political connections are insignificant.

We cautiously interpret the above results in the following way. For a firm with political connections that can potentially bring added protection, its manager has a lower incentive to behave cautiously. Therefore, in this narrow context of the association between political ranks and the crash risk, political ranks and political connections act as substitutes for each other. This can potentially point to the limitation of political ranking as a governance mechanism. A reduced sample size for the subsample with political connections can also lead to an insignificant result. To conclude more definitively, a thorough analysis of the interplay between political ranks and political connections is warranted, and we leave this to future studies.

Effect of Promotions on the Association between Political Ranks and Crash Risk

Our analysis thus far provides some evidence that the political ranking system plays a positive role of reducing crash risk. However, under certain self-serving incentives, it can also potentially play a negative role. Piotroski et al. (2015) provide evidence that provincial officials have an incentive to suppress negative news right before their promotions. Specifically, they find that local politicians facing the prospect of a promotion temporarily restrict the flow of negative information about their affiliated firms. While we examine a group of people (chairmen of boards who directly control listed state-owned firms) different from those in Piotroski et al. (2015), they may have similar incentives when they sense that opportunities for promotions are coming. We, therefore, expect fewer stock price crashes for firms during their local provincial officials' promotion window, as well as their chairmen's own promotion window than during other periods.

We first use Piotroski et al.'s (2015) promotion measure that captures the turnover of a provincial party secretary or provincial governor. A turnover is defined as a promotion when he or she moves to a more senior position, including: (1) a promotion within the same province (e.g., promotion from a governor to a party secretary); (2) a promotion to another province (e.g., a governor or a party secretary position of a larger province); and (3) a promotion to a minister-level position of the central government. Firms operating in the same regions as the promoted politicians are likely to be affected by the politicians' promotions. The promotion period includes the year before and year of the promotion. Specifically, we define an indicator variable *Promotion* that equals 1 if the leader of the province where a firm is located receives a promotion, and 0 otherwise. We next define firm chairmen's promotions. If a chairman received a promotion, then the indicator variable *Promotion* equals 1. Otherwise, *Promotion* equals 0.

Panels G and H of Table 6 present results on how promotions influence the way that political ranks affect stock price crash risk (all controls are included in the regressions, but not tabulated to save space). Panel G shows the effect of provincial politicians' promotions. The coefficients on $Dshi_{t-1}$ are negative and significant (−0.1358, z = −2.40 using $Crash_t$; −0.0270, t = −1.76 using $Ncskew_t$) only when $Promotion_t = 0$ and $Promotion_{t+1} = 0$. Differences in the magnitudes of the coefficients between promotion and non-promotion periods are insignificant. This suggests that the role of political ranks works only during periods with no local government leaders' political promotions. This result, to a certain extent, complements Piotroski et al. (2015), that provincial officials have the incentive to suppress negative news right before their promotions. However, our comparison periods are different from theirs. They compare periods before and after promotions. We compare promotion periods with non-promotion periods. Further, the purpose of our analysis is to show a dip in the association between political ranks and crash risk during the promotion period, not directly a decline in crash risk.

Panel H of Table 6 shows the effect of chairmen's own promotions. Similar to those of provincial politicians' promotions, the coefficients on $Dshi_{t-1}$ are negative and significant (−0.1180, z = −2.57 using $Crash_t$; −0.0249, t = −2.05 using $Ncskew_t$) only when $Promotion_t = 0$ and $Promotion_{t+1} = 0$. Differences in the magnitudes of the coefficients between promotion and non-promotion periods are insignificant.

We conclude that promotions, either local provincial politicians' or firm chairmen's, serve to dampen the effect of political ranks on crash risk. A central theme here is that while political ranks play a positive role in reducing crash risk in China's confined managerial labor market, this positive role can dissipate with distorted incentives.

To summarize the above four analyses, we believe in the pattern that the link between crash risk and political ranks diminishes with more advanced institutions, for example, more developed market forces, including higher labor mobility and the presence of foreign investors.[9] China's closed pyramidal managerial labor market differs from the Western system. While we are not arguing which one is superior to the other, amid China's economic transformation, the political ranking system is one that possibly fits her current stage of development. We see the political ranking system as potentially a substitute for the Western system that relies on more advanced institutions. However, even when political ranks can play a positive role of reducing the crash risk, it is not always effective. With political connections or promotions of local leaders or managers, the positive role of political ranks diminishes.

Alternative Mechanisms

Rent Seeking

As discussed in our hypothesis development, it is possible that the higher a manager's political rank, the more capable he or she is of resource allocation, for example, better rent-seeking ability, fewer financial constraints, better government ties, and more propping from others. These can potentially reduce a firm's risk. If this is the case, then one may expect that older managers or managers with longer tenure will strengthen the negative association between political ranks and stock price crash risk.

As finance is a scarce commodity in China, we consider the impact of a manager's political rank on a firm's loan balance and financing cost. If a high political rank enables a firm to receive more favorable financing treatment, then we expect to observe a higher loan balance and a lower financing cost. We also consider corporate income taxes. If a higher political rank enables firms to receive more favorable tax treatment, then we expect firms with higher-rank managers to pay lower taxes. Further, we examine seasoned equity offerings. If a higher political rank enables firms to receive more favorable treatment, then we expect firms with higher-rank managers to have better access to seasoned equity offerings. Finally, we consider propping from others. If there are some real benefits associated with high ranks, then we would expect political ranks to increase propping.

To test above conjectures, we define the following variables. $Loan\_Asset_t$ is a firm's ratio of bank loans to total assets at the end of Year *t*. Fin_Loan_t is a firm's ratio of financial fees to bank loans at the end of Year *t*. Tax_Toin_t is a firm's ratio of income tax to income at the end of Year *t*. $SEO\_Indicator_t$ is an indicator variable that equals 1 if a firm conducts a seasoned equity offering (SEO), and 0 otherwise, during Year *t*. SEO_Asset_t is a firm's ratio of SEO amount to total assets at the end of Year *t*. Sub_Asset_t is a firm's ratio of subsidies received to total assets at the end of Year *t*. $Prop\_Asset_t$ is other payables to total assets at the end of Year *t*. These variables replace *Crash* in Equation (3).

In all seven regressions (results not tabulated to conserve space), the coefficients on *Dshi* are insignificant, suggesting that political ranks do not directly bring real benefits to firms. Next, we perform alternative mechanism tests in age and tenure partitions. The coefficients on *Dshi* are insignificant in all regressions, except in the $Tenure > 2$ partition, when financing fees (*Fin_Loan*) and tax (*Tax_Toin*) are the dependent variables. In these two occasions, the coefficients on *Dshi* are negative. The

[9] In all the above tests, the pattern appears to be that political ranks work in one group (significant) and not the other (insignificant), with an insignificant difference between the two. It is possible that the role of the political ranking system in reducing the crash risk is a little volatile under certain circumstances. In Panels C–H, unbalanced subsamples can also create this problem. We refrain from making too strong conjectures here. We believe that these issues can be great avenues for future studies.

negative effect would suggest that firms with longer-tenure managers tend to pay a lower financing cost and a lower tax associated with political ranks. To summarize, while there is some evidence that political ranks influence rent seeking and resources allocation, it is surprisingly weak.

Punishment Due to Securities Law Violations and Audit Opinions

We now turn to the effect of political ranks on punishment due to securities law violations and audit opinions. We obtain data on punishment due to securities law violations from CSMAR. These are violations punished by the China Securities Regulatory Commission. We define an indicator, *Violation,* that equals 1 if a firm is punished for violating securities laws, and 0 otherwise. There are 14 different types of securities law violations:

(1) illegal share buyback;
(2) inflated profit;
(3) assets fabrication;
(4) unauthorized fund use change;
(5) postponement/delay in disclosure;
(6) false statement;
(7) fund provision violation;
(8) major failure to disclose information;
(9) major shareholder embezzlement;
(10) stock price manipulation;
(11) fraudulent initial public offering (IPO);
(12) illegal guarantee;
(13) illegal speculation; and
(14) others.

We also define an indicator *InforViolation* that equals 1 if a firm is punished for violating disclosure rules, and 0 otherwise. Three types of violations are viewed as information disclosure violations: (5) postponement/delay in disclosure; (6) false statement; and (8) major failure to disclose information. To test our prediction, we estimate the following regression:

$$Violation_t = \alpha_0 + \alpha_1 Dshi_{t-1} + \alpha_2 Size_{t-1} + \alpha_3 MB_{t-1} + \alpha_4 Lev_{t-1} + \alpha_5 Roa_{t-1} + \alpha_6 Accm_{t-1} + \varepsilon_t, \tag{5}$$

where all variables are as defined earlier.

Results for Equation (5) are not tabulated to conserve space. The coefficient on $Dshi_{t-1}$ is negative and significant (–0.3406, z = –2.67) for $Violation_t$. The coefficient on $Dshi_{t-1}$ is negative and significant (–0.2853, z = –1.96) for $InforViolation_t$. These results suggest that firms with highly ranked managers are less likely to be punished for violating securities laws or related disclosure regulations than other firms.

We next examine the impact of political ranks on audit opinions. In Equation (5), we replace $Violation_t$ with an indicator $Auditop_t$ that equals 1 for a non-clean audit opinion, and 0 otherwise. The coefficient on $Dshi_{t-1}$ is negative and significant (–0.3846, z = –2.18), suggesting that firms with highly ranked managers are less likely to receive non-clean audit opinions.

In sum, these results provide some evidence that firms with highly ranked managers enjoy some preferential treatments from government authorities or auditors. Such preferential treatments can potentially drive the negative association between political ranks and the crash risk. Or high-ranking managers receive more government support or better understand authorities' cues to stem the flow of bad news that can embarrass the government (Piotroski et al. 2015).

Dealing with Endogeneity

Instrumental Variable Analysis

To alleviate the endogeneity concern, we adopt an instrumental variable approach using per capita living space (*Space*), the number of buses per 1,000 residents (*Bus*), running water usage per capita (*Water*), and gas usage per capita (*Gas*) of the province where a firm is headquartered in 1998 as instruments. These variables reflect population density (*Space*) and investment in public facilities that are unlikely to be directly associated with a firm's stock price crash risk. However, they are associated with managers' political ranks. More densely populated regions are strategically more important to China, and they usually attract and host more important firms and, thus, a higher chance of having highly ranked firms and managers. These firms also find it easier to get the required human resources in more populated regions. However, per capita living space is usually low in these regions. Therefore, we expected political ranks to be negatively associated with per capita living space (*Space*). Investments in infrastructure and public facilities reflect the importance of these regions to state-owned firms. Highly ranked firms (and managers) are, thus, more likely to capture and utilize these investment inputs, especially the initial distributions of these investments. Further, a region with more highly ranked firms (and, thus, managers) suggests its strategic importance, which will attract more infrastructure and public facility investments. Therefore, we expect investments in these areas to be associated with managers' political ranks. It is relatively straightforward to expect bus coverage per 1,000 residents (*Bus*) and per capita gas (*Gas*) and running water usage (*Water*) to be positively associated with political ranks.

We use the following first-stage equation to determine a chairman's rank:

$$\begin{aligned} Dshi_{t-1} = {} & \alpha_0 + \alpha_1 Space + \alpha_2 Bus + \alpha_3 Water + \alpha_4 Gas + \alpha_5 Dturn_{t-1} + \alpha_6 Ncskew_{t-1} + \alpha_7 Sigma_{t-1} + \alpha_8 Wret_{t-1} \\ & + \alpha_9 Size_{t-1} + \alpha_{10} MB_{t-1} + \alpha_{11} Lev_{t-1} + \alpha_{12} Roa_{t-1} + \alpha_{13} Accm_{t-1} + \varepsilon_t. \end{aligned} \quad (6)$$

We estimate Equation (6) using OLS and we then use the fitted value, Pre_Dshi_{t-1}, as an instrumental variable for managers' political ranks in our model linking political ranks to stock price crash risk.

Results are reported in Table 7. Panel A presents results for the first-stage OLS regression. The coefficient on *Space* is negative and significant (–0.0711, t = –6.72), the coefficients on *Bus* and *Gas* are positive and significant (0.0023, t = 9.60 and 0.0021, t = 2.16, respectively). These results are consistent with our expectation that high political ranks are associated with a higher level of urbanization and better public facilities. However, the coefficient on *Water* is negative and significant (–0.0110, t = –2.73), against our initial expectation.[10]

We also check the relevance and validity of the instruments. The minimum eigenvalue statistic for the instruments is 35.38, which rejects weak instruments. The Chi-square value for the over-identification test is 1.90, which is insignificant.

Table 7, Panel B represents the second-stage results. Baseline results are in Columns (1) and (2). The coefficients on $Dshi_{t-1}$ are negative (–0.0863, z = –1.78 using $Crash_t$; –0.2142, t = –2.48 using $Ncskew_t$), suggesting a negative association between political ranks and the stock price crash risk. Columns (3) to (6) examine the impact of manager age on the association between political ranks and stock price crash risk. For the low age subsample ($Age_{t-1} \leq 51$), we find that the coefficient on $Dshi_{t-1}$ is negative and significant (–0.3665, t = –2.38) when we use $Ncskew_t$ (Column (6)), while it is negative, but insignificant (–0.0888, z = –1.09), when we use $Crash_t$ (Column (4)). For the high age subsample ($Age_{t-1} > 51$), we find that the coefficients on $Dshi_{t-1}$ are not significant in both Columns (3) and (5). Differences in the magnitudes of the coefficients in subsamples are insignificant. Columns (7) to (10) examine the effect of managers' tenure on the association between political ranks and stock price crash risk. We find that during the early stage of their tenure ($Tenure_{t-1} \leq 2$), the coefficients on $Dshi_{t-1}$ are negative and significant (–0.1376, z = –2.09 using $Crash_t$; –0.3705, t = –2.99 using $Ncskew_t$). During the later stage of their tenure ($Tenure_{t-1} > 2$), the effect of $Dshi_{t-1}$ is insignificant, irrespective of whether *Crash* or *Ncskew* is used. Differences in the magnitudes of the coefficients in subsamples are insignificant. Overall, with an instrumental variable approach, we continue to find support for a negative association between political ranks and crash risk.

Change Model

The use of a change model helps us alleviate concerns of omitted correlated variables and reverse causality. To this effect, we define the change in political rank $\Delta Dshi_{t-1}$ as $Dshi_{t-1} - Dshi_{t-2}$. All other variables are also differenced. In most cases, a manager's rank in Year *t*–1 is equal to that in Year *t*–2. We drop these observations. Therefore, this sample does not include observations without a change in managers' ranks. We define an indicator Up_{t-1} that equals 1 if a manager's rank in Year *t*–1 is higher than that in Year *t*–2, and 0 if a manager's rank in Year *t*–1 is lower than that in Year *t*–2.

Results are reported in Panel A of Table 8 (differenced controls are included in the regressions, but untabulated to conserve space). When the dependent variable is $\Delta Crash_{t-1}$, we use the ordered logit (ologit) model in which $\Delta Crash_{t-1}$ can take multiple integer values. Columns (1) and (2) include observations with $\Delta Dshi_{t-1}$ between –1 and +1, Columns (3) and (4) between –2 and +2, and Columns (5) and (6) between –3 and +3. We generally find a negative association between the change in political ranks and the change in stock price crash risk.

We next examine the effect of changes in political ranks due to chairman turnovers or control chain changes. We also expand our sample by including observations with no changes in managers' ranks. We define the following: $Stable_{t-1}$ equals 1 if a chairman's rank in Year *t*–1 equals to that in Year *t*–2, and 0 otherwise; $Up\_Chairman_{t-1}$ equals 1 if a chairman's rank in Year *t*–1 is higher than that in Year *t*–2 due to a chairman change, and 0 otherwise; Up_Chain_{t-1} equals 1 if a chairman's rank in Year *t*–1 is higher than that in Year *t*–2 due to a control chain change, and 0 otherwise; and Up_Other_{t-1} equals 1 if a

[10] Upon checking the running water usage data, we find that certain Northern provinces, such as Inner Mongolia, Heilongjiang, and Jilin, are at the bottom. However, they are politically, industrially, and militarily strategic regions that host important firms. Note that the political rank tradition in China has a long history, but the basic rank system was established after the military struggle period (1934–1953). Around that time, these provinces were extremely important to China even though their infrastructure and marketization now lag behind other provinces. The above un-modeled, province-specific factors may have potentially caused the unexpected result with respect to the effect of *Water* on political ranks.

TABLE 7

Two-Stage Least Squares Analysis (2SLS) of the Association between Political Ranks and Crash Risk

Panel A: Formation of Political Ranks

Variables	(1) $Dshi_{t-1}$
Space	−0.0711***
	(−6.72)
Bus	0.0023***
	(9.60)
Water	−0.0110***
	(−2.73)
Gas	0.0021**
	(2.16)
$Dturn_{t-1}$	−0.4184**
	(−2.25)
$Ncskew_{t-1}$	−0.0112
	(−0.73)
$Sigma_{t-1}$	7.9489***
	(2.99)
$Wret_{t-1}$	0.9468**
	(2.20)
$Size_{t-1}$	0.2483***
	(22.47)
MB_{t-1}	0.0117***
	(3.17)
Lev_{t-1}	−0.3461***
	(−5.28)
Roa_{t-1}	0.1824
	(0.99)
$Accm_{t-1}$	0.2781***
	(3.88)
Constant	−2.1136***
	(−5.14)
Year Indicators	Yes
Industry Indicators	Yes
Observations	5,590
R^2	0.1854
F-value	35.35

Panel B: Political Ranks and Crash Risk

Variables	(1) $Crash_t$	(2) $Ncskew_t$	(3) $Crash_t$ Age_{t-1} > 51	(4) $Crash_t$ Age_{t-1} ≤ 51	(5) $Ncskew_t$ Age_{t-1} > 51	(6) $Ncskew_t$ Age_{t-1} ≤ 51	(7) $Crash_t$ $Tenure_{t-1}$ > 2	(8) $Crash_t$ $Tenure_{t-1}$ ≤ 2	(9) $Ncskew_t$ $Tenure_{t-1}$ > 2	(10) $Ncskew_t$ $Tenure_{t-1}$ ≤ 2
$Dshi_{t-1}$	−0.0863*	−0.2142**	−0.0879	−0.0888	−0.0743	−0.3665**	0.0162	−0.1376**	0.0966	−0.3705***
	(−1.78)	(−2.48)	(−1.45)	(−1.09)	(−0.74)	(−2.38)	(0.20)	(−2.09)	(0.73)	(−2.99)
$Dturn_{t-1}$	−0.2526**	−0.6005***	−0.3364**	−0.1488	−0.3309	−0.9250***	−0.1581	−0.2699**	−0.7351**	−0.4852**
	(−2.30)	(−3.26)	(−2.26)	(−0.83)	(−1.36)	(−2.87)	(−0.82)	(−2.00)	(−2.39)	(−2.01)
$Ncskew_{t-1}$	−0.0055	0.0177	−0.0068	−0.0062	0.0188	0.0034	−0.0028	−0.0052	0.0094	0.0299*
	(−0.64)	(1.27)	(−0.57)	(−0.50)	(0.96)	(0.16)	(−0.18)	(−0.49)	(0.37)	(1.67)
$Sigma_{t-1}$	0.3339	9.0656***	1.4147	−0.2031	8.9160**	12.2918***	3.0936	−0.9909	13.1432***	6.4025*
	(0.20)	(3.09)	(0.55)	(−0.09)	(2.39)	(2.75)	(1.09)	(−0.49)	(2.64)	(1.69)
$Wret_{t-1}$	−0.0808	0.7391	0.0971	−0.1653	0.7968	1.1720	0.5517	−0.3767	1.5353**	0.2571
	(−0.30)	(1.50)	(0.22)	(−0.44)	(1.34)	(1.61)	(1.28)	(−1.12)	(2.01)	(0.40)

(continued on next page)

TABLE 7 (continued)

Variables	**(1)** ***Crash*$_t$**	**(2)** ***Ncskew*$_t$**	**(3)** ***Crash*$_t$ *Age*$_{t-1}$ > 51**	**(4)** ***Crash*$_t$ *Age*$_{t-1}$ ≤ 51**	**(5)** ***Ncskew*$_t$ *Age*$_{t-1}$ > 51**	**(6)** ***Ncskew*$_t$ *Age*$_{t-1}$ ≤ 51**	**(7)** ***Crash*$_t$ *Tenure*$_{t-1}$ > 2**	**(8)** ***Crash*$_t$ *Tenure*$_{t-1}$ ≤ 2**	**(9)** ***Ncskew*$_t$ *Tenure*$_{t-1}$ > 2**	**(10)** ***Ncskew*$_t$ *Tenure*$_{t-1}$ ≤ 2**
$Size_{t-1}$	0.0144	0.0911***	0.0248	0.0054	0.0769**	0.0993***	−0.0056	0.0246	0.0007	0.1359***
	(0.99)	(3.57)	(1.20)	(0.27)	(2.31)	(2.66)	(−0.23)	(1.27)	(0.02)	(3.70)
MB_{t-1}	0.0022	0.0093**	0.0032	0.0015	0.0030	0.0137**	−0.0004	0.0030	0.0014	0.0120**
	(0.97)	(2.37)	(0.92)	(0.46)	(0.53)	(2.41)	(−0.09)	(1.01)	(0.22)	(2.41)
Lev_{t-1}	−0.0263	−0.0574	−0.0956	0.0105	−0.0890	−0.0597	0.0598	−0.0593	−0.0256	−0.0699
	(−0.63)	(−0.78)	(−1.63)	(0.17)	(−0.86)	(−0.51)	(0.79)	(−1.17)	(−0.19)	(−0.74)
Roa_{t-1}	0.2046**	0.2530	−0.0389	0.3962***	0.4300	0.4098	0.3119*	0.2219*	0.3056	0.3469
	(2.09)	(1.49)	(−0.24)	(2.97)	(1.53)	(1.63)	(1.90)	(1.87)	(0.87)	(1.64)
$Accm_{t-1}$	−0.0210	0.1013	−0.0986*	0.0704	−0.0147	0.2965**	−0.1405**	0.0312	−0.1846	0.2376**
	(−0.52)	(1.43)	(−1.86)	(1.03)	(−0.18)	(2.37)	(−2.04)	(0.61)	(−1.61)	(2.47)
Constant	0.0896	−2.1110***	−0.1497	0.2923	−1.9998***	−2.1474***	0.2093	0.0322	−0.8452	−2.7063***
	(0.38)	(−5.17)	(−0.44)	(0.93)	(−3.77)	(−3.67)	(0.52)	(0.11)	(−1.32)	(−4.76)
Year Indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,590	5,590	2,733	2,827	2,733	2,827	1,716	3,837	1,716	3,837
Pseudo R^2/R^2	0.0353	0.0118	0.0351	0.0455	0.0596	—	0.0565	0.0094	0.0519	—
Wald Chi-square/F-value	238.20	311.91	129.90	150.82	197.93	202.31	114.39	191.22	136.97	201.69

***, **, * Represent significance levels at 1 percent, 5 percent, and 10 percent, respectively.
We control year and industry fixed effects. Reported t-values are on an adjusted basis using robust standard errors corrected for firm-level clustering (Petersen 2009) and heteroscedasticity (White 1980).

Variable Definitions:
$Crash_t$ = an indicator variable for crash risk in Year *t;*
$Ncskew_t$ = a continuous variable for crash risk in Year *t;*
$Dshi_{t-1}$ = the political rank for a state-owned firm's chairman of the board in Year *t*–1: township and section level ($Dshi_{t-1} = 1$); county and division level ($Dshi_{t-1} = 2$); department and bureau level ($Dshi_{t-1} = 3$); and provincial and ministerial level ($Dshi_{t-1} = 4$);
$Dturn_{t-1}$ = the detrended share turnover in Year *t*–1;
$Ncskew_{t-1}$ = negative firm-specific weekly return skewness in Year *t*–1;
$Sigma_{t-1}$ = the firm-specific weekly return volatility in Year *t*–1;
$Wret_{t-1}$ = the average firm-specific weekly return in Year *t*–1;
$Size_{t-1}$ = the logarithmic transformation of a firm's total assets at the end of Year *t*–1;
MB_{t-1} = the market-to-book ratio of a firm at the end of Year *t*–1;
Lev_{t-1} = a firm's ratio of total liabilities to total assets at the end of Year *t*–1;
Roa_{t-1} = a firm's ratio of net income to total assets at the end of Year *t*–1;
$Accm_{t-1}$ = the three-year moving sum of absolute abnormal accruals ending in Year *t*–1, which equals the sum of absolute abnormal accruals in Years *t*–1, *t*–2, and *t*–3;
$Dsage_{t-1}$ = the age of a firm's chairman of the board in Year *t*–1;
$Dstenure_{t-1}$ = the tenure of a firm's chairman of the board in Year *t*–1;
Space = per capita living space of the province in Year 1998;
Bus = the number of buses per 1000 residents in Year 1998;
Water = running water use; and
Gas = gas use of a city where a firm's headquarters is located in Year 1998.

chairman's rank in Year *t*–1 is higher than that in Year *t*–2 due to a reason other than a chairman change or a control chain change, and 0 otherwise.

Results are reported in Panel B of Table 8. While the coefficients on $Up\_Chairman_{t-1}$ are insignificant, the coefficients on Up_Chain_{t-1} are negative and significant using $Crash_t$ (–0.5317, z = –2.19; –0.5065, z = –2.20; –0.4665, z = –2.02). It appears that the change effect mainly comes from changes in political ranks due to changes in control chains.[11]

[11] Due to the lack of chairman change observations with $\Delta Dshi_{t-1} < 0$, the model here is not well specified without using $\Delta Dshi_{t-1} = 0$ as a benchmark, even with the inclusion of $Stable_{t-1}$. We suggest that readers exercise extra caution when interpreting results here.

TABLE 8

A Change Analysis of the Association between Political Ranks and Crash Risk

Panel A: Change Model for the Association between Political Ranks and Crash Risk

Variables	(1) $Crash_t$	(2) $Ncskew_t$	(3) $Crash_t$	(4) $Ncskew_t$	(5) $Crash_t$	(6) $Ncskew_t$
	$-1 \leq \Delta Dshi_{t-1} \leq +1$		$-2 \leq \Delta Dshi_{t-1} \leq +2$		$-3 \leq \Delta Dshi_{t-1} \leq +3$	
Up_{t-1}	−0.3926*	−0.1588*	−0.3756*	−0.1310	−0.3331	−0.1205
	(−1.76)	(−1.92)	(−1.78)	(−1.64)	(−1.60)	(−1.51)

Panel B: Full Sample Analysis with Chairman Changes and Control Chain Changes

Variables	(1) $Crash_t$	(2) $Ncskew_t$	(3) $Crash_t$	(4) $Ncskew_t$	(5) $Crash_t$	(6) $Ncskew_t$
	$-1 \leq \Delta Dshi_{t-1} \leq +1$		$-2 \leq \Delta Dshi_{t-1} \leq +2$		$-3 \leq \Delta Dshi_{t-1} \leq +3$	
$Up\_Chairman_{t-1}$	−0.0882	−0.1449	−0.1010	−0.1257	−0.0640	−0.1149
	(−0.34)	(−1.44)	(−0.41)	(−1.31)	(−0.27)	(−1.20)
Up_Chain_{t-1}	−0.5317**	−0.0938	−0.5065**	−0.0695	−0.4665**	−0.0580
	(−2.19)	(−1.01)	(−2.20)	(−0.77)	(−2.02)	(−0.65)
Up_Other_{t-1}	−0.0547	−0.0020	−0.0476	−0.0005	−0.0424	0.0009
	(−0.56)	(−0.06)	(−0.49)	(−0.02)	(−0.43)	(0.03)
$Stable_{t-1}$	−0.3479**	−0.0700	−0.2910*	−0.0581	−0.2577	−0.0485
	(−2.09)	(−1.11)	(−1.80)	(−0.96)	(−1.59)	(−0.80)

**, * Represent significance levels at 5 percent and 10 percent, respectively.

We control year and industry fixed effects. Reported t-values are on an adjusted basis using robust standard errors corrected for firm-level clustering (Petersen 2009) and heteroscedasticity (White 1980). Panel A only uses observations with a change in chairman's political rank. Panel B includes all observations with or without chairman's political rank changes. All other variables are differenced. We also have year and industry fixed effects. To conserve space, we do not report results for differenced control variables.

Variable Definitions:

$Crash_t$ = an indicator variable for crash risk in Year *t;*

$Ncskew_t$ = a continuous variable for crash risk in Year *t;*

$Dshi_{t-1}$ = the political rank for a state-owned firm's chairman of the board in Year *t*–1: township and section level ($Dshi_{t-1} = 1$); county and division level ($Dshi_{t-1} = 2$); department and bureau level ($Dshi_{t-1} = 3$); and provincial and ministerial level ($Dshi_{t-1} = 4$);

$Dturn_{t-1}$ = the detrended share turnover in Year *t*–1;

$Ncskew_{t-1}$ = negative firm-specific weekly return skewness in Year *t*–1;

$Sigma_{t-1}$ = the firm-specific weekly return volatility in Year *t*–1;

$Wret_{t-1}$ = the average firm-specific weekly return in Year *t*–1;

$Size_{t-1}$ = the logarithmic transformation of a firm's total assets at the end of Year *t*–1;

MB_{t-1} = the market-to-book ratio of a firm at the end of Year *t*–1;

Lev_{t-1} = a firm's ratio of total liabilities to total assets at the end of Year *t*–1;

Roa_{t-1} = a firm's ratio of net income to total assets at the end of Year *t*–1;

$Accm_{t-1}$ = the three-year moving sum of absolute abnormal accruals ending in Year *t*–1, which equals the sum of absolute abnormal accruals in Years *t*–1, *t*–2, and *t*–3;

$\Delta Dshi_{t-1}$ = the difference between $Dshi_{t-1}$ and $Dshi_{t-2}$;

Up_{t-1} = 1 if a manager's rank in Year *t*–1 is higher than that in Year *t*–2, and 0 if a manager's rank in Year *t*–1 is lower than that in Year *t*–2;

$Stable_{t-1}$ = 1 if a chairman's rank in Year *t*–1 equals to that in Year *t*–2, and 0 otherwise;

$Up\_Chairman_{t-1}$ = 1 if a chairman's rank in Year *t*–1 is higher than that in Year *t*–2 due to a chairman change, and 0 otherwise;

Up_Chain_{t-1} = 1 if a chairman's rank in Year *t*–1 is higher than that in Year *t*–2 due to a control chain change, and 0 otherwise; and

Up_Other_{t-1} = 1 if a chairman's rank in Year *t*–1 is higher than that in Year *t*–2 due to a reason other than a chairman change or a control chain change, and 0 otherwise.

Overall, results of our changes analysis are weaker than those of the level analysis. Nevertheless, they yield similar inferences with respect to the impact of political ranks on stock price crash risk.

Manager Retirement

Another way of addressing endogeneity is to identify a shock to managers' age and determine whether it alters the association between political ranks and crash risk. A manager retirement is such a shock as it usually brings in a younger manager. In such a case, one would expect the negative association between crash risk and political ranks to be more pronounced after the retirement of incumbent managers.

We perform a test using retirement as an exogenous shock. We impose two conditions. First, the retiring chairman's political rank and his or her successor's political rank are the same. Second, the reason for the incumbent chairman's exit is retirement. We identify 88 cases of retirements. We find that the succeeding managers are much younger than the retiring managers (mean: 49.7 versus 62.1; median: 45.5 versus 62). This naturally induces a sudden shock in manager age. We examine a six-year period around a manager's retirement (Years −3 to 2). We define an indicator variable $Postretire_t$ that equals 1 for Years 0, 1, and 2, and 0 for Years −3, −2, and −1. We also define $Postyoung_t$ that equals 0 before retirement and equals the age difference at the time of retirement between the retiring and the succeeding chairmen. We include $Dshi_{t-1}$, $Postretire_t$ ($Postyoung_t$) and $Postretire_t \cdot Dshi_{t-1}$ ($Postyoung_t \cdot Dshi_{t-1}$) in the following regression:

$$\begin{aligned} Crash_t/Ncskew_t = {} & \alpha_0 + \alpha_1 Postretire_t(Postyoung_t) + \alpha_2 Postretire_t \cdot Dshi_{t-1}(Postyoung_t \cdot Dshi_{t-1}) + \alpha_3 Dshi_{t-1} \\ & + \alpha_4 Dturn_{t-1} + \alpha_5 Ncskew_{t-1} + \alpha_6 Sigma_{t-1} + \alpha_7 Wret_{t-1} + \alpha_8 Size_{t-1} + \alpha_9 MB_{t-1} + \alpha_{10} Lev_{t-1} \\ & + \alpha_{11} Roa_{t-1} + \alpha_{12} Accm_{t-1} + \varepsilon_t, \end{aligned} \tag{7}$$

where all other variables are as defined earlier.

Results are reported in Table 9. In the regression using $Postretire_t$, the coefficient on $Postretire_t \cdot Dshi_{t-1}$ is negative and marginally significant using *Crash* (–0.5749, z = −1.60), suggesting that retirement brings about a further reduction in crash risk associated with political ranks. It is insignificant using $Ncskew_t$. In the regression using $Postyoung_t$, the coefficients on $Postyoung_t \cdot Dshi_{t-1}$ are negative and significant (–0.0648, z = −2.63 for *Crash;* –0.0094, t = −1.76 for *Ncskew*). Overall, we find some evidence that the negative association between crash risk and political ranks enhances (becomes more negative) after retirement when a younger manager is brought in.

Robustness Checks

Principal and Deputy Ranks

Managers in China's state-owned firms normally have principal and deputy ranks. Due to (1) the existence of deputy provincial-level cities (such as Qingdao, Nanjing, Shenzhen, Xiamen, where mayors of deputy provincial-level cities are equivalent in ranks to those of deputy provincial governors); (2) differences in ranks among universities (such as deputy ministry-level universities, also called centrally controlled universities, where presidents and party secretaries are nominated by the Central Personnel Organizational Department); and (3) differences in positions within groups, we can indirectly obtain information on whether a manager has a principal or a deputy rank. We admit, however, that this approach to identifying principal versus deputy ranks may potentially involve measurement errors.

Nevertheless, we perform a test distinguishing a principal rank from a deputy rank for a chairman. If a chairman has a principal rank, then we add 0.5 to our original $Dshi_{t-1}$. If a chairman has a deputy rank, then we stick to our original $Dshi_{t-1}$. Results are reported in Columns (1) and (2) of Panel A of Table 10 (all controls are included in the regressions, but untabulated to conserve space). The coefficients on $Dshi_{t-1}$ are negative and significant (–0.1448, z = −2.96 using $Crash_t$; –0.0258, t = −2.02 using $Ncskew_t$). Our main inference on the negative association between political rank and crash risk, therefore, remains unchanged with the consideration of principal and deputy ranks.

Indicators for Ranks

We define three indicators to evaluate whether the four different ranks yield differing results. *Dshi4* equals 1 if *Dshi* = 4 (provincial and ministerial level), and 0 otherwise. *Dshi3* equals 1 if *Dshi* = 3 (department and bureau level), and 0 otherwise. *Dshi2* equals 1 if *Dshi* = 2 (county and division level), and 0 otherwise. As shown in Panel B of Table 10 (all controls are included in the regressions, but untabulated to conserve space), the magnitudes of the negative coefficients on *Dshi4, Dshi3,* and *Dshi2* decline monotonically, supporting our hypothesis that stock price crash risk decreases with political ranks.

Comparison with Non-State-Owned Firms

State-owned firms and non-state-owned firms are very different from each other. We further examine whether non-state-owned firms without politically ranked managers have a higher level of stock price crash risk. We define variables SOE_t (an indicator that equals 1 if a firm is state-owned, and 0 otherwise), $Highdshi_t$ (an indicator that equals 1 if a state-owned firm manager's rank is at or higher than the department or the bureau level, and 0 otherwise), $Lowdshi_t$ (an indicator that equals 1 if a state-owned firm manager's rank is lower than the department or the bureau level, and 0 otherwise).

As shown in Panel C of Table 10 (all controls are included in the regressions, but untabulated to conserve space), when stock price crash risk (*Crash* or *Ncskew*) is regressed on *SOE* (Columns (1) and (2)), the coefficient on *SOE* is negative and

TABLE 9

Effect of Retirement on the Association between Political Ranks and Crash Risk

Variables	(1) $Crash_t$	(2) $Ncskew_t$	Variables	(3) $Crash_t$	(4) $Ncskew_t$
$Postretire_t$	1.8649*	−0.1105	$Postyoung_t$	0.1696***	0.0180
	(1.90)	(−0.44)		(2.96)	(1.39)
$Postretire_t \cdot Dshi_{t-1}$	−0.5749	0.0270	$Postyoung_t \cdot Dshi_{t-1}$	−0.0648***	−0.0094*
	(−1.60)	(0.29)		(−2.63)	(−1.76)
$Dshi_{t-1}$	−0.0172	−0.0817	$Dshi_{t-1}$	−0.1348	−0.0303
	(−0.06)	(−1.06)		(−0.55)	(−0.55)
$Dturn_{t-1}$	−3.2716*	−0.6542	$Dturn_{t-1}$	−2.8408	−0.6601
	(−1.74)	(−1.27)		(−1.50)	(−1.31)
$Ncskew_{t-1}$	−0.0830	−0.0267	$Ncskew_{t-1}$	−0.0468	−0.0160
	(−0.38)	(−0.51)		(−0.21)	(−0.31)
$Sigma_{t-1}$	−35.2440	0.5863	$Sigma_{t-1}$	−35.5697	2.0957
	(−0.87)	(0.06)		(−0.92)	(0.21)
$Wret_{t-1}$	−7.5369	−1.1061	$Wret_{t-1}$	−6.9513	−0.7851
	(−1.04)	(−0.65)		(−1.04)	(−0.46)
$Size_{t-1}$	−0.0033	0.0914**	$Size_{t-1}$	−0.0510	0.0856**
	(−0.02)	(2.16)		(−0.33)	(2.10)
MB_{t-1}	0.0188	−0.0001	MB_{t-1}	0.0375	0.0010
	(0.40)	(−0.01)		(0.84)	(0.07)
Lev_{t-1}	−1.4384**	−0.2908	Lev_{t-1}	−1.4816**	−0.3030
	(−2.37)	(−1.37)		(−2.51)	(−1.46)
Roa_{t-1}	0.6723	−0.5338	Roa_{t-1}	1.0406	−0.5328
	(0.39)	(−1.21)		(0.59)	(−1.22)
$Accm_{t-1}$	−0.6612	−0.2420	$Accm_{t-1}$	−0.6169	−0.2360
	(−0.53)	(−0.81)		(−0.49)	(−0.79)
Constant	−0.9679	−2.2400**	Constant	0.6584	−2.2746**
	(−0.28)	(−2.37)		(0.18)	(−2.59)
Industry Indicators	Yes	Yes	Industry Indicators	Yes	Yes
Observations	376	376	Observations	374	374
Pseudo R^2/R^2	0.0426	0.0301	Pseudo R^2/R^2	0.0519	0.0436
Wald Chi-square/F-value	15.79	1.34	Wald Chi-square/F-value	23.90	2.20

***, **, * Represent significance levels at 1 percent, 5 percent, and 10 percent, respectively.
Reported t-values are on an adjusted basis using robust standard errors corrected for firm-level clustering (Petersen 2009) and heteroscedasticity (White 1980).

Variable Definitions:
$Crash_t$ = an indicator variable for crash risk in Year t;
$Ncskew_t$ = a continuous variable for crash risk in Year t;
$Dshi_{t-1}$ = the political rank for a state-owned firm's chairman of the board in Year t–1: township and section level ($Dshi_{t-1} = 1$); county and division level ($Dshi_{t-1} = 2$); department and bureau level ($Dshi_{t-1} = 3$); and provincial and ministerial level ($Dshi_{t-1} = 4$);
$Dturn_{t-1}$ = the detrended share turnover in Year t–1;
$Ncskew_{t-1}$ = negative firm-specific weekly return skewness in Year t–1;
$Sigma_{t-1}$ = the firm-specific weekly return volatility in Year t–1;
$Wret_{t-1}$ = the average firm-specific weekly return in Year t–1;
$Size_{t-1}$ = the logarithmic transformation of a firm's total assets at the end of Year t–1;
MB_{t-1} = the market-to-book ratio of a firm at the end of Year t–1;
Lev_{t-1} = a firm's ratio of total liabilities to total assets at the end of Year t–1;
Roa_{t-1} = a firm's ratio of net income to total assets at the end of Year t–1;
$Accm_{t-1}$ = the three-year moving sum of absolute abnormal accruals ending in Year t–1, which equals the sum of absolute abnormal accruals in Years t–1, t–2, and t–3;
$Postretire_t$ = an indicator variable that equals 1 for Years 0, 1, and 2, and equals 0 for Years –3, –2, and –1, where Year 0 is the year of retirement of the chairman; and
$Postyoung_t$ = 0 before retirement, and equals the age difference at the retirement between the retiring chairman and the succeeding chairman.

TABLE 10

Association between Political Ranks and Crash Risk—Principal versus Deputy Ranks, Individual Rank Indicators, and State-Owned versus Non-State-Owned Firms

Panel A: Considering Principal and Deputy Ranks

Variables	(1) $Crash_t$	(2) $Ncskew_t$
$Dshi_{t-1}$	−0.1448***	−0.0258**
	(−2.96)	(−2.02)

Panel B: Using Individual Rank Indicators

Variables	(1) $Crash_t$	(2) $Ncskew_t$
$Dshi4_{t-1}$	−0.5275***	−0.0971**
	(−2.66)	(−2.13)
$Dshi3_{t-1}$	−0.2246**	−0.0443
	(−2.25)	(−1.63)
$Dshi2_{t-1}$	−0.1774*	−0.0169
	(−1.87)	(−0.64)

Panel C: Comparing State-Owned Firms and Non-State-Owned Firms

Variables	(1) $Crash_t$	(2) $Ncskew_t$	(3) $Crash_t$	(4) $Ncskew_t$
SOE_{t-1}	−0.0858	−0.0437***	—	—
	(−1.42)	(−2.58)		
$Highdshi_{t-1}$	—	—	−0.1616**	−0.0656***
			(−2.17)	(−3.24)
$Lowdshi_{t-1}$	—	—	−0.0542	−0.0403**
			(−0.83)	(−2.22)

***, **, * Represent significance levels at 1 percent, 5 percent, and 10 percent, respectively.

We control year and industry fixed effects. Reported t-values are on an adjusted basis using robust standard errors corrected for firm-level clustering (Petersen 2009) and heteroscedasticity (White 1980). In Panel A, we modify $Dshi_{t-1}$ this way: If a chairman has a principle position, then 0.5 is added to the original $Dshi_{t-1}$. If a chairman has a deputy position, then we stick to the original $Dshi_{t-1}$. In Panel B, *Dshi4* equals 1 if $Dshi = 4$ (provincial and ministerial level), and 0 otherwise. *Dshi3* equals 1 if $Dshi = 3$ (department and bureau level), and 0 otherwise. *Dshi2* equals 1 if $Dshi = 2$ (county and division level), and 0 otherwise. We also have year and industry fixed effects. To conserve space, we do not report results for control variables.

Variable Definitions:

$Crash_t$ = an indicator variable for crash risk in Year *t;*
$Ncskew_t$ = a continuous variable for crash risk in Year *t;*
$Dshi_{t-1}$ = the political rank for a state-owned firm's chairman of the board in Year *t*–1: township and section level ($Dshi_{t-1} = 1$); county and division level ($Dshi_{t-1} = 2$); department and bureau level ($Dshi_{t-1} = 3$); and provincial and ministerial level ($Dshi_{t-1} = 4$);
$Dturn_{t-1}$ = the detrended share turnover in Year *t*–1;
$Ncskew_{t-1}$ = negative firm-specific weekly return skewness in Year *t*–1;
$Sigma_{t-1}$ = the firm-specific weekly return volatility in Year *t*–1;
$Wret_{t-1}$ = the average firm-specific weekly return in Year *t*–1;
$Size_{t-1}$ = the logarithmic transformation of a firm's total assets at the end of Year *t*–1;
MB_{t-1} = the market-to-book ratio of a firm at the end of Year *t*–1;
Lev_{t-1} = a firm's ratio of total liabilities to total assets at the end of Year *t*–1;
Roa_{t-1} = a firm's ratio of net income to total assets at the end of Year *t*–1;
$Accm_{t-1}$ = the three-year moving sum of absolute abnormal accruals ending in Year *t*–1, which equals the sum of absolute abnormal accruals in Years *t*–1, *t*–2, and *t*–3;
SOE_{t-1} = an indicator that equals 1 if a firm is state-owned, and 0 otherwise, in Year *t*–1;
$Highdshi_{t-1}$ = an indicator that equals 1 if a state-owned firm manager's rank is at or higher than the department or the bureau level, and 0 otherwise, in Year *t*–1; and
$Lowdshi_{t-1}$ = an indicator that equals to 1 if a state-owned firm manager's rank is lower than the department or the bureau level, and 0 otherwise, in Year *t*–1.

significant using *Ncskew* (–0.0437, t = –2.58), although it is negative, but insignificant, using *Crash* (–0.0858, z = –1.42). This finding suggests that stock price crash risk is lower for state-owned firms than for non-state-owned firms. When stock price crash risk (*Crash* or *Ncskew*) is regressed on *Highdshi* and *Lowdshi* (Columns (3) and (4)), the coefficients on *Highdshi* are negative and significant (–0.1616, z = –2.17 using *Crash;* –0.0656, t = –3.24 using *Ncskew*). The coefficients on *Lowdshi* are of a lower magnitude (–0.0542, z = –0.83 using *Crash;* –0.0403, t = –2.22 using *Ncskew*). This result suggests that, in general, stock price crash risk is lower for state-owned firms than for non-state-owned firms and that within state-owned firms, it is even lower for those with higher-ranked managers.

V. SUMMARY AND CONCLUSION

A firm's stock price crash risk is a function of its contracts among its various stakeholders. However, research based on mature markets focuses on the explicit contract between shareholders and managers. Through an analysis of the tournament-style managerial labor market of China's state-owned firms, we argue that the contract between the state and managers is also an important factor that influences stock price crash risk. In a relatively closed pyramidal internal managerial labor market, to maintain their current positions and seek promotions, managers display caution and risk-aversion in their behaviors, leading to a negative association between political ranks and stock price crash risk. Our results support this prediction. Further analysis shows that this negative association mainly exists in firms with relatively young managers and managers with relatively short tenure. Institutions also play a role in affecting how political ranks reduce the crash risk. This effect is only pronounced in regions with weak market forces, in firms without foreign investors, without political connections, and during periods with no local government leaders' or managers' political promotions. We conclude that the political ranking system is an important factor that helps reduce the stock price crash risk.

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