Review of Quantitative Finance and Accounting
https://doi.org/10.1007/s11156-024-01344-7

ORIGINAL RESEARCH

Politically connected CEOs and liquidity risk: some chinese evidence

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Accepted: 22 August 2024

Abstract
Contributing to the literature on the political connections and liquidity risk, we identify a negative correlation between political connections and stock liquidity risk in the Chinese market. The results are robust to the matching analysis, difference-in differences, and the exclusion of a set of firms that political connections are terminated suddenly. Supplementary analyses indicate that more government resources and favoritism, better fundamentals, performance, and transparent information environment, that affected by political connections, could be the possible channels through which political connections help to mitigate stock liquidity risk. Furthermore, we observe that this negative relationship is amplified in State-Owned enterprises (SOEs), during periods of financial crisis, and firms in regions with weaker legal institutions.

Keywords Politically connected CEOs · Liquidity risk · Government resources · Firm performance

JEL Classification G30 · G41

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Published online: 18 September 2024

1 Introduction

Political connections have profound impacts on corporate performance. Although certain studies highlight a detrimental impact of political connections, indicating that politically connected firms are poorly governed, less efficient and more risk (e.g., Johnson and Mitton 2003; Fraser et al., 2006; Fan et al., 2007; Bliss and Gul 2012), larger body of literature posits that political connections represent valuable resources for firms. Politically connected firms often enjoy preferential treatments in the forms of capital allocation, government contracts, favorable taxation, lenient regulation, and other privileges (e.g., Fisman 2001; Faccio 2002, 2006; Faccio and Parsley 2009; Claessens et al. 2008; Goldman et al 2009). They are more likely to be bailed out (Faccio et al., 2006), pay lower taxes and have larger market shares (Faccio 2002), have lower cost of debt (Houston et al 2014) and lower cost of equity (Boubakri et al., 2012b), thus, exhibiting lower risky. Collectively, while it is acknowledged that politicians may exploit their corporate connections for personal gain (Shleifer and Vishny 1994), firms can benefit from these political connections when the benefits outweigh the marginal costs. Hence, it remains an empirical question whether political connections can confer net benefits upon firms.

Although there is extensive research on the benefits and costs of political connections, our understanding of how investors and market makers, who provide liquidity to stocks, perceive politically connected CEOs during periods of market liquidity dried up. Therefore, we aim to investigate the impact of political connections on stock liquidity risk, which is defined as the sensitivity of stock returns to unexpected changes in market liquidity (e.g., Pastor and Stambaugh 2003; Acharya and Pedersen 2005). On one hand, it is commonly argued that the access to key government resources and favoritism associated brought by politically connected CEOs can confer a competitive advantage to firms (Claessens et al. 2008). Previous studies have demonstrated that politically connected CEOs can lead to better firm fundamentals and information quality (e.g., Cornett et al. 2007; Lambert et al. 2007; Ng 2011), thereby enhancing firm performance. Since government resources and favoritism can help firms survive economic downturns and contribute to superior performance, political connections may serve as a useful mechanism for attracting investors and market makers when market liquidity dries up, then potentially reducing stocks' liquidity risk.

Conversely, based on agency theory, CEOs who possess political connections, are likely to prioritize aligning corporate objectives with government goals (Wu et al 2012). They may utilize firm resources to assist local governments in fulfilling political and social agendas, even if such actions are detrimental to the firm (Bertrand et al. 2018). Consequently, the impact of political connections on firm is not without controversy. For instance, some argue that inefficient resource allocation resulting from government intervention may lead to worse firm fundamentals. Furthermore, protection provided by politicians from penalties for low quality accounting information may diminish financial transparency (e.g., Bushman, et al. 2004; Bushman and Piotroski 2006). Due to heightened fear of government intervention and rent- seeking costs, stocks of firms with political connections may be unattractive to traders, resulting in reduced liquidity. Consequently, the decline in stock liquidity may render stock prices more susceptible to fluctuations in market liquidity, thereby exacerbating liquidity risk.

China's unique lending relationship and preferential policies make it particularly suitable for our study. Unlike Western economies, China remains in a transitional phase where the government controls key resources like bank loans and government subsidies, which

constitute pivotal sources of financing for Chinese firms (Allen et al. 2005). Regarding bank loans, Hou et al. (2016) identify two salient features within the Chinese banking system: financial repression and government intervention. Consequently, private entrepreneurs in China often face obstacles in accessing bank loans, which are primarily allocated to state-owned enterprises. According to surveys, long-term bank loans to state-owned enterprises accounted for approximately 42% of total financing in China in 2021, while constituting only 19% of total financing for private firms. Additionally, as another important source of financing, Chinese government subsidies are more widespread and persistent, and broadly categorized into tax- based and non-tax-based subsidies. Although the formal tax rate is generally regulated by the Ministry of Finance and the State Administration of Taxation in China, its enforcement and various forms of tax reduction/refund, as well as informal taxes, to a certain extent, at the discretion of bureaucrats at different administrative levels. And non-tax-based subsidies are granted with greater subjectively, at the discretion of government officials. To sum up, the Chinese government tends to play a vital role in directing financial resources, political ties with the government can help firms gain more favor in the allocation of capital, progressively emerging as a significant consideration for investors and market makers when making investment decisions. Hence, investigating the impact of political connections on the liquidity risk is meaningful for the Chinese market.

Using a sample of Chinese firms spanning from 2009 to 2017, we investigate the relationship between political connections and liquidity risk. Firms' political connections are proxied by their CEO's political ties. Firms are considered politically connected if their CEOs either currently serve or previously served in the central or provincial government (e.g., a deputy in the National People's Congress, or in the Chinese People's Political Consultative Conference). We find that firms with politically connected CEOs exhibit significantly lower liquidity risk. These results remain robust across various measures of liquidity risk and persist significant even after controlling for firm-specific characteristics that influence liquidity risk, as well as incorporating industry and time fixed effects.

There may be several potential concerns about our results. Firstly, the primary challenge in our empirical analysis lies in identifying the causal effect of political connections. Concern that it may be easier for high-quality firms with lower liquidity risk to establish political links, potentially leading to reverse causality affecting our analysis. Secondly, one might argue that the sample size of firms without political connections far exceeds that of firms with political connections, and the results may be impacted by the sample bias due to the differences in firm characteristics. Finally, our results may be susceptible to the impact of terminated political connections, which could signify negative implications for firm operations. This raises the possibility that our results are not driven by the allure of political connections, but rather by the aversion to firms experiencing termination of political connections. To address these concerns, we propose several remedies. Firstly, we use exogenous shocks such as the inspection of established/terminated connections driven by CEOs' sudden deaths, retirements, impeachment, etc., to identify causal influences of changes in political connections on liquidity risk. Additionally, to mitigate concerns about unobserved factors contaminating the results, we employ PSM and PSM-DID techniques. Secondly, we apply a matching method to balance characteristics between firms with and without political connections. Lastly, we conduct a sub- sample analysis excluding firms whose political connections were terminated due to unanticipated events, such as CEOs' sudden deaths, retirements, impeachment, etc.

In subsequent analysis, we employ the two-stage least square (2SLS) approach to delve into the underlying channels through which political connections mitigate firms' liquidity risk. Firstly, our investigation uncovers that politically connected firms benefit from

direct or indirect government favoritism, including access to government subsidies (tax benefits, non-tax-based subsidies) and bank lending (long-term debt, debt financing structure). Based on resource-based theory, these resources mean a comparative advantage, which may enable firms to perform better and thus attract more investors when market liquidity dries up. Hence, these resources and favoritism, driven by political connections, subsequently contribute to a reduction in liquidity risk. Moreover, we examine whether these advantages brought by political connections and politically connected CEOs who have close ties to the government, indeed have positive impact in various aspects of firm fundamentals, including investment policies (tangible capital investment, R&D spending), financial leverage (the total Debt-to-Market value of assets), business scope (number of business scopes involved in main products), cost of capital (cost of debt, cost of equity, cost of capital), and firm performance (the book-to-market ratio, the return on assets), as well as information quality (audit fees, discretional accruals). The findings affirm that political connections and politically connected CEOs do help firms to have better fundamentals, performance, and information quality, which can make firms more attractive to investors and market makers. And these enhanced political connection–driven fundamentals, performance, and information quality reduce the firms' liquidity risk.

Finally, considering that the value of political connections may be different in various internal and external environments. For example, prior research suggesting that the positive impact of political connections is amplified for firms with stronger affiliations to political power (Boubakri et al., 2012b), in regions with relatively weaker market structures and legal frameworks (Boubakri et al., 2012a). And Beuselinck et al (2017) argue that during crisis periods, the implicit and explicit guarantees that provided by government became more valuable. Thus, we investigate whether the impact of political connections on liquidity risk varies across firms with different political power, located in regions with different levels of marketization, and during different economic environment (i.e., financial crisis and non-crisis periods). And we find that the liquidity risk management effect of political connections is more pronounced in firms with higher political power (especially for SOEs), located in regions with relatively lower degrees of marketization, and during financial crisis periods, that is consistent with prior research.

Throughout the preceding financial crisis, market disruptions have been accompanied by an abrupt decline in market liquidity, and the unexpected liquidity shock has resulted in substantial losses for investors. Hence, investors tend to gravitate towards firms with higher liquidity universality (Amihud et al., 2002). However, liquidity risk represents an additional and significant systematic risk that investors need to contend with in imperfectly liquid markets (Pastor Stambaugh, 2003). Taken together, the prevention and management of stock liquidity risk are meaningful for investors seeking liquidity, withdrawing funds, and enhancing investment efficiency. Our study primarily focuses on elucidating the perceptions and reactions of investors and market makers, who facilitate liquidity for such stocks, towards political connections. Hence, our findings contribute to the existing literature discussing the market reaction to political connections.

Secondly, our study that analyzes the impact of the CEOs' political connections on liquidity risk investigate the factor that impact the liquidity risk from the unique perspective of the enterprise internal level. Prior literature has predominantly approached liquidity risk from financial analysis like excess cash (Huang and Mazouz 2018), information quality (Ng 2011), and institutional ownership (e.g.,Szewczyk et al. 1992; Gompers et al. 2003; Baker and Stein 2004; Cao and Petrasek 2014). This research directly mapping liquidity risk back to the firm management level, that contributes to the broader research on liquidity risk to the firm level. A powerful CEO wields significant influence over the firm's strategic

decision-making processes, capital allocation, and the determination of its future direction. Our findings offer new evidences on how politically connected CEOs potentially impact the firms. By examining the potential channels through which political connections can influence liquidity risk, our paper indirectly discusses whether politically connected CEOs, who may bear more "political burden" and have more rent-seeking behaviors, bring more costs or net benefits to firms. Also, it is of great significance to understand investors' opinion on politically connected CEOs.

The rest of the paper is structured as follows. Section 2 develops hypotheses. Section 3 describes the sample and variables construction. Section 4 reports the empirical results. Section 5 reports the results of robustness tests. Section 6 discusses the channels. Section 7 explores the impact of firm properties and external environments. Section 8 makes the conclusion.

2 Literature review and hypothesis development

For liquidity risk, the pertinent macroeconomic condition is market liquidity, which reflects the market's ability to trade large quantities quickly at a low cost and without significant price fluctuations (Pastor and Stambaugh 2003). When market liquidity changes, different stocks experience varying investor demand and market maker outflows/inflows, resulting in various sensitivities of stock performance to the market liquidity fluctuations, consequently, differing liquidity risk. For example, during periods of diminished market liquidity, stocks with higher uncertainty and adverse selection face decreased investor demand, and market makers are also less willing to provide liquidity to such stocks, leading to worse stocks performance. Conversely, during periods of increased market liquidity, these stocks experience a rise in investor demand. Hence, compared to other stocks with less uncertainty and adverse selection experience, the performance of these stocks may be more sensitive to the market liquidity fluctuations, indicating higher liquidity risk. Consequently, we can conject that liquidity risk is significantly influenced by factors that can impact the investor demand. Hence, if certain characteristics of a firm can make the demand of investors and market makers less impacted by the market liquidity fluctuations, it may induce a lower liquidity risk. Despite existing studies exploring the determinants of liquidity risk at the micro-level, including institutional ownership (Cao and Petrasek 2014), information quality (Ng, 2011) and excess cash (Huang and Mazouz 2018). Additionally, rarely studied liquidity risk from the perspective of political connections, which is gradually becoming an indispensable part, that investors evaluate firms and formulate investment strategies need to concern.

Connection between politics and business is a widespread phenomenon worldwide. The theories proposed by North (1990) and Olson (1993) elucidate the rationale behind the emergence of political connections with firms. Politicians establish connections with firms to exert control and extract rents, while firms pursue ties with politicians or government entities to gain access to resources and receive benefits (e.g., profitable contracts, subsidies, tax relief, and cheap loans). The growing body of research examining the impact of the political connections of the firms' chief executive officer (CEO), yields mixed evidence of the effect on the firms.

On one hand, someone argue that political connections come with costs for a firm. Firstly, political connections can resemble grabbing hands, due to rent-seeking behavior by

government officials and bureaucrats (Faccio 2006), which may embezzle firm resources and potentially harm firm performance (Chen et al. 2017). Secondly, according to the agency theory, even with access to political resources, politically connected managers may bear more "political burden", such as economic growth and employment, which may conflict with the interests of shareholders. For instance, politically connected firms may allocate firm resources towards helping politicians in achieving their political goals. Wu et al. (2012) using a Chinese sample, also found that firms with politically connected managers appointed by the government tend to prioritize aligning firm goals with government objectives.

On the other hand, prior literature documents that political connections are valuable to firms for accessing credit (Schweizer et al 2020), obtaining valuable government resources (e.g.,Goldman et al. 2013; Zhang et al. 2014) and receiving bailouts in crisis periods (Blau et al., 2013). Especially for China, which is still a transitional economy and the government controls the critical resources. Allen et al. (2005) suggest that bank loans and government subsidies are two vital sources of financing for Chinese firms. The political connections of private firms in China can help them overcome ideological discrimination and seek government-related benefits, such as tax benefits (Wu et al. 2012), advantage in debt financing (Fan et al. 2008) and increased government subsidies (Feng et al 2015). Also, to convince external investors that their interests will not be damaged, politically connected managers may choose to enhance accounting transparency (Guedhami et al. 2014), which can decrease firms' uncertainty and adverse selection risk.

Taken together, whether the benefits of political connections outweigh the costs is not obvious. How investors perceive political connections and whether politically connected firms are attractive to investors and market makers is an empirical problem, that is, the impact of political connections on liquidity risk is controversial. Our first hypothesis aims to examine this relationship. We propose our first hypothesis as follows:

H1a Politically connected firms have higher liquidity risk as compared to non–politically connected firms.

H1b Politically connected firms have lower liquidity risk as compared to non–politically connected firms.

We then investigate the potential channels that can explain the relationship between political connections and liquidity risk. Building upon previous discussions, we posit that if the demand of investors and market makers for firms' is impacted less by the market liquidity fluctuations, the liquidity risk will be lower. Consequently, we conject that the net benefits/costs (e.g. rent- seeking and agency costs, political resources) brought by government intervention, and information quality, firm fundamentals and performance affected by the government intervention and politically connected CEOs' management, which investors and market makers concern about when formulate investment strategies, may serve as plausible economic channels through which political connections impact liquidity risk.

If political connections increase liquidity risk, it may affect firms' liquidity risk through the following channels. First, for the fear of resource expropriation and government intervention, investors may opt to avoid holding these stocks when making investment decisions. Second, based on agency theory, these firms may face higher rent-seeking costs (Faccio 2006), and politically connected CEOs may bear more " policy burdens " (Chen et al. 2017). When rent- seeking costs and "policy burdens" become serious in politically

connected firms, they will negatively impact the value and fundamentals of firms, that potentially reducing the trading tendency of investors. For instance, firms with politically connected CEOs may be compelled to invest in unprofitable but politically favored projects, which in turn lead to investment inefficiency (Chen et al. 2011). And political connections may induce aggressive financial reporting or earnings management (e.g.,Bushman, et al. 2004; Bushman and Piotroski 2006). These potential negative consequences and worse information quality resulting from political connections may subject firms to greater uncertainty and adverse selection. Consequently, when market liquidity dries up, investor demand for firms with these worse information quality, performance and fundamentals may decline, and market makers may be less willing to provide liquidity, thereby, the liquidity risk of these firms will be higher.

On the other hand, political connections may reduce firms' liquidity risk through the following two channels. Firstly, according to resource-based theory, a firm's competitive advantage is derived from its possession of tangible and intangible resources that are difficult or costly for other firms to obtain. Prior studies indicate that political connections can assist firms in acquiring government resources and favoritism that are challenging for other firms to access, such as, government tax benefits (Wu et al. 2012), debt-financing advantages (Fan et al. 2008), and government subsidies (Feng et al 2015). Given that politically connected CEOs can facilitate firms in obtaining more government favoritism and enhancing competitiveness, political connections can serve as a valuable mechanism for firms to attract investors and market makers, thereby making these firms less impact by the market liquidity risk declines and leading to lower liquidity risk.

Secondly, these advantages brought by political connections and the management policy of politically connected CEOs who have close ties to the government, may yield positive economic outcomes for firms, thereby attracting investors and potentially reducing firms' liquidity risk. The literature indicates that the soft budget constraints resulting from political connections contribute to a lower cost of equity capital (Boubakri et al., 2012b) and cost of debt (Bliss and Gul 2012). Moreover, resources that obtained from political ties increase the available capital for investment activities, thus addressing the issue of under-investment (Xu et al., 2013). Politically connected CEOs can gaine some unique information from the government (Ferris et al. 2016) and reducing the uncertainty of innovation policy (Su et al., 2019). Consequently, the positive impact of political connections enhances firms' performance (Li et al. 2008). Other studies reveal that firms with political connections attract heightened scrutiny and monitoring. For instance, Gul (2006) finds a greater increase in auditor effort and audit fees for Malaysian firms with political connections than those without during the Asian financial crisis. Similarly, politically connected firms in China demonstrate a willingness to enhance accounting transparency to convince external investors that they refrain from exploiting connections to divert corporate resources (Guedhami et al. 2014). These potential positive economic consequences and better information quality resulting from political connections mitigate uncertainty and adverse selection for firms. As a result, during periods of market liquidity dried up, investor demand may not drop significantly, and market makers may be also more willing to provide liquidity, hence, the sensitivity of stock returns to unexpected changes in market liquidity will be lower for firms with political connections. According to these discussions, we propose our second hypothesis as follows:

H2a If the costs of political connections outweigh the benefits, politically connected firms have higher liquidity risk than non–politically connected firms. Firms with stronger

political connection–driven resources expropriation, government intervention and worse political connection–driven firm fundamentals and information quality tend to have higher liquidity risk as compared to non–politically connected firms.

H2b If benefits of political connections outweigh the costs, politically connected firms have lower liquidity risk than non–politically connected firms. Firms with more political connection– driven government favoritism and better political connection–driven fundamentals, performance, information quality tend to have lower liquidity risk as compared to non– politically connected firms.

3 Data, sample, and summary statistics

We identify CEOs' political connections by examining whether he or she was currently or formerly an officer of either the central government, or a local government. Data regarding CEOs' political connections during the periods from 2009 to 2017 are obtained from the China Stock Market and Accounting Research (CSMAR) database. The stock returns, accounting data, and other variables are obtained from the Wind database. Financial and utility stocks are excluded from the analysis.

3.1 Estimates of liquidity factor

In this section we first describe the empirical methodology and estimation procedure for the market liquidity factors. Liquidity encompasses various dimensions, and different liquidity measures serve as empirical proxies, that capture different aspects of illiquidity. Given the complexity of liquidity, it is impossible to rely on a single measure to captures all aspects of liquidity. Hence, we construct two market liquidity factors based on the methodologies outlined by Pastor and Stambaugh (2003) and Amihud (2002), which represent two widely adopted measures in the literature. Pastor and Stambaugh (2003) define liquidity by capturing transient price shifts attributed to order flow. The Pastor-Stambaugh liquidity measure focuses on a specific dimension associated with temporary price fluctuations induced by order flow, and captures the sensitivity of stock returns to the velocity of returns about trading orders. On the other hand, the Amihud illiquidity ratio reflects the responsiveness of the average absolute daily price to 1 trading volume for a stock, thereby focusing on the price impact of trades, which reflects the liquidity transaction costs. Consequently, we employ these two measures to complement each other. The significance of the empirical results, that using the two liquidity risk measures based on the two market liquidity factors, indicate the robustness of our findings.

3.1.1 Pastor and Stambaugh liquidity factor

The Pastor and Stambaugh liquidity level for an individual stock in period t can be obtained from the following regression:

$$R^{e}_{i,j+1,t} = \theta_0 + \varphi_1 R_{i,j,t} + \pi_{i,t} sign\left(R^{e}_{i,j+1}\right) Vol_{i,j,t} + \varepsilon_{i,j+1,t}$$

where $R_{i,j,t}$ is the return of stkcd i on day j in month t, $R^{e}_{i,j+1,t}$ is the stkcd's return in excess of the stkcd market return, $sign\left(R^{e}_{i,j+1}\right)$ is an indicator function whose value equals to 1 if $R_{i,j,t}$ is positive and -1 if it is negative, zero otherwise, $Vol_{i,j,t}$ is the dollar volume of stkcd i on day j in month t. $\pi_{i,t}$ is the proxy for the individual liquidity. Then, we construct the market-wide measure π_t for each month from the following:

$$\pi_t = \frac{1}{N_t}\sum_{i=1}^{N_t}\pi_{i,t}$$

where N_t is the number of corporates in month t. We then consider the effects of fluctuations in the growth of the stock market's size and the sample size. To standardize, we scale the difference in monthly aggregate liquidity measures, $\Delta\pi_t = \left(m_t/m_1\right) * (\pi_t - \pi_{t-1})$, where m_t is the total dollar value at the end of month $t-1$ of the stocks included in month t, and month 1 corresponds to December 1990. Liquidity innovations are then obtained from the subsequent regression:

$$\Delta\pi_t = \alpha_0 + \alpha_1\Delta\pi_{t-1} + \alpha_2\left(\frac{m_{t-1}}{m_1}\right) * \pi_{t-1} + e_t$$

We obtain the innovations in liquidity, LIQ_t, as the Pastor and Stambaugh liquidity factor, follows the logic of Pastor and Stambaugh (2003), is taken as the fitted residual divided by 100:

$$LIQ_t = \frac{1}{100}e_t$$

3.1.2 Amihud illiquidity factor

The Amihud (2002) illiquidity level for an individual stock in period t is defined as follows:

$$ILLIQ_{i,t} = \frac{1}{D_{i,t}}\sum_{j=1}^{D_{i,t}}\frac{|R_{i,j,t}|}{Vol_{i,j,t}}$$

where $R_{i,j,t}$ is the return of stkcd i on day j in month t, $Vol_{i,j,t}$ is the dollar volume of stkcd i on day j in month t and $D_{i,t}$ is the number of days for which transaction data are available for stock i in month t.

We then construct the market-wide measure $ILLIQ_{M,t}$ by aggregating individual illiquidity measures over the entire sample months from the following:

$$ILLIQ_{M,t} = \frac{1}{N_t}\sum_{i=1}^{N_t}ILLIQ_{i,t}$$

For easier compare with the Pastor and Stambaugh liquidity measure, we then scale the difference in monthly aggregate liquidity, $\Delta ILLIQ_{M,t} = \left(m_t/m_1\right) * (ILLIQ_{M,t} - ILLIQ_{M,t-1})$, Liquidity innovations are then obtained from the following regression:

$$\Delta ILLIQ_{M,t} = \alpha_0 + \varphi_1\Delta ILLIQ_{M,t-1} + \varphi_2\left(\frac{m_{t-1}}{m_1}\right) * ILLIQ_{M,t-1} + \varepsilon_t$$

We henceforth refer to the converted innovation series ($-\varepsilon_t$) as the Amihud liquidity factor.

3.2 Liquidity risk measure

Then, we adopt the same approach as Pastor and Stambaugh (2003) and Lin et al. (2011) to construct the liquidity risk based on the two market liquidity factors, which calculated by the two liquidity/illiquidity level for an individual stock:

$$R_{i,t} - R_{f,t} = \alpha_{i,t} + \beta^{M}{}_{i,t} MKTRF_t + \beta^{S}{}_{i,t} SMB_t + \beta^{HM}{}_{i,t} HML_t + \beta^{L}{}_{i,t} LIQ_t + \varepsilon_t$$

where $R_{i,t}$ is the return of stock i in month t, $R_{f,t}$ is the risk-free rate of return in month t, $MKTRF_t$ is the stock market excess return, SMT_t is the size factor, HML_t is the book-to-market factor, and LIQ_t is the market liquidity factor. β^L captures the sensitivity of individual stock returns to market-wide liquidity conditional.

3.3 Measuring political connections

There is no general definition for political connections. Existing research primarily focus the political backgrounds of chairmen and CEOs. For example, Fan et al. (2007) measure political connections based on executives with official backgrounds in the central or local governments, as well as in the army. Due to China's unique political system, more attention has been paid to the political connections of Chinese enterprises, and the definition of political connections is in a broader sense. To measure political connections, we adopt the methodology employed by Faccio (2006), Fan et al. (2007), Chen et al. (2011), Li and Zhou (2015), which classify a CEO as politically connected if he/she is or was an officer in central or local government departments (like the National People's Congress (NPC) and the Chinese People's Political Consultative Conference (CPPCC)). Thus, the political connection dummy variable (*PolCeo*) equals to 1 if the CEOs have political connections during the specified period, and 0 otherwise.

3.4 Other measures

To isolate the marginal impact of CEOs, we also control for various CEO and firm characteristics, including CEO gender, CEO age, capital expenditure (*capex*), a firm's market capitalization (*ln*(*size*)), the book-to-market ratio (*MtB*), returns on assets (*ROA*), book value of total debt (*LEV*), cash holdings(*Cash*), asset tangibility (*PPE*), CEO's association attributes (*SocialCEO*), and operating cash flow (*CF*). Concern about that the political background of the CEO may influence the relationship between political connections and liquidity risk due to the different performance or information quality of the CEO. Following Liu et al. (2017), we construct the bureaucratic ranks of CEOs, which capture the CEOs' different performance or information quality based on their background, and include it as a control in the baseline regression model (*Pol_level*). The definitions of all variables are provided in the Table 1.

Table 1 Description and measurement of the variables

Variable name	Description and measurement
LiquidtyRisk	Stock liquidity risk. For each stock in each month, historical liquidity beta is the slope coefficient on LIQ by using the regression of the past two years of monthly returns on MKT, SMB, HML and LIQ. LIQ is the innovation in changes in market liquidity, that means an unexpected change in market liquidity. The market liquidity is one of the Amihud market liquidity and Pastor-Stambaugh market liquidity
PolCEO	CEO's political connections. A dummy variable equals to 1 if the CEO has working experience in the central or provincial government, and zero otherwise
PC_level	The bureaucratic rank of a CEO
SocialCEO	CEO's association attributes. A dummy variable equals to 1 if the CEO is a member of industrial associations or professional committees, or engaged in industry research, and zero otherwise
Age	CEO age stems from company information file
Gender	CEO Gender. A dummy variable equals to 1 if the CEO is male, and 0 otherwise
Capex	The capital expenditure scaled by total assets
Cash	The cash and equivalents scaled by total assets
CF	The operating cash flow scaled by total assets
Lev	The book value of total liabilities over book value of total assets
MtB	Book-to-Market. The market assets scaled by book assets
PPE	The tangible asset such as net plant, properties and equipment scaled by total assets
ROA	The ratio of earnings after taxes and interest scaled by total assets
Size	The natural logarithm of total assets
State	A dummy variable equals to 1 if the firm is under the control of state at the beginning of the fiscal year, and zero otherwise
Crisis	A dummy variable equals to 1 if the market is bull, and zero otherwise
Inv	Investment in tangible capital. The capital expenditure (cash payments for fixed assets, intangible assets, and other long-term assets less cash receipts from selling these assets) scaled by tangible capital
R&D	The research and development expenditures divided by total assets
TDM	The market value of debt scaled by total assets
Audit_Fee	The firm natural logarithm of the audit fees at fiscal year-end
Product	The number of business scope involved in main products
COE	The cost of Equity. Dividend per share / closing price at the end of the previous year + sustainable growth rate; Sustainable growth rate = (net profit/total balance of owners' equity at the end of the period)*[1-distribution per share before tax/(current value of net profit/value of paid-in capital at the end of the period)]/(1-income on net assets Rate*retention rate)
COD	The cost of Debt. Interest expense/(long-term loans + short-term loans + bonds payable + long-term loans due within one year)
COC	The cost of Capital. Cost of equity/ equity multiplier + cost of debt*(1–1/equity multiplier)
DA	Discretionary Accrual. Modified Jones model. $\frac{TA_t}{A_{t-1}} = \beta_0 + \beta_1 \frac{\Delta S_t - \Delta REC_t}{A_{t-1}} + \beta_3 \frac{PPE_t}{A_{t-1}} + \varepsilon_t$; TA_t is the accrued profit, ΔS_t is the change in main business income, ΔREC_t is the change in the net value of accounts receivable, and PPE_t is the amount of fixed assets. $\widehat{\varepsilon_t}$ is the Discretionary Accrual
sub	Total government subsidies excluding credit subsidies, scaled by total assets
tax	The total tax benefits. Mass of profit* formal tax rate-actual tax expense
long_loan	The long-term loans scaled by total loans
structure	The loan structure. long-term loans/ (long-term loans + short-term loans)

This table reports the names, symbol identification and specific measurement methods of all variables from January 2009 to December 2017. The data source is from the CSMAR and Wind

4 Empirical results

4.1 Summary statistics

Table 2 presents the summary statistics of our main sample, covering the periods from 2009 to 2017, with a total of 96,490 firm-month observations. All continuous variables are winsorized at the top and bottom 1% to mitigate the potential impact of outliers. It displays the time-series averages of descriptive statistics for the full sample, including both firms with political connections and firms without connections. The first two rows of Table 2 provide descriptive statistics of two liquidity risks, which are estimated using the Amihud market liquidity factor and the Pastor-Stambaugh market liquidity factor, respectively. The mean monthly liquidity risks based on the Amihud and the Pastor-Stambaugh liquidity factors are 4.3% and − 17.3%, respectively. During the sample periods, political connections are prevalent among the underwriters, with approximately 13.1% meeting the definition of political connections. Moreover, there are 307 firms in the 13.1% politically connected sample, among which 65 are state-owned, accounting for about 21.2%, and 242 are non-state-owned enterprises, accounting for about 78.4%. Hence, investigating the impact of politically connected CEOs on liquidity risk management is crucial for understanding the role of political connections in enterprises, especially in private firms. Additionally, Table 2 also presents the CEO and firm characteristics for all firms. The descriptive statistics of other control variables are largely consistent with prior literatures.

Table 3 reports the correlation matrix. Our primary variable, political connections, along with several key variables—*PC_level*, *sub*, *long_loan*, *ROA*, *R&D*, *TDM*, *Audit_Fee*, and *Product*—are all significantly correlated with the two measures of liquidity risk at the conventional level. Political connections exhibit a negative correlation with the two measures of liquidity risk based on the Amihud and the Pastor-Stambaugh market liquidity factors, with statistical significance at the 1% level. These findings are consistent with H1b, suggesting that politically connected firms tend to have lower liquidity risk. *sub*, *long_loan*, *ROA*, *R&D* and *Audit_Fee* are positively correlated with political connections, while *Inv* and *TDM* are negatively correlated with political connections. These findings support our hypotheses that politically connected firms may receive greater government favoritism, have better performance, fundamentals, and information quality, ultimately resulting in lower liquidity risk.

4.2 Political connections and liquidity risk

In this section, we initially present the results from our baseline specification. We observe a strong negative association between political connections and liquidity risk. Across all analyses, our results consistently support the hypothesis that politically connected firms exhibit lower liquidity risk.

To test the hypothesis 1 and examine how political connections affect firms' liquidity risk, we conduct the following multivariate regression:

$$LR_{i,t+1} = \alpha_1 + \beta_1 PolCeo_{i,t} + \gamma_1 Controls_{i,t} + \varepsilon_{1i,t}$$

The dependent variables in this model are our two measures of liquidity risk for firm i in given month $t + 1$, which are estimated using the Amihud market liquidity factor and the Pastor- Stambaugh market liquidity factor, respectively. The explanatory variable of

Table 2 Summary statistics

Variable	Obs	Mean	Std. Dev	P25	Median	P75
LR_Amihud	96,490	0.043	2.486	−0.619	−0.010	0.728
LR_PS	96,490	−0.173	4.457	−2.319	−0.108	2.003
PolCeo	96,490	0.131	0.337	0.000	0.000	0.000
PC_level	96,490	0.622	1.809	0.000	0.000	0.000
SocialCEO	96,490	0.151	0.358	0.000	0.000	0.000
Age	96,490	48.82	6.551	45.00	49.00	53.00
Gender	96,490	0.931	0.253	1.000	1.000	1.000
Capex	96,490	0.051	0.051	0.015	0.035	0.070
Cash	96,490	0.154	0.121	0.070	0.120	0.202
CF	96,490	0.675	0.596	0.348	0.545	0.815
Lev	96,490	0.460	0.502	0.283	0.437	0.602
MtB	96,490	0.327	0.212	0.182	0.286	0.429
PPE	96,490	0.421	0.505	0.278	0.431	0.597
ROA	96,490	0.060	0.184	0.027	0.052	0.087
Size	96,490	3.533	1.183	2.764	3.439	4.206
Inv	90,827	0.153	1.541	0.032	0.082	0.174
R&D	90,827	1.010	1.703	0.000	0.000	1.785
TDM	90,827	0.341	0.528	0.065	0.163	0.388
Audit_Fee	90,827	0.952	1.003	0.500	0.700	1.050
Product	90,827	3.118	2.201	1.000	3.000	4.000
COE	64,679	0.083	0.161	0.035	0.066	0.111
COD	83,146	0.072	0.095	0.037	0.055	0.074
COC	55,165	0.071	0.046	0.042	0.061	0.086
DA	43,473	0.016	0.083	−0.033	0.009	0.057
sub	89,240	0.005	0.006	0.001	0.003	0.006
tax	89,833	0.186	0.416	−0.000	0.003	0.207
strcture	93,800	0.049	0.074	0.000	0.012	0.068
l *ong_loan*	55,165	0.221	0.279	0.000	0.093	0.373

This table reports the summary statistics of sample firms from 2009 to 2017. The variable *LR_Amihud* is the liquidity risk based on the Amihud market liquidity factor. *LR_PS* is the liquidity risk based on the Pastor-Stambaugh market liquidity factor. *PolCeo* is a dummy variable which equals 1 if the CEO has political connection in the given time, and zero otherwise. *PC_level* is the bureaucratic rank of a CEO. *SocialCEO* is the CEO's association attributes. *Age* is the age of the CEO. *Gender* is a dummy variable which equals 1 if the CEO is male, and zero otherwise. *Capex* is the capital expenditure scaled by total assets. *Cash* is the cash and equivalents scaled by total assets. *CF* is the operating cash flow scaled by total assets. *Lev* is the book value of total liabilities over book value of total assets. *MtB* is the book-to-market equity. *PPE* is the property, plant, and equipment, scaled by total assets. *ROA* is the return on assets. *Size* is market capitalization. *Inv* is the ratio of capital expenditure (cash payments for fixed assets, intangible assets, and other long-term assets less cash receipts from selling these assets) to total assets. *R&D* is research and development expenditures divided by total assets. *TDM* is the market value of debt scaled by total assets. *Audit_Fee* is the firm natural logarithm of the audit fees at fiscal year-end. *Product* is the number of business scope involved in main products. *COE* is the cost of equity capital. *COD* is the cost of debt. *COC* is the cost of capital. *DA* is the discretionary accrual. *sub* is the government subsidies. *tax* is the tax benefits. *long_loan* is the long-term debt financing. *structure* is the debt financing structure

interest is $PolCeo_{i,t}$, a dummy variable for firm i in given month t, that equals 1 if the CEO is currently or formerly an officer of either the central or a local government, and 0 otherwise. If political connections can reduce firms' liquidity risk, β_1 should be negatively

Table 3 Correlation of key variables

	LR_Amihud	*LR_PS*	*PolCeo*	*PC_level*	*sub*	*Long_loan*	*ROA*	*Inv*	*R&D*	*TDM*	*Audit_Fee*	*Product*
LR_Amihud	1											
LR_PS	0.141***	1										
PolCeo	−0.014***	−0.009***	1									
PC_level	−0.01**	−0.02***	0.87***	1								
sub	−0.01**	−0.00	0.06***	0.04***	1							
long_loan	−0.03***	−0.03***	0.00*	−0.01	−0.13***	1						
ROA	−0.02***	0.00	0.02***	0.02***	0.06***	−0.13**	1					
Inv	0.004	0.012***	−0.004	−0.00	−0.00	0.07***	−0.00	1				
R&D	0.026***	−0.018***	0.012***	0.01*	0.13***	−0.22***	0.01**	−0.005*	1			
TDM	−0.023***	−0.004	−0.037***	0.01*	−0.05***	0.15***	−0.01	0.010***	−0.141***	1		
Audit_Fee	−0.014***	−0.013***	0.020***	0.09***	−0.12***	0.39***	0.05***	0.014***	0.051***	0.237***	1	
Product	−0.018***	0.028***	−0.030***	−0.03***	−0.01	0.08***	−0.04***	0.006*	−0.097***	0.119***	0.024***	1

This table reports the correlation matrix for the main sample. Variable definitions are provided in Table 1. * * *, * *, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively

significant, but positively significant if political connections can increase firms' liquidity risk. We control several known determinants of a firm's liquidity risk following the existing literature, including CEO gender (*Gender*), CEO age (*Age*), capital expenditure (*capex*), a firm's own market capitalization (*ln*(*size*)), the book-to-market ratio (*MtB*), return on assets (*ROA*), book value of total debt (*LEV*), cash holdings (*Cash*), asset tangibility (*PPE*), CEO's association attributes (*SocialCEO*), operating cash flow (*CF*) and bureaucratic ranks of CEOs (*PC_level*). We also include industry and month fixed effects to control for unobserved factors.

Table 4 reports the time-series average coefficients and the corresponding *t*-statistics using multivariate regression of the liquidity risk on political connections and other controls. In Panel A of Table 4, we use the liquidity risk based on the Amihud market liquidity factor as our dependent variable and add more fixed effects to address omitted variable concerns. Columns (1)–(4) feature political connections as the sole independent variable. In columns (2)–(4), we include industry fixed effects, month fixed effects, industry-month fixed effects, respectively. In columns (5)–(8), we add more firm-level controls known to be related to firms' liquidity risk. The coefficients of political connections are all negative and significant at the 1% level, indicating that if firms have political connections, they can experience lower liquidity risk. In Panel B of Table 4, we repeat the analysis using the liquidity risk based on the Pastor- Stambaugh market liquidity factor, following the same procedure as Panel A. Our results remain the same. To sum up, the results in this section confirm H1b, suggesting that political connections reduce firms' liquidity risk.

5 Potential identification and robustness

There may be several concerns about our baseline results. Firstly, concern that it may be easier for high-quality firms with lower liquidity to establish political connections, which could lead to reverse causality and affect our analyses. Secondly the smaller number of politically connected firms compared to firms without political connections raises concerns about sample bias because of the differences about firms' characteristics. Finally, our results may be affected by the termination of political connections, because the results may not be driven by the attraction of political connections but rather by the aversion to firms experiencing termination of political connections, which means a negative sign of firm operation. In this section, we discuss the potential endogeneity concerns with our study and propose some remedies for them.

5.1 Political connections and liquidity risk dynamic changes

An alternative approach to alleviate reverse causality concerns is to apply a difference in differences (DID) test, treating an exogeneous shock as a natural experiment. In this case, we select the change in political connections resulting from CEO turnover in a firm as the exogeneous shock. Next, to further address this concern, we employ a matching methodology. For each firm that establishes political connections with politicians and bureaucrats through CEO turnover, we identify a matched control firm whose political connections are terminated and then calculate the average difference in liquidity risk across all matched pairs. To validate this conjecture, we identify all instances of CEO turnover within firms, excluding those with multiple CEO turnovers to avoid overlapping event windows. If firms

Table 4 Regression of the liquidity risk on political connections

	(1) *LR*	(2) *LR*	(3) *LR*	(4) *LR*	(5) *LR*	(6) *LR*	(7) *LR*	(8) *LR*
Panel A (Amihud Illiquidity Beta)								
PolCeo	−0.102***	−0.114***	−0.104***	−0.116***	−0.049***	−0.080***	−0.054***	−0.086***
	(−3.92)	(−3.65)	(−3.93)	(−3.69)	(−2.66)	(−4.14)	(−2.93)	(−4.39)
PC_level					−0.028***	−0.023***	−0.028***	−0.023***
					(−3.05)	(−2.64)	(−3.07)	(−2.65)
SocialCEO					0.147***	0.137***	0.155***	0.145***
					(5.45)	(5.42)	(5.82)	(5.79)
Age					0.001	0.002**	0.002**	0.003***
					(1.57)	(2.37)	(2.26)	(3.31)
Gender					0.023	0.031	0.023	0.030
					(0.48)	(0.65)	(0.48)	(0.63)
Capex					−0.357**	−0.339**	−0.403***	−0.406***
					(−2.06)	(−2.10)	(−2.71)	(−3.14)
Cash					0.585***	0.463***	0.611***	0.488***
					(7.48)	(7.11)	(7.80)	(7.58)
CF					0.035**	0.044***	0.031*	0.038***
					(2.08)	(3.86)	(1.86)	(3.48)
Lev					0.309***	0.306***	0.242**	0.236**
					(2.82)	(3.24)	(2.26)	(2.58)
MtB					−0.004	0.042	−0.010	0.044
					(−0.07)	(0.62)	(−0.12)	(0.54)
PPE					0.488***	0.480***	0.426***	0.415***
					(4.25)	(4.84)	(3.82)	(4.33)
RoA					−0.145***	−0.116**	−0.159***	−0.130***
					(−3.30)	(−2.59)	(−3.97)	(−3.15)
Size					−0.025***	−0.021**	−0.016*	−0.011
					(−3.44)	(−2.62)	(−1.88)	(−1.23)
_cons	0.056***	0.058***	0.056***	0.242**	−0.398***	−0.437***	−0.396***	−0.238**
	(3.38)	(3.97)	(16.32)	(2.44)	(−3.56)	(−4.20)	(−3.43)	(−2.21)
Industry FE	NO	YES	NO	YES	NO	YES	NO	YES
Month FE	NO	NO	YES	YES	NO	NO	YES	YES
adj. R2	0.000	0.000	0.000	0.003	0.004	0.003	0.004	0.007
F	15.369	13.303	15.411	2.750	26.716	37.792	25.522	5.650
N	96,490	96,490	96,490	96,490	96,490	96,490	96,490	96,490
Panel B (Pastor-Stambaugh Liquidity Beta)								
PolCeo	−0.122***	−0.092**	−0.112***	−0.083**	−0.190***	−0.211***	−0.203***	−0.229***
	(−3.48)	(−2.18)	(−3.25)	(−1.98)	(−3.10)	(−3.46)	(−3.41)	(−2.98)
PC_level					−0.048***	−0.034***	−0.052***	−0.038***
					(−4.22)	(−2.90)	(−4.86)	(−2.62)
SocialCEO					0.226***	0.195***	0.289***	0.255***
					(5.98)	(5.10)	(8.39)	(5.71)
Age					0.008***	0.007***	0.015***	0.014***
					(3.94)	(3.54)	(6.61)	(5.23)
Gender					0.183***	0.167**	0.152**	0.135**
					(2.79)	(2.50)	(2.31)	(2.13)

Table 4 (continued)

	(1) *LR*	(2) *LR*	(3) *LR*	(4) *LR*	(5) *LR*	(6) *LR*	(7) *LR*	(8) *LR*
Capex					1.530***	0.334	0.573	−0.885***
					(4.11)	(0.85)	(1.64)	(−2.72)
Cash					−0.016	−0.028	−0.142	−0.190
					(−0.10)	(−0.22)	(−0.98)	(−1.46)
CF					0.177***	0.090***	0.113***	0.006
					(8.64)	(3.65)	(6.20)	(0.26)
Lev					0.476***	0.896***	−0.006	0.436***
					(2.85)	(4.92)	(−0.03)	(2.69)
MtB					0.079	0.110	−0.352***	−0.348***
					(0.65)	(0.89)	(−3.16)	(−3.61)
PPE					0.412**	0.782***	0.059	0.455***
					(2.39)	(4.15)	(0.29)	(2.82)
RoA					0.046	0.115	−0.142**	−0.076
					(0.50)	(1.17)	(−2.21)	(−1.06)
Size					−0.070***	−0.038*	0.043**	0.091***
					(−3.29)	(−1.86)	(2.53)	(5.08)
_cons	−0.157**	−0.161***	−0.158***	1.052**	−1.075***	−1.358***	−1.144***	−0.273
	(−2.46)	(−4.72)	(−34.93)	(2.51)	(−5.63)	(−6.97)	(−6.24)	(−0.58)
Industry FE	NO	YES	NO	YES	NO	YES	NO	YES
Month FE	NO	NO	YES	YES	NO	NO	YES	YES
adj. R2	0.000	0.000	0.000	0.020	0.003	0.002	0.002	0.024
F	12.106	4.766	10.560	10.196	27.050	19.009	31.802	13.001
N	96,490	96,490	96,490	96,490	96,490	96,490	96,490	96,490

This table reports the average coefficients and corresponding *t*-statistics of multivariate regression that examine the liquidity risk on political connections. Panel A use *LR_Amihud* as the dependent variable, where *LR_Amihud* is estimated based on the Amihud market liquidity factor. The independent variable is *PolCeo*, where *PolCeo* is a dummy variable for political connections. The variable *PC_leve* is the bureaucratic rank of a CEO. *SocialCEO* is the CEO's association attributes. *Age* is the age of CEO. *Gender* is a dummy variable which equals 1 if the CEO is male, and zero otherwise. *Capex* is the capital expenditure scaled by total assets.*Cash* is the cash and equivalents scaled by total assets. *CF* is the operating cash flow scaled by total assets. *Lev* is the book value of total liabilities over book value of total assets. *MtB* is the book-to-market equity. *PPE* is the property, plant, and equipment, scaled by total assets. *ROA* is the return on assets. *Size* is market capitalization. *Inv* is the ratio of capital expenditure to total assets. *R&D* is research and development expenditures divided by total assets. Panel B use *LR_PS* as the dependent variable, where *LR_PS* is estimated based on the Pastor-Stambaugh market liquidity factor. The other variables used in the Panel B are the same as Panel A. Robust t-statistics, adjusted for non, industry, month, industry-month clustering, are reported in parentheses, respectively. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively

establish political connections due to CEO turnover, we treat the CEO turnover event as a connection-establishing CEO turnover, and vice versa.

To match each firm-month observation in which a connection-establishing firm with one that connection-terminating, we employ the Abadie and Imbens (2011) matching estimator. This method minimizes the Mahalanobis distance between a set of observed covariates in treated and control firms. Our matching covariates include capital expenditure (*capex*),

a firm's market capitalization (*ln*(*size*)), the book-to-market ratio (*MtB*), return on assets (*ROA*), book value of total debt (*LEV*), cash holdings (*Cash*), and asset tangibility (*PPE*). Additionally, we require the matched firms belong to the same industry and fiscal year as the treated firm.

Table 5 reports the results of the multivariate regression using the PSM sub-sample, with the methods used in Table 4. In columns (1) to (4) of Table 5, we use the change in liquidity risk based on the Amihud market liquidity factor as our dependent variable. Columns (1)–(2) include only political connections as independent variable, in columns (3)–(4) we add more firm-level controls that have been shown related to firms' liquidity risk. And we add industry-month fixed effects to further mitigate the omitted-variable concerns in the columns (2) and (4). The coefficients of the political connections are all negatively significant at the 1% level under specification. In columns (5)–(8) of Table 5, we use the change in liquidity risk based on the Pastor-Stambaugh market liquidity factor as our dependent variable, following the same procedure as columns (1)–(4). Our results remain the same. These findings in this section also confirmed H1b.

Further, if political connections indeed mitigate firms' liquidity risk, we anticipate a decrease in liquidity risk following the establishment of political connections. Conversely, firms experiencing a termination of political connections should experience an increase in liquidity risk after the termination. We hypothesize that changes in liquidity risk around these events will be significantly higher for firms with a connection-establishing CEO turnover compared to those firms with a connection-terminating CEO turnover. To test this conjecture, we next use CEO turnover events that result in alterations in political connections within a firm and conduct a difference-in-differences analysis.

In Table 6, we investigate whether the decrease in the change of liquidity risk for firms experiencing connection-establishing CEO turnover exceeds that of firms experiencing connection-terminating CEO turnover. In this test, we control for both industry and month fixed effects. Firstly, we construct a dummy variable ($Treat_{i,t}$) that equals to 1 for firms experiencing a connection-establishing CEO turnover, and 0 otherwise. The DID estimator is then defined as the interaction term between the treatment effect ($PolCeo_{i,t}$) and the event effect ($Treat_{i,t}$). Our focus lies on the coefficient of the DID estimator ($PolCeo_{i,t} * Treat_{i,t}$). We find that the coefficient estimate on the interaction term is significantly negative across all columns, indicating that for firms experiencing connection- establishing CEO turnover, the decline in the change of liquidity risk for firms is more pronounced compared to firms experiencing connection-terminating CEO turnover, thus providing further support for H1b.

5.2 Matching analysis

Another interesting aspect in our sample is that the larger number of firms without political connections compared to those firms with political connections, thus suggesting a potential sample bias. To address this, we employ the PSM approach to overcome any potential self-selection bias. We begin with a one-to-one nearest-neighbor propensity score matching (PSM) routine without replacement, which aims to pair each observation of a politically-connected firm with a non-connected one based on firm-specific characteristics. Successful implementation of the PSM ensures that firms with and without political connections exhibit comparable company characteristics at the time of issuance. To calculate the propensity score, we incorporate a set of firm characteristics that can capture the probability of being event firms following previous studies (e.g., Faccio et al., 2006; Boubakri et al.,

Table 5 Regression of the change-in-liquidity risk on firms with changing political connections

	Amihud				Pastor-stambaugh			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Δ*LR*	Δ*LR*	Δ*LR*	Δ*LR*	Δ*LR*	Δ*LR*	Δ*LR*	Δ*LR*
PolCEO	−0.052***	−0.053***	−0.046***	−0.048***	−0.064**	−0.060**	−0.075***	−0.079***
	(−2.68)	(−3.59)	(−2.79)	(−2.64)	(−2.15)	(−2.48)	(−3.05)	(−3.08)
PC_level			−0.010***	−0.010***			−0.016***	−0.015***
			(−2.77)	(−3.36)			(−2.91)	(−3.25)
SocialCEO			0.039*	0.040*			0.064**	0.063**
			(1.83)	(1.82)			(2.57)	(2.26)
Age			0.002	0.002*			0.003**	0.003**
			(1.66)	(1.66)			(2.43)	(2.16)
Gender			0.064	0.057			0.065	0.057
			(1.12)	(1.05)			(1.03)	(0.94)
Capex			−0.401*	−0.361			−0.340	−0.264
			(−1.68)	(−1.53)			(−1.03)	(−0.90)
Cash			0.019	0.038			0.042	0.034
			(0.30)	(0.53)			(0.44)	(0.35)
CF			−0.018	−0.012			−0.002	0.007
			(−0.87)	(−0.55)			(−0.06)	(0.25)
Lev			0.123	0.123			0.045	0.082
			(1.26)	(1.37)			(0.25)	(0.49)
MtB			−0.027	0.017			0.079	0.077
			(−0.62)	(0.26)			(0.83)	(0.99)
PPE			0.135	0.130			0.052	0.092
			(1.29)	(1.33)			(0.28)	(0.53)
RoA			0.039	0.072			0.030	0.054
			(0.34)	(0.96)			(0.21)	(0.52)
Size			0.005	−0.001			−0.000	−0.007
			(0.91)	(−0.20)			(−0.01)	(−0.64)
_cons	0.012	−0.034	−0.240	−0.213	0.018	−0.000	−0.258	−0.230
	(0.94)	(−1.02)	(−1.58)	(−1.48)	(0.77)	(−0.01)	(−1.30)	(−1.17)
Industry FE	NO	YES	NO	YES	NO	YES	NO	YES
Month FE	NO	YES	NO	YES	NO	YES	NO	YES
adj. R2	0.001	0.010	0.002	0.007	0.000	0.018	0.002	0.021
F	7.168	4.794	1.685	4.766	4.606	4.173	3.889	4.536
N	19,606	19,606	19,606	19,606	19,606	19,606	19,606	19,606

Table reports the results using a matching approach. For each firm with a connection-establishing CEO turnover, we identify a matched control firm with a connection-terminating CEO turnover. We begin with a 1:1 nearest-neighbor propensity score matching (PSM) routine without replacement. The matching covariates include capital expenditure (*capex*), a firm's own market capitalization (ln(*size*)), the book-to-market ratio (*B/M*), return on assets (*ROA*), book value of total debt (*LEV*), cash holdings (*Cash*), asset tangibility (*PPE*). We also require the matched firm be in the same industry and fiscal month with the treated firm. The dependent variable is change in *LR_Amihud* in columns (1)–(4) and change in *LR_PS* in columns (5)–(8), where *LR_Amihud* is estimated based on the Amihud market liquidity factor, *LR_PS* is estimated based on the Pastor-Stambaugh market liquidity factor. All baseline controls from Table 4 are included in all regressions. Robust t-statistics, adjusted for industry-month clustering, are reported in parentheses.

Table 6 Propensity score matching difference-in-difference: regression of the liquidity risk on political connections

	Amihud				Pastor-stambaugh			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ΔLR	ΔLR	ΔLR	ΔLR	ΔLR	ΔLR	ΔLR	ΔLR
PolCEO ∗ *Treated*	−0.097***	−0.101***	−0.032**	−0.032***	−0.073*	−0.073***	−0.049**	−0.050***
	(−3.53)	(−5.75)	(−2.05)	(−2.64)	(−1.86)	(−2.61)	(−2.16)	(−2.58)
PolCEO	−0.031***	−0.029***	−0.036***	−0.037***	−0.049**	−0.046***	−0.056***	−0.058***
	(−3.33)	(−4.02)	(−2.78)	(−3.83)	(−2.06)	(−2.74)	(−2.67)	(−3.39)
Treated	0.043***	0.043***	0.036***	0.038***	0.011	0.012	0.046**	0.046***
	(3.74)	(3.91)	(2.69)	(3.74)	(0.62)	(0.68)	(2.16)	(2.89)
PC_level			−0.002**	−0.002*			−0.004**	−0.004*
			(−2.02)	(−1.83)			(−2.04)	(−1.67)
SocialCEO			0.027***	0.025***			0.059***	0.056***
			(2.85)	(3.03)			(3.67)	(3.57)
Age			0.001	0.001			0.001	0.001
			(1.15)	(1.43)			(1.27)	(1.14)
Gender			0.011	0.014			−0.006	−0.008
			(0.85)	(1.00)			(−0.29)	(−0.32)
Capex			0.116	0.085			−0.068	0.040
			(1.04)	(1.17)			(−0.45)	(0.32)
Cash			−0.022	−0.035			0.051	0.029
			(−0.46)	(−0.92)			(0.69)	(0.47)
CF			−0.014	−0.017*			−0.025	−0.016
			(−1.41)	(−1.66)			(−1.50)	(−1.13)
Lev			0.035	0.031			0.027	0.071
			(0.60)	(0.74)			(0.36)	(1.00)
MtB			−0.032	−0.054*			−0.082	−0.100**
			(−0.86)	(−1.91)			(−1.16)	(−2.52)

Table 6 (continued)

	Amihud				Pastor-stambaugh			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ΔLR	ΔLR	ΔLR	ΔLR	ΔLR	ΔLR	ΔLR	ΔLR
PPE			0.038	0.033			0.049	0.092
			(0.62)	(0.82)			(0.68)	(1.28)
RoA			−0.020	−0.018			−0.080	−0.069
			(−0.44)	(−0.46)			(−0.99)	(−1.03)
Size			0.001	0.003			0.011	0.006
			(0.10)	(0.61)			(1.14)	(0.83)
_cons	0.007	−0.008	−0.057	−0.071	0.032	0.028	−0.053	−0.094
	(0.74)	(−0.29)	(−0.98)	(−1.53)	(1.26)	(1.02)	(−0.62)	(−1.09)
Industry FE	NO	YES	NO	YES	NO	YES	NO	YES
Month FE	NO	YES	NO	YES	NO	YES	NO	YES
adj. R2	0.003	0.014	0.002	0.020	0.001	0.023	0.001	0.032
F	6.496	4.756	2.875	5.012	4.493	7.413	3.076	8.733
N	33,375	33,375	33,375	33,375	33,375	33,375	33,375	33,375

Table reports the difference-in-differences test results using the subsample of firms with CEO turnover as a quasi-natural experiment. The sample covers all firms with a CEO turnover, we exclude firms with multiple CEO turnovers to avoid confounding event windows. The dependent variable is change in *LR_Amihud* in columns (1)–(4) and change in *LR_PS* in columns (5)–(8), where *LR_Amihud* is estimated based on the Amihud market liquidity factor, *LR_PS* is estimated based on the Pastor-Stambaugh market liquidity factor. $Treat_i$ is a dummy variable, where $Treat_i$ equals 1 for firms that experience a connection-establishing CEO turnover, and 0 otherwise. The variable *PC_leve* is the bureaucratic rank of a CEO. *SocialCEO* is the CEO's association attributes. *Age* is the age of CEO. *Gender* is a dummy variable which equals 1 if the CEO is male, and zero otherwise. *Capex* is the capital expenditure scaled by total assets.*Cash* is the cash and equivalents scaled by total assets. *CF* is the operating cash flow scaled by total assets. *Lev* is the book value of total liabilities over book value of total assets. *MtB* is the book-to-market equity. *PPE* is the property, plant, and equipment, scaled by total assets. *ROA* is the return on assets. *Size* is market capitalization. *Inv* is the ratio of capital expenditure to total assets. *R&D* is research and development expenditures divided by total assets. Robust t-statistics, adjusted for industry-month clustering, are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively

2012a), including capital expenditure (*capex*), a firm's market capitalization (*ln*(*size*)), the book-to-market ratio (*MtB*), return on assets (*ROA*), book value of total debt (*LEV*), cash holdings (*Cash*), and asset tangibility (*PPE*).

Table 7 reports the results of the multivariate regression analysis using the PSM sample, following the methods outlined in Table 4. In columns (1) to (4) of Table 7, we use the liquidity risk based on the Amihud market liquidity factor as our dependent variable. Columns (1) and (2) solely incorporate political connections as the independent variable, while in columns (3) and (4), we introduce additional firm-level controls that have been shown related to firms' liquidity risk. Additionally, we add industry-month fixed effects to further mitigate the omitted variable concerns in the columns (2) and (4). The coefficients of the political connections are all negatively significant, indicating that the results are not influenced by sample bias. In columns (5)–(8) of Table 7, we adopt the same approach, using the liquidity risk based on the Pastor-Stambaugh market liquidity factor as our dependent variable. Our results remain the same. To sum up, the results in this section also support H1b.

5.3 More robustness tests

A recent study has revealed that firms experience a proportional decline in value when their political connections are abruptly terminated (Faccio and Parsley 2009). This suggests that some investors may see the termination of political connections as a signal of poor company performance. Consequently, there is a possibility that our results may be drawn by investors' aversion to these firms whose political connections are suddenly terminated, rather than the attraction of political connections. To mitigate this concern, we manually collect data on firms whose political connections are terminated suddenly due to the unanticipated events, such as CEO's sudden deaths, retirement, impeachment, etc. Then we operate the regressions with the sub-samples that exclude those firms from the sample, thereby mitigating the potential bias stemming from the termination of political connections.

Table 8 reports the results of the multivariate regression using the sub-sample, employing the same methods used in Table 4. The coefficients of the political connections are all negatively significant at the 1% level under specification, indicating that our results are not impacted by the termination of political connections caused by CEO's sudden deaths, retired, impeachment, etc.

6 Economic channel

Previous results reveal a robust negative association between political connections and liquidity risk. The next question is through which potential channels do political connections influence liquidity risk? As discussed previously, the stock's liquidity risk is significantly determined by the demand of investors and market makers. According to the previous analysis, we examine the following two potential channels. The first channel is that potential government guarantee can make the easier access to the government resources and favoritism, which can make the firm more competitive, and then attract more investor and market makers. Another channel is the positive economic outcomes for firms that affected both by the government interventions brought by political connections, and management policy of politically connected CEOs who connected to the government.

Table 7 Robust test—propensity score matching: regression of the liquidity risk on political connections

	Amihud				Pastor-stambaugh			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	LR	*LR*	*LR*	*LR*	*LR*	*LR*	*LR*	*LR*
PolCEO	−0.054**	−0.072***	−0.072***	−0.113***	−0.166***	−0.137***	−0.353***	−0.338***
	(−2.39)	(−2.66)	(−2.84)	(−2.73)	(−2.81)	(−2.64)	(−4.79)	(−4.28)
PC_level			−0.042***	−0.032***			−0.057***	−0.059***
			(−4.33)	(−4.71)			(−5.10)	(−3.99)
SocialCEO			0.381***	0.366***			0.265***	0.313***
			(7.30)	(8.03)			(5.51)	(4.24)
Age			0.005**	0.007***			0.028***	0.028***
			(2.07)	(2.68)			(8.55)	(6.41)
Gender			0.599***	0.562***			0.647***	0.724***
			(4.75)	(3.84)			(4.50)	(5.22)
Capex			−2.347***	−2.324***			2.366***	−0.557
			(−6.67)	(−5.12)			(4.63)	(−0.95)
Cash			0.500***	0.342**			0.670**	0.248
			(3.35)	(2.28)			(2.34)	(0.77)
CF			−0.030	−0.029			0.474***	0.235***
			(−1.33)	(−0.98)			(10.17)	(3.77)
Lev			0.391**	0.455**			0.261	0.233
			(2.48)	(2.55)			(0.74)	(0.62)
MtB			0.097	0.262			0.341	−0.112
			(1.21)	(1.63)			(1.45)	(−0.55)
PPE			0.470**	0.476**			0.511	0.903**
			(2.34)	(2.46)			(1.47)	(2.42)
RoA			−0.061	0.146			−0.980	−2.661***
			(−0.21)	(0.53)			(−1.26)	(−4.25)
Size			0.021	0.024			0.020	0.235***
			(1.30)	(1.23)			(0.43)	(5.79)
_cons	0.072***	0.374***	−1.232***	−0.945**	−0.218***	0.953***	−2.946***	−2.153***
	(3.05)	(3.20)	−0.072***	−0.113***	(−3.35)	(3.10)	(−7.86)	(−3.54)
Industry FE	NO	YES	NO	YES	NO	YES	NO	YES
Month FE	NO	YES	NO	YES	NO	YES	NO	YES
adj. R2	0.000	0.004	0.009	0.009	0.000	0.023	0.012	0.027
F	5.721	1.987	19.609	2.824	7.904	11.454	93.631	9.457
N	23,519	23,519	23,519	23,519	23,519	23,519	23,519	23,519

Table reports the results using a matching approach. For each firm with political connections in a month, we identify a matched control firm without political connections. We begin with a 1:1 nearest-neighbor propensity score matching (PSM) routine without replacement. The matching covariates include capital expenditure (*capex*), a firm's own market capitalization (*ln*(*size*)), the book-to-market ratio (*MtB*), return on assets (*ROA*), book value of total debt (*LEV*), cash holdings (*Cash*), asset tangibility (*PPE*). We also require the matched firm be in the same industry and fiscal month with the treated firm. The dependent variable is *LR_Amihud* in columns (1)–(4) and *LR_PS* in columns (5)–(8), where *LR_Amihud* is estimated based on the Amihud market liquidity factor, *LR_PS* is estimated based on the Pastor-Stambaugh market liquidity factor. All baseline controls from Table 4 are included in all regressions. Robust t-statistics, adjusted for industry-month clustering, are reported in parentheses.

Table 8 Robust test: regression of the liquidity risk on political connections exclude CEO special resignation

	Amihud				Pastor-Stambaugh			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	LR	*LR*	*LR*	*LR*	*LR*	*LR*	*LR*	*LR*
PolCEO	−0.131***	−0.146***	−0.068***	−0.104***	−0.169***	−0.131***	−0.182***	−0.222***
	(−4.40)	(−4.33)	(−3.11)	(−4.41)	(−3.86)	(−3.18)	(−2.72)	(−3.40)
PC_level			−0.030***	−0.026***			−0.063***	−0.054***
			(−3.27)	(−2.99)			(−5.79)	(−4.92)
SocialCEO			0.128***	0.126***			0.269***	0.289***
			(4.76)	(4.93)			(6.82)	(8.04)
Age			0.003**	0.004***			0.009***	0.016***
			(2.37)	(3.95)			(4.85)	(7.38)
Gender			0.086*	0.094**			0.273***	0.197**
			(1.83)	(2.02)			(3.75)	(2.60)
Capex			−0.325*	−0.459***			1.502***	−0.874**
			(−1.86)	(−3.04)			(3.99)	(−2.37)
Cash			0.612***	0.500***			−0.024	−0.213*
			(7.65)	(6.99)			(−0.16)	(−1.86)
CF			0.085***	0.085***			0.208***	0.012
			(4.14)	(6.07)			(11.12)	(0.76)
Lev			0.185	0.075			0.536***	0.482**
			(1.51)	(0.66)			(3.38)	(2.56)
MtB			−0.065	−0.066			0.070	−0.314***
			(−1.02)	(−0.91)			(0.56)	(−2.69)
PPE			0.481***	0.385***			0.394**	0.427**
			(4.03)	(3.65)			(2.45)	(2.16)
RoA			−0.051	−0.042			−0.118*	−0.191***
			(−0.73)	(−0.61)			(−1.79)	(−3.51)
Size			−0.006	0.013			−0.096***	0.064***
			(−0.75)	(1.33)			(−4.63)	(4.15)
_cons	0.082***	0.241**	−0.523***	−0.359**	−0.125*	1.151***	−1.129***	−0.287
	(4.52)	(2.45)	(−3.73)	(−2.60)	(−1.96)	(2.79)	(−6.46)	(−1.63)
Industry FE	NO	YES	NO	YES	NO	YES	NO	YES
Month FE	NO	YES	NO	YES	NO	YES	NO	YES
adj. R2	0.000	0.004	0.005	0.008	0.000	0.019	0.004	0.024
F	19.385	3.159	28.699	3.407	14.922	10.459	34.219	12.233
N	85,354	85,354	85,354	85,354	85,354	85,354	85,354	85,354

This table reports the average coefficients and corresponding *t*-statistics of multivariate regression with the sub-sample that exclude those firms have a termination of political connections caused by CEOs' sudden deaths, retired, impeachment, etc. The dependent variable is *LR_Amihud* in columns (1)–(4) and *LR_PS* in columns (5)–(8), where *LR_Amihud* is estimated based on the Amihud market liquidity factor, *LR_PS* is estimated based on the Pastor-Stambaugh market liquidity factor. The independent variable is *PolCeo*, where *PolCeo* is a dummy variable for political connections. The variable *PC_leve* is the bureaucratic rank of a CEO. *SocialCEO* is the CEO's association attributes. *Age* is the age of CEO. *Gender* is a dummy variable which equals 1 if the CEO is male, and zero otherwise. *Capex* is the capital expenditure scaled by total assets. *Cash* is the cash and equivalents scaled by total assets. *CF* is the operating cash flow scaled by total assets. *Lev* is the book value of total liabilities over book value of total assets. *MtB* is the book-to-market

Table 8 (continued)

equity. *PPE* is the property, plant, and equipment, scaled by total assets. *ROA* is the return on assets. *Size* is market capitalization. *Inv* is the ratio of capital expenditure to total assets. *R&D* is research and development expenditures divided by total assets. Robust t-statistics, adjusted for non, industry, month, industry-month clustering, are reported in parentheses, respectively. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively

6.1 More government resources from government

According to resource-based theory, numerous studies have demonstrated that political connections enable firms to gain a comparative advantage through various means, such as government tax benefits (Wu et al. 2012), debt-financing advantages (Fan et al. 2008), and government subsidies (Feng et al 2015). As discussed previously, investors and marker makers may consider that the competitiveness brought by government favoritism outweigh the costs, thereby being attracted to these stocks when market liquidity risk dried up, then make the return of stock less impacted by the market liquidity risk fluctuation. To explore this channel, we examine whether the competitive advantages represented by government resources can explain the decrease of liquidity risk in politically connected firms. Specifically, we aim to test whether the access to government resources driven by political connections leads to lower liquidity risk.

We conduct two steps to test this conjecture. Firstly, we examine whether political connections exhibit a positive relationship with government resources. Following existing research, we define several variables to measure the direct or indirect government resources, including tax benefits ($tax_{i,t}$), government subsidies ($Sub_{i,t}$), long-term debt financing ($long\_loan_{i,t}$), as well as debt financing structure ($structure_{i,t}$). In each first-stage regression, the dependent variable is one of the four variables, with the main independent variable, political connections ($PolCeo_{i,t}$). If politically connected CEOs facilitate firms' access to government resources, we expect observing a positive relationship between political connections and the four measures of government resources. Columns (1)–(4) of Table 9 present the regression results of tax benefits ($tax_{i,t}$), government subsidies ($Sub_{i,t}$), long-term debt financing ($long\_loan_{i,t}$), as well as debt financing structure ($structure_{i,t}$) on political connections ($PolCeo_{i,t}$). Not surprisingly, we find that political connections have a significantly positive association with all the government resources variables, indicating that firms with political connections can receive more tax relief and non-tax-based subsidies from the government, and can lend from banks more easily.

Next, we investigate whether the political connection–driven government resources lead to lower liquidity risk. We run the second-stage regression of the proxying of firm-level subsidies and bank lending measures, represented by their predicted value obtained from the first-stage regression, $Pred\_tax_{i,t}$, $Pred\_sub_{i,t}$, $Pred\_long\_loan_{i,t}$, $Pred\_structure_{i,t}$, on liquidity risk. As depicted in Columns (5)–(12) of Table 9, our analysis reveals negative relationships between political connection–driven government resources, $Pred\_tax_{i,t}$, $Pred\_sub_{i,t}$, $Pred\_long\_loan_{i,t}$, $Pred\_structure_{i,t}$ and the two measures of firm liquidity risk. In other words, our results suggest that the political connection–driven government resources mitigate firm liquidity risk. These findings provide support for the notion that the effect of political connections on liquidity risk operates via the government resources channel, as stated in Hypothesis 2b.

Table 9 Political connections, government subsidies, bank lending and liquidity risk

	Panel A				Panel B: amihud				Panel C: pastor-stambaugh			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	sub	*tax*	*Long_loan*	*structure*	*LR*	*LR*	*LR*	*LR*	*LR*	*LR*	*LR*	*LR*
PolCEO	0.001***	0.019***	0.004***	0.014***								
	(6.41)	(2.79)	(2.62)	(2.77)								
$\widehat{Pred\_sub}$					−115.942***				−227.966***			
					(−2.64)				(−2.98)			
$\widehat{Pred\_tax}$						−3.369***				−2.076		
						(−3.05)				(−1.11)		
$\widehat{Pred\_long\_loan}$							−18.118				−86.771***	
							(−1.38)				(−3.67)	
$\widehat{Pred\_structure}$								−10.570***				−24.142***
								(−2.96)				(−4.00)
PC_level	0.000**	0.003***	0.000*	0.002*	−0.019**	−0.020**	−0.032**	−0.010	−0.042***	−0.061***	0.009	0.012
	(2.01)	(2.67)	(1.68)	(1.87)	(−2.08)	(−2.26)	(−2.56)	(−0.80)	(−2.71)	(−4.15)	(0.36)	(0.52)
SocialCEO	−0.000***	0.030***	−0.013***	−0.044***	0.137***	0.267***	−0.034	−0.251*	0.228***	0.326***	−0.945***	−0.837***
	(−3.44)	(8.70)	(−22.04)	(−15.75)	(5.41)	(6.28)	(−0.20)	(−1.68)	(5.16)	(4.52)	(−2.94)	(−3.11)
Age	0.000***	−0.000	0.000***	0.000	0.008***	0.002	0.006**	0.006***	0.023***	0.013***	0.024***	0.020***
	(10.13)	(−0.54)	(2.77)	(1.31)	(4.33)	(1.43)	(2.48)	(3.46)	(6.85)	(5.61)	(5.37)	(5.61)
Gender	0.001***	0.036***	0.002***	−0.000	0.206***	0.157***	0.100	0.070	0.291***	0.233***	0.308***	0.168**
	(8.84)	(8.21)	(2.64)	(−0.09)	(4.96)	(3.06)	(1.36)	(1.23)	(4.02)	(2.67)	(3.46)	(2.19)
Capex	0.009***	0.626***	0.153***	0.537***	0.352	1.648**	2.431	5.338***	0.673	0.368	12.131***	11.783***
	(12.86)	(17.52)	(20.51)	(22.47)	(0.82)	(2.31)	(1.24)	(2.83)	(0.90)	(0.30)	(3.36)	(3.65)
Cash	−0.000	0.388***	−0.080***	0.024**	0.333***	1.765***	−1.221	0.477***	−0.401***	0.509	−6.838***	0.680***
	(−0.86)	(15.27)	(−27.16)	(2.43)	(4.30)	(4.06)	(−1.13)	(4.08)	(−2.97)	(0.69)	(−3.56)	(3.37)
CF	−0.000***	0.009***	−0.022***	−0.076***	0.014	0.067***	−0.354	−0.753***	−0.009	0.050	−1.870***	−1.772***
	(−5.22)	(3.39)	(−42.38)	(−48.98)	(0.84)	(3.71)	(−1.23)	(−2.81)	(−0.33)	(1.63)	(−3.53)	(−3.84)
Lev	0.003***	0.041**	0.043***	0.039***	0.758***	0.380***	0.822	0.450**	0.743***	0.519***	4.431***	1.609***
	(10.31)	(2.08)	(11.05)	(3.54)	(4.93)	(3.98)	(1.36)	(2.38)	(2.78)	(3.21)	(4.10)	(4.76)

Table 9 (continued)

	Panel A				Panel B: amihud				Panel C: pastor-stambaugh			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	sub	*tax*	*Long_loan*	*structure*	*LR*	*LR*	*LR*	*LR*	*LR*	*LR*	*LR*	*LR*
MtB	−0.001***	−0.257***	−0.001	−0.002	0.019	−0.821***	0.159	0.157	−0.726***	−1.054**	−0.553***	−0.528***
	(−8.74)	(−17.84)	(−0.35)	(−0.26)	(0.28)	(−2.85)	(1.54)	(1.51)	(−6.00)	(−2.16)	(−5.19)	(−4.96)
PPE	0.001***	0.108***	0.022***	0.025**	0.483***	0.812***	0.696**	0.550***	0.737***	0.684***	2.592***	1.237***
	(3.58)	(7.05)	(6.87)	(2.31)	(5.46)	(5.59)	(2.05)	(3.66)	(4.79)	(2.77)	(4.34)	(4.58)
RoA	0.001**	0.241***	0.005	0.020***	1.458***	0.655**	−0.044	0.088	−0.376	0.427	0.344**	0.442**
	(2.51)	(6.46)	(1.23)	(3.78)	(11.03)	(2.43)	(−0.42)	(0.80)	(−1.63)	(0.93)	(2.14)	(2.58)
Size	−0.001***	0.032***	0.016***	0.048***	−0.143***	0.104***	0.262	0.486***	−0.014	0.186***	1.463***	1.258***
	(−18.61)	(12.01)	(41.68)	(48.90)	(−4.59)	(2.85)	(1.28)	(2.82)	(−0.25)	(3.00)	(3.94)	(4.35)
_cons	0.002***	−0.245***	−0.004	0.082***	−0.166	−1.218***	−0.387**	0.563**	0.170	−1.112**	−1.271***	1.101*
	(4.25)	(−8.84)	(−0.89)	(4.74)	(−0.92)	(−3.96)	(−2.02)	(2.12)	(0.54)	(−2.13)	(−2.59)	(1.77)
Industry FE	NO	NO	NO	NO	YES	YES	YES	YES	YES	YES	YES	YES
Month FE	NO	NO	NO	NO	YES	YES	YES	YES	YES	YES	YES	YES
adj. R2	0.030	0.191	0.021	0.031	0.008	0.007	0.027	0.024	0.025	0.021	0.011	0.006
F	41.467	100.249	8.437	15.147	6.951	6.722	10.417	12.961	20.093	19.198	3.979	4.986
N	89,833	89,240	55,165	93,800	89,833	89,240	55,165	93,800	89,833	89,240	55,165	93,800

Table reports the regression results of the two-stage least squares (2SLS) analysis. Panel A reports the first-stage regression results with *PolCeo* as the dependent variable. The main dependent variables are four measures of government subsidies and bank lending, including tax benefits ($tax_{i,t}$), non-tax-based subsidies($subsidies_{i,t}$) as the government subsidies, long-term loan financing($long\_debt_{i,t}$), loan financing structure($debet\_structure_{i,t}$). The independent variable is *PolCeo*, where *PolCeo* is a dummy variable for political connections. The results from the second-stage regressions are reported in Panel B and Panel C, with *LR_Amihud* and *LR_PS* as the dependent variables, respectively, where *LR_Amihud* is estimated based on the Amihud market liquidity factor, *LR_PS* is estimated based on the Pastor-Stambaugh market liquidity factor. The independent variable of interest in the second stage is the predicted values of *PolCeo* from the first-stage regression, include $Pred\_sub_{i,t}$, $Pred\_tax_{i,t}$, $Pred\_long\_loan_{i,t}$, $Pred\_structure_{i,t}$. *PC_leve* is the bureaucratic ranks of a CEO. *SocialCEO* is the CEO's association attributes. *Age* is the age of CEO. *Gender* is a dummy variable which equals 1 if the CEO is male, and zero otherwise. *Capex* is the capital expenditure scaled by total assets.*Cash* is the cash and equivalents scaled by total assets. *CF* is the operating cash flow scaled by total assets. *Lev* is the book value of total liabilities over book value of total assets. *MtB* is the book-to-market equity. *PPE* is the property, plant, and equipment, scaled by total assets. *ROA* is the return on assets. *Size* is market capitalization. *Inv* is the ratio of capital expenditure to total assets. *R&D* is research and development expenditures divided by total assets. Robust t-statistics, adjusted for industry-month clustering, are reported in parentheses

6.2 Political connections, firm fundamentals, performance, information quality and liquidity risk

As discussed in H2b, government intervention brought by political connections and political connected CEOs who have close ties to the government may contribute to better fundamentals, improved performance, and higher information quality for firms. These factors are crucial in attracting investors' attention. Hence, in our subsequent analysis, we investigate whether the firm fundamentals, performance, and information quality can explain the liquidity risk management of politically connected firms.

The existing literature extensively documents that firms with better fundamentals tend to exhibit lower firm risk, thereby reducing the uncertainty of these firms. For example, the cost of capital (including the cost of equity and the cost of debt), which reflects the well-being of investors, has always been the focus of people's attention (Gao 2010). Consistent with the basic principle of matching risk with return, a higher cost of capital implies greater risk exposure for investors. Lambert et al. (2007) assert that the cost of equity capital is a function of investors' expected level of firm risk. Additionally, financial leverage serves as a key indicator of a firm's financial risk, with higher leverage indicating greater financial risk. Moreover, investments in innovation have been found a significant improvement effect on both long-term and short-term performance of firms, thereby strengthening fundamentals and offering investors an innovation premium (Bae et al. 2008). Consequently, we conject that firms with lower cost of capital, reduced financial leverage, and higher innovation investment are likely to exhibit lower risk, less uncertainty, and better performance. Investors are expected to gravitate toward these firms for the risk aversion, particularly when market liquidity declines, and as a result, stock prices of these firms should exhibit less sensitivity to market liquidity shocks.

Also, existing literature suggests that information quality can affect the degree of uncertainty over the firm's value and the adverse selection observed during stock trading (e.g., Healy and Palepu 2001; Easley et al 2002; Easley and O'Hara, 2004). Hence, during periods of declining market liquidity, the outflow may be more pronounced for firms with lower information quality. This is primarily due to the decline in investor demand resulting from the greater uncertainty and adverse selection of stock. Additionally, market makers may be less willing to provide liquidity to such firms under these circumstances. Taken together, firms with lower information quality are likely to be more sensitive to changes in market liquidity, and consequently face higher liquidity risk.

Following existing research, we investigate a wide spectrum of firm fundamental variables, including proxies for investment policies (tangible capital investment, R&D spending), financial leverage (the total Debt-to-Market value of assets), business scope (number of business scopes involved in main products), cost of capital (cost of debt, cost of equity, cost of capital), and firm performance (the book-to-market ratio, the return on assets), information quality (audit fees, discretional accrual).

We perform two steps to test this conjecture. First, we explore the relationship between political connections and firm fundamentals, performance, and information quality. For each first-stage regression, the dependent variable is one of the measures of firm fundamentals, performance, or information quality. The main independent variable is political connections ($PolCeo_{i,t}$). Columns (1)–(11) of Table 10 present the regression results of investment policies (tangible capital investment ($Inv_{i,t}$), R&D spending ($R\&D_{i,t}$)), financial leverage (the total Debt-to-Market value of assets ($TDM_{i,t}$)), business scope (number of business scope invoved in main products ($Product_{i,t}$)), cost of capital (cost of debt ($COD_{i,t}$),

Table 10 Political connections, fundamentals, performance and information quality

	(1) *Inv*	(2) *R&D*	(3) *TDM*	(4) *Product*	(5) *COD*	(6) *COE*	(7) *COC*	(8) *MtB*	(9) *ROA*	(10) *Audit_Fee*	(11) *DA*
PolCEO	−0.008***	0.001***	−0.032***	0.102***	−0.003***	−0.007***	−0.005***	0.003***	0.006***	4.605***	−0.003***
	(−2.80)	(3.42)	(−5.52)	(3.03)	(−2.68)	(−4.89)	(−3.09)	(3.02)	(2.88)	(7.06)	(−2.77)
PC_level	−0.001**	0.000**	−0.008***	0.027***	−0.001*	−0.001***	−0.001***	0.000**	0.001**	0.441***	−0.001***
	(−2.00)	(1.99)	(−6.59)	(3.22)	(−1.91)	(−3.86)	(−3.39)	(2.38)	(2.07)	(3.24)	(−2.62)
SocialCEO	−0.009***	0.000**	−0.038***	−0.623***	0.004***	−0.006***	0.030***	0.002***	−0.025***	1.095**	0.001
	(−6.85)	(2.20)	(−9.53)	(−41.91)	(4.02)	(−6.84)	(4.14)	(2.80)	(−20.03)	(2.58)	(1.45)
Age	0.000***	0.000	0.002***	0.011***	−0.000	0.000	0.000**	−0.000***	−0.000*	−0.281***	−0.000***
	(5.06)	(0.25)	(12.32)	(11.11)	(−1.20)	(1.36)	(2.16)	(−8.68)	(−1.88)	(−14.71)	(−6.86)
Gender	0.004***	0.001***	0.013***	0.503***	−0.009***	−0.002	−0.012***	−0.006***	0.016***	−1.560***	0.012***
	(4.15)	(10.01)	(3.73)	(31.56)	(−8.44)	(−1.19)	(−4.35)	(−8.58)	(7.13)	(−2.64)	(8.39)
Capex	2.340***	0.011***	−1.196***	−3.630***	0.058**	−0.153***	−0.074***	0.130***	−0.166***	−19.722***	−0.025**
	(87.26)	(7.24)	(−33.34)	(−26.89)	(2.50)	(−22.31)	(−4.73)	(27.51)	(−11.97)	(−5.54)	(−2.34)
Cash	−0.136***	0.007***	−0.405***	−0.014	0.055***	0.004	0.012	0.124***	−0.090***	2.276	−0.073***
	(−29.47)	(7.08)	(−21.88)	(−0.31)	(3.21)	(1.12)	(1.62)	(51.77)	(−17.15)	(1.56)	(−13.62)
CF	0.007***	0.002***	0.048***	0.074***	0.020***	0.006***	0.051***	0.015***	−0.016***	6.545***	−0.014***
	(7.79)	(11.81)	(11.84)	(6.02)	(4.44)	(9.81)	(10.58)	(33.46)	(−16.58)	(20.08)	(−19.56)
Lev	−0.145***	0.000	0.527***	−1.329***	0.008	0.001	−0.064***	−0.057***	0.099***	−35.316***	0.027***
	(−15.34)	(0.74)	(20.46)	(−22.02)	(0.35)	(0.17)	(−7.04)	(−21.52)	(15.38)	(−21.47)	(4.73)
MtB	−0.055***	−0.005***	0.914***	0.045	−0.157***	−0.016***	−0.116***			−14.329***	−0.020***
	(−15.72)	(−8.82)	(30.60)	(1.06)	(−5.73)	(−7.81)	(−6.70)			(−6.07)	(−9.71)
PPE	−0.183***	0.002***	0.271***	−1.500***	0.015***	0.009**	0.041***	−0.041***	0.126***	−40.952***	0.034***
	(−19.24)	(4.14)	(17.49)	(−24.87)	(3.64)	(2.03)	(5.16)	(−19.72)	(21.85)	(−26.28)	(7.35)
RoA	0.044***	−0.002***	0.168***	−0.218***	0.175	0.033***	−0.129			5.839***	0.086***
	(5.34)	(−5.79)	(10.77)	(−3.89)	(0.82)	(4.68)	(−0.88)			(5.28)	(6.98)
Size	0.030***	0.000	0.113***	0.293***	0.026***	−0.008***	0.017***	0.010***	0.073***	35.612***	0.006***
	(33.19)	(0.25)	(31.44)	(39.04)	(5.96)	(−20.50)	(5.86)	(35.81)	(68.99)	(80.29)	(9.13)

Table 10 (continued)

	(1) *Inv*	(2) *R&D*	(3) *TDM*	(4) *Product*	(5) *COD*	(6) *COE*	(7) *COC*	(8) *MtB*	(9) *ROA*	(10) *Audit_Fee*	(11) *DA*
_cons	0.098***	−0.003**	−0.677***	3.320***	0.019	0.081***	0.028***	0.056***	−0.075***	−5.652**	−0.018**
	(7.61)	(−2.28)	(−22.70)	(24.14)	(1.44)	(14.23)	(2.79)	(12.92)	(−4.97)	(−2.58)	(−2.08)
Industry FE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Month FE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
adj. R2	0.487	0.204	0.396	0.068	0.070	0.031	0.015	0.138	0.356	0.429	0.031
					162.150	43.658	31.253	87.288	133.120		15.147
N	90,827	90,827	90,827	90,827	64,679	83,146	55,165	96,490	96,490	90,827	93,800

Table reports the first-stage regression results of the two-stage least squares (2SLS) analysis. The main dependent variables are eleven measures of firm fundamentals, performance and information quality, including investment policies (tangible capital investment ($Inv_{i,t}$), R&D spending ($R\&D_{i,t}$)), financial leverage (the total Debt-to-Market value of assets ($TDM_{i,t}$), business scope (number of business scope involved in main products ($Product_{i,t}$), cost of capital (cost of debt ($COD_{i,t}$), cost of equity ($COE_{i,t}$), cost of capital ($COC_{i,t}$)), and firm performance (the book-to-market ratio ($MtB_{i,t}$), the return on assets ($ROA_{i,t}$)), information quality (audit fees ($Audit\_Fee_{i,t}$), discretional accrual ($DA_{i,t}$)).The independent variable is *PolCeo*, where *PolCeo* is a dummy variable for political connections. The variable *PC_leve* is the bureaucratic rank of a CEO. *SocialCEO* is the CEO's association attributes. *Age* is the age of CEO. *Gender* is a dummy variable which equals 1 if the CEO is male, and zero otherwise. *Capex* is the capital expenditure scaled by total assets. *Cash* is the cash and equivalents scaled by total assets. *CF* is the operating cash flow scaled by total assets. *Lev* is the book value of total liabilities over book value of total assets. *MtB* is the book-to-market equity. *PPE* is the property, plant, and equipment, scaled by total assets. *ROA* is the return on assets. *Size* is market capitalization. *Inv* is the ratio of capital expenditure to total assets. *R&D* is research and development expenditures divided by total assets. Robust t-statistics are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively

cost of equity ($COE_{i,t}$), cost of capital ($COC_{i,t}$)), and firm performance (the book-to-market ratio ($MtB_{i,t}$), the return on assets ($ROA_{i,t}$)), information quality (audit fees ($Audit\_Fee_{i,t}$), discretional accrual ($DA_{i,t}$)). Not surprisingly, we find that political connections have a significantly positive association with the R&D spending, business scope, the book-to-market ratio, the return on assets, and audit fees. Conversely, political connections exhibit a significantly negative association with tangible capital investment, the total Debt-to- Market value of assets, cost of debt, cost of equity, cost of capital, and discretional accrual. These results indicate that firms with political connections can help firm improve their fundamentals, performance, and information quality.

Subsequently, we examine whether the political connection–driven good fundamentals, better performance, and higher information quality can mitigate liquidity risk. We conduct a second- stage regression with the proxying of firm-level fundamentals, performance, and information quality, that are regressed against their predicted values obtained from the first-stage regression, $Pred\_Inv_{i,t}$, $Pred\_R\&D_{i,t}$, $Pred\_TDM_{i,t}$, $Pred\_Product_{i,t}$, $Pred\_COE_{i,t}$, $Pred\_COD_{i,t}$, $Pred\_COC_{i,t}$, $Pred\_MtB_{i,t}$, $Pred\_ROA_{i,t}$, $Pred\_Audit\_Fee_{i,t}$, $Pred\_DA_{i,t}$ on the liquidity risk. As shown in Column (1)–(11) of Table 11, we find that the enhanced firm fundamentals, improved performance, and higher information quality, driven by political connections, all yield an inhibiting effect on the Amihud liquidity risk measure. Table 12 uses the liquidity risk based on the Pastor-Stambaugh market liquidity factor as another dependent variable, following the same procedure as Table 11, the results remain consistent across both measures of liquidity risk. Our findings provide confirmation that the effect of political connections on liquidity risk can via the positive impact of political connections on firm fundamentals, performance and information quality as stated in Hypothesis 2b.

7 Political power, marketization, finacial crisis and ceo political connections

We find that the baseline results are consistent with the resource-based theory, suggesting that politically connected CEOs exert a significant positive impact on firms. This indicates that political connections are perceived by investors as a "competitive advantage" signal, which help firms attract more traders when market liquidity dries up, making the sensitivity of stock returns less impacted by the unexpected changes in market liquidity. In this section, we considering the impact of internal and external factors that can affect the value of political connections, and investigate whether the relationship between political connections and liquidity risk is various in different contexts.

7.1 Political power and PC effect

Previous results show that the resource-based theory of the firm effectively explain the favorable outcomes associated with political connections. According to this theory, a firm's competitive advantage stems from its possession of tangible and intangible resources. Consequently, the positive impact of political connections is mainly driven by the advantages of obtaining crucial resources from the government. Boubakri et al. (2012a) find that political connections are more valuable for firms with stronger affiliations to political power. Hence, we need to consider the impact of firms' affiliations to political power on the liquidity risk management of political connections.

Table 11 Political connections, fundamentals, performance, information quality and liquidity risk

Amihud											
	(*Inv*)	(*R&D*)	(*TDM*)	(*Product*)	(*COD*)	(*COE*)	(*COC*)	(*MtB*)	(*ROA*)	(*Audit_Fee*)	(*DA*)
	LR	*LR*	*LR*	*LR*	*LR*	*LR*	*LR*	*LR*	*LR*	*LR*	*LR*
$\widehat{Pred\_Inv}$	8.514***										
	(2.63)										
$\widehat{Pred\_RD}$		−0.620***									
		(−2.64)									
$\widehat{Pred\_TDM}$			0.331***								
			(2.79)								
$\widehat{Pred\_Prod}$				−0.326***							
				(−2.60)							
$\widehat{Pred\_COE}$					0.824***						
					(2.68)						
$\widehat{Pred\_COD}$						0.469***					
						(3.00)					
$\widehat{Pred\_COC}$							0.513***				
							(2.64)				
$\widehat{Pred\_ROA}$								−24.699***			
								(−3.95)			
$\widehat{Pred\_MtB}$									−9.519***		
									(−2.78)		
$\widehat{Pred\_DA}$										−0.017***	
										(−3.02)	
$\widehat{Pred\_Fee}$											0.612***
											(2.72)

Table 11 (continued)

Amihud											
	(*Inv*)	(*R&D*)	(*TDM*)	(*Product*)	(*COD*)	(*COE*)	(*COC*)	(*MtB*)	(*ROA*)	(*Audit_Fee*)	(*DA*)
PC_level	0.010	0.011	−0.005	0.004	0.057	0.012	0.069	−0.016**	−0.020**	0.010	−0.003
	(1.14)	(1.22)	(−1.16)	(0.61)	(1.57)	(0.38)	(1.61)	(−2.27)	(−1.99)	(1.28)	(−0.11)
SocialCEO	0.137***	0.087***	0.072***	−0.141*	−0.141	0.449***	−0.539**	0.181***	−0.092	0.080***	0.144***
	(4.09)	(4.72)	(4.08)	(−1.77)	(−1.07)	(4.61)	(−1.99)	(7.05)	(−0.98)	(4.34)	(2.72)
Age	−0.003*	0.000	−0.000	0.004**	0.014***	0.011***	0.008**	−0.005**	0.001	−0.005**	0.037***
	(−1.87)	(0.38)	(−0.54)	(2.28)	(4.50)	(3.81)	(2.51)	(−2.53)	(0.78)	(−2.50)	(3.85)
Gender	−0.101***	0.026	−0.071***	0.091	0.801***	0.247***	0.492***	−0.116**	0.179***	−0.091***	−0.680**
	(−4.39)	(0.67)	(−3.67)	(1.45)	(2.74)	(3.24)	(2.78)	(−2.32)	(3.83)	(−4.16)	(−2.36)
Capex	−19.790***	0.797**	0.504**	−1.014**	−6.258***	6.039**	0.750	2.769***	−2.032***	−0.206	0.508
	(−2.61)	(2.57)	(2.29)	(−2.13)	(−3.40)	(2.48)	(0.75)	(3.40)	(−3.63)	(−0.88)	(0.81)
Cash	1.523***	0.775***	0.513***	0.341***	−5.088***	0.068	−1.620***	3.530***	−0.392	0.399***	4.218***
	(3.42)	(4.67)	(6.97)	(5.42)	(−2.96)	(0.41)	(−2.82)	(4.54)	(−1.28)	(6.59)	(2.60)
CF	−0.042*	0.121***	−0.001	0.041***	−1.520**	−0.243**	−0.671**	0.409***	−0.111**	0.127***	0.841***
	(−1.76)	(2.83)	(−0.06)	(3.10)	(−2.50)	(−2.46)	(−2.19)	(4.26)	(−1.99)	(3.14)	(2.81)
Lev	1.276***	0.068	−0.097	−0.403**	−0.479	0.721***	1.464***	−1.147***	1.189***	−0.553**	−1.278**
	(2.69)	(1.06)	(−1.19)	(−2.20)	(−1.41)	(3.88)	(3.23)	(−3.26)	(3.69)	(−2.57)	(−2.02)
MtB	0.233	−0.552***	−0.489***	−0.215***	12.154**	0.455*	1.673*			−0.472***	0.861*
	(1.24)	(−4.00)	(−4.15)	(−3.61)	(2.51)	(1.70)	(1.84)			(−4.81)	(1.84)
PPE	1.719***	0.311***	0.067	−0.311	−0.597	0.296	−0.461	−0.594**	1.616***	−0.524**	−1.645**
	(2.89)	(3.55)	(0.96)	(−1.60)	(−1.16)	(1.41)	(−0.81)	(−2.33)	(3.94)	(−2.17)	(−2.13)
RoA	−0.533***	−0.260***	−0.211***	−0.176***	−15.476***	−1.598***	−20.708***			−0.058	−5.345***
	(−3.52)	(−4.26)	(−4.84)	(−4.54)	(−2.89)	(−2.77)	(−2.74)			(−1.33)	(−2.78)
Size	−0.237**	0.015*	−0.025	0.108***	−2.038**	0.446***	−0.482**	0.239***	0.683***	0.613***	−0.260**
	(−2.48)	(1.79)	(−1.58)	(2.82)	(−2.49)	(3.40)	(−2.13)	(3.81)	(2.73)	(3.09)	(−1.99)

Table 11 (continued)

Amihud											
	(*Inv*)	(*R&D*)	(*TDM*)	(*Product*)	(*COD*)	(*COE*)	(*COC*)	(*MtB*)	(*ROA*)	(*Audit_Fee*)	(*DA*)
_cons	−0.732**	−0.109	0.310**	1.191***	−1.376*	−4.431***	−0.638	1.128***	−0.941***	0.008	0.875
	(−2.16)	(−0.77)	(2.29)	(2.74)	(−1.73)	(−3.19)	(−1.10)	(3.23)	(−4.01)	(0.07)	(1.45)
Industry FE	YES	YES	YES	YES	YES	YES	YES	Yes	Yes	YES	YES
Month FE	YES	YES	YES	YES	YES	YES	YES	Yes	Yes	YES	YES
adj. R2	0.007	0.007	0.007	0.007	0.028	0.024	0.027	0.007	0.008	0.007	0.024
F	4.291	4.211	4.291	4.409	11.779	11.193	10.417	4.757	5.338	4.335	12.961
N	90,827	90,827	90,827	90,827	64,679	83,146	55,165	96,490	96,490	90,827	93,800

Table reports the second-stage regression results of the two-stage least squares (2SLS) analysis. The main dependent variable is *LR_Amihud*, where *LR_Amihud* is estimated based on the Amihud market liquidity factor. The independent variables of interest in the second stage is the predicted values of *PolCeo* from the first-stage regression, include $Pred\_Inv_{i,t}$,$Pred\_R\&D_{i,t}$, $Pred\_TDM_{i,t}$, $Pred\_Product_{i,t}$, $Pred\_COE_{i,t}$, $Pred\_COD_{i,t}$, $Pred\_COC_{i,t}$, $pred\_MtB_{i,t}$,$pred\_ROA_{i,t}$, $Pred\_Audit\_Fee_{i,t}$, $Pred\_DA_{i,t}$. *PC_leve* is the bureaucratic rank of a CEO. *SocialCEO* is the CEO's association attributes. *Age* is the age of CEO. *Gender* is a dummy variable which equals 1 if the CEO is male, and zero otherwise. *Capex* is the capital expenditure scaled by total assets.*Cash* is the cash and equivalents scaled by total assets. *CF* is the operating cash flow scaled by total assets. *Lev* is the book value of total liabilities over book value of total assets. *MtB* is the book-to-market equity. *PPE* is the property, plant, and equipment, scaled by total assets. *ROA* is the return on assets. *Size* is market capitalization. *Inv* is the ratio of capital expenditure to total assets. *R&D* is research and development expenditures divided by total assets. Robust t-statistics, adjusted for industry-month clustering, are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively

Table 12 Political connections, fundamentals, performance, information quality and liquidity risk

	(*Inv*) *LR*	(*R&D*) *LR*	(*TDM*) *LR*	(*Product*) *LR*	(*COD*) *LR*	(*COE*) *LR*	(*COC*) *LR*	(*MtB*) *LR*	(*ROA*) *LR*	(*Audit_Fee*) *LR*	(*DA*) *LR*
Pastor-Stambaugh											
$\widehat{Pred\_Inv}$	27.947**										
	(1.99)										
$\widehat{Pred\_RD}$		−1.818***									
		(−3.59)									
$\widehat{Pred\_TDM}$			0.453***								
			(2.86)								
$\widehat{Pred\_Prod}$				− 1.113***							
				(− 5.77)							
$\widehat{Pred\_COE}$					0.702***						
					(5.10)						
$\widehat{Pred\_COD}$						0.346***					
						(3.03)					
$\widehat{Pred\_COC}$							0.398***				
							(3.01)				
$\widehat{Pred\_ROA}$								−40.662***			
								(−2.88)			
$\widehat{Pred\_MtB}$									− 11.973***		
									(−3.44)		
$\widehat{Pred\_DA}$										−0.047***	
										(−2.74)	
$\widehat{Pred\_Fee}$											0.297***
											(2.82)
PC_level	−0.006	−0.011	−0.066***	−0.025**	0.082***	0.024	0.083***	−0.040***	−0.053***	−0.018	−0.003
	(−0.18)	(−0.58)	(−7.51)	(−2.03)	(4.99)	(1.12)	(2.88)	(−2.81)	(−5.08)	(−0.85)	(−0.26)

Table 12 (continued)

	(*Inv*)	(*R&D*)	(*TDM*)	(*Product*)	(*COD*)	(*COE*)	(*COC*)	(*MtB*)	(*ROA*)	(*Audit_Fee*)	(*DA*)
	LR	*LR*	*LR*	*LR*	*LR*	*LR*	*LR*	*LR*	*LR*	*LR*	*LR*
SocialCEO	0.590***	0.416***	0.349***	−0.352***	−0.231***	0.356***	−0.454**	0.318***	−0.041	0.389***	0.115***
	(4.23)	(8.45)	(7.81)	(−2.69)	(−3.69)	(4.88)	(−2.51)	(6.29)	(−0.39)	(7.95)	(4.62)
Age	0.002	0.012***	0.010***	0.023***	0.003*	0.002	−0.002	0.002	0.012***	−0.002	0.014***
	(0.47)	(4.29)	(3.84)	(6.57)	(1.92)	(1.34)	(−1.35)	(0.35)	(4.43)	(−0.33)	(2.99)
Gender	−0.021	0.364***	0.090	0.629***	0.535***	0.153***	0.192*	−0.116	0.313***	0.026	−0.378***
	(−0.24)	(3.79)	(1.36)	(5.52)	(3.94)	(2.59)	(1.80)	(−1.03)	(4.27)	(0.35)	(−3.36)
Capex	−66.711**	0.626	−0.837**	−5.238***	−5.245***	4.706***	0.692	4.395**	−2.887***	−2.262***	0.345
	(−2.03)	(0.99)	(−2.05)	(−7.09)	(−6.50)	(2.74)	(1.00)	(2.41)	(−4.36)	(−4.82)	(1.23)
Cash	3.529*	0.931***	−0.075	−0.351***	−3.557***	0.063	−0.619	4.899***	−1.225***	−0.179	2.664***
	(1.84)	(2.66)	(−0.49)	(−2.63)	(−4.60)	(0.54)	(−1.55)	(2.80)	(−3.57)	(−1.30)	(3.53)
CF	−0.188*	0.309***	−0.018	0.088***	−1.434***	−0.156**	−0.643***	0.631***	−0.170***	0.309***	0.439***
	(−1.86)	(3.71)	(−0.69)	(2.97)	(−5.30)	(−2.36)	(−3.18)	(2.93)	(−2.89)	(2.80)	(3.01)
Lev	4.432**	0.456***	0.182	−1.140***	0.193	0.136	1.479***	−1.898**	1.583***	−1.268**	−0.571**
	(2.18)	(2.63)	(1.01)	(−3.36)	(1.11)	(1.33)	(5.04)	(−2.36)	(4.15)	(−2.03)	(−1.98)
MtB	1.223	−1.241***	−0.654***	−0.246**	11.075***	0.704***	1.977***			−0.967***	0.666***
	(1.58)	(−4.44)	(−3.93)	(−2.50)	(5.15)	(3.16)	(3.14)			(−3.64)	(2.77)
PPE	5.488**	0.816***	0.249	−1.239***	−0.870***	0.138	−0.892**	−1.277**	1.896***	−1.519**	−0.587*
	(2.14)	(3.79)	(1.43)	(−3.49)	(−4.01)	(1.04)	(−2.51)	(−2.16)	(4.08)	(−2.12)	(−1.68)
RoA	−1.316**	−0.383***	−0.151*	−0.147**	−10.562***	−0.360	−13.931***			0.194	−2.696***
	(−2.11)	(−3.46)	(−1.96)	(−2.08)	(−4.17)	(−0.77)	(−2.64)			(1.55)	(−2.91)
Size	−0.731*	0.098***	0.041*	0.416***	−1.953***	0.252***	−0.564***	0.469***	0.931***	1.751***	−0.179***
	(−1.76)	(5.61)	(1.70)	(6.86)	(−5.35)	(2.66)	(−3.66)	(3.28)	(3.66)	(2.89)	(−2.82)
_cons	−2.799*	−0.681	0.228	3.661***	−1.191***	−3.153***	−0.282*	2.043**	−1.094**	−0.322	0.306
	(−1.94)	(−1.33)	(0.48)	(4.62)	(−3.74)	(−3.28)	(−1.68)	(2.24)	(−2.08)	(−0.66)	(1.55)

Table 12 (continued)

	(*Inv*) *LR*	(*R&D*) *LR*	(*TDM*) *LR*	(*Product*) *LR*	(*COD*) *LR*	(*COE*) *LR*	(*COC*) *LR*	(*MtB*) *LR*	(*ROA*) *LR*	(*Audit_Fee*) *LR*	(*DA*) *LR*
Industry FE	YES	YES	YES	YES	YES	YES	YES	Yes	Yes	YES	YES
Month FE	YES	YES	YES	YES	YES	YES	YES	Yes	Yes	YES	YES
adj. R2	0.024	0.024	0.024	0.024	0.012	0.008	0.011	0.024	0.025	0.024	0.006
F	12.686	13.148	12.809	14.627	4.669	4.057	3.979	12.440	12.914	12.794	4.986
N	90,827	90,827	90,827	90,827	64,679	83,146	55,165	96,490	96,490	90,827	93,800

Table reports the second-stage regression results of the two-stage least squares (2SLS) analysis. The main dependent variable is *LR_PS*, where *LR_PS* is estimated based on the Pastor-Stambaugh market liquidity factor. The independent variables of interest in the second stage is the predicted values of *PolCeo* from the first-stage regression, include $Pred\_Inv_{i,t}$,$Pred\_R\&D_{i,t}$, $Pred\_TDM_{i,t}$, $Pred\_Product_{i,t}$, $Pred\_COE_{i,t}$, $Pred\_COD_{i,t}$, $Pred\_COC_{i,t}$, $pred\_MtB_{i,t}$,$pred\_ROA_{i,t}$, $Pred\_Audit\_Fee_{i,t}$, $Pred\_DA_{i,t}$. *PC_leve* is the bureaucratic rank of a CEO. *SocialCEO* is the CEO's association attributes. *Age* is the age of CEO. *Gender* is a dummy variable which equals 1 if the CEO is male, and zero otherwise. *Capex* is the capital expenditure scaled by total assets.*Cash* is the cash and equivalents scaled by total assets. *CF* is the operating cash flow scaled by total assets. *Lev* is the book value of total liabilities over book value of total assets. *MtB* is the book-to-market equity. *PPE* is the property, plant, and equipment, scaled by total assets. *ROA* is the return on assets. *Size* is market capitalization. *Inv* is the ratio of capital expenditure to total assets. *R&D* is research and development expenditures divided by total assets. Robust t-statistics, adjusted for industry-month clustering, are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively

Table 13 Company properties, political connections and liquidity risk

	Amihud			Pastor-Stambaugh		
	(SOE)	(Non-SOE)	(Chow-Test)	(SOE)	(Non-SOE)	(Chow-Test)
	LR	*LR*	*LR*	*LR*	*LR*	*LR*
PolCEO	−0.453***	−0.063	−0.067**	−0.553***	−0.151	−0.146**
	(−5.86)	(−1.62)	(−2.03)	(−5.71)	(−1.64)	(−1.99)
PolCEO ∗ *State*			−0.396***			−0.370***
			(−4.69)			(−4.08)
State			−0.131***			0.083*
			(−3.91)			(1.68)
PC_level	−0.051***	−0.006	−0.018*	−0.035*	−0.041**	−0.045***
	(−2.78)	(−0.73)	(−1.93)	(−1.74)	(−2.35)	(−4.23)
SocialCEO	0.634***	−0.037*	0.119***	0.324***	0.225***	0.260***
	(8.54)	(−1.74)	(5.39)	(4.67)	(4.32)	(8.33)
Age	0.006*	0.003***	0.004***	0.026***	0.009***	0.013***
	(1.72)	(2.71)	(4.68)	(6.12)	(2.87)	(5.76)
Gender	0.288**	−0.033	0.030	0.599***	−0.094	0.104*
	(2.35)	(−0.98)	(0.62)	(5.48)	(−1.41)	(1.67)
Capex	−1.856***	0.084	−0.498***	−1.576***	−0.515	−0.742**
	(−4.87)	(0.36)	(−3.95)	(−3.54)	(−1.29)	(−2.12)
Cash	−0.005	0.817***	0.545***	−0.462***	0.010	−0.153
	(−0.04)	(8.25)	(8.31)	(−2.83)	(0.06)	(−1.22)
CF	−0.008	0.060***	0.042***	−0.120***	0.058**	0.007
	(−0.30)	(4.88)	(3.84)	(−3.65)	(2.05)	(0.32)
Lev	1.072***	−0.073	0.257***	0.819***	0.391*	0.425**
	(6.31)	(−0.82)	(2.84)	(2.97)	(1.72)	(2.28)
MtB	0.356***	−0.132	0.069	−0.234*	−0.533***	−0.354***
	(2.80)	(−1.47)	(0.92)	(−1.72)	(−4.05)	(−3.29)
PPE	1.100***	0.116	0.428***	1.033***	0.365	0.441**
	(6.81)	(1.40)	(4.53)	(3.63)	(1.59)	(2.24)
RoA	0.411**	−0.231***	−0.141***	0.611***	−0.184**	−0.075
	(2.18)	(−4.02)	(−3.55)	(2.83)	(−2.45)	(−1.09)
Size	−0.001	0.014	0.005	0.127***	0.055**	0.084***
	(−0.05)	(1.14)	(0.56)	(5.15)	(2.38)	(4.85)
_cons	−1.320***	−0.029	−0.281**	−2.023***	0.660	−0.228
	(−3.46)	(−0.13)	(−2.55)	(−3.22)	(1.31)	(−1.29)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
adj. R2	0.016	0.014	0.008	0.058	0.016	0.025
F	5.869	6.049	5.756	21.721	9.561	10.257
N	34,167	62,323	96,490	34,167	62,323	96,490

This table reports the average coefficients and corresponding *t*-statistics of multivariate regression that examine the liquidity risk on political connections with subsamples (SOEs and non-SOEs). The main dependent variables are *LR_Amihud* and *LR_PS*, where *LR_Amihud* is estimated based on the Amihud market liquidity factor, *LR_PS* is estimated based on the Pastor-Stambaugh market liquidity factor. The independent variable is *PolCeo*, where *PolCeo* is a dummy variable for political connections. *State* is a dummy

Table 13 (continued)

variable for firm classification, where *State* equal to 1 for SOE firms, and zero otherwise. The variable *PC_leve* is the bureaucratic rank of a CEO. *SocialCEO* is the CEO's association attributes. *Age* is the age of CEO. *Gender* is a dummy variable which equals 1 if the CEO is male, and zero otherwise. *Capex* is the capital expenditure scaled by total assets. *Cash* is the cash and equivalents scaled by total assets. *CF* is the operating cash flow scaled by total assets. *Lev* is the book value of total liabilities over book value of total assets. *MtB* is the book-to-market equity. *PPE* is the property, plant, and equipment, scaled by total assets. *ROA* is the return on assets. *Size* is market capitalization. *Inv* is the ratio of capital expenditure to total assets. *R&D* is research and development expenditures divided by total assets. Robust t-statistics, adjusted for industry-month clustering, are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively

Table 14 CEOs' Performance or information quality scores for various bureaucratic rank

Political connection type	Bureaucratic rank	Score
Government officials	Deputy minister and above	7
	Bureau director (Ting)	6
	Deputy bureau director (Fu Ting)	5
	County/division head (Chu)	4
	Deputy county/division head (Fu Chu)	3
	Township/section head (Ke)	2
	Deputy township/section head and below (Fu Ke)	1
Deputies to the Chinese PC and the CPPCC members	National level	6
	Provincial level	4
	Local or city level	2

This table presents the political connections scores assigned to each bureaucratic rank in China

First, considering that the link between SOEs and government ownership inherently implies a greater affiliation to the government. Some scholars argue that SOEs maintain direct and strong links with political power. Consequently, SOEs are more likely to obtain vital government resources and support, such as favoritism in financing and investments. Brandt and Li (2003) find that SOEs enjoying preferential status in acquiring bank loans and other pivotal resources. Based on the analysis, we conject that compared with SOEs, the political power acquired through political connections is weaker for a portion of non-SOEs, making the influence of political connections on liquidity risk more pronounced for SOEs due to their stronger ties to political power.

To test this proposition, we categorize firms into SOEs and non-SOEs, reexamining the PC effect with the two sub-samples, and report the outcomes in Table 13. $State_{i,t}$ is a dummy variable that equals to 1 for SOE firms, and 0 for non- SOE firms. Columns (1)–(3) and (4)–(6) of Table 13 use the two liquidity risk measures as the dependent variables, respectively. Our main independent variable is political connections. Columns (1) and (2) present the results for both SOEs and non-SOEs samples, using the Amihud liquidity risk measure as the dependent variable. We observe that the estimated coefficients on political connections are all negative, being negatively significant at the 1% level under specification for SOEs, while they remain insignificant for non-SOEs. We also conduct the Chow test to formally scrutinize the significance of the difference in the coefficients of political connections between SOEs and non-SOEs. Column (3) of Table 13 presents the Chow test result, and we are more concerned about the interaction terms of $PolCeo_{i,t}$ with $State_{i,t}$. We

Table 15 Regression of the liquidity risk on political connections in non-SOEs exclude CEO rank less than 5

	Amihud		Pastor-stambaugh	
	(1)	(2)	(3)	(4)
	LR	*LR*	*LR*	*LR*
PolCEO	−0.114***	−0.141***	−0.306***	−0.388***
	(−2.93)	(−3.00)	(−2.63)	(−3.15)
PC_level	−0.006	−0.002	−0.029*	−0.015
	(−0.78)	(−0.29)	(−1.74)	(−0.75)
SocialCEO	0.003	0.001	0.259***	0.245***
	(0.13)	(0.02)	(5.21)	(4.32)
Age	0.003**	0.003**	0.006**	0.010***
	(2.40)	(2.22)	(2.14)	(3.11)
Gender	−0.049	−0.035	−0.046	−0.103
	(−1.13)	(−1.00)	(−0.59)	(−1.49)
Capex	0.138	0.106	1.408***	−0.487
	(0.65)	(0.46)	(3.39)	(−1.24)
Cash	0.733***	0.846***	0.224	−0.009
	(7.27)	(8.55)	(1.22)	(−0.05)
CF	0.063***	0.061***	0.188***	0.055*
	(3.71)	(5.03)	(7.78)	(1.92)
Lev	0.077	−0.113	0.327	0.406*
	(0.68)	(−1.21)	(1.66)	(1.75)
MtB	−0.094	−0.156*	0.157	−0.512***
	(−1.63)	(−1.72)	(1.10)	(−3.80)
PPE	0.270**	0.078	0.225	0.375
	(2.48)	(0.92)	(1.11)	(1.60)
RoA	−0.233***	−0.238***	−0.054	−0.173**
	(−7.45)	(−4.15)	(−0.67)	(−2.34)
Size	−0.007	0.019	−0.124***	0.055**
	(−0.90)	(1.50)	(−6.32)	(2.40)
_cons	−0.241**	0.017	−0.590**	0.582
	(−2.34)	(0.07)	(−2.60)	(1.13)
Industry FE	NO	YES	NO	YES
Month FE	NO	YES	NO	YES
adj. R2	0.005	0.014	0.003	0.016
F	20.146	6.213	33.039	9.614
N	59,939	59,939	59,939	59,939

This table reports the average coefficients and corresponding *t*-statistics of multivariate regression with the non-SOES samples that exclude those firms have a CEO rank less than 5. The dependent variable is *LR_Amihud* in columns (1)–(2) and *LR_PS* in columns (3)–(4), where *LR_Amihud* is estimated based on the Amihud market liquidity factor, *LR_PS* is estimated based on the Pastor-Stambaugh market liquidity factor. The independent variable is *PolCeo*, where *PolCeo* is a dummy variable for political connections. The variable *PC_leve* is the bureaucratic rank of a CEO. *SocialCEO* is the CEO's association attributes. *Age* is the age of CEO. *Gender* is a dummy variable which equals 1 if the CEO is male, and zero otherwise. *Capex* is the capital expenditure scaled by total assets. *Cash* is the cash and equivalents

Table 15 (continued)

scaled by total assets. *CF* is the operating cash flow scaled by total assets. *Lev* is the book value of total liabilities over book value of total assets. *MtB* is the book-to-market equity. *PPE* is the property, plant, and equipment, scaled by total assets. *ROA* is the return on assets. *Size* is market capitalization. *Inv* is the ratio of capital expenditure to total assets. *R&D* is research and development expenditures divided by total assets. Robust t-statistics, adjusted for non, industry, month, industry-month clustering, are reported in parentheses, respectively. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively

observe that the estimated coefficient on $PolCeo_{i,t} * State_{i,t}$ is negatively significant. The Chow test outcome indicates that the influence of political connections is more pronounced for SOEs compared to non-SOEs, underscoring that the liquidity risk management effect of political connections is heightened in SOEs. This finding suggests that SOEs can derive greater benefits from their political connections, which is consistent with the research of Brandt and Li (2003) and Boubakri et al. (2012b). We next replicate the analysis in columns (1)–(3) of Table 13 using the alternative measure of liquidity risk, and the reported tests show the consistent results.

Second, to illustrate this conjecture further, and ensure that our findings are not solely driven by SOEs. We further discussion this conjecture with the variable that measures the strength and intensity of political connections based on the CEOs' background, which can measure firms' affiliations to political power from another aspect. Under the Chinese bureaucratic system, bureaucrats with higher ranks wield more political power and enjoy greater access to political and economic resources. Thus, we speculate that CEOs' bureaucratic ranks can partly represent the degree of their political connectedness within Chinese firms. Following the methodology of Liu et al. (2017), we assign scores to connected corporate executives based on their bureaucratic ranks. Table 14 describes the specific points allocated to each bureaucratic rank. If a CEO holds (or held) multiple government positions (or is or was a member of the Chinese PC/CPPCC at different levels), only the highest bureaucratic rank is considered when assigning connection scores. Consequently, we propose a new hypothesis that the negative impact of political connections on liquidity risk is also significant in non-SOEs with stronger ties to political power.

We operate the regression with a sub-sample of private firms with scores greater than 4 (Deputy bureau director (Fu Ting) and above). Table 15 reports the results of the multivariate regression using the sub-sample, with the same method used in Table 4. The coefficients of political connections are all negatively significant at the 5% level under specification. This indicates that the liquidity risk management effect of political connections is also significant in private firms with stronger ties to political power.

7.2 Marketization and PC effect

Our findings indicate that the connection to the political party can positively impact firms' valuation and attract both investors and market makers to provide liquidity to such stocks. However, it's crucial to recognize that the net benefits of political connections may not be universal in all regions with different external environment.

For instance, scholars have suggested that the positive role of political connections varies depending on the level of market development and the effectiveness of legal systems within a region, and this positive effect will diminish in areas characterized by relatively

Table 16 Regression of the liquidity risk on CEO's political connection in high market regions and low market regions

	Amihud			Pastor-Stambaugh		
	(low_market)	(high_market)	(Chow-Test)	(low_market)	(high_market)	(Chow-Test)
	LR	*LR*	*LR*	*LR*	*LR*	*LR*
PolCEO	−0.291***	−0.185*	−0.149*	−0.555***	−0.302*	−0.287**
	(−4.59)	(−1.73)	(−1.83)	(−3.28)	(−1.92)	(−2.06)
PolCEO ∗ *Market*			−0.148*			−0.242*
			(−1.94)			(−1.88)
Market			0.131***			0.714***
			(4.81)			(13.06)
PC_level	−0.039***	−0.016	−0.029**	−0.078**	−0.084***	−0.078***
	(−2.73)	(−1.02)	(−2.10)	(−2.27)	(−3.24)	(−3.53)
SocialCEO	0.456***	0.269***	0.344***	0.426***	0.349***	0.403***
	(8.24)	(4.45)	(8.48)	(4.41)	(3.64)	(6.05)
Age	−0.001	0.008***	0.005**	−0.004	0.024***	0.012***
	(−0.32)	(2.61)	(2.55)	(−0.75)	(3.65)	(3.20)
Gender	−0.271***	0.547***	0.223***	−0.018	0.140	0.127
	(−4.58)	(5.82)	(4.48)	(−0.12)	(1.17)	(1.34)
Capex	1.780***	−1.251***	0.398*	0.690	2.891***	1.655***
	(5.58)	(−3.58)	(1.68)	(1.49)	(5.01)	(4.11)
Cash	−0.014	0.095	0.096	−1.262***	0.066	−0.672***
	(−0.10)	(0.65)	(0.90)	(−5.86)	(0.22)	(−4.25)
CF	−0.062	0.032	−0.019	−0.290***	0.379***	0.048
	(−1.41)	(0.74)	(−0.63)	(−3.07)	(3.65)	(0.69)
Lev	0.054	0.375**	0.064	−0.622**	1.877***	0.644***
	(0.47)	(2.12)	(0.59)	(−2.36)	(5.05)	(3.03)
MtB	−0.138	0.133	−0.095	−0.787***	0.644***	−0.025
	(−1.36)	(0.69)	(−1.28)	(−4.90)	(2.60)	(−0.16)
PPE	−0.094	0.680***	0.270**	−0.594**	1.664***	0.477**
	(−0.96)	(4.14)	(2.52)	(−2.21)	(4.55)	(2.27)
RoA	0.819***	−0.095	−0.373***	0.331	1.599***	1.046***
	(3.74)	(−0.37)	(−3.62)	(1.15)	(4.31)	(6.10)
Size	−0.023	−0.015	0.001	0.131***	0.006	0.025
	(−1.26)	(−0.57)	(0.09)	(3.79)	(0.16)	(0.87)
_cons	0.596**	−0.907***	−0.311	2.122**	−3.096***	−0.841
	(2.14)	(−2.97)	(−1.45)	(2.45)	(−3.56)	(−1.08)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
adj. R2	0.018	0.018	0.011	0.045	0.025	0.031
F	4.429	4.054	4.608	8.956	7.113	9.278
N	19,472	19,472	38,944	19,472	19,472	38,944

This table reports the average coefficients and corresponding *t*-statistics of multivariate regression that examine the liquidity risk on political connections using the subsample with firms in a region that has a high marketization level and low level. The results using a matching approach. For each firm located in the low marketization level provinces, we identify a matched control firm in high region. We begin with a 1:1 nearest-neighbor propensity score matching (PSM) routine without replacement. The matching covariates include capital expenditure (*capex*), a firm's own market capitalization (ln(*size*)), the book-to-market

Table 16 (continued)

ratio (*B/M*), return on assets (*ROA*), book value of total debt (*LEV*), cash holdings (*Cash*), asset tangibility (*PPE*). The main dependent variables are *LR_Amihud* and *LR_PS*, where *LR_Amihud* is estimated based on the Amihud market liquidity factor, *LR_PS* is estimated based on the Pastor-Stambaugh market liquidity factor. The independent variable is *PolCeo*, where *PolCeo* is a dummy variable for political connection. *Market* is a dummy variable, where *Market* equal to 1 for firms located in a region with the marketization degree below the median degree, and zero otherwise. The variable *PC_leve* is the bureaucratic rank of a CEO. *SocialCEO* is the CEO's association attributes. *Age* is the age of CEO. *Gender* is a dummy variable which equals 1 if the CEO is male, and zero otherwise. *Capex* is the capital expenditure scaled by total assets.*Cash* is the cash and equivalents scaled by total assets. *CF* is the operating cash flow scaled by total assets. *Lev* is the book value of total liabilities over book value of total assets. *MtB* is the book-to-market equity. *PPE* is the property, plant, and equipment, scaled by total assets. *ROA* is the return on assets. *Size* is market capitalization. *Inv* is the ratio of capital expenditure to total assets. *R&D* is research and development expenditures divided by total assets. Robust t-statistics, adjusted for industry-month clustering, are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively

advanced markets and legal frameworks (Boubakri et al., 2012a). China as a country with weaker legal institutions and stronger government control of the corporate sector (Allen et al. 2005), political connections are likely to play a significant positive role, enabling firms to align with political parties to maximize their value. From this perspective, we proceed to investigate the applicability of our findings across different contexts with different marketization.

Then we proceed to empirically investigate whether the negative relationship of political connections on liquidity risk varies across regions with high and low degree of marketization regions. According to the total marketization index of China's provinces constructed by Fan in China, we construct a dummy variable, $Marke_{i,t}$, where $Marke_{i,t}$ equals to 1 for firms i located in regions with marketization degrees below the median degree in a given year t, and zero otherwise. If $Marke_{i,t}$ equals to 1, the regions that firms located in will be supposed to have stronger government intervention and weaker legal system. We conjecture that with a relatively higher degree of marketization and well-established institutional systems, the positive effects on firm performance brought by political connections may be limited, resulting in less attraction to investors and market makers, and the negative relationship of political connections on liquidity risk also will be weak. But the negative relationship of political connections on liquidity risk is pronounced in regions with lower degree of marketization regions.

Table 16 reports the results. Columns (1)–(3) and (4)–(6) of Table 16 use the liquidity risk based on the Amihud and Pastor-Stambaugh market liquidity factors as the dependent variables, respectively. Our primary independent variable is political connections. Columns (1) and (2) of Table 16 present the results for both low-region and high-region samples, using the liquidity risk based on the Amihud market liquidity factor as the dependent variable. We observe that the estimated coefficients on political connections are consistently negative. This relationship is statistically significant at the 1% level for low-region samples while at the 10% level for high-region samples. We also employ the Chow test to formally examine the significance of the difference between the coefficients for high and low regions. Column (3) of Table 16 presents the Chow test result, and we are more concerned about the interaction terms of $PolCeo_{i,t}$ with $Marke_{i,t}$. We observe that the estimated coefficient on $PolCeo_{i,t} * Marke_{i,t}$ is negatively significant, suggesting that the influence of political connections is more pronounced in regions with low degree of marketization compared to high regions. This observation supports the conjecture that the impact of political connections on liquidity risk is stronger in low degree of marketization regions. We next

Table 17 Financial crisis, political connections and liquidity risk

	Amihud			Pastor-Stambaugh		
	(Bull)	(Bear)	(Chow-Test)	(Bull)	(Bear)	(Chow-Test)
	LR	*LR*	*LR*	*LR*	*LR*	*LR*
PolCEO	−0.294***	−0.072**	−0.085***	−0.435***	−0.245***	−0.239***
	(−3.98)	(−2.41)	(−2.97)	(−3.72)	(−3.02)	(−3.05)
PolCEO ∗ Crisis			−0.091**			−0.364***
			(−2.51)			(−2.76)
Crisis			0.119			0.365
			(1.02)			(0.74)
PC_level	0.045***	−0.007	−0.003	−0.006	−0.037**	−0.037**
	(3.76)	(−1.04)	(−0.48)	(−0.17)	(−2.39)	(−2.53)
SocialCEO	−0.151***	0.092***	0.081***	−0.276**	0.275***	0.255***
	(−2.65)	(5.01)	(4.56)	(−2.58)	(5.96)	(5.71)
Age	0.002	−0.001	−0.001	−0.003	0.014***	0.012***
	(0.76)	(−0.73)	(−0.59)	(−0.53)	(4.86)	(4.72)
Gender	−0.137***	−0.171***	−0.172***	−0.157	0.160**	0.140**
	(−2.74)	(−6.67)	(−7.11)	(−1.29)	(2.40)	(2.22)
Capex	0.290	−0.017	−0.030	0.650	−0.949***	−0.916***
	(1.04)	(−0.09)	(−0.16)	(1.07)	(−2.74)	(−2.81)
Cash	1.071***	0.458***	0.495***	0.920***	−0.247*	−0.217*
	(7.58)	(5.60)	(6.44)	(3.58)	(−1.80)	(−1.68)
CF	0.052***	0.025**	0.027**	−0.401***	0.021	−0.005
	(2.87)	(2.22)	(2.54)	(−6.46)	(0.86)	(−0.20)
Lev	0.174	0.074	0.088	−0.021	0.392**	0.404**
	(0.75)	(0.93)	(1.17)	(−0.06)	(2.33)	(2.50)
MtB	−0.496**	−0.159*	−0.150*	3.606***	−0.517***	−0.362***
	(−2.39)	(−1.95)	(−1.92)	(12.98)	(−5.40)	(−3.80)
PPE	0.202	0.278***	0.266***	−0.280	0.415**	0.425***
	(0.85)	(3.81)	(3.78)	(−0.80)	(2.48)	(2.65)
RoA	0.006	−0.172***	−0.147**	0.223	−0.067	−0.067
	(0.04)	(−2.66)	(−2.32)	(0.73)	(−0.88)	(−0.92)
Size	−0.053***	0.020*	0.012	−0.287***	0.115***	0.086***
	(−3.18)	(1.69)	(1.14)	(−5.76)	(6.24)	(4.81)
_cons	0.132	0.056	0.057	1.677***	−0.574	−0.445
	(0.45)	(0.52)	(0.55)	(3.34)	(−1.42)	(−1.17)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
adj. R2	0.024	0.008	0.008	0.028	0.022	0.025
F	33.285	4.595	5.359	43.788	13.216	13.997
N	6390	90,100	96,490	6390	90,100	96,490

This table reports the average coefficients and corresponding *t*-statistics of multivariate regression that examine the liquidity risk on political connections with subsample during crisis and non-crisis periods. The main dependent variables are *LR_Amihud* and *LR_PS*, where *LR_Amihud* is estimated based on the Amihud market liquidity factor, *LR_PS* is estimated based on the Pastor-Stambaugh market liquidity factor. The independent variable is *PolCeo*, where *PolCeo* is a dummy variable for political connections. *Crisis* is a

Table 17 (continued)

dummy variable for financial crisis, where *Crisis* equal to 1 for observations of the crisis period, and zero otherwise. The variable *PC_leve* is the bureaucratic rank of a CEO. *SocialCEO* is the CEO's association attributes. *Age* is the age of CEO. *Gender* is a dummy variable which equals 1 if the CEO is male, and zero otherwise. *Capex* is the capital expenditure scaled by total assets. *Cash* is the cash and equivalents scaled by total assets. *CF* is the operating cash flow scaled by total assets. *Lev* is the book value of total liabilities over book value of total assets. *MtB* is the book-to-market equity. *PPE* is the property, plant, and equipment, scaled by total assets. *ROA* is the return on assets. *Size* is market capitalization. *Inv* is the ratio of capital expenditure to total assets. *R&D* is research and development expenditures divided by total assets. Robust t-statistics, adjusted for industry-month clustering, are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively

replicate the analysis in columns (4)–(6) of Table 16 using an alternative measure of liquidity risk, the results reported in columns (4)–(6) show the same results.

7.3 Financial crisis and PC effect

In addition to the corporate and regional factors, the external economic environment factor, financial crisis may also affect the value of political connections. First, Wu et al. (2012) argue that firms with politically connected managers, who are appointed by the government, typically share firm goals consistent with government objectives, such as reducing unemployment. Consequently, the government is less likely to allow these firms bankrupt during crisis periods in China. Therefore, having a politically connected manager can facilitate firms in seeking favorable treatment from the government (Li et al. 2008), and increasing the likelihood of being bailed out during crisis periods. Second, Beuselinck et al. (2017) argue that during crisis periods, the implicit and explicit guarantees that provided by government became more valuable. Consequently, the value of political connections may be higher during crisis periods because the resources provided by the government will be more valuable. Hence, we speculate that for firms with political connections during periods of crisis, these "informal and invisible government guarantees" may be particularly accentuated, and the "guarantees" also be more valuable. Therefore, we conject that the impact of political connections on liquidity risk may be more pronounced during crisis periods. Then, we conduct separate analyses for crisis and non-crisis periods to examine the effects of political connections on firm liquidity risk.

We adopt a widely accepted approach to distinguish crisis and non-crisis periods. Following the methodology outlined by Boni et al. (2021), based on our sample periods, we designate 2009 as the crisis periods and 2010 to 2017 as the non-crisis periods. Under this definition, we find that the negative relationship between political connections and liquidity risk is more pronounced during the financial crisis periods.

Table 17 reports the new results. Columns (1) and (2) of Table 17 present the results for both crisis and non-crisis periods, with the liquidity risk based on the Amihud market liquidity factor as the dependent variable. Notably, the estimated coefficient on political connections is negatively at the 1% level for crisis periods, while at the 5% level for non-crisis periods. We then conduct the Chow test to formally examine the significance of the difference between the coefficients for crisis and non-crisis periods. Column (3) of Table 17 presents the Chow test result, indicating that the estimated coefficient on $PolCeo_{i,t} * Crisis_{i,t}$ is negatively significant. This suggests that the influence of political connections is more pronounced during crisis periods, implying that the inhibiting effect of political connections on liquidity risk is stronger during the financial crisis. We next

replicate the analysis in columns (1)–(3) of Table 17 using an alternative measure of liquidity risk, the results in columns (4)–(6) of Table 17 show the same conclusion.

8 Conclusion

This study is motivated by the dual nature of political connections, which not only incur costs like rent-seeking, but also benefit from preferential treatments such as capital allocation, government contracts, taxation, and regulation. These costs and benefits, in turn, can impact firms' fundamentals, performance, and information environment. Collectively, it is ambiguous how investors and market makers, who provide liquidity to stocks, perceive political connections. Thus, political connections may play a key role in shaping market liquidity risk. In this paper, we empirically investigate the existence of a liquidity risk management effect of political connections. We find that firms with politically connected CEOs have significantly lower liquidity risk, and our findings remain robust across different measures of liquidity risk, control variables, and sample periods. We also document the mechanisms through which political connections impact stock liquidity risk. We find that government resources brought by the connections, as well as the improvements in fundamentals, performance, and information environment resulting from these connections, can explain the reduction of liquidity risk in politically connected firms. Moreover, we demonstrate that the liquidity risk management effect of political connections is more pronounced in regions with relatively lower degrees of marketization, and that such connections are particularly valuable for firms with stronger ties to political power. Overall, our paper contributes to the literature on stock liquidity risk and enhances the understanding of the role of political connections in financial markets.

In general, the following enlightenments can be obtained based on our findings of this paper: First, it is necessary to leverage CEOs' political connections in liquidity risk management. On one hand, governments can use these political connections to guide financial resources, thereby enhancing resource allocation efficiency and reducing liquidity risk. Simultaneously, politically connected CEOs are encouraged to leverage these advantages, that derive from their connections, to attract high-quality investors and reduce liquidity risks by improving firm fundamentals, performance, and information quality. Second, it is crucial to recognize the heterogeneity among firms for effective liquidity risk management via political connections. For example, we should pay special attention to liquidity risk management strategies for SOEs and firms with high political power, hence, leading to more differentiated and precise liquidity risk management practices. Third, considering the external market context is crucial for the effectiveness of liquidity risk management through political connections. Firms located in regions with low marketization levels can benefit more from such political connections and can implement effective liquidity risk management strategies. Conversely, firms located in regions with higher levels of marketization should be vigilant against the adverse effects of rent-seeking behaviors.

Acknowledgements We greatly appreciate the insightful comments and suggestions provided by Ramesh Rao, Shu Yan, the discussant at the 30th Pacific Basin Finance, Economics, Accounting, and Management (PBFEAM) conferences, the editor, and the two anonymous reviewers. Their valuable feedback has significantly contributed to improving the quality of this work. Jian Wang and Luyuan Wang appreciate the support of the National Natural Science Foundation of China (grant numbers 72371063; 71971048), and the Major Program of the National Social Science Foundation of China (Grant No. 23&ZD050).

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