

Corporate Political Connections and the Finance-Growth Nexus: Evidence from China

Shuo Yan*

Abstract

This paper exploits a regulation reform that decreased the corporate political connections in China, as well as variations in the finance-growth nexus across Chinese regions, to study the impact of corporate political connections on the finance-growth nexus. The results show that in the years after the reform, the firms that had political ties experienced a greater decline in access to bank loans relative to their peers, Chinese regions enjoyed a significant improvement in financial development's positive impact on economic growth, and the improvement was stronger for the regions that experienced more obvious bank lending bias toward politically connected but less productive firms prior to the reform. The evidences indicate that corporate political connections obstruct the positive correlation between finance and growth via distorting firms' access to loans. Robustness checks demonstrate that the results are not driven by omitted regional variables.

*Department of Finance, Southern University of Science and Technology, *Email: yans@sustc.edu.cn*. I am grateful to Nicola Gennaioli for his advice and guidance. I am also thankful to Paolo Colla, Filippo De Marco, Eric Girardin, Ruixue Jia, Robert Owen, Chicheng Ma, Paolo Pinotti, Julien Sauvagnat, Nicolas Serrano-Velarde, Hua Shang, seminar and conference participants at Bocconi University, Guehenburg University, Neoma Business School, Fordham University, Peking University and Wuhan University for their comments and suggestions.

1 Introduction

Recent studies on the relationship between financial development and economic growth have documented one stylized fact: although economists suggest that financial development can promote GDP growth via reducing the cost of external financing (King and Levine, 1993), in some countries, the increased financial development appears to be unassociated with economic growth (Xu, 2000; Liang and Teng, 2006). This empirical finding raises the question of why the financial sector's expansion failed to boost GDP growth in some countries. Several theoretical models have attributed the unassociated finance-growth nexus to the existence of financial frictions; for example, financial frictions are an important source of aggregate total-factor productivity (TFP) losses due to capital misallocation (Midrigan and Xu, 2014).

In this paper, I study the impact of one potential source of such frictions - corporate political connections - on the finance-growth nexus. Economists have long recognized corporate political connections as a friction that hinders the efficient allocation of capital, as in the case when politically connected but less productive firms receive preferential treatment from government-controlled banks (Backman, 1999; Dinc, 2005). Therefore, if firms' political ties induce banks to divert credit to politically connected but less productive firms (Becker and Stigler, 1974; Haber et al., 2003), the banks' lending bias will undermine the financial development's prominent channel to economic growth by misallocating credit and decreasing firms' aggregate productivity.

Using unique and representative firm political connection data and loan contract data from China, one of the countries with extensive corporate political connections and strong political controls on its financial market, this paper empirically assesses the aforementioned hypothesis by testing: 1) What is the extent to which corporate political connections change the way banks finance firms? and 2) Is this effect strong enough to weaken the finance-growth nexus?

To identify the impact of political connections on firm access to bank loans, as well as on the finance-growth nexus, this paper exploits a new regulation reform in China (Regulation No.18) as an exogenous shock to firms' political connectedness. On October 19, 2013, con-

sidering that widespread political connections with government officials on boards brought extra profit for corporations and fostered potential room for corruption, the Organization Department of the Communist Party of China (CPC) formally issued a new regulation, named "Regulation No. 18", that prohibited government and party officials, who were concurrently holding public offices or who had recently retired from such positions within the last three years, from serving as directors or from receiving any kind of payment from publicly listed firms. Therefore, this regulation led to numerous politically connected directors involuntarily resigning from their roles as firms' board members, serving as an exogenous shock to cut off the corporate political connectedness in China.

I define "politically connected firms" as those firms that had politically connected directors or executives resign after Regulation No. 18. The information on directors and executives' political connections was collected from the CSMAR Executive Personal Profiles database, which covers over 90 percent of all executives in Chinese listed firms and records each executive's past work experience and. Then, the political connections variable of Chinese listed firms was matched with a loan contracts database covering 53,984 loans offered to listed firms to establish the correlation between a firm's political connections and its access to bank loans.

The I applied the random nature of Regulation No. 18 in a difference-in-difference (DID) model to estimate the effect of cutting off corporate political connections on bank loan allocation and the finance-growth nexus. After separating the firm sample into politically connected and non-politically connected firms, I found that prior to the regulation reform, the politically connected firms had access to more bank loans in China, even if the firms had lower levels of productivity. However, in the years after the reform, the firms with political ties experienced a significant decline in access to bank loans relative to their peers. This finding implies that a bank lending bias exists in China and that corporate political connections are one reason for the bank lending bias and China's credit misallocation

Next, I conducted a cross-regional study to establish the correlation between the corporate political connections derived bank lending bias and the finance-growth nexus. I firstly constructed a regional-level index to measure the degree of bank lending bias driven by firms' po-

litical connections prior to the reform across different Chinese regions (hereafter, the PClending index), then I estimated how the regulation reforms changed the regional finance-growth nexus in a cross-regional Difference-in-Difference analysis. The results showed all the regions experienced a significant improvement in financial development's positive impact on economic growth after the reform. Furthermore, the improvement was more significant in regions that had greater bank lending bias toward politically connected firms prior to the reform. These results support that corporate political connections is one reason weakens the positive correlation between finance and growth.

Finally, even though politically-connection motivated bank lending bias obviously affects the finance-growth nexus from the financial sector side, I still present an Rajan-Zingales methodology to clearly lend support to the causal interpretation of my estimates and to the mechanism at play. I evaluated the external finance needs index of 29 Chinese industries in China to express the borrowing needs of different industries, and then I used the Rajan-Zingales approach to show that the improvement in financial development's positive impact on economic growth after the reform is greater for industries that need to borrow more. This finding supports that an industry with greater borrowing needs particularly benefits from the severing of corporate political connections, and this implies that the reform improved the positive finance-growth nexus via increasing the financial development's promotion role in economic growth.

A set of robustness checks are presented to show that the estimated coefficients are not affected in terms of omitted variables and statistical precision. First, I demonstrated that the banks' preferential treatment toward politically connected firms is not a result of the politically connected firms' lower default rates nor the firms' demand-side choices. Using a matching-pair method to exploit the only variation within the same firm borrowing from both state-owned and private banks, I found that the political connected firms' decreasing on access to bank loans after the reform is only significant for the loans issued from the state-owned banks. Second, I show that the decreasing of politically-connected firm's access to bank loans after the reform is not caused by the decrease in profit due to loss in political ties. In a time-series

comparison, I show that the firms who are cutted off their political connections in the reform experienced no decrease in their profitability than their peers. Third, I showed that the correlation between the corporate political connections and the finance-growth nexus is not driven by other omitting regional variables: by substituting the PClending index into other regional variables, including regional government expenditures, openness, and population, I failed to find any pattern showing a relationship between other regional variables and the finance-growth nexus. Finally, a parallel-trends test for the Difference-in-Difference estimation are presented to show that the estimation results are not purely driven by the parallel trends nor the flexibility of the reform time I have chosen.

Related Literatures:

This paper extends the existing literature in several dimensions. First, I provide a possible explanation for the observed unclear relationship between finance and growth in some economies (De Gregorio and Guidotti, 1995; Fan, 2005). For example, Favarra (2003) found that when using a procedure appropriately designed to estimate long-term relationships between financial development and economic growth in a panel, the relationship is puzzlingly negative for some specified countries. Though some explanations, including the measurement of financial deepening and the law of origins, explain the negative finance-growth nexus, the incentives and transmission channels of the negative relationship between finance and growth have not been fully addressed due to a lack of micro-level lending activity data. Using loan-contracts level data, this paper answers the unresolved questions and points to a firm's political connections as one factor driving the negative finance-growth nexus, since corporate political connections can interrupt a firm's access to finance and thus finance's promotional role in economic growth.

Second, this paper is also related to literature regarding the value of political connections for firms. Previous literature provides evidence that corporate political connections distort credit allocation across firms (Fisman, 2001; Faccio, 2004). However, the link between firm-level evidence and macro-level phenomenon is unclear. By using a quasi-experiment related to the decreasing of corporate political connections in China, and by constructing a regional

measurement on the politically distorted lending index, I evaluated how firms' political connections affect economic growth via the financing channel. The results showed that corporate political connections can slow GDP growth by undermining a financial sector's promotional role in GDP growth. This finding is consistent with the political view on government ownership of firms in Shleifer and Vishny (1994a), which suggests that firms with political connections are a mechanism for politicians to pursue individual goals. As corporate political connections are widespread in transforming economies, this study improves the understanding of political connections in emerging financial markets.

Finally, this paper relates to the literature that documents the impact of bank ownership on the real economy. Complementary literature highlights that banks are more prone to corruption in lending when the controlling owner is the state, since government ownership of banks facilitates the financing of politically desirable projects that maximize the politicians' private welfare instead of maximizing social welfare (e.g., Dinc, 2005; Khwaja and Mian, 2005; La Porta et al., 2002; Sapienza, 2004). This paper documents that government-controlled banks more easily direct credit to firms with political connections and, therefore, can reverse the relationship between finance and growth in a macroprudential analysis. This finding is in line with this political capture view; Houston et al. (2011) found that government ownership of banks induces more corruption in lending.

While this paper draws evidence from China, the insights can be applied broadly to politically connected firms and political controls in banking sectors that have been introduced in many emerging markets. The empirical findings are particularly related to whether the economic consequences of political interventions in financial markets can increase the financial stability while increasing financial market frictions.

The rest of the paper proceeds as follows: Section 2 supplies background information for China and Regulation No. 18; Section 3 presents the data; The empirical results is provided in Section 4, while robustness checks are included in Section 5. Finally, the conclusion is shown in Section 6.

2 Institutional Background and Stylized Facts

2.1 *Corporate Political Connections in China*

Before moving on to further empirical analysis, it is necessary to briefly discuss and understand China's current financial regime and its corporate political connections. China is an ideal environment to study the effects of political connections on the finance-growth nexus. As Agrawal and Knoeber (2001) articulated, the effect of political connections on firm behaviors is likely to be the most significant when regulations and government controls have important consequences for the corporate sector. As China is the largest emerging country with highly political controls, it provides a large sample and an exogenous event for the present study. Moreover, China has distinctive characteristics that differentiate it from Western countries.

First, a major difference between the Chinese financial system and developed financial systems is China's high level of political influence in financial market operations and its extensive corporate political connections. During the past 70 years, the government has played a central role in the Chinese economy, particularly in the financial market. Banks provide about three-fifths of the economy's total credit, and the Chinese banking system is largely state-owned. Using the Bankscope dataset on bank supervision and regulation, Figure 1 depicts that the average level of state ownership in the Chinese banking sector, which includes both state-owned banks and policy banks, was over 80 percent from 1980 to 2016.

[Insert Figure 1 Here]

The banking sector's high level of state ownership drives the strong political influence in banks' lending decisions. In China, the Party and government, who are the ultimate controllers of state-owned banks, determine the careers of the most important bankers. Therefore, the government and Party leaders can exert considerable influence to push loans from state-owned banks to particular firms, sectors, or regions to further their own political purposes. Sometimes, an influential official will strongly urge a loan to be made, circumventing normal credit procedures. The significant political influence in banks' lending decisions has caused

the tendency of lending to corporations with political connections or links to government officials, leaving smaller and less favored businesses struggling to fund their growth (Franklin et al., 2017). Thus, building a corporate political connection becomes one alternative to access more bank loans for firms in China, and corporate political connections widely exist in the Chinese economy.

Furthermore, politically connected firms are miserably unprofitable. In 2003, a boom year, the median return rate of a politically connected firm on assets was a measly 1.5 percent. More than 35 percent of politically connected firms and state-owned firms lose money, and 1 in 6 firms have more debts than assets. Figure 2 shows a comparison in TFP and the log of capital input between firms with political connections and other firms across the 31 Chinese regions and during the past 20 years . The blue circles are politically connected firms in the 31 Chinese regions, while the red circles represent other firms/non-politically connected firms in the corresponding regions. The X axis is the log value of the total capital input to the firms, while the Y axis is the firms' TFP. Figure 2 shows that, on average, the non-politically connected firms have a higher TFP than the politically connected firms, even though they have a smaller firm size and a lower capital input in all regions. This finding provides empirical evidence of the systematic capital misallocation of financial resources in favor of politically connected but low-production firms in China.

[Insert Figure 2 Here]

The other distinctive feature of China is that its relationship between finance and growth is puzzling. The early studies of the finance-growth nexus failed to find a positive relationship between financial development and economic growth (Aziz and Duenwald, 2002; Fan, 2005; Liang and Teng, 2006). By using the time series data of financial development and economic growth rate collected over the past 30 years, Appendix A summarizes a cross-country study of 124 countries' finance-growth nexuses. In Appendix A, 24 out of 79 countries have demonstrated a negative finance-growth nexus during the past 30 years, and China is one of these negative countries.

The above characteristics make China an ideal sample to study the effect of corporate political connections on financial sector operations. As Faccio (2006; 2010) showed that political connections have a larger effect in a weak institutional environment with a higher level of corruption and lower transparency. China is the largest emerging country with all these characteristics.

2.2 The Regulation No. 18

However, to solve the endogeneity problems involved in studying firms' political connections, I also needed an exogenous shock to the corporate political connections in China. On October 19, 2013, a policy reform called "Regulation No. 18" made it possible for conducting the quasi-experimental design.

In November 2012, Xi Jinping became the President of China. Shortly after he took power, Xi launched a far-reaching anti-corruption campaign, vowing to maintain "zero-tolerance attitude toward corruption." Considering that widespread political connections due to government officials being on boards brought extra profit for corporations and also fostered potential corruption, the Organization Department of the Communist Party of China (CPC) formally issued Regulation No. 18 on October 19, 2013, to regulate politicians' behavior and to reduce corruption between firms and politicians.

The regulation prohibits all government officials, including former officials who have resigned or who have retired within the previous three years, from taking executive positions and from receiving any kind of payment from firms. Under the rules, incumbent officials, including those who had not completed retirement procedures, should not hold concurrent posts nor work full-time in enterprises; former officials may not work in businesses within their former jurisdiction or engage in profit-making activities related to their former positions within three years of leaving public service; and officials holding concurrent posts in enterprises should not receive payments, stock rights, or extra profits. All politically connected directors who were not in compliance with the regulation had to resign within three months of the regulation's issue date. The policy had a direct impact on listed firms and triggered the resignations of

numerous politically connected directors.

In 2011, there were nearly 1,600 former officials who worked for A-share companies listed on China's Shanghai and Shenzhen stock exchanges, including 500 of whom were independent directors. Within three months after the promulgation of Regulation Article No. 18, from January-March 2014, 300 executives and 90 independent directors who were government officials resigned from their positions. The reason most cited in their resignation announcements was, "due to the Regulation Article No. 18." In Figure 3, I show the numbers of monthly executive resignations between January 2013 and October 2014. While the average number of executive resignations was around 100 per month for all listed firms before October 2013, the resigned number sharply increased since October 2013 and reached 337 in April 2014¹. This finding shows an executive resignation boom occurred after the issuing of Regulation No. 18.

[Insert Figure 3 Here]

Regulation No. 18 provides a useful setting to study the causal effects of political connections on firms' access to bank loans. First, as Regulation No. 18 enforces strong action and applies to all government departments and all levels of officials, it caused a large number of politically connected directors to resign due to explicit and exogenous reasons. Second, as part of the anti-corruption campaign, Regulation No. 18 was passed independently of future bank loan decisions. Though banks may anticipate restrictions on corruption, particularly after prior anti-corruption efforts, it is less likely that the banks would know when corporate political connections would be cut off. Therefore, Regulation No. 18 is an exogenous shock that severed, or at least significantly weakened, the corporate political connections in China. I use the event to examine the causal relation between political connections and firms accessing bank loans, and I eliminate the problem of omitted variables from this correlation.

¹The short decrease in resignations numbers during January 2014 is due to the Chinese New Year, as all the listed firms were closed for two weeks

3 Data

In the empirical part, I use four main data sources: 1) the China Banking Regulatory Commission (CBRC) loan contract database for the firms' access to bank loans; 2) the Stock Exchange Websites and CSMAR Executive Personal Profiles database for identifying the politically connected firms that may have been affected by the regulation; 3) the China Industry Business Performance Database for measuring the firms' TFP and 4) the WIND database for regional finance-growth nexus data and other macro-economic variables.

3.1 Variables Description

Firm access to bank loans is measured by the amount of loans offered by banks to firms in each loan contract from the China Banking Regulatory Commission (CBRC) database. The CBRC bank loan database reports information about individual loan contracts granted by banks to all the listed firms in China, covering 53,984 loan contracts from 1998 to 2016². For each loan contract, the databases record the amount of the loan extended by banks to listed firms, together with the lending branch, loan term, and the lending rates charged on the loan contract. This data, reported for the monitoring purposes of the China Securities Regulatory Commission (CSRC), is highly confidential. Figure 4 demonstrates the number of loan contracts to listing firms record on the CBRC database by year from 1998 to 2017. The average loan contracts record on the database is around 5,000 with reached its maximal of 15,000 on year 2017. The yearly recorded contracts number is increasing with the number increase on listing firms.

[Insert Figure 4 Here]

One challenge in identifying the effect of political connections on firm performance is how to define *a politically connected firm*. In this paper, a firm's political ties can be fully captured by the executives' resignations due to Regulation No. 18. Compared with the political-

²1998 is the first year in which the China Banking Regulatory Commission (CBRC) started to disclose detailed lending contract information about listed firms

connection measurements in previous literature, such as calling a firm politically connected if the largest shareholder is a top official or a party member; thus, this paper's measurement is a better capture of a firm's political ties. Since Regulation No. 18 was an exogenous shock that prohibited politicians from sitting on boards, the executives who were forced to resign were the ones providing extra political resources to the firms. Following this identification strategy, I defined politically connected firms as the ones that had directors or executives resign due to Regulation No. 18. Then, I separated the firm sample into two parts: the treatment group, firms that had executives resign due to Regulation No. 18, and the control group, firms without executives who resigned due to Regulation No. 18.

To find the companies who had executives resignations due to the Regulation No.18, I hand collect all directors resignation announcements of Chinese listing firms after October 19, 2013 from WIND database. This database fully record all announcements the listing firms disclosed³. Then I filter the resignation announcements which explicitly state that the director has to resign from the firm to comply with Regulation No. 18 into our treatment group. Moreover, considering that some firms may provide ambiguous statements for directors' resignation reasons, such as "due to personal reasons", I implement an additional identification methods to mitigate any possible omissions for the director is affected by the Regulation No. 18: and matched the resigned director's name and company with her resume information is retrieved from the CSMAR Executive Personal Profiles database⁴, then I marked the resigned directors who are still in service as government officials or retired within three years⁵ also as directors affected by Regulation No.18. One debate concerns this issue is that: the narrow definition of government officials only includes career experiences in a strictly defined government organization, while the generalized definition includes not only the government

³The regulation No. 18 needs the politically connected directors' resignation announcements to be publicly disclosed

⁴The CSMAR Executive Personal Profiles database include all information listed on each executives' resume, which includes name, nationality, gender, age, and career and education background. In the career background part, the database records each executive's past work experience, including position, start date, end date, tenure, and service status

⁵"Retired over three years" is the criterion clarified in the Regulation No.18 for the directors to be permitted to serve in companies, therefore, the directors retired less than three years are forced to resign due to Regulation No. 18

organizations but also other organizations that have political power, i.e., the National Parliament Committee (NPC) deputies and the Chinese People's Political Consultative Conference. In this paper, in order to fully capture the political power's impacts on lending behaviors, I apply the generalized definition of government officials to measure the political connections of firms.

For other control variables, *the firm's total-factor productivity (TFP)* is constructed using the methodology proposed by Olley and Pakes (1996). All the variables used in the Olley-Pakes method were from the China Industry Business Performance Database. Then, *the regional financial development index* and *GDP growth data*, as well as other firm-level and region-level control variables, are also researched from the WIND database, which is one of the most commonly used firm-level and regional-level databases in China and includes the basic information and the financial and accounting data of listed companies in China, as well as regional macro-level variables. Since the WIND database information is collected from annual reports to the Chinese National Bureau of Statistics, the data is highly detailed and confidential.

3.2 Statistics Description

In this section we present a set of descriptive statistics on the political-connected firms who are exposed to the "Regulation No. 18". As we mentioned in section 3.1, we defined the political-connected firms as the ones with directors or executives resigned due to "The Regulation No. 18". Based on this standard, I found a total of 572 listed political connected firms in our sample.

Table 1 presents summary statistics at the firm-level variables for both exposed (politically-connected) and non-exposed (non politically-connected) firms. As shown, the yearly average loan to total asset ratio in our sample is 32% for politically-connected firms and 30% for non politically-connected firms, with the maximal ratio is over 80%, which demonstrate that nearly half of the external financing of the Chinese firms are bank loans. Compared with politically-connected firms, the non-politically connected firms has smaller loan-size on individual loan-contract and less aggregately access to bank loans. Meanwhile, the average TFP and ROA are

both higher for non politically-connected firms, and the default risk, which measured by the Altman's Z score, are the same for the exposed and non-exposed firm samples.

[Insert Table 1 Here]

To eliminate the estimation bias driven by outliers, the following elements are excluded from this study's firm sample: a) financial and insurance companies and firms designated by either stock exchange as special treatment (ST) firms; b) observations with extreme values, including sales growth, capital intensity ratio, and an ROA that is below the 1st and above the 99th percentile; and c) individual loan contracts that have a lending rate ≥ 14 percent or ≤ 3 percent, which are commonly deemed special lending contracts. After the basic data cleaning, the study's listed firm sample constitutes over 10 percent of China's GDP (Figure 4).

[Insert Figure 4 Here]

4 Empirical Framework

Based on an objective introduction, Section 3 provided the data descriptions. In the following sections, to facilitate a better understanding of these issues, direct empirical evidence is provided to demonstrate the correlation between corporate political connections and banks' lending behaviors, as well as their effects on the finance-economic relationship.

4.1 Corporate-Political Connections and the Bank Lending Bias

4.1.1 *The Basic Correlation*

I start by evaluating the basic correlation between firms' political connections and their access to bank loans. After performing a Hausman test on the panel data sample, I estimated the baseline regression by using a fixed effects model. I used a firm fixed effects control for any

time-invariant unobserved differences between firms ⁶, and I also used year fixed effects to control for the time trend.

$$loan_{ijt}/TA = \alpha_{it} + \beta PC_i + \gamma TFP_{it} + \delta PC_i \times TFP_{it} + \kappa_i + \lambda_t + \varepsilon_{it} \quad (1)$$

In this model, $Loan_{ijt}/TA$ is the loan amount in loan-contract j issued to a firm i at year t , which was normalized by the firm size (Total Asset). The amount of loan accessing is regressed on the political connection indicator of firms PC_i , which is a dummy variable equal to 1 if the firm has political ties; otherwise, it is equal to 0. In this case, a positive β implies that political connections raise a firm's access to bank loans. To control firm productivity's impact on bank lending behaviors, I further added the firm's total factors productivity (TFP_{it}) and its interaction term with the firm's political connections into the firm-level regression. The interaction coefficients expresses the joint effect of the firm's political connections and TFP on its access to finance. A set of firm characteristics has been controlled in this regression, including the firm's net sales growth, Tobin's Q ratio, return of asset (ROA), financial distressed Z score, firm's age, firm's size and earning per share. Last, the firm-level and year-level fixed effects κ_i and λ_t are included in the model to exclude the year-specific and firm-specific effects.

Table 2 reports this model's estimation results. First, the positive coefficient on PC_i , as seen in regression Panel A of Table 3, supports the hypothesis that firms with political connections have more access to bank loans; the politically ties of a firm can be translated into a 0.4-point increase in the firm's access-to-bank-loans ratio for each individual loan-contract. Second, even after controlling for the firms' productivity, a significantly positive impact of political connections on the firms' access to bank loans is still positive, but at the same time, the TFP's effect on firm's access to bank loans is insignificant. This finding implies that the lending preference from banks to politically connected firms is not based on the productivity consideration. Third, the interaction coefficient between a firm's political connections and TFP in panel B of Table 3 is negative and significant at the 0.1 level. The negative interaction

⁶for example, a firm's bankruptcy probability and profitability could be correlated with both political connections and access to finance, and this may lead to spurious correlations between them

coefficient confirms that the firm productivity's marginal effect on the firm's advantages in accessing bank loans is especially weaker for politically connected firms, which implies that the firm's political-connection level can eliminate the marginal effects of firm productivity on a firm's access to finance and a credit misallocation towards to politically connected but lower productive firms exist in China.

[Insert Table 2 here]

4.1.2 *The Difference-in-Difference Estimation*

Although I found a positive correlation between the firm's political ties and access to bank loans in the above estimation, this result is not enough to be interpreted as conclusive evidence of a causal link since the cross-sectional comparisons of firms may suffer from various endogeneity problems; for example, having political connections may be correlated with unobservable factors that cause differences in firm performance (omitted variable problem); or a political connection might actually form after a firm's performance is revealed (reverse causality problem). Therefore, to have an unbiased estimation of the political connections' impact, I utilized the issuance of Regulation No. 18 as a quasi-experiment in a Difference-in-Difference model to eliminate the endogeneity problem.

This identification strengthens the results presented in section 4.1.1 in three dimensions. First, the difference between the treatment and control groups eliminate omitted time trends that are correlated with a firm's access to finance in both the treatment and the control groups; since the development of the financial market and the changes in financial regulations, Chinese firms' access to bank loans may change over time. Second, the introduction of Regulation No. 18 only affected the corporate-political connections without changing other firm performance characteristics prior to the reform, therefore the difference before and after Regulation No. 18 eliminates the omitted firm-level characteristics' effects on the correlation. Lastly, the issuing of Regulation No. 18 only severed the corporate political connections without change the banks' lending decisions. Therefore, by conducting a test involving policy changes that only affect corporate political connections, the identification helps eliminate the reverse-causality

concerns between a firm's political connections and access to finance.

This study's main tests involve DID analyses using a PSM control group. This methodology compares the bank loan accessing of a sample of treatment firms with politically connected directors who have resigned to that of control firms (without resigned directors) before and after Regulation No. 18, which is the shock that induced director resignations and severed the corporate political connections. The estimation equation is as follows:

$$loan_{ijt}/TA = \alpha_{it} + PC_i + \lambda(PC_i \times Post_{i,2013}) + \gamma(TFP_{it} \times Post_{i,2013}) + \kappa_i + \lambda_t + \varepsilon_{it} \quad (2)$$

Where $Loan_{ijt}/TA$ is the loan amount in loan-contract j issued to a firm i at year t , and $Post_{i,2013}$ is the time dummy variable that demonstrates the implementation time of Regulation No. 18 (post = 1 if year \geq 2013). In this equation, the interaction coefficient λ_{it} demonstrates the marginal degree changes concerning access to finance after the shock for firms with politically connected directors who were forced to resign. And the coefficient γ_{it} captures the changes of the TFP's effects on firm's access to credit after the reform, and a positive γ implies that after the reform, the politically connected firms' access to finance became more productivity oriented.

Table 3 demonstrates the results of the DID estimations. The results in columns 1 to 4 show that in the years after Regulation No. 18, the political connections' positive effects on a firm's access to finance decreased significantly. At the same time, the TFP's positive effects on credit accessing had an improvement after the implementation of Regulation No. 18 ($\gamma_{ijt} > 0$). These findings show that the credit-allocation procedures in China became more market oriented after severing the corporate political connections; therefore, the corporate political connections distorted banks' lending behaviors.

[Insert Table 3 here]

4.2 Corporate-Political Connections and the Finance-Growth nexus

In principle, the firm-level analysis above confirms the notion that the Chinese banking system favors lending to the politically connected but not the most productive firms; however, the relationship between this banks' lending bias and the finance-growth nexus has not yet been thoroughly analyzed. In this section, I apply a cross-regional study to build the correlation between the corporate political connections that drive bank lending bias and the finance-growth nexus.

Note that the cross-regional empirical strategy relies on two main assumptions: first, the remarkable economic differences in China drive the regional variations on the finance-growth nexus across Chinese regions, which provides the possibility to conduct a cross-regional estimation; second, I assume that bank loans do not flow freely across the Chinese regions. In fact, to reduce loan management costs, most banks in China limit their financing branches to carrying out inter-regional lending; thus, firms have to take credit from the location where most of their economic activities take place, which is generally the province where the firm's headquarters is located. Such conditions have largely confined this paper to build the correlation between politically connected lending bias and the finance-growth nexus in a cross-regional analysis.

4.2.1 Construction of Regional Politically Bank Lending Bias Index

One identification challenge I faced in the cross-regional analysis was measuring to which degree corporate political connections distort credit allocation at the regional level. Therefore, in this section, I construct a region-level, political-connection distorted lending index (hereafter, the "PCLending index") to express the regional level of political distorted lending caused by the corporate political connections.

First, I separated the listing firms into different regions according to their locations, and I regressed the firm's political connections on the firm's access to finance in the sub-sample regressions as in equation (1). The regression equation is:

$$loan_{ijrt}/TA = \alpha_{irt} + PC_i + \lambda(PC_{ir} \times Post_{i,2013}) + \gamma(TFP_{irt} \times Post_{i,2013}) + \varepsilon_{ijrt}.$$

Where $i, j, r,$ and t are index firms, loan-contract, regions, and years, respectively. I took the regression coefficient on political connections (λ_{rt}), which demonstrates the change in political connections' impact on access to bank loans for firms located in different regions after the reform. As well as the triple interaction coefficient γ_{rt} , which shows the TFP's marginal effects changes on firm access to finance in different regions after the reform, to construct the regional index of lending distortion driven by the corporate political connections (hereafter, "PCLending index"). The index construction equation is as follows:

$$pclindex_r = \log(\lambda_r - \lambda_r \times \gamma_r),$$

Where $\lambda_r = \overline{\lambda_{rt}}$ and $\gamma_r = \overline{\gamma_{rt}}$ are the average value of λ_{rt} and γ_{rt} in region r from the year 2000 to the year 2013. To render the regional PCLending index more easily comparable across regions, I transferred the index from its original values to a relative score that ranges from 0 to 10. The formula used to derive the 0 to 10 rating for the indicator i is:

$$\frac{V_r - V_{min}}{V_{max} - V_{min}} \times 10$$

Where V_r is the average value for the political connections distorted lending index for region r from the year 2000 to the year 2013. V_{max} is the maximum value for the political connections distorted lending index in all the regions, and V_{min} is the minimum value for the political connections distorted lending index. This formula is used to derive the ratings for all years across all regions. A region's rating will be close to 10 when its value for the index is near the index maximum. In contrast, the rating will be near 0 when the index for a region is near the minimum.

4.2.2 Politically connected lending bias and the finance-growth nexus

After constructing the PCLending index, it is necessary to further test the index's correlation with the finance-growth nexus. The assumption is that if distortions in banks' lending do impair the financial sector's stimulatory role in economic growth, then greater distortions in the

banks' lending should be associated with a weaker regional finance-growth nexus. I capture this correlation in a regional-level Difference-in-Difference regression:

$$Growth_{rt} = \alpha_{rt} + \phi(FD_{rt} \times Post_{2013}) + \psi(pclindex_r \times FD_{rt} \times Post_{2013}) + \psi_r + \mu_t + \varepsilon_{rt} \quad (3)$$

In the above regression, the variable $Growth_{rt}$ is the GDP growth rate of region r at year t . I regress $Growth_{rt}$ on the corresponding regional political distorted lending index $PCLending_{rt}$ and the regional financial development level FD_{rt} , with the interaction term between these two factors and after reform indicator. In the above regression, the coefficient ϕ_{rt} indicates Regulation No. 18's impact on the finance-growth nexus. and the triple coefficient ψ_{rt} shows how Regulation No. 18's impact on the finance-growth nexus varies across regions with different levels of politically connected lending bias prior to the reform. If $\psi_{jt} > 0$, then the severing of corporate political connections' positive impact on strengthening the positive finance-growth nexus is more significant for regions that experienced stronger politically connected lending bias prior to the reform.

A vector of the macroeconomic variables that may also affect regional GDP growth is included in the above regression as a control variable, which includes investment to GDP ratio (Inv), trade to GDP ratio (Openness), government expenditure to GDP ratio (Gov), and FDI to GDP ratio (FDI). The regional and yearly fixed effect is included in this model.

Table 4 shows the estimation results in the cross-regional analysis. In column 1 of Table 4, the financial development is negatively associated with economic growth, which is consistent with the estimation result in Xu (2016) and Angewl (2012). Then the interaction coefficient between financial development and the post-reform dummy variable is significantly positive in column 2 of Table 4, this finding implies that the cutting of corporate political connections significantly increased the financial development's promotional role in GDP growth. Furthermore, the ψ_{rt} is positive in column 3 of Table 4, and significant on the 5% level. The positive triple interaction term demonstrates that keeping the same financial development level, the

firms located in regions with greater political distortions in bank lending enjoyed a greater improvement in financial development's positive impact on economic growth in the years after the reform.

[Insert Table 4 here]

4.3 A Rajan-Zingales Approach Check

Even though the causality in the above findings is obvious concerning the politically distorted lending in the financial sector to economic growth, in this section, I still further check the causality direction among politically connected lending, financial sector operations, and economic growth by applying a Rajan-Zingales approach. The assumption in Rajan and Zingales (1998) is as follows: if the operation of a financial sector affects economic growth, then the growth rate of the industries that need to borrow more from the financial sector should particularly be affected by the financial development. In the same case, the causality among the politically connected distorted lending, financial sector operation, and the finance growth can be checked by testing whether the industries with more external finance needs are disproportionately affected by the politically connected lending bias and by the issuing of Regulation No. 18.

To test the aforementioned hypothesis, I first constructed the index of a Chinese industry's need for external finance (*ExFin index*) as in Rajan and Zingales (1998)⁷. Then, I separated all the listed firms in each region into different industries, and then I interacted the industrial external finance dependence index with the regional financial development index and the time dummy in the above regression:

$$Growth_{rst} = \alpha_{rst} + \beta(FD_{rt} \times ExFin_{rst}) + \phi PClending_r \times ExFin_{rst} \times PClending_r + \varepsilon_{rst} \quad (4)$$

⁷The industry's need for external finance is defined as the difference between the firm's capital expenditure and the cash generated by operating. On the assumption that capital markets in China are relatively frictionless, particularly for the large listed firms, this method enables identifying an industry's technological demand for external finance

The interaction coefficient β_{rst} in equation (5) demonstrates how the financial development's promotion role for industrial growth varies with the industry's external finance needs, and the interaction coefficient ϕ_{rst} captures how the exists of politically derived bank lending bias changed the finance-growth nexus of industries with different external finance needs.

Table 5 presents the estimation results of the Rajan-Zingales regression. In Column (1) of Table 5 , the ($\phi < 0$) shows a negative interaction effect between the regional political distorted lending index and external financing dependence. This finding suggests the presence of corporate political connections in finance, or political distortions in bank lending, weakens the positive finance-growth nexus from the finance-side. Second, a positive β_{rst} in Table 5, column (2), shows that the financial development generates a positive interaction effect with a firm's external finance needs on the real growth rate ($\kappa > 0$). This result shows that financial development promotes economic growth, and this conclusion is consistent with Rajan and Zingales (1998). Final, the triple interaction coefficient of the three factors is -0.0218 in column (3) of Table 5, while the positive coefficient of financial development on the sector growth rate is 0.2672, this result implies that, if keeping the financial development level and external finance needs of each industry constant, when the politically connected lending index increases to 10, the positive correlation between financial development and GDP growth rate will be reversed to a negative one. The above findings also show that the distortions in bank lending affect GDP growth via reducing financial development's positive impact on economic growth.

[Insert Table 5 Here]

4.4 The Robustness Checks

4.4.1 *Supply-side Factors VS Demand-side Factors*

One standard concern regarding the observed bank lending bias toward low-production but politically connected firms is that the results are capturing the different borrowing needs between politically connected firms and non-politically connected firms instead of capturing a

bank lending bias is raised from the bank supply side. Furthermore, the preferential treatment from banks to the politically connected firms may be driven by the lower default rate of firms with political ties ⁸. To check the above hypothesis, I performed a robustness test by estimating the difference in banks' lending behaviors toward the same firm by two types of banks: state-owned banks and non-state-owned banks. Given that political connections make it easier to manipulate the banks' lending decisions via state-owned banks, if the biased lending behaviors are particularly obvious with loans issued by state-owned banks, then one could conclude that it is the credit supply-side factors that drive the bank lending bias and not the firm's lower default rate.

To test this assumption, I interacted the loan issued bank's state-ownership percentage with the firm's political connections indicator and post-reform indicator in Table 6. By including a firm fixed effect in the estimation, I compared the loan amount issued by the two bank types to the same company. The triple interaction coefficient among the three factors will measure the asymmetric effects of Regulation No. 18 on the loans issued from state-owned banks and non state-owned banks to the same firm. A negative (positive) value means that the Regulation No. 18's negative effect on politically-connected firms' access to loans is more (less) significant for loans borrowed from the state-owned banks.

Table 6 reports the results of this robustness test. What I found is that the triple interaction coefficient among the firm political connections indicator, post reform indicator, and the state-ownership of the borrowing bank is negative and significant at the 0.1 level. This result demonstrates that compared with non-state-owned banks, the bank lending bias is more obvious when the loans are issued from a state-owned bank, and this result supports that it is the credit supply-side factors drive the observed bank lending bias.

[Insert Table 6 Here]

⁸The firms with more political ties may have stronger government guarantees, which can lower the default rate when the firm is in financial distress

4.4.2 Political connections and firm's growth potential

Another concern with the bank lending bias results is that: the firms with more political powers may obtain more resources and government support in the future, and the government support will increase the growth rate of firm's profitability (i.e. ROA). If this is the case, lending to the political connected but lower productive firms is optimal for banks, given that those firms' profitability will grow faster than its peers in the future. In order to check this hypothesis, I compared the average growth rate of ROA between politically connected firms and non-politically connected firms in figure 5.

Figure 5 shows the Return of Asset ratio time-series change tendency of politically connected and non politically-connected firms. The blue line is the ROA change tendency for the politically connected firms and the red line is for the non politically connected firms. The dash line indicates the regulation No. 18's enacting time. What I found in figure 5 was that, the politically connected firms, who are exposed to the Regulation No.18, failed to show a decrease in ROA than its peers after the reform. This finding rule out the hypothesis that the decrease in profitability of political connected firms due to the loss of political resources is the reason for their less access to bank loans.

[Insert Figure 5 Here]

4.4.3 Regional Omitted Variables in the Regional Analysis

A potential source of endogeneity in the cross-regional analysis results presented thus far is the omitted variable problem. The negative pattern between the regional level of politically distorted lending and the finance-growth nexus may be driven by the unobservable region-level covariates that are correlated with financial development and that might affect economic growth (e.g., the population of the region, or the level of local government effectiveness).

To address this problem, I substituted other region-level variables into the PClending index in the cross-regional analysis to check whether I can find a pattern. In examining the robustness check results in Table 7, I failed to find a similar pattern to the one that emerged

from PClending index on the finance-growth nexus. The estimation results show that other regional macro-variables do not explain the geographic variation in the finance-growth nexus across different Chinese regions, as did the one that emerged from our cross-regional analysis. Therefore, region-level omitted variables do not drive the links between bank lending bias and the finance-growth nexus.

[Insert Table 7 Here]

4.4.4 A parallel trends test

Final, the last concern about the Difference-in-Difference estimation results is that: whether the decrease in politically connected firms' access to bank loans is derived by the common trends between the treatment and control group. Given that the two groups have a single binary treatment, I check this problem by using a visual inspection of the pre-treatment trends for the control and treatment group in Figure 6.

Figure 6 depicts the pre-treatment trends for the control and treatment groups in the Difference-in-Difference estimation. The Y-axis of Figure 6 is the dependent variable in the Difference-in-Difference estimation, the firm's access to bank loans. And the blue line is for the politically connected firms and the red line is for non politically connected firms, while the dash line indicates the regulation No. 18's enacting time. From figure we can easily observe that, there is no common trends between the treatment and control group. The time-series change tendency for the control group is very smoothing, while this a sharply decrease tendency after year 2013 only for the treatment group. The result shows that, the estimation results in Difference-in-Difference model is not caused by the common trends between the treatment and control group.

[Insert Figure 6 Here]

5 Conclusion

In this paper, I explored for the first time the role of corporate political connections as a moderating factor in explaining the relationship between financial development and economic growth. Recent studies have highlighted the vital role of financial development in promoting economic growth. However, some of the empirical literature shows a negative relationship between financial development and economic growth in some transforming economies.

I empirically assessed whether the strong corporate political connections in China obstruct the financial system in the real economy and consequently produce a negative finance-growth path. To identify these effects, a panel dataset of all the listed companies in China was examined to identify whether firms with stronger political connections in China have greater access to bank loans. Then, a regional analysis across 31 provinces within China investigated the correlation between the bank lending bias in favor of politically connected firms, and their effects on the finance-growth nexuses. To further identify the causality among corporate political connections derived bank lending bias and the finance-growth nexus, a regulation reform in China that decreased a firm's political connections but was not correlated with the firm's other characteristics for accessing finance and economic growth was applied as an exogenous shock to eliminate the endogeneity problem.

This paper's main conclusion is as follows. Political distortions in bank lending caused by corporate political connections have substantially constrained the financial system's operation so that it cannot reach its full potential to boost economic growth. The political bank lending bias diminishes the financial system's lending effectiveness, as well as its catalytic role in economic growth. As a result, in an economy with extensive corporate political connections, the corporate political connections undermine the positive relationship between financial development and economic growth.

Although the empirical results' magnitude is focused solely within China, politically connected lending is indeed a common problem that can be seen in developing countries and transitional economies. The results presented in this paper suggest that cutting the firm's political

connections can lead to faster growth and more efficient financial development in transitional economies. Besides promoting the size of financial sectors, the central governments of developing countries should also consider controlling the degree of corporate political connections to accelerate economic growth. Furthermore, the financial market itself should be allowed to play its role in economic restructuring.

From an empirical perspective, this paper informs on the negative finance-growth nexus that exists in some developing countries. This paper has proved that financial development is positively related to economic growth, so long as the political forces are not strong enough to impede the financial sector's promotional effects on growth. Otherwise, the firm's political connections will hinder economic growth, and a negative finance-growth path will be observed in the corresponding country.

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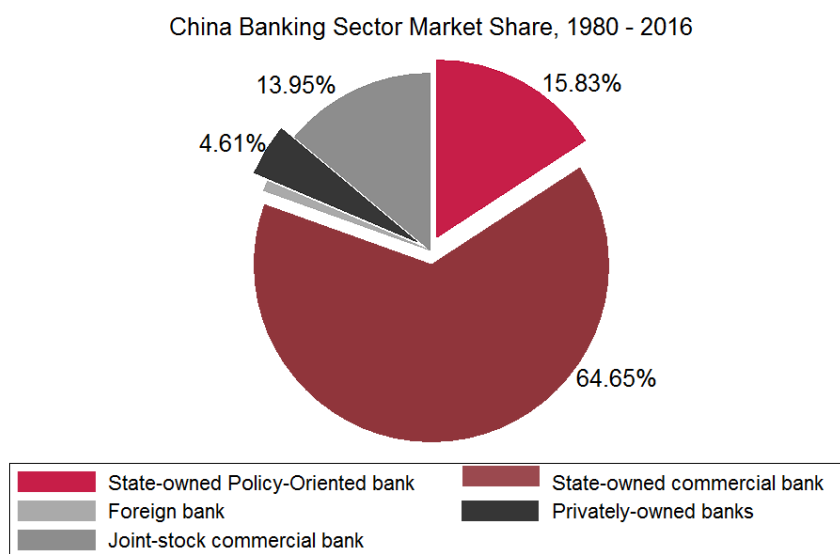


Figure 1: Chinese Banking System State-owned Percentage

Notes: This figure shows the ownership structure of the Chinese banking sector from year 1980 to year 2016. Each part of the pie chart shows the average share of banking sector assets held by state-owned, state-owned policy oriented, privately-owned, joint-stock owned and foreign banks between year 1980 to year 2016. Data used to construct the this figure are come from Bankscope database.

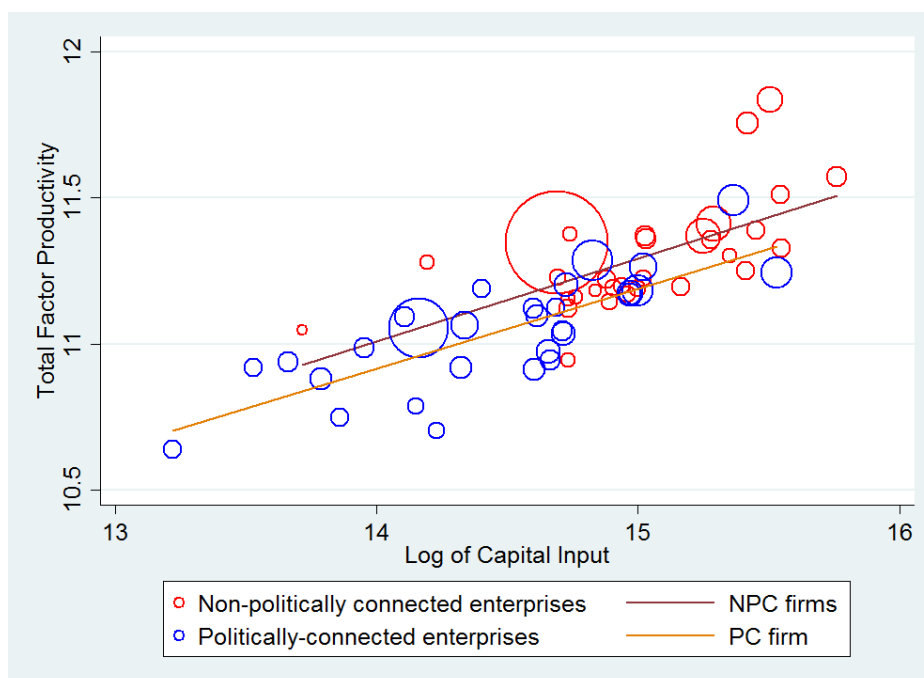


Figure 2: TFP comparison between Chinese Politically-connected firms and Other firms

Notes: This figure shows the difference in TFP and the log of capital input between SOEs and POEs in the 31 Chinese regions between year 1990 to 2016. X axis is the log value of the total capital input to the firms, Y axis is the TFP of the firms. The blue circles are the political connected firms (defined as the politicians board members/total board members > 10%) in the 31 Chinese regions, the red circles represent the Non-politically connected firms in the corresponding regions. Each circle size demonstrates the average total assets value of the two sectors in these regions. Data used to estimate firm's TFP in a Olley-Pakes method come from DESSET, China Industrial Enterprise Database.

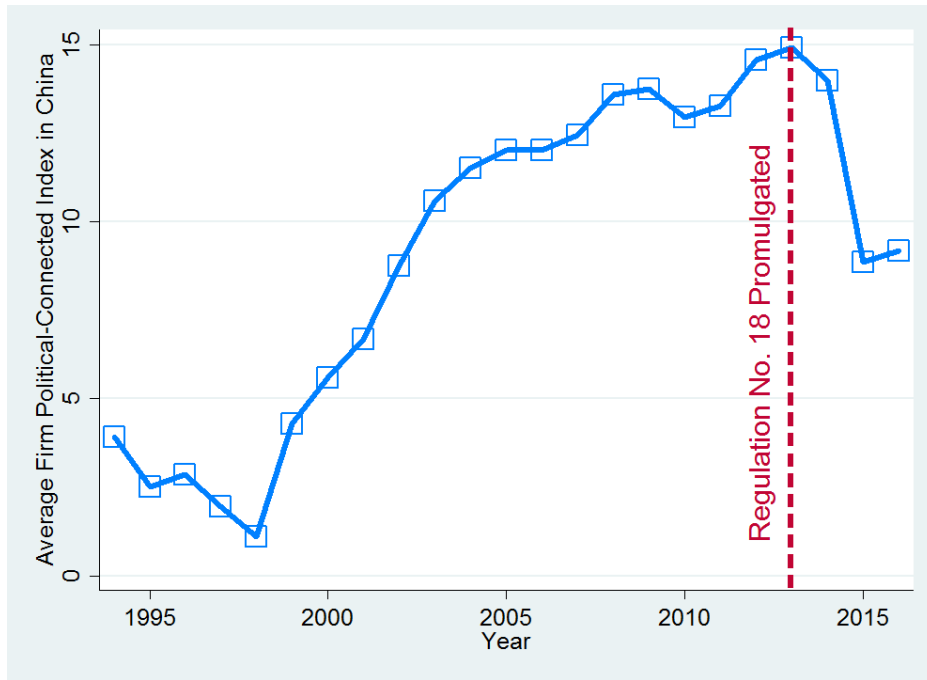


Figure 3: The Political Connected Level of Firms in China, 1994 -2015

Notes: This figure depicts the political connection level changes in Chinese listing firms from 1994 to 2016. The Y axis demonstrate the average level of political connections for all listing firms in a yearly frequency. The red line demonstrate the regulation enactment time, The political connection level of firms is measured by the proportion of firm executives with government official background. Data to construct the political connection level of firms is collected from WIND database and CSMAR Executive Personal Profiles database.

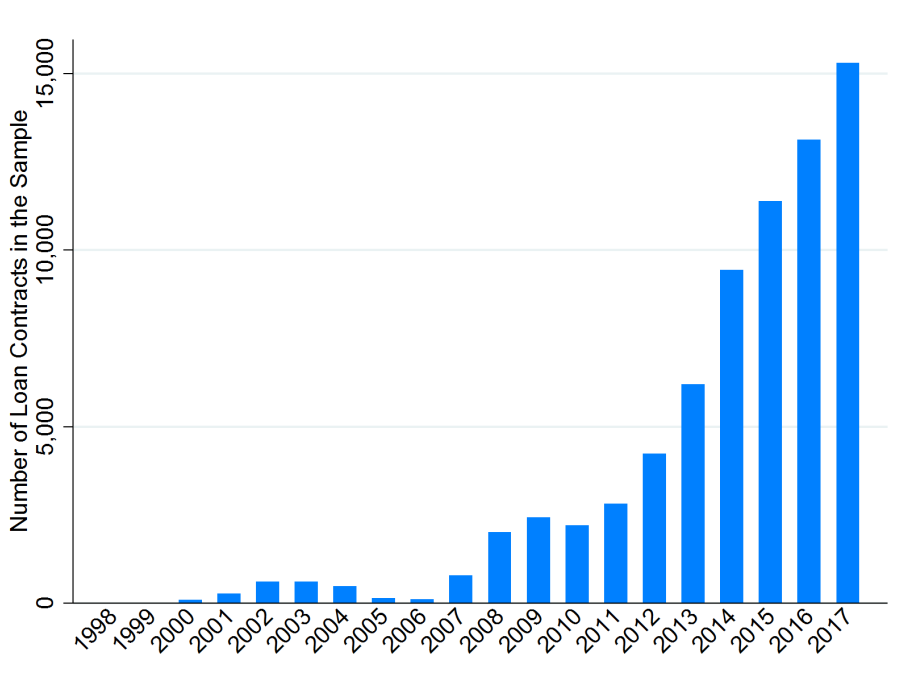


Figure 4: The Loan-contracts Numbers Record in the CBRC Database, 1998 -2017

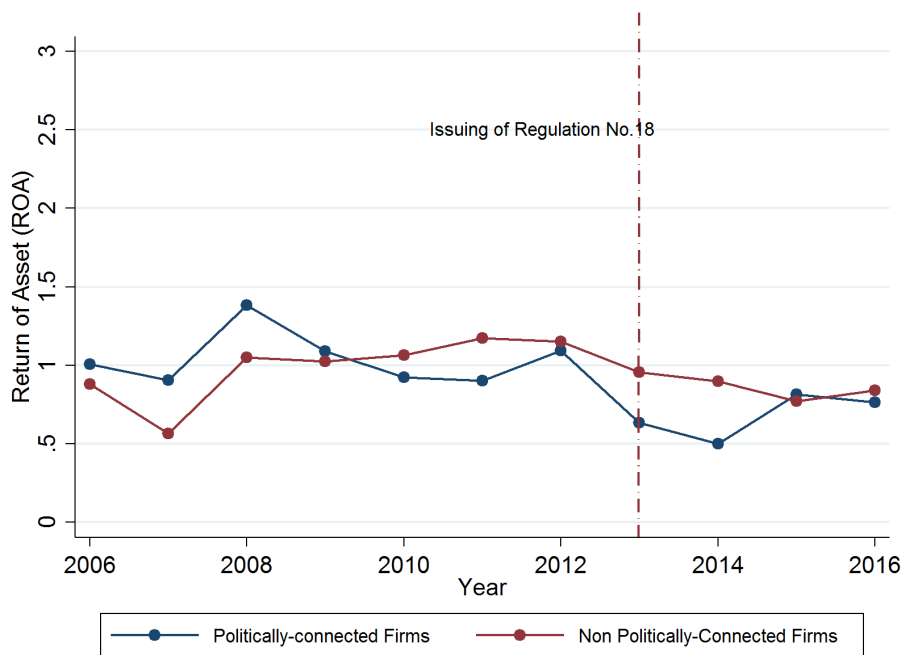


Figure 5: The ROA Change Tendency: Politically-connected VS Non politically-connected Firms

Notes: This figure depicts the Return of Asset ratio time-series change tendency of politically connected and non politically-connected firms prior and post the reform. The blue line is for the politically connected firms and the red line is for non politically connected firms. The dash line indicates the regulation No. 18's enacting time. The ROA data is collected from the WIND database

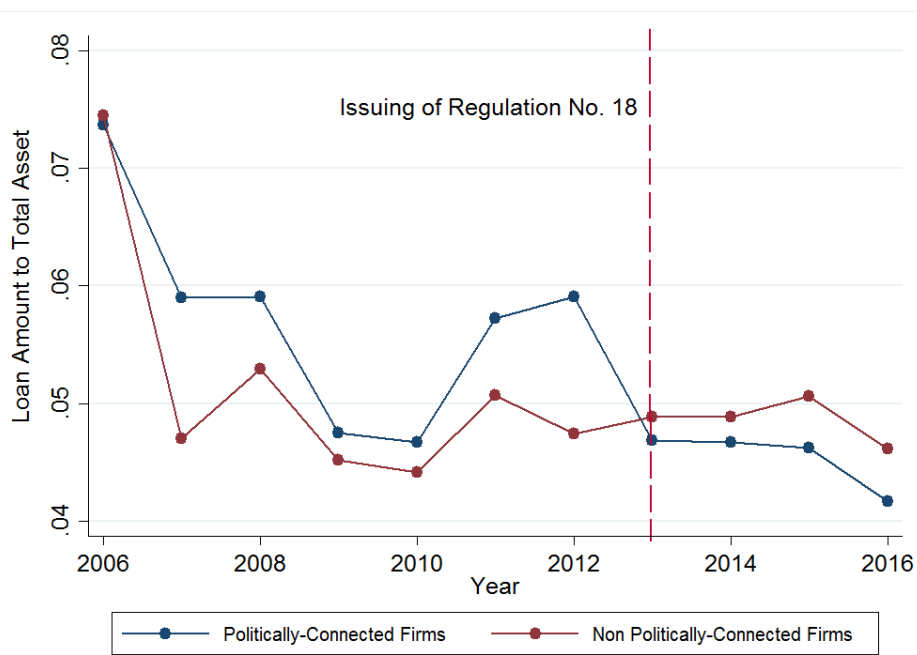


Figure 6: The parallel trends test - Difference-in-Difference model

Notes: This figure depicts the parallel trend test for the Difference-in-Difference model. X axis is the year, and Y axis is the dependent variable in the Difference-in-Difference estimation. The blue line is for the politically connected firms and the red line is for non politically connected firms, and the dash line indicates the regulation No. 18's enacting time.

Table 1: Summary Statistics of Variables

Variables	Other firms			Politically firms		
	No.	Mean	Std.	No.	Mean	Std.
Loan/TA	44,458	0.0491	0.1153	7,327	0.0502	0.1001
All loan/TA (year)	7,233	0.3038	0.4385	1,112	0.3300	0.4401
TFP	7,233	0.9812	5.3332	1,112	0.7843	4.7858
TobinsQ	7,233	1.8141	0.8730	1,112	1.7444	0.7936
Zscore	7,233	4.3197	3.7272	1,112	4.2979	3.9740
ROA	7,233	3.1631	4.1606	1,112	2.7839	4.3542
EPS	7,233	0.2789	0.3965	1,112	0.2526	0.4205
Firm Size	7,233	21.8544	1.1501	1,112	21.8959	1.1964
Firm Age	7,233	13.4373	5.4077	1,112	12.7995	5.2483

Notes: The table reports the summary statistics of main regression variables between politically-connected and non politically-connected firm samples. Loan/TA is the average loan amount on each loan-contract to firm's total asset ratio; All-loan/TA(year) is the yearly aggregate loan amount to each firm to total asset ratio; TFP is the firm's total factor productivity; Z score is the Altman's Z score which to measure the firm's default risk; EPS is the firm's earning per shares. All the firm-level characteristics data are collected from WIND database.

Table 2: The effect of firm's political connections on access to credit

<i>Panel A</i>	Loan/TA	Loan/TA	Loan/TA	Loan/TA
Politically-connected firms	0.0040*	0.0042*	0.0035*	0.0036*
	[0.0020]	[0.0021]	[0.0019]	[0.0018]
Firm total factor productivity	-0.0150	-0.0139	-0.0141	-0.0025
	[0.0235]	[0.0234]	[0.0237]	[0.0160]
<i>Panel B</i>	Loan/TA	Loan/TA	Loan/TA	Loan/TA
Politically-connected firms	0.0049**	0.0049**	0.0047**	0.0046**
	[0.0017]	[0.0020]	[0.0018]	[0.0018]
Firm total factor productivity	-0.0190	-0.0124	-0.0120	-0.0016
	[-0.0126]	[0.0134]	[0.0139]	[0.0157]
Politically-connected firms × Firm total factor productivity	-0.0201*	-0.0153*	-0.0207*	-0.0077*
	[-0.0093]	[-0.0098]	[-0.0092]	[-0.0094]
Firm Control Variables	yes	yes	yes	yes
Year Fixed Effect	Y	Y	Y	Y
Location Fixed Effect		Y		
Industry Fixed Effect			Y	
Firm fixed Effect				Y
Observations	51,785	51,785	51,785	51,785
R-squared	0.0213	0.0248	0.0229	0.2319
Adjusted R-squared	0.0206	0.0233	0.0217	0.1885

Notes: The table reports the estimation results of the coefficients in equation (2) in the text. The dependent variable is loan amount to firm's total asset ratio for each loan contract. The independent variable is the firm's political connection indicator (dummy variable, equal to 1 if the firm is politically-connected); the firm's total factor productivity (TFP), which construct by using Olly-Pakes approach and the interaction term between the firm's political connections and TFP. The firm characteristics has been controlled in this regression includes the firm's net sales growth, Tobin's Q ratio, return of asset (ROA), financial distressed Z score, firm's age, firm's size and earning per share. All the firm-level data comes from WIND database *t* statistics are reported in brackets. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3: Firm political connections and access to credit - DID

	Loan/TA	Loan/TA	Loan/TA	Loan/TA
Politically-connected firm	0.0030 [0.0021]	0.0026 [0.0022]	0.0022 [0.0019]	
Post(year \geq 2013)	-0.0652*** [0.0030]	0.0046*** [0.0014]	0.0025 [0.0015]	0.0008 [0.0021]
Politically-connected firms \times Post	-0.0065** [0.0023]	-0.0063** [0.0026]	-0.0052** [0.0022]	-0.0041** [0.0019]
Firm total factor productivity	-0.0193* [0.0136]	-0.0184* [0.0134]	-0.0190* [0.0138]	-0.0071 [0.0045]
Firm total factor productivity \times Post	0.0051 [0.0035]	0.0045 [0.0037]	0.0047 [0.0040]	0.0059 [0.0041]
Firm Control Variables	yes	yes	yes	yes
Year Fixed Effects	Y	Y	Y	Y
location Fixed Effects		Y		
Industry Fixed Effects			Y	
Firm Fixed Effect				Y
Observations	51,785	51,785	51,785	51,785
R-squared	0.0301	0.0485	0.0425	0.2509
Adjusted R-squared	0.0295	0.0403	0.0374	0.2204

Notes: The table reports the Difference-in-Difference estimation results. The dependent variable is the loan amount to firm's total asset ratio for each loan contract. Politically-connected firm is a dummy indicator which equal to 1 if the firm is defined as politically connected. Post is the time dummy of the reform, which is equal to 1 for the years after 2013. The firm characteristics has been controlled in this regression includes the firm's net sales growth, Tobin's Q ratio, return of asset (ROA), financial distressed Z score, firm's age, firm's size and earning per share. All the firm-level data comes from WIND database *t* statistics are reported in brackets. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 4: The bank lending bias and the finance-growth nexus

	GDP growth	GDP growth	GDP growth
Regional Financial Development Index (FIR)	-0.1233***	-0.1585***	0.0644
Post (year \geq 2013)	[0.0292]	[0.0302]	[0.0486]
FIR \times Post		-0.5566***	-0.1755
		[0.1728]	[0.2092]
Regional Politically-connected lending bias index (PCindex) \times Post		0.1377***	0.0452
PClending index \times FIR		[0.0319]	[0.0508]
FIR \times Post \times PClending index			-0.1887***
			[0.0731]
			-0.0860***
			[0.0159]
			0.0461**
			[0.0251]
Regional Control Variables	yes	yes	yes
Year Fixed Effect	Y	Y	Y
Region Fixed Effect	Y	Y	Y
Observations	559	559	559
R-squared	0.7368	0.7374	0.7402
Adjusted R-squared	0.7354	0.7359	0.7387

Notes: The table reports the estimation result of the cross-regional analysis. As table 3, *Post* is the time dummy of the reform, which is equal to 1 for the years after 2013. The regional control variables include in the regression are: regional government expenditures, regional openness, population and CPI index. All the region-level data are collected from the WIND database, the *t* statistics are reported in brackets. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 5: The Rajan-Zingales Approach

	Industry Growth	Industry Growth	Industry Growth
PClending Index	-0.0005 [-0.2218]		-0.0015 [-0.2618]
External finance dependence	0.1472 [1.5889]	-0.3661* [-1.7712]	-0.2627 [-0.7522]
Financial development index		0.0115 [0.4032]	0.0001 [0.0013]
(PClending Index × External finance dependence)	-0.0268** [-2.0622]		0.0012 [0.0199]
(Financial development index × External finance dependence)		0.2618* [1.8572]	0.2672* [1.9300]
(Financial development index × PClending Index)			0.0011 [0.2135]
(Financial development index × External finance dependence × PClending Index)			-0.0218** [-2.4082]
Regional control variables	yes	yes	yes
Year Fixed Effect	Y	Y	Y
Regional Fixed Effect	Y	Y	Y
Industry Fixed Effect	Y	Y	Y
Observations	5809	5809	5809
Adjusted R-squared	0.5523	0.5629	0.5834

Notes: The table reports the estimation results of the Rajan-Zingales approach. The dependent variable is the industry growth rate, expressed as the average annual real growth rate of value added in industry s in region j over the period 1990-2016. *External finance dependence* is the industrial external financing dependence index constructed by following the Rajan-Zingales(1998) method. Regional control variables include in the regression are: regional government expenditures, regional openness, population and CPI index. The t statistics are reported in brackets. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 6: Credit lending bias - Loans issued from SOE banks VS from POE banks

	Loan/TA	Loan/TA	Loan/TA	Loan/TA
Firm Political Connections	0.0043	0.0042	0.0033	
	[0.0026]	[0.0027]	[0.0027]	
Post(year \geq 2013)	-0.0904***	-0.0984***	-0.0935***	-0.1042***
	[0.0031]	[0.0046]	[0.0033]	[0.0102]
Firm Political Connections \times Post	-0.0074**	-0.0074**	-0.0061*	0.0006
	[0.0029]	[0.0031]	[0.0029]	[0.0033]
Banks' stateownership percentage	0.0002**	0.0002**	0.0002**	0.0002*
	[0.0001]	[0.0001]	[0.0001]	[0.0001]
Firm Political Connections \times Banks' stateownership percentage	-0.0001	-0.0001	-0.0001	-0.0001
	[0.0001]	[0.0001]	[0.0001]	[0.0001]
Banks' stateownership percentage \times Post	0.0001	0.0001	0.0001	-0.0001
	[0.0001]	[0.0001]	[0.0001]	[0.0001]
Firm Political Connections \times Post \times Banks' stateownership percentage	-0.0004*	-0.0004*	-0.0004*	-0.0002*
	[0.0002]	[0.0002]	[0.0002]	[0.0001]
Firm Control Variables	yes	yes	yes	yes
Year Fixed Effects	Y	Y	Y	Y
location Fixed Effects		Y		
Industry Fixed Effects			Y	
Firm Fixed Effect				Y
Observations	28409	28409	28409	28409
Adjusted R-squared	0.0231	0.0257	0.0240	0.2159

Notes: The table checks if the bank lendings towards state-owned but low productive firms comes from the supply side. *Banks' stateownership percentage* is the loan issued bank's state-ownership, *t* statistics are reported in brackets. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 7: Regional Omitted Variables Patterns Check

	GDP growth	GDP growth	GDP growth	GDP growth
Financial Development Index (FIR)	0.0686 [0.1517]	-0.039 [0.2012]	-0.1878 [0.2580]	0.1932 [0.2649]
FIR× PClending Index	-0.0404** [0.0171]			
Population	-1.1881** [0.4918]			
FIR×Population	-0.0154 [0.0286]			
FDI ratio	1.5104 [0.9637]			
FIR×FDI ratio	0.1851 [0.4996]			
Government Expenditures	8.7608*** [1.2475]			
FIR×Government Expenditures	-0.5556 [0.4328]			
Year Fixed Effect	Y	Y	Y	Y
Region Fixed Effect	Y	Y	Y	Y
Observations	559	559	559	559
Adjusted R-squared	0.6785	0.7012	0.6912	0.7759

Notes: The table reports the robustness check of the potential threat from regional omitted variable bias. The omitted variables check in the table include regional population, FDI ratio and government expenditures. Standard errors are clustered by industry and year. *t* statistics are reported in brackets. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

APPENDIX A
A SUMMARY OF THE FINANCE-GROWTH NEXUS IN A CROSS-COUNTRY STUDY

Panel A: All countries included in a cross-countries comparison sample - 79 countries, from 1980 - 2016

Albania	Denmark	Jamaica	Philippines	United.Kingdom
Algeria	Ecuador	Japan	Poland	United.States
Argentina	Egypt	Jordan	Portugal	Uruguay
Australia	El Salvador	Kenya	Romania	Vanuatu
Austria	Estonia	Korea.,Rep	Russianna Federation	Venezuela, RB
Azerbaijan	Ethiopia	Madagascar	Senegal	Vietnam
Bangladesh	Finland	Malaysia	Singapore	Zambia
Belarus	France	Mexico	South.Africa	
Belgium	Germany	Morocco	Spain	
Bolivia	Ghana	Nepal	Sri Lanka	
Brazil	Greece	Netherlands	Sweden	
Bulgaria	Guatemala	New.Zealand	Switzerland	
Cameroon	Hungary	Nicaragua	Thailand	
Canada	India	Nigeria	Tunisia	
Chile	Indonesia	Norway	Turkey	
China	Ireland	Pakistan	Uganda	
Colombia	Israel	Paraguay	Ukraine	
Costa.Rica	Italy	Peru	United Arab Emirates	

Panel B: Countries demonstrate negative Finance - Growth paths - 24 countries

Algeria	Chile	Greece	Nigeria	Sri Lanka
Argentina	Ecuador	Madagascar	Philippines	Turkey
Brazil	Egypt	Malaysia	Portugal	Uganda
Cameroon	Ethiopia	Mexico	Romania	Uruguay
China	Ghana	Nepal	Senegal	

APPENDIX B
DESCRIPTION OF VARIABLES FOR THE FINANCE - GROWTH PATH CROSS-COUNTRY STUDY IN APPENDIX A

Financial Development

LLY	Liquid liabilities of the financial system divided by GDP, a measure of the size of financial system.
BANK	Total banking assets to GDP ratio, a measure of the size of banking sector.
PRIVATE	Credit to private enterprises divided by GDP, which measures the size of credit provided to private enterprises by financial institutions.
STATE	Credit to state-owned enterprises divided by GDP, which measures the size of credit provided to state-owned sectors by financial institutions.

Control Variables

LYO	Log of the initial income level at the beginning year of each 5-years-interval. i.e. the log of real per capital GDP for 1960 in the 1960-1965 regression, for 1965 in the 1965 - 1970 regression, and so on.
LSEC	Log of the initial human capital in the forms of educational attainment (Male upper-level schooling years) at the beginning year of each 5-years-interval.
LFIN	Log of the initial financial development level at the beginning year of each 5-years-interval, in the forms of domestic credit provide to private enterprises divided by GDP.
GOV	The ratio of government consumption to GDP.
INV	The ratio of real investment to real GDP, which measures the saving rate in the neoclassical growth model.
Openness	The ratio of exports plus imports to GDP, a measure of the extent of international openness.
FDI	Foreign Direct Investment to GDP ratio, a measure of credit inflows that provided by foreign countries.