WHICH COMPANIES FIND IT EASIER TO OBTAIN BANK LOANS? EVIDENCE FROM CHINA

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Abstract

The study investigates the determinants of bank loan financing of Chinese listed companies from 1996 to 2009. The empirical results suggest that the channels through which companies obtain bank loans are different. Companies controlled by the state can more easily obtain loans from state-owned commercial banks and policy banks, while privately controlled companies have significantly larger access to loans from foreign banks. The empirical results also show that political connectedness and institutional development are the significant determinants of the bank loan financing of private companies. If companies locate in an area with higher level of institutional development, the proportion of their loans from state-owned banks is smaller than that of companies locate in areas with lower level of institutional development.

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1 Introduction

In developing countries, the supply of financing resources is usually limited to meeting demand (Bai et al., 2006; Dinç, 2005). Bank loans have been the primary source of corporate debt in China. China's financial system is dominated by a large banking sector controlled mainly by the four largest state-owned banks—the 'Big Four': the Bank of China, the Industrial and Commercial Bank of China, the China Construction Bank and the Agricultural Bank of China. These four banks control about three-quarters of China's banking industry assets. The capital raised from the stock market has been growing rapidly since the inception of the Shanghai Stock Exchange and the Shenzhen Stock Exchange in the 1990s. However, the scale and importance of finance from the stock exchanges are still not comparable with other channels of financing, particularly from the banking sector, for the entire economy (Allen et al., 2005; Berger et al., 2009).

In a predominantly state-owned bank lending environment (Firth et al., 2008), companies controlled by the government have the privilege of being able to acquire a bank loan from state-owned commercial banks. Cull and Xu (2000; 2003) investigate the efficiency of credit allocation by state banks. They find that while banks imposed tougher budget constraints on state-owned enterprises (SOEs) than did bureaucrats, those constraints softened as the 1990s progressed. Brandt and Li (2003) use the bank loan data of Chinese corporations to examine empirically 'bank discrimination problems'—a reference to state-owned banks that discriminated against private companies for non-profit reasons. Berger et al. (2009) test the efficiency of Chinese banks and categorise them by ownership type.[9] Their results clearly suggest that foreign banks are the most efficient, followed by private domestic banks and non-Big Four majority state-owned institutions; the Big Four are measured as being the least profit-efficient.

Aside from bank discrimination and dispersive efficiency across different types of banks, privately controlled enterprises' banking finance is another interesting phenomenon in China. On the one hand, with insufficient connections to government, most privately controlled companies depend on informal financing channels, such as private credit agencies, which are the most important non-banking finance channel during privately controlled companies' establishment and growth periods (Allen et al, 2005; Brandt and Li, 2003; Firth et al., 2009). On the other

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[9]They define 'majority state-owned banks' as those banks whose state ownership is greater than 50 per cent of total ownership; 'majority private domestic banks' as those banks whose private domestic ownership is greater than 50 per cent of total ownership; 'majority foreign banks' as those banks whose foreign ownership is greater than 50 per cent of total ownership; and 'no majority ownership banks' as those banks without any majority ownership.

hand, a lot of privately controlled enterprises hold certain connectedness with the state, which provides a helping hand in their access of loan from state-owned banks. Privately controlled enterprises can be partially state owned in at least two ways. A former SOE can become a privately controlled company, for example through asset leasing, a merger, re-organisation, the introduction of foreign direct investment, bankruptcy recombination or management buy-out, but can still retain a certain level of state ownership. Secondly, privately controlled companies can become state owned by building a political link with the state (Firth et al., 2009) through inviting government investments.

This study contributes to the research in the following ways. First, after comparing the bank loan resources and the amounts and proportions of bank loans between SOEs and privately controlled companies, the empirical results provide evidence to support Brandt and Li's (2003) argument regarding bank discrimination. While Berger et al. (2009) rank the efficiency of different types of banks from the bank's perspective, this empirical study investigates the allocation of bank loans from the debtor's perspective. Results show that companies controlled by the state could easily obtain loans from state-owned commercial banks and policy banks, whereas privately controlled companies source significant larger bank loans from foreign banks.

Second, while much of the literature suggests that political connections play a role in privately controlled companies' access of bank financing, very little research has explored the direct relationship between political connection and detailed aspects of bank loan characteristics in China, such as which bank the loan is from and the amount/proportion of the loan that is obtained from the various types of bank. We investigate the influence of political connectedness and institutional development across provinces on the access to bank loans of China's listed privately controlled companies. The empirical results show that, in China, political connectedness and institutional development across areas are important determinants of privately controlled companies' access to bank loans from Big Four. However, the effect of political connectedness on loans from state-owned banks is found to be influenced by institutional development across areas.

This study also focuses on listed companies. Chinese listed companies represent the most successful sector of the country's economy in terms of corporate governance and they follow the fundamental rules of the market economy (Huang and Song, 2006). Being listed is also an important method through which Chinese companies can become corporatised and privatised. Moreover, local government officers in China often view the listing of companies as an indication of political achievement in an area. Therefore, this study considers that investigation of the bank loan issue and bank–listed company relationships may be a good way of

exploring the workings of government involvement in corporate financing. Further, it is considered that listed companies presented the best and largest sample in terms of offering reliable ownership data, especially data on the type of ownership control (Amit et al., 2009), which is crucial to this research.

The remainder of this article is organised as follows. Section 2 reviews the institutional background of the Chinese capital market, particularly the evolution of the Chinese banking sector. Section 3 proposes the key determinants of bank loans and corresponding predictions, based on a review of the literature. Section 4 describes the data and variables and summarises the relevant statistics. Section 5 presents and interprets the empirical results of the study and according to a univariate comparison and multi-variable regressions. The article is concluded in Section 6.

2 Institutional Background of the Chinese Capital Market

Since the implementation of China's Reform and Opening Up Policy from 1978, the Chinese financial market has been transforming from a planned to a market-oriented system. There are two dimensions to this transformation: evolution of the banking sector and the emergence of stock markets.

Evolution of the Banking Sector

High economic growth in developing nations cannot continue indefinitely without significant banking system and legal/financial infrastructure reform (Berger et al., 2009). Four phases of change can be seen in the Chinese banking industry. The first occurred before the mid-1980s, when banks were administered by the Ministry of Finance to ensure that national production plans would be fulfilled. In 1983, the State Council designated the People's Bank of China as the central bank. Around this time, the Big Four began to expand the scope of their services and were allowed to compete for depositors and lending services. However, the incentive for banks to compete with each other was quite limited.

The second phase was from the mid-1980s to the mid-1990s. From 1987 to 1995, a number of regional banks opened, particularly smaller national banks (e.g. Everbright Bank, Hua Xia Bank and Min Sheng Bank) as well as several new types of non-bank financial intermediaries, such as urban credit cooperatives, trust and investment companies, finance companies associated with enterprise groups, financial leasing companies, securities companies and credit-rating companies. The 1995 Law of the People's Republic of China on Commercial Banks officially termed the major state-owned banks 'commercial banks' and directed them towards commercial business based on market principles instead of policy lending.

The third phase occurred after the mid-1990s and extended until China's entry into the World Trade Organization (WTO) in December 2001. In 1998, the People's Bank of China permitted eight foreign licensee banks to obtain local currency funding. In 1999, the foreign banks were allowed to conduct local currency business in neighbouring regions. By the end of that year, 25 foreign banks had received permission to conduct local currency business with Chinese enterprises. The entrance of foreign ownership into the banking industry led to increased competition between financial enterprises.

The fourth phase began in 2003 with the establishment of the China Banking Regulatory Commission (CBRC). One of the main responsibilities of the CBRC is to monitor the lending behaviour of commercial banks. With the launch of the Commercial Bank's Accounting System for Financial Enterprises and Regulations on Information Disclosure as well as the establishment of the CBRC, information disclosure systems for banking became increasingly mature. In 2004, the National Congress approved a constitutional amendment to protect private property rights by granting 'private property' a legal status equal to 'public property' (Firth et al., 2009). The four major banks thus began to compete for depositors and lending services and expanded their range of services to include private property. In late 2006, China began opening its banking sector to foreign competition, as mandated by the WTO. In the same year, the CBRC obliged all urban commercial banks to disclose their annual reports.

Despite the reforms, the development of the banking industry remains unbalanced. For example, China's banks continue to be plagued by substantial numbers of non-performing loans (Firth et al., 2008). Table 1 summarises the ratios of banks' non-performing loans to total loans from 2000 to 2010.

Table 1. Summary of banks' year-end non-performing loans from 2000 to 2010

Bank name	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Policy banks											
China Development Bank	8.78	3.96	1.78	1.34	1.21	0.87	0.72	0.59	0.96	0.94	0.68
Export-Import Bank of China			5.01	3.7	5.28	4.91	3.47	2.45	1.52		
Agricultural Development Bank of China					15.9	10.2	7.65	6.29	3.8	3.61	2.79
Big Four (state-owned commercial banks)											
Bank of China	28.78	27.51	22.49	16.29	5.12	4.62	4.04	3.12	2.65	1.52	1.1
China Construction Bank	20.27	19.35	15.17	9.12	3.92	3.84	3.29	2.6	2.21	1.5	1.14
Industrial and Commercial Bank of China	34.43	29.78	25.69	21.24	18.99	4.69	3.79	2.74	2.29	1.54	1.08
Agricultural Bank of China			30.07	30.66	26.73	26.17	23.43	23.5	4.32	2.91	2.03
Joint stock commercial banks, urban commercial banks etc.											
Industrial Bank	7.37	4.14	3.13	2.49	2.5	2.33	1.53	1.15	0.83	0.54	0.42
China Guangfa Bank							5.8	4	2.85	2.4	1.58
Bank of Communications	35.15	23.58	19.65	13.31	2.91	2.37	2.01	2.06	1.92	1.36	1.12
Shanghai Pudong Development Bank	10.7	7.57	3.38	1.92	2.45	1.97	1.83	1.46	1.21	0.8	0.51
Shenzhen Development Bank	21.76	14.84	10.29	8.49	11.41	9.33	7.98	5.62	0.68	0.68	0.58
China Minsheng Banking	4.39	2.8	2.04	1.29	1.31	1.28	1.23	1.22	1.2	0.84	0.69
China Merchants Bank	13.62	10.25	5.99	3.15	2.87	2.58	2.12	1.54	1.11	0.82	0.68
Citic Industrial Bank			10.35	8.12	5.96	4.11	1.48	1.36	0.95	0.67	
China Everbright Bank			13.13	9.34	9.57	7.58	4.49	2	1.25	0.75	
Huaxia Bank	7.18	7.05	5.97	4.23	3.96	3.04	2.73	2.25	1.82	1.5	1.18
Shanghai Rural Commercial Bank						4.07	2.91	2.34	2.29	1.88	1.35
Chongqing Commercial Bank					20.03	4.93	81.06	1.06	0.77	0.47	0.36
Ningbo Yinzhou Rural Cooperative Bank						6.11	4.05	2.16	1.93	1.51	0.56
Beijing City Commercial Bank				6.06	4.91	4.22	2.06	1.55	1.02	0.69	
Bank of Shanghai	8.27	6.77	8.75	5.97	4.99	3.92	3.48	2.41	2.23	1.59	1.12

Note: Data are organised according to raw data from the CSMAR database.

Table 1 shows two trends in the non-performing loan ratios of China's banks. First, the non-performing loan ratios of all banks have reduced substantially over the period 2000 to 2010. For

example, the non-performing loan ratio of the Industrial and Commercial Bank of China had decreased from 34.43 per cent in 2000 to 1.08 per cent by the end of 2010. With the exponential expansion of China's banking industry in recent decades, the large decline in non-performing loans may have arisen from a real increase in their performance, but it is noted that government assistance, particularly in the form of the injection of assets into the Big Four banks, has probably also played an important role.

Second, the most recent (2010) non-performing loan ratio data for policy and Big Four banks were still higher than those of most of the joint stock commercial banks and urban commercial banks. For example, in 2010, the non-performing loan ratio of the Agricultural Development Bank of China and Agricultural Bank of China was 2.79 per cent and 2.03 per cent, respectively, while the non-performing loan ratios of most joint stock commercial banks were less than 1 per cent. However, as Firth et al. (2008) have predicated, the unofficial ratios of non-performing loans of Big Four and policy banks might be higher than the official ratios indicate because state-owned banks have an additional incentive to bailout poorly performing listed companies.

Emergence of the Stock Market

The Chinese securities market emerged with the establishment of the Shanghai Stock Exchange in 1990 and the Shenzhen Stock Exchange in 1991. During the first few years following this, most listed companies were SOEs; subsequently, many non-state-owned companies were also listed on the market. China's companies are categorised according to their dominant ownership—for example, a 'state-owned company' is one that is ultimately controlled by the state and a 'privately controlled company' is ultimately controlled and run by civilians, rather than by the central or local government.

One characteristic of the present Chinese market is the rapidly growing number of privately controlled companies. Listed companies from non-government background enterprises began to appear on the Shenzhen Stock Exchange from 1992. An average of only six privately controlled companies acquired listing qualifications each year between 1992 and 1997; however, after 1998, the listing of privately controlled companies accelerated. The proportion of privately controlled companies listed through initial public offerings was 6.97 per cent by the end of 2003 and this had increased to 15.38 per cent by the end of 2005. Until 2007, the total number of privately controlled listed companies was 410, representing 26.53 per cent of the 1,545 companies on the Shanghai and Shenzhen stock exchanges. These data provide evidence that privately controlled companies may represent the future trend and form of public companies in China in the future as economic reform continues.

3 Literature Review and Development of Hypotheses

Most of the literature to date has focused on bank loan decisions in developed countries, but the discussion of this issue has been emerging in developing countries over the past decade. In this section, we report our review of the main determinants of company bank loan financing in the context of China, where most banks are state-owned. Based on the review, we develop predictions of listed companies' access to bank loans.

Types of Ownership Control

One feature of Chinese listed companies is that ownership is highly concentrated. Different types of ownership mean that there are correspondingly different company objectives and motivations, which influence the way that companies exercise their control rights over their financial decisions (Chen et al., 2009). In a country in which state-owned banks dominate the banking sector, one prominent feature is that financing resources are mostly controlled by the government and mainly reserved for SOEs. This has resulted in an environment in which private enterprises are regarded with scepticism and mistrust and are discriminated against (Brandt and Li, 2003); as such, financing has become a critical problem for private-sector development. With the support of state-owned banks, SOEs often obtain larger access to bank loans (Firth et al., 2009; Zheng and Zhu, 2009), while private-sector development has been hampered by limited access to external finance (Bai et al., 2006).

Compared to state-owned banks, foreign banks do not have a lot of policy burden in their operation. They tend to lend to firms with better performance. Because of the tight restriction of getting listed on stock exchanges, the privately controlled companies must perform well to acquire the listing permission. Therefore, this research proposes that privately controlled firms can attain good working relationships with foreign banks and accordingly get larger loan from them. Thus, based on the assumption that the type of ownership control influences companies' access to bank loans, we propose the following hypothesis:

> *H1: SOEs have greater access to loans from state-owned banks than do privately controlled companies; privately controlled companies borrow more from foreign banks.*

Political Connectedness of Privately Controlled Companies

A considerable amount of research on political connection in enterprises has emerged in recent years, beginning with Fisman's (2001) and Faccio's (2006) work. Many emerging economies lack strong property rights protection and face an underdeveloped institutional environment, which forces companies to seek political connections in order to grow. As suggested by Faccio, Masulis and McConnell(2006), political connections may have a favourable effect on bank lending decisions. Dinç (2005) provided bank-level empirical evidence of political influence on banks across emerging countries through multinational research. The results suggest that the role of banks in financial systems cannot be fully understood without considering the political environment in which these financial systems operate.

The Chinese economy is dominated by state ownership and there is ongoing ideological discrimination against private ownership in China. The best way to reduce ideological discrimination is through political connectedness because these help private companies access external financing resources such as bank loans by providing government guarantees (Faccio, 2006; Faccio et al., 2006). As access to bank loans is difficult and the public bond market is underdeveloped, finance always represents a developmental bottleneck to companies that have limited connectedness with the government. Some empirical research also reveals that without enough government connectedness, most privately controlled companies depend on informal financing channels, such as private credit agencies, during their establishment and growth periods (Allen et al., 2005; Brandt and Li, 2003; Firth et al., 2009). As such the following hypothesis is proposed:

> H2: Privately controlled companies with more political connectedness obtain greater access to loans from state-owned banks than do those with less political connectedness.

Institutional Development across Areas

An economy cannot properly develop without a competent institutional environment. The academic literature has long been interested in corporate finance issues influenced by institutional development. Qian and Strahan (2007), for example, conclude in their study that legal and institutional differences shape the ownership and terms of bank loans across the world. One of the distinct characteristics of China's economy is the geographic variation in its institutional environment. Generally better regional institutional efficiency is associated with a better investment climate and higher productivity. Compared with developed countries with broad territories, such as the United States, Canada and Australia, China provides a good research laboratory for regional institutional efficiency since it has vast heterogeneity in institutional development across provinces (Amit et al., 2009).

In line with the survey data on the investment climate in China conducted in 2003, Cull and Xu (2005) find that institutional developments, such as the extent of government intervention, are significant determinants of a company's access to external finance in the form of bank loans. Bai et al. (2006) see the lack of formal protection of private property as the key reason for the private sector's difficulty in accessing bank loans. By using manually collected ownership data from a sample of publicly listed companies in China, Amit et al. (2009) argue that family control may be an optimal reaction to institutional development across its various provinces. Li et al. (2009) use a sample of non-publicly traded Chinese companies to explore the role of ownership structure and institutional development in debt financing. They find that state ownership is positively associated with leverage and a company's access to long-term loans and that this is influenced by institutional development.

Bai et al. (2006) use a dataset from Chinese private enterprises to investigate the impact of political participation and philanthropic activities on access to bank loans. They conclude that institutional development influences the relationship between political participation and bank borrowing in Chinese companies. Further, Li et al. (2009) find that the effect of political connection on company performance is more important in regions with less developed markets and legal systems.

Thus, the following hypotheses are proposed:

> H3a: If companies are located in an area with more institutional development, the proportion of their loans from state-owned banks is smaller than that of companies located in areas with less institutional development.

> H3b: Across different provinces, the positive effect of political connectedness on loans from state-owned banks is reduced if there is concurrent institutional development.

Other Important Determinants

Company Performance

To control and guard against risk, creditor institutions usually use information on earnings to reduce information asymmetry between creditor and debtor. Banks motivated to maximise their profits will likely use better information such as analysis of financial statements and credit scores in their lending decisions. Li et al. (2009) find that, under the current banking reforms, China's banks have gradually begun to apply economic criteria to their lending decisions. Cull and

Xu (2000) demonstrate a link between bank loans and subsequent productivity, which suggests that banks are able to identify and lend to relatively productive enterprises. Additionally, according to the findings of Firth et al. (2009), Chinese banks extend loans to financially healthier and better-governed companies, which imply that they use commercial judgements in this segment of the market. However, all of these studies are from the perspective of the creditor and/or bank. In contrast, different findings are possible if research is conducted from the perspective of the debtor or company. For example, when the relationship between leverage and investment in Chinese listed companies is examined, Firth, et al. (2008) find that state-owned banks have an additional incentive to bailout poorly performing listed companies because a listed company that has experienced losses for two consecutive years may be de-listed if it cannot return to profitability. Thus, the relationship between company performance and bank loans remains unclear.

Managerial Ownership

Financing choice in alleviating agency conflict between manager and shareholder is well recognised in the literature. The contradictory issue mainly highlights the discretion of management who are expected to make financing decisions on behalf of shareholders that maximise value (Datta et al., 2005). To guard against this conflict of interest, management is usually offered stock ownership in the company to avoid the divergence of interests between managers and shareholders. A corporate board of directors has the power to make, or at least ratify, all important financial policies, so it is quite plausible that board members with appropriate stock ownership will have an incentive to effectively monitor and oversee important corporate decisions (Bhagat and Bolton, 2008). When the interests of shareholders and managers are better aligned, there is no real necessity to use a powerful tool such as a bank loan to monitor a manager's behaviour. As such, in the analysis of company loan characteristics, managerial ownership should be controlled for.

4 Sample and variables

Sample and data

All publicly traded Chinese companies on the Shanghai Stock Exchange and Shenzhen Stock Exchange were included in the sample. The raw data on bank loans were obtained from a sub-database of the China Stock Market and Accounting Research Database (CSMAR), the China Listed Firm's Bank Loans Research Database (GTA_CBL). The GTA_CBL database has collected relevant information on bank loans, such as interest, maturity and creditors, for listed companies since 1996. From

these raw data, information on each listed company's yearly bank loan was manually sorted and summarised. If the bank loan was in a foreign denomination, the amount of the foreign currency was converted into Chinese yuan using the renminbi exchange mid-rate[10] on the date that the loan was announced. If the foreign exchange rate on that date can not be found (usually because the date occurred on a weekend), the foreign exchange rate for the day before the announcement date was used.

All the raw data related to corporate finance and governance was extracted from CSMAR. These data were necessarily supplemented by annual report data obtained from the websites of the Shanghai and Shenzhen stock exchanges as well as from the China Centre for Economic Research database. Companies with 'ST' and 'PT'[11] status, companies in the financial and insurance industry, and companies with an incomplete dataset were excluded from the sample. Companies with observed outliers, such as leverage ratios greater than one or Tobin's Q ratios greater than 10, were also omitted. The final sample consists of an unbalanced panel dataset with 2,509 company-year observations over the sample period of 2002 to 2009.

Variables

Initially, this study investigated the value of each company's loans from different types of banks, such as Big Four, joint stock commercial, policy and foreign banks. The percentage of bank loans from each type of bank was also investigated. The type of ownership control is defined in terms of the nature of the ultimate controlling shareholder. If the ultimate controller is the state for the whole period of observation (from 2001 to 2008), the company is defined as an 'SOE'; if the controller is non-state owned (a natural or legal person belonging wholly to private owners) for the whole period of observation, this company was defined as a 'privately controlled enterprise'.

An interesting phenomenon in China is that some privately controlled companies have managed to retain a certain amount of state ownership (Firth et al., 2009). This study follows Firth et al. (2009), who use the percentage of state ownership, which is calculated as the shares held by the state divided by the total

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[10]The resource is from webpage of State Administration of Foreign Exchange: http://www.safe.gov.cn/ model_safe/tjsj/rmb_list.jsp?id=5&ID=110200000000000 000

[11] Chinese listed firms have been classified by the CSRC as 'special treatment' (ST) or 'particular transfer' (PT) firms to protect investor's benefits. If a listed firm has negative profits for two consecutive years, it will be designated an ST firm; if it continues to operate at a loss for a further year, it will be designated a PT firm. A PT firm will be delisted if it cannot become profitable again within another year (Bai, Liu& Song., 2002).

shares outstanding, to measure the level of political connectedness in privately controlled companies.

Data on the extent of institutional development across regions in China are obtained from the National Economic Research Institute's marketisation index (Fan et al., 2010). This index has been widely used by scholars to measure the development of regional institutions. This study, follows such researchers as Firth et al. (2009), Li et al. (2009), Bai et al. (2006) and Lin et al. (2010), in constructing the institutional profile from three dimensions—the marketisation index, government intervention and legal development across each province.[12] Government intervention is measured by the extent of economic resource allocation according to the market—less intervention was considered better. Legal development is measured by the development of intermediary organisations and the environment of the legal system; more development is considered better. The marketisation index is a combination of all the other institutional profiles and higher marketisation index scores suggest greater institutional development. The summarised definitions of institutional development are shown in Table 2.

This study investigates each company's industry type to control for the effect of industry. The definition of a 'protected industry' is according to the industry category of the China Securities Regulatory Commission (CSRC): if a company's industry is monopolistic; state protection industry; highly regulated industry, such as the electricity, telecommunications, petroleum, exploitation, agriculture, construction or civil engineering industries; or franchise industry, the value is set as '1'; otherwise it is '0'. Companies' return on assets (ROA), the operating earnings divided by the average book value of total assets, is considered to be the variable of profitability. Following Morck et al. (1988) and Cho (1998), this study defines 'managerial ownership' as the ownership stake of all board members. Some company-specific control variables, such as the 'leverage ratio', defined as total liabilities divided by total assets, and 'size', which is defined as a logarithm of total assets are also adopted.

Table 3 shows the characteristics and descriptive statistics for the sample. Panel A shows the sources of bank loans categorised according to bank type. Most of the companies could obtain loans from Big Four and joint stock commercial banks. Only 148 observations in the sample gained access to loans from policy banks and 43 observations gained loans from foreign banks. Regarding the loan amount, on average, the sample companies received 552 million yuan loans from Big Four banks and 1,846, 1,614 and

359 million yuan loans from joint stock commercial banks, policy banks and foreign banks, respectively. The mean value of the loan percentages from Big Four and joint stock commercial banks were 36 per cent and 59 per cent, respectively. However, only 4 per cent of loans were from policy banks and 0.7 per cent from foreign banks.

Panel B of Table 3 presents a summary of other company-specific variables. An average of 24 per cent of ownership was governmental, while 27 per cent of the listed companies in our sample were in protected industries. Managerial ownership was 0.025 per cent, on average, with a maximum value of 71.64 per cent, demonstrating that there is a wide variance of managerial ownership across Chinese companies.

5 Empirical Results

Univariate Test

First, the mean and median of company characteristic variables are compared to test whether there are any significant differences between SOEs and privately controlled companies. There are 1,698 observations controlled by the state and 811 out of 2,509 observations are privately controlled. The loan amounts from Big Four, joint stock commercial, policy and foreign banks as well as the proportions of loans from the different banks are shown in Table 4. The mean amount borrowed by SOEs from Big Four banks is four times more than that borrowed by privately controlled companies. SOEs also borrow significantly larger amounts from policy banks (133 million yuan on average) than privately controlled companies (15 million yuan on average), Further, privately controlled companies obtain six times more loans from foreign banks than SOEs. These results support Hypothesis 1, suggesting that SOEs have greater access to loans from state-owned banks than privately controlled companies, while the latter borrow more from foreign banks.

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[12] China has a centralised legal system in which corporate law and security regulations are the same across all provinces; however, the implementation and development of law companies are different.

Table 2. Definitions of institution and profitability variables

Variables	Measurement
	Institutional development
Marketisation	Summary of five categories of market development (marketisation) indexes: government and market, development of non-state sector, development of product market, banking sector marketisation and legal environment. The larger the marketisation index value, the better
Government intervention	The extent of economic resource allocation according to the market. The smaller the government intervention value, the better
Legal system	The development of intermediary organisations and the legal system environment. The larger the legal system value, the better

Note: The measurements of institutional development are from Fan et al. (2010).

Table 3. Sample characteristics and descriptive statistics

Panel A: Descriptive statistics of bank loan source					
	Observations	Minimum	Maximum	Mean	Median
		Loan amount: million yuan			
Loans from Big Four banks	1,228	3	255,208	552	115
Loans from joint stock commercial banks	1,816	1.5	2,580,700	1,846	115
Loans from policy banks	148	5	68,316	1,614	200
Loans from foreign banks	43	4	10,000	359	80

	Mean value of loan percentage		
Loans from Big Four banks	Loans from joint stock commercial banks	Loans from policy banks	Loans from foreign banks
0.3558	0.5917	0.0400	0.0074

Panel B: Descriptive statistics of other sample characteristics						
	Minimum	25%	50%	75%	Maximum	Mean	SD
State ownership (%)	0	0	17.90%	46.33%	84.95%	24.17%	24.81%
ProtectedIndustry		0	0	1		0.2742	0.4462
Market	0.6300	6.1100	7.6600	9.5500	11.7100	7.8119	2.2389
GOV	–16.4000	7.2500	8.1000	9.2900	13.4500	7.9116	2.4385
LAW	1	4.4133	6.4100	9.5833	16.6100	7.1199	3.4930
ROA	–0.2850	0.0104	0.0309	0.0549	0.3739	0.0191	0.1891
MANA (%)	0	0	0.01%	0.03%	71.64%	2.52%	11.82%
LEV	0.0091	0.4186	0.5452	0.6591	0.9740	0.5474	0.2615
Size	7.9328	9.0109	9.2959	9.6344	11.4921	9.3401	0.5103

Notes: 'ProtectedIndustry' refers to the dummy variable to measure if the industry is protected. According to the industry categories of the CSRC, an industry is protected if the company is monopolistic; state protected industry; or in a highly regulated industry, such as electricity, telecommunications, petroleum, exploitation, agriculture, construction, civil engineering. 'Market' refers to marketisation; 'GOV' refers to government intervention; 'LAW' refers to the level of legal system development. These profiles of institutional development are from Fan, Wang and Zhu (2010). 'ROA' refers to return on assets; 'LEV' refers to leverage ratio. 'MANA' refers to percentage of managerial ownership; 'SD' refers to standard deviation.

Table 4. Results of univariate test for bank loan sources for 2002 to 2009

	Mean comparison			Median comparison		
	SOEs (1,698 obs.)	Private (811 obs.)	t	SOEs (1,698 obs.)	Private (811obs.)	Z
Loan amount from Big Four banks (million yuan)	352	99	1.654*	0	0	1.826*
Loan amount from joint stock commercial banks (million yuan)	1,876	206	1.098	585	500	0.087
Loan amount from policy banks (million yuan)	133	15	2.494**	0	0	2.082**
Loan amount from foreign banks (million yuan)	2	14	–1.407	0	0	1.992**

Notes: ** and * indicate significance at the 5% and 10% level, respectively. T-value from the t-test of differences in means. Z-value from the Mann–Whitney U test of differences in medians.
'Private' refers to privately controlled companies; 'obs.' refers to observations.

Modelling Bank Loan Resources in Privately Controlled Companies

To investigate whether political connectedness in privately controlled companies aided them in obtaining loans from state-owned banks, we conduct multivariate analysis. We use companies' access to loans from Big Four banks as the repressor in a logistic model (Equation 1). The dependent variable 'Big_Four' was set as '1' if a specific company in a specific year had a loan from one of the Big Four banks, otherwise it was '0'.

$$
\begin{aligned}
&Big\_Four_{it} \\
&= \alpha + \beta_1 Political_{it} + \beta_2 Institutional_{it} + \beta_3 Political_{it} * Institution_{it} + \beta_4 \operatorname{P}erformance_{it-1} \\
&+ \beta_5 ManaOwnership_{it-1} + \beta_6 Leverage_{it} + \beta_7 Size_{it-1} + \beta_8 \operatorname{Pr}otectedIndu_{it} \\
&+ \gamma'(Industrydummies_i) + \theta'(Yeardummies_i) + \varepsilon_{it}
\end{aligned}
\tag{1}
$$

In Equation 1 'Political' (political connectedness) uses the proxy of the percentage of state ownership; 'Institutional' refers to three different aspects of institutional development—that is, marketisation ('Market'), development of the legal system ('LAW') and government intervention ('GOV'). ROA is used to measure company performance. 'Industrydummies' refers to dummy variables grouped according to the China Industry Classification Index and 'Yeardummies' refers to dummy variables grouped by year.

Table 5 reports the logistic regression of 811 observations of privately controlled companies accessing loans from Big Four banks with political connectedness, institutional and interactive variables, as well as company-specific control variables. All the coefficients of political connectedness are positive and statistically significant at the 5 or 10 per cent significance levels. This result supports Hypothesis 2 sufficiently, suggesting that political connectedness does have a positive effect on a privately controlled company's access to loans from state-owned banks.

Table 5. Results of logistic regression on Big_Four from 2002 to 2009

	Regression 1	Regression 2	Regression 3	Regression 4
Intercept	–0.7973 (0.612)	0.5541* (0.082)	–0.6908* (0.063)	–1.1239 (0.478)
Political	1.1449** (0.016)	0.8068** (0.031)	0.6156* (0.052)	1.2968* (0.093)
Market		–0.0771** (0.037)		
Political*Market		0.0018* (0.095)		
GOV			0.0431** (0.025)	
Political*GOV			0.0581 (0.800)	
LAW				–0.0436** (0.047)
Political*LAW				–0.0539 * (0.086)
ROA	0.0706 (0.846)	0.0343 (0.288)	0.0643 (0.360)	0.0424 (0.316)
MANA	–0.4268 (0.302)	–0.2562 (0.508)	–0.3566 (0.377)	–0.2657 (0.416)
LEV	0.0684 (0.102)	0.3637 (0.106)	0.0628 (0.127)	0.0528 (0.051)
Size	0.0708** (0.022)	–0.0863** (0.030)	0.0975* (0.073)	0.1444 (0.023)
ProtectedIndustry	0.0615 (0.612)	0.0042 (0.964)	0.0632 (0.723)	0.0481 (0.787)
Year	Yes	Yes	Yes	Yes
Obs.	811	811	811	811
Pseudo R^2	0.0044	0.0110	0.0052	0.0097

Notes: Numbers in parentheses are P values; ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively. The dependent variable is a dummy variable named 'Big_Four', which equals 1 if a specific company in a specific year only has a bank loan from a Big Four bank, otherwise 0.
'Political' refers to political connectedness.
'ProtectedIndustry' refers to the dummy variable to measure if the industry is protected. According to the industry categories of the CSRC, an industry is protected if the company is monopolistic; state protected industry; or in a highly regulated industry, such as electricity, telecommunications, petroleum, exploitation, agriculture, construction or civil engineering.
'Market' refers to marketisation; 'GOV' refers to government intervention; 'PropertyRight' refers to the level of property right protection; 'LAW' refers to the level of legal system development. These profiles of institutional development are from Fan, Wang and Zhu (2010). 'ROA' refers to return on assets; 'LEV' refers to leverage ratio. 'MANA' refers to the percentage of managerial ownership; 'obs.' refers to observations.

In regression 2, the influence of marketisation on accessing loans from Big Four banks is negative at the 5 per cent significance level. In regression 3, the influence of GOV on access to Big Four bank loans is significantly positive. In regression 4, the influence of LAW on the Big_Four (–0.0436) is significant at the 5 per cent level. This supports Hypothesis 3a, suggesting that institutional development across areas in China is an essential determinant of companies' access to loans; this is also consistent with the findings of Li et al. (2008).

However, when the level of institutional development is considered, the influence of political connectedness on Big_Four became smaller. For instance, in the second regression, when the influence of political connectedness is joined by marketisation, the coefficient decreased to 0.0018. This supports Hypothesis 3b, suggesting that the positive effect of political connectedness on loans from state-owned banks is reduced if influenced by the institutional development across different provinces.

The insignificant influence of company performance on the Big_Four dummy is evidence that even though the banking sector reform encouraged banks to lend to better-performing companies, political connectedness and marketisation, rather than company performance, still play important roles in privately controlled companies' access to loans, which is consistent with Firth et al's (2008) findings.

The results of this analysis also show that access to loans from Big Four banks is associated with greater leverage ratios and lower asset scales. Companies from protected industries have greater access to bank loans from Big Four banks than other companies.

Endogeneity of the Type of Ownership Control

In this study, state ownership is used as a measure of political connectedness. Thus, one question that may arise is whether companies with a high level of political connectedness will be ultimately controlled by the state at some point. According to the results in Table 4, SOEs intrinsically have greater access to loans from Big Four banks than privately controlled companies. Hence, to estimate the effects of political connectedness and type of ownership control on bank loans, either individually or together with institutional development, the endogeneity of the type of ownership control must be controlled for.

We use Heckman's (1979) two-stage approach to estimate bank loan models. In this approach, the first stage is a probit model to predict the probability of a company being a state-controlled company. In the first stage, the dependent variable is 'SOE', which is set as '1' if the company's ultimate controller is the state, '0' otherwise, and 'Pr[SOE]' is the predicted type of ownership control according to the probit model. In the second stage, the dependent variable is the Big_Four dummy variable, which is access to loans from Big Four banks. One of the independent variables, 'Pr[SOE]', in the second stage is from the probit model in the first stage. The second stage consisted of logistic regressions concerning the effects of both the predicted control type and institutional development on the access to loans from Big Four banks. The results are shown in Table 6.

Table 6. Results of two-stage approach on Big_Four from 2002 to 2009

	First Stage (SOE)	Second Stage (Big_Four)		
		1	2	3
Intercept	8.7245*** (0.000)	2.5050*** (0.009)	2.6474*** (0.006)	2.3097** (0.015)
Pr[SOE]		1.4238** (0.040)	–0.5331 (0.415)	–1.2113** (0.015)
Market		–0.1193*** (0.000)		
Pr[SOE]*Market		0.0925 (0.157)		
GOV			–0.0291 (0.293)	
Pr[SOE]*GOV			–0.0155 (0.811)	
LAW				–0.0721*** (0.000)
Pr[SOE]*LAW				0.0683* (0.085)
Political	–8.2410*** (0.000)	–0.5309 (0.173)	–0.3089 (0.413)	–0.5029 (0.193)
ROA	0.3804 (0.276)	0.3403 (0.254)	0.3198 (0.283)	0.3094 (0.298)
MANA	10.6891*** (0.000)	0.1167 (0.778)	0.0742 (0.857)	0.0817 (0.843)
LEV	0.2746 (0.329)	0.3552 (0.109)	0.3208 (0.144)	0.3224 (0.142)
Size	–0.9087*** (0.000)	–0.1573* (0.095)	–0.2520*** (0.007)	–0.1793** (0.057)
ProtectedIndustry	–0.4580*** (0.001)	–0.0378 (0.687)	–0.0059 (0.950)	–0.0294 (0.753)
Year	Yes	Yes	Yes	Yes
Obs.	2,509	2,509	2,509	2,509
Pseudo R^2	0.3891	0.0117	0.0061	0.0103

Notes: Numbers in parentheses are P values; ***, ** and * are signs for significance at the 1%, 5% and 10% level, respectively. 'ProtectedIndustry' refers to the dummy variable to measure if the industry is protected. According to the industry categories of the CSRC, an industry is protected if the company is monopolistic; state protected industry; or in a

highly regulated industry, such as electricity, telecommunications, petroleum, exploitation, agriculture, construction or civil engineering. 'Market' refers to marketisation; 'GOV' refers to government intervention; 'LAW' refers to the level of legal system development. These profiles of institutional development are from Fan, Wang and Zhu (2010). 'ROA' refers to return on assets; 'LEV' refers to leverage ratio. 'MANA' refers to the percentage of managerial ownership; 'obs.' refers to observations; 'SOE' refers to state-owned enterprise.

In the first stage, the probability that a company is controlled by the state is represented by the variable 'Pr[SOE]'. Pr[SOE] is one of the main independent variables in the second-stage regressions, in which the overall Pr[SOE] coefficient for Big_Four is the sum of the Pr[SOE] coefficient and the interaction coefficient multiplied by the mean value of the interactive variable. This explains why the Pr[SOE] is positive in the regressions with the institution interactions. When the product of institution and the interaction coefficient is added to the Pr[SOE]-coefficient, the sum is positive for every specification in our sample. For example, as presented in the results of regression 1 on the second stage in Table 6, the overall Pr[SOE] coefficient of the influence of Pr[SOE] on the access to loans from big four banks is:

$$1.424 + 0.093 * 7.812 = 2.151.$$

The value '7.812' is from Panel B of Table 3, the mean of market 7.8119. This example again proves Hypothesis 1, as it indicates that the type of ownership control influences companies' access to loans, even if the endogeneity of ownership control is controlled. Compared with privately controlled companies, SOEs have greater access to loans from Big Four banks. According to the same rule as above, the overall marketisation coefficient is significant. This also proves Hypothesis 3 that obtaining a loan from a Big Four bank is more common for privately controlled companies when legal institutions are weaker and regional government is more interventionist.

6 Conclusions

In China, banks play a vital role in the national economy as financial intermediaries. For the past few years, China's banks have maintained a soaring momentum due to fast growth in the economy and lenient monetary policy. However, empirical research on the efficiency of Chinese banks is scarce. China is a country in which political factors explicitly and implicitly permeate corporate management and the national economy. The claim is that, in China, political connections and institutional development are as important determinants of access to bank loans as fundamental factors such as company performance.

This study contributes to the current literature at least in the following ways. First, although the economic consequences of the type of ownership control are widely documented by the extant literature, whether this can be linked with bank discrimination has not been proven. This study provides evidence that suggests that access to loans by Chinese listed companies is highly dependent on type of ownership control. According to the results of the univariate tests, SOEs have more access to loans from Big Four banks and obtain fewer loans from foreign banks than privately controlled companies. Even if the endogeneity of the type ownership control is controlled by employing two-stage regressions, the ultimate control type remains very important to listed companies' access to loans in the state-owned banking system.

Second, logistic regression analysis further supports the influence of political connectedness on a company's access to loans from different types of banks. The empirical evidence strongly supports the fact that privately controlled companies with more political connectedness find it easier to access loans from the Big Four and joint stock commercial banks. This study thus echoes the conclusions of Dinç (2005), who find that political connectedness has an important influence on the behaviour of banks in emerging markets.

Third, this research extends upon the conclusion that institutional development across areas influences companies' external financing, such as the access to loans, when state-owned banks dominate the banking system. Due to the large population and differences in landscape, factors such as resources, culture and economic growth, different areas and provinces have different institutional development in China. Three variables are used to measure institutional development—the marketisation index, government intervention and development of the legal system. The empirical evidence shows that companies located in an area with more institutional development borrow fewer loans from state-owned banks than those located in an area with less institutional development. The positive effect of political connectedness on loans from state-owned banks is reduced if there is concurrent institutional development.

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