Journal of Banking & Finance 33 (2009) 1144–1155

Contents lists available at ScienceDirect

Journal of Banking & Finance

journal homepage: www.elsevier.com/locate/jbf

Inside the black box: Bank credit allocation in China's private sector

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ARTICLE INFO

Article history:
Received 24 June 2008
Accepted 21 December 2008
Available online 31 December 2008

JEL classification:
G20
G21
G30

Keywords:
Bank loans
Lending decisions
Private sector
China

ABSTRACT

This study examines how the Chinese state-owned banks allocate loans to private firms. We find that the banks extend loans to financially healthier and better-governed firms, which implies that the banks use commercial judgments in this segment of the market. We also find that having the state as a minority owner helps firms obtain bank loans and this suggests that political connections play a role in gaining access to bank finance. In addition, we find that commercial judgments are important determinants of the lending decisions for manufacturing firms, large firms, and firms located in regions with a more developed banking sector; political connections are important for firms in service industries, large firms, and firms located in areas with a less developed banking sector.

1. Introduction

China's transition from a centrally-planned socialist economy to a vibrant and fast expanding commercially oriented economy is well documented (Allen et al., 2005; Lardy, 1998). This transformation involves moves toward the adoption of free-market policies, improvements in the commercial banking system, developing modern financial markets, and the writing and enforcement of commercial laws. At the corporate level, the reorganization of wholly-owned state enterprises into listed joint-stock companies with minority private ownership, has led to some improvement in efficiency (Chen et al., 2008). However, the biggest spark for economic growth has been the emergence of privately owned non-listed firms. According to the National Bureau of Statistics, the private sector accounted for roughly 50% of GNP in 2005 and this is expected to rise to at least 75% by 2010.[1]

One interesting, and as yet unresolved, question relates to the role that the banking sector has played in helping finance the expansion of private firms. The focus of our study, therefore, is to shed some light on this issue and, in particular, to gain an understanding of how banks make lending decisions with regard to non-listed private businesses. Our interest in this issue is piqued by the seemingly mixed messages from prior research.

International evidence provides some background on the conditions that are deemed necessary for economies to flourish. La Porta et al. (2000) argue that the rule of law (including law enforcement), private ownership, and corporate governance are crucial elements in explaining economic success and corporate value. Other studies have stressed the need for highly developed capital markets and financial intermediaries to help foster a successful corporate sector (e.g. Rajan and Zingales, 1998). Using this "law-finance-growth" research as a backdrop, Allen et al. (2005) conclude that China does not display the conditions necessary for a vibrant private sector. For example, it is argued that despite some recent improvements, China still has an underdeveloped and capricious legal system, weak investor protection, a chronic lack of law enforcement, and overarching government interference and control. This suggests that China's private sector should be subdued at best and completely irrelevant at worst, but this clearly flies in the face of the available evidence.[2] Allen et al. (2005) seek to explain the paradox by arguing that private firms make use of informal financing channels such as trade credits and private credit agencies that rely on alternative governance mechanisms such as family connections

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[1] http://www.chinadaily.com.cn/china/2006-09/22/content_694432.htm.

[2] In this sense, China has been regarded as a significant counter-example to the findings of the existing literature on law, institutions, finance and growth (Allen et al., 2005).

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doi:10.1016/j.jbankfin.2008.12.008

and the personal reputation of the entrepreneurs. By implication, banks do not play an active role in financing private firms in China. However, international evidence has shown that the support of formal financing to private firms determines the sustainability of this sector (Beck and Demirgüç-Kunt, 2006) and informal financing based on relationships is detrimental to business exchange, competition and innovation (Biggs and Shah, 2006). Thus, the importance of informal finance, especially in the longer-term, is a controversial topic and one that deserves additional investigation. In this study, we focus on the formal financing and governance mechanisms of non-listed private Chinese firms using survey data from the World Bank.

There are numerous criticisms of China's banking system including factors that inhibit it from providing finance to the private sector. These include the stylized facts that the banks are state-controlled (almost 100% owned by the government during the period of our study)[3], carry out policy lending that follows government directives rather than commercial considerations, and discriminate against private firms (Brandt and Li, 2003; Cull and Xu, 2003). As support for the latter stylized fact, bank statistics show that although the private sector accounts for 50% of the economy, it accounts for just 7% of bank lending. In light of these and other criticisms, the Chinese government has introduced a series of reforms to the banking sector to promote the availability of bank loans to private firms. However, systematic evidence on how bank loans are allocated to private firms in China remains scarce. Based on a World Bank nation-wide survey, this paper attempts to look inside the black box of bank lending decisions and answer the following questions about the determinants of bank financing to the private sector: Do the banks allocate loans to private firms according to a firm's financial performance? Do political connections still matter in the allocation of loans to the private sector? Does managerial experience and corporate governance facilitate private firms' access to bank loans? Do the determinants of lending decisions vary with industries, firm size and level of market development?

We find that banks tend to allocate loans to private non-listed firms with higher profitability, more experienced and incentive-compatible CEOs, and more independent corporate boards. The results suggest that the banks are extending loans to financially healthier firms and better-governed firms. As a complement to the conclusions in Allen et al. (2005) regarding the importance of informal channels of finance, we present evidence that the banking sector uses commercial judgments in lending decisions. We also find that having some state ownership helps firms gain access to bank finance. Thus, political connections do carry weight in the decisions to lend to the private sector. Further analyses reveal that the determinants of the lending decisions vary across industries, firm size and levels of institutional development. Specifically, commercial judgments are important determinants of the lending decisions for manufacturing firms, large firms, and firms located in regions with a more liberalized banking sector. Political connections are important for firms in service industries, large firms, and firms located in areas with a less liberalized banking sector. Our results indicate that, after 30 years of reform, China's banks have begun to behave more like the commercial corporate banks in the developed world. We find that the influences of political connections still persist, although the weaker role of political connections in regions with a more liberalized banking sector suggests that the banks are becoming more and more market-oriented as the reforms take effect. Our findings add to the recent literature on the structure, performance and functioning of China's banking sector (e.g. Berger et al., 2009; Fu and Heffernan, 2009; Lin and Zhang, 2009).

This paper is structured as follows. Section 2 discusses the research background. Section 3 describes the data and the empirical models. The empirical results and their interpretations are reported in Section 4. Section 5 concludes.

2. Institutional background

2.1. The development of the Chinese private sector

One of the most far-reaching changes in China's economy brought about by the economic reforms is the gradual shift away from complete reliance on state-owned and collective enterprises to a mixed economy, where private enterprises play a major role in promoting growth, innovation, and employment. The private sector, which consists of mainly small and medium-sized enterprises (SMEs hereafter), is rightly considered as the major engine of China's rapid growth. In contrast, public ownership is regarded as a defining feature of socialism. The rise of China's private sector reflects the government's compromise between ideological correctness and economic pragmatism.

Since the late 1990s, there has been a dramatic change in sentiment towards private capital. The 15th Congress of the Chinese Communist Party, in September 1997, lifted many legal and economic barriers to private sector growth. Among the actions giving rise to private sector development was the granting of approval for banks to lend to private businesses. In 2004, the National Congress approved a constitutional amendment to protect private property rights, granting "private property" an equal legal status to "public property". Despite the constitutional changes and official encouragement of the private sector, some commentators continue to believe that the government's ownership of formal external financing sources inevitably leads to a biased capital allocation policy that discriminates against private businesses (Brandt and Li, 2003; Ge and Qiu, 2007).

The economic reforms have reduced significantly the size of the state sector in the economy, with non-state enterprises' production to total production increasing from 50.37% in 1998 to 66.72% in 2005. The proportion of total employment provided by private firms increased from 58.1% to 76.26% in the same period (see Table 1). Table 1 presents official statistics that show the rapid growth of the economy and the even faster growth of the private sector. The decline of the state sector in China is supposed to emancipate the banking sector from the obligation to provide policy loans to the ailing state-owned enterprises. As we shall discuss shortly, a series of reforms have been introduced with the objective of transforming China's banking sector from a conduit of government policies into a fully-commercialized modern financial intermediary that channels funds to the most efficient economic units regardless of their ownership identity (Podpiera, 2006). Next, we briefly review China's banking sector reforms in order to justify the variable selection of our model and to provide further institutional background for our study.

2.2. The evolving status of the Chinese banking sector

A salient characteristic of China's banking sector is the dominant state ownership of banks, which allows for government involvement in the decision making of those banks. Before the late 1990s, the Chinese banking sector had little latitude but to serve as a conduit for channeling low-cost capital to SOEs, because SOEs were assumed the task of employment and social welfare provision. The private sector was virtually excluded from the formal

[3] According to La Porta et al. (2002), the government owns 99.45% of the ten largest banks in China.

Table 1
Characteristics of the state-owned and non-state-owned economy (1995–2005).

	Number of employees in non-state enterprises (million)	Employment in non-state enterprises to total urban employment (%)	Industrial production of SOEs (RMB billion)	Industrial production of non-state enterprises to total industrial production (%)	Tax revenue from SOEs (RMB billion)	Tax revenue from non-state enterprises to total tax revenue (%)
1985	48.71	29.81	630.2	35.14	32.89	27.46
1986	56.55	29.8	697.1	37.73	37.44	29.3
1987	65.09	29.96	825	40.27	41.85	30.4
1988	75.93	30.03	1035.10	43.2	49.76	31.5
1989	79.23	30.03	1234.30	43.94	60.3	32.05
1990	85.99	29.76	1306.40	45.39	61.79	31.41
1991	83.21	38.94	1495.50	43.83	67.19	31.71
1992	102.46	36.84	1782.40	48.48	76.9	33.03
1993	123.39	37.92	2272.50	53.05	144.68	36.44
1994	188.18	39.1	2620.10	62.66	174.77	36.96
1995	218.89	41.02	3122.00	66.03	222.04	40.26
1996	282.36	43.26	2836.10	71.52	245.17	45.31
1997	322.32	45.35	2902.80	74.48	299.64	43.67
1998	91.93	58.1	3362.10	50.37	397.8	45.95
1999	89.5	61.75	3557.12	51.08	489.12	50.49
2000	90.12	65	4055.44	52.66	693.6	58.5
2001	95.56	68.09	4240.85	55.57	954.2	64
2002	104.02	71.09	4517.90	59.22	1127.39	67.78
2003	114.4	73.18	5340.79	62.46	1409.86	70.53
2004	125.66	74.66	7022.90	65.19	1833.89	72.8
2005	130.07	76.26	8375.00	66.72		

Note: For industrial production, there is a change in classification of SOE in 1998. SOEs include only wholly state-owned enterprises for years prior to 1998. Since 1998, SOEs include wholly state-owned and state-controlled enterprises. "Non-state enterprises" include foreign investment firms and Sino-foreign joint ventures.
Source: China Statistics Yearbook, various years. Tax Yearbook of China, various years.

credit market. As a result, policy lending remained a defining characteristic of the banking system.

As a consequence of this policy lending, banks in China have been saddled with extensive portfolios of non-performing loans (NPLs). According to Dai Xianglong, governor of the People's Bank of China (the *defacto* central bank), NPLs as a share of state banks' total loans was 20% in 1994. The ratio increased to 25% in 1997 and then to 35% in 2000 (Tung, 2002). However, these estimates are based on a loan classification system that is more lenient than the systems adopted in most modern capitalist banking systems. The estimates of western observers generally put the NPL ratio as high as 40–50% of loans outstanding (Lardy, 1998).

The declining asset quality of state-owned banks imposed a heavy tax burden as the government was forced to inject public funds to clean up the banks' balance sheets. This injection of public funds has been very visible in the last few years as banks have sought to shore up their balance sheets prior to listing on foreign as well as domestic stock markets. In addition, China began opening its banking sector to foreign competition in late 2006, as mandated by the World Trade Organization (WTO). China's government, however, remains concerned about the competitiveness of domestic banks. In light of the problems and the international competition they face, the state-owned banks have introduced reforms on five fronts: (1) devolving the policy lending task to three policy banks, (2) transferring NPLs to newly established asset management companies, (3) reforming internal management, (4) introducing strategic investors, and (5) public listing[4], all of which are aimed at transforming the banks from a policy tool into a business entity operating on a commercial basis. The ongoing commercialization process of China's banking sector affects the behavior of bank executives. Recently introduced incentive and discipline mechanisms precipitated improved credit analysis and risk evaluation by China's banks. Moreover, local governments no longer have direct authority over local branches of banks. The performance of local bank staff is evaluated at higher levels of authority from within the bank, thereby limiting local political influence on bank decisions.

Faced with the increasing importance of the private sector in employment creation and economic growth, the government in 1997, for the first time, formally allowed banks to extend loans to the private sector. Recently, the government has also introduced a series of measures to promote the availability of bank loans to small and medium enterprises (SMEs). Banks were urged to base their lending decisions not on the size and ownership structure of the borrowers, but on the default risks and business prospects of the eligible borrowers.[5]

Asymmetric information problems are particularly pervasive in the lender-borrower relationship in China. After serving as a key government policy tool for decades, the banks simply do not have the credit history records to back up their loan allocation decisions. The information problems are particularly severe when lending to the private sector, because the private firms are new customers to the banks (which had previously lent only to SOEs). With a short bank-borrower relationship, the banks are not able to accumulate sufficient soft qualitative information on private firms (Stein, 2002). Most private firms in China are SMEs and less is known about them because of their informal accounting, internal control and governance systems (Berger and Udell, 2006).

It is crucial that Chinese banks find signals or indicators to infer the quality of the potential borrowers. Based on the extant literature, financial performance, political connection, and corporate governance have the potential to serve as credible signals (e.g., Dinc, 2005; Khwaja and Mian, 2005). Identification of the signals used by banks in the screening process will provide valuable insights into the important question as to whether banks are operating on a commercial basis or are bedeviled by political interference. By examining the role of formal financing in private sector growth, we can develop better insights into the sustainability of the private sector as the engine of China's economic expansion.

[4] Note, at the time of the survey (2003), all banks were fully owned by the state.

[5] http://www.cbrc.gov.cn/english/home/jsp/docView.jsp?docID=1250.

3. Sample and variables

3.1. Sample

Most data used in this study come from the business environment and enterprise performance survey conducted jointly by the World Bank and the Enterprise Survey Organization of China in early 2003. To achieve a balanced representation of enterprises, the sample includes about 2400 enterprises from the following 18 cities across five regions in China: (1) the Central Region: Changsha, Nanchang, Wuhan, and Zhengzhou; (2) the Northeast Region: Benxi, Changchun, Dalian, and Harbin; (3) the Northwest Region: Lanzhou and Xi'an; (4) the Southwest Region: Chongqing, Guiyang, Kunming, and Nanning; and (5) the Coastal Area: Hangzhou, Jiangmen, Shenzhen, and Wenzhou. Thirteen of the cities are provincial capitals, while the remaining five are major industrial cities. The survey includes firms with different ownership structures and different sizes. We focus on private firms. An enterprise is classified as a private firm if the percentage of the shares owned by the private sector is more than 50%. Based on this criterion, there are 1868 firms in our sample. Furthermore, the survey is sampled from five manufacturing industries and five service industries.[6]

The survey has two main parts. Part one consists of managers' responses to questions on general information about the firm, management, innovation, market environment, relationships with clients and suppliers, location of manufacturing plant, relations with government, and international trade. Part two consists of quantitative information on production, costs, employee training, schooling, and wages (based on interviews with the firm's accountant and personnel manager). The qualitative questions pertain only to the year 2002 and so we use this as the year of our study.

3.2. Modeling the lending decision

To develop a successful commercial lending operation, banks need to set in place criteria for evaluating credit risk and deciding the amount of the loans. However, these criteria are not observable to the outside world. Even if we have access to a bank's official policies on lending we would still be missing the subjective judgments made by the credit officers. We seek to explore inside the black box of lending decisions by testing whether certain criteria are associated with the lending decision and the loan amount. These criteria include the profitability of the prospective borrower, the experience and incentives of the top managers of the borrower, and the governance (board structure) of the borrower. Furthermore, we also examine whether the political connections of the borrower are a factor in lending decisions. We develop the following model to help explain the access to bank finance and the amount of the loan.

$$\begin{aligned}\text{BANKING\_FINANCE}_{i2002} = f(&\beta_0 + \beta_1 \text{FIRM PERFORMANCE}_i \\ &+ \beta_2 \text{POLITICAL CONNECTION}_i \\ &+ \beta_3 \text{CORPORATE GOVERNANCE}_i \\ &+ \beta_4 \text{OTHER CONTROLS}_i \\ &+ \beta_5 \text{INDUSTRY}_i + \varepsilon_i). \end{aligned} \quad (1)$$

Information on access to loans and the amount of loan is taken from the responses to the survey questions. The independent variables are the performance of the firm, managerial experience and incentives, political connections, governance, and a set of controls. The independent variables, which are described in detail below, are constrained by the questions asked in the survey. We use Probit models for specifications where access to bank finance is the dependent variable, and Tobit models for those where the size of the bank loan scaled by total assets is the dependent variable (to take into account the fact that the loan size is censored at zero).

3.3. Variables

Detailed definitions of the variables used in the regressions are shown in Table 2, while Table 3 shows the summary statistics.

3.3.1. Banking finance

We use two different variables to capture banking finance. *Access to banking finance* is a dummy variable that equals one if a firm's answer to the question "Do you have a loan from a bank or financial institution?" is "Yes", and zero otherwise. The second variable, *Size of banking finance*, is the amount of the line of credit reported by the managers scaled by the firm's total assets. About 22% of firms disclose that they have a bank loan and the mean loan is 4.66% of the total assets.

3.3.2. Firm performance

At the time of the survey (2003), China's banking system lacked consolidated inter-bank information sharing on client companies and there was no nation-wide credit rating system. Each bank has its own individual information system and way of doing business (Dobson and Kashyap, 2006). Banks resort to using the prospective borrowers' accounting statements to make informed inferences about financial condition. We use *Lagged ROS* as our prime measure of firm performance. *Lagged return on sales (Lagged ROS)* is the one-year lagged EBIT (Earnings before interest and taxes) divided by total sales. EBIT is used as it represents core earnings and is less likely to have been manipulated. In contrast, net income is often confounded by earnings management and the gains and losses from arbitrary intra-group asset sales (non-core earnings). Furthermore, discussions with bankers suggest that operating income is used in evaluating whether to lend to a private firm. The mean (median) *Lagged return on sales* is 0.106 (0.102).

3.3.3. Political connection

Political connections, in its broadest form, may have a favorable effect on bank lending decisions (Khwaja and Mian, 2005; Faccio et al., 2005). The survey database has three variables that represent different facets of political connections and we use these in our model. *State minority ownership* is a dummy variable, which is equal to one if the private firms have a state minority shareholding. *CEO government official* is a dummy variable that is equal to one if the general manager (this is the CEO in US parlance) was a government official before taking a position in the enterprise, and zero otherwise. This variable represents cases where the firm might find it easier to borrow, because the CEO has a former connection with the government. The dummy variable *Business connection* is equal to one if the firm has business transactions with the government or its affiliates, and zero otherwise. It should be noted that lending based on *State minority ownership* and *Business Connection* might not be motivated purely by political considerations and biases. Banks might lend more to private firms with state ownership and business connections with the government because the banks have more information on these firms. Furthermore, firms with state ownership and business relations with governments are more likely to get help from governments in time of financial difficulties and thus may be less risky for the banks.

It is apparent from our dataset that many of the private firms have some sort of relations with the government. In 3% of cases, private firms have some state minority ownership and 22% of them

[6] Manufacturing: apparel and leather goods, electronic equipment, electronic components, consumer products, and vehicles and vehicle parts; Services: accounting and related services, advertising and marketing, business logistics services, communication services, and information technology services.

Table 2
Definitions of variables.

Variables	Definition
Banking finance	
Access to banking finance	A dummy variable that equals one if a firm's answer to the question "Do you have a loan from a bank or financial institution?" is "Yes", zero otherwise
Size of banking finance	The amount of the line of credit reported by the managers scaled by the firm's total assets
Firm performance	
Lagged ROS	One year lagged operating profit divided by total sales
Managerial characteristics and incentives	
CEO experience	The manager's response to the question "How many years has the general manager held this position in the firm and previous firms?"
CEO ownership	A dummy variable that equals one if the manager's response to the question "Does the general manager own company stocks?" is "Yes", zero otherwise
Annual salary system	A dummy variable that equals one if the manager's answer to the question "Is the general manager's wage paid annually [i.e., Nian Xin Zhi]?" is "Yes", zero otherwise
Political connection	
State minority ownership	A dummy variable that equals one if the state is a minority shareholder of the private firm
CEO government official	A dummy variable that equals one if the manager's answer to the question "Before becoming general manager in this firm, what was his/her position?" is "government official", is " Yes " zero otherwise
Business connection	A dummy variable that equals one if the share of the firm's sales to the government is larger than zero, zero otherwise
Corporate governance	
Duality	A dummy variable that equals one if the general manager possesses dual positions both as a general manager and board chair, zero otherwise
Independent director	Number of independent directors on a firm's board
Board ownership	Proportion of a firm's shares owned by board members
Other controls	
Business group	A dummy variable that equals one if the firm belongs to a business group, zero otherwise
Firm age	Logarithm form of years since the firm was established
Firm size	Logarithm form of a firm's total assets (in 1000 RMB)
GDP per capita	Logarithm form of gross domestic product per capita of the city where the firm is located
City population	Logarithm form of population of the city where the firm is located
Market development (marketization) indexes	Five categories of market development (marketization) indexes: Government and Market; Development of Non-state Sector; Development of Product Market; banking sector marketization; legal environment

Table 3
Summary statistics of main variables.

Variables	Number of observations	Mean	Median	Standard deviation
Access to banking finance	1814	0.222	0	0.415
Size of banking finance [% of total assets]	1775	4.66	0	12.44
Firm performance				
Lagged ROS	1841	0.106	0.102	0.430
Political Connection				
State minority ownership	1869	0.030	0	0.172
CEO government official	1856	0.053	0	0.225
Business connection	1869	0.220	0	0.415
Managerial characteristics and incentives				
CEO experience	1868	6.753	6	4.696
CEO ownership	1869	0.357	0	0.479
Annual salary system	1869	0.204	0	0.403
Board characteristics				
Board ownership	1840	0.298	0	0.415
Duality	1860	0.283	0	0.451
Independent director	1856	0.484	0	1.253
Other controls				
Business group	1869	0.228	0	0.420
Firm age	1869	2.197	2.260	0.707
Firm size	1834	9.427	9.326	2.239
GDP per capita	1869	10.00	10.00	0.374
City population	1869	5.394	5.532	0.617
Marketization indexes				
Government and market	1869	7.00	6.90	0.935
Development of non-state sector	1869	5.81	5.24	2.962
Development of product market	1869	7.47	7.43	1.605
Banking sector marketization	1869	5.98	5.87	2.302
Legal environment	1869	4.22	3.29	2.164

Table 4
Probit regressions on the determinants of access to bank finance.

Variables	Access to bank finance			
	[1]	[2]	[3]	[4]
Performance				
Lagged ROS	0.116	0.118	0.110	0.111
	[0.006]***	[0.005]***	[0.011]**	[0.011]**
State minority ownership		0.128		0.114
		[0.023]**		[0.047]**
CEO government official		−0.039		
		[0.416]		
Business connection		0.024		
		[0.312]		
CEO experience			0.007	0.007
			[0.002]***	[0.002]***
CEO ownership			0.050	0.049
			[0.042]**	[0.044]**
Annual salary system			0.073	0.075
			[0.003]***	[0.003]***
Duality			−0.056	−0.054
			[0.017]**	[0.021]**
Independent director			0.010	0.009
			[0.166]	[0.174]
Board ownership			0.059	0.056
			[0.039]**	[0.051]*
Business group	−0.054	−0.054	−0.050	−0.051
	[0.014]**	[0.014]**	[0.029]**	[0.026]**
Firm age	−0.010	−0.013	−0.012	−0.014
	[0.452]	[0.367]	[0.400]	[0.336]
Firm size	0.068	0.065	0.067	0.065
	[0.000]***	[0.000]***	[0.000]***	[0.000]***
Macro controls	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Observations	1723	1716	1683	1683

The dependent variable, access to bank finance is a dummy variable that equals one if a firm has at least one loan from a bank, zero otherwise. Other variables are defined as previously. Please see Table 2 for detailed definitions. Macro controls (GDP per capita and population of the city) and the industry dummies are also included. For brevity, the coefficients are not presented but are available upon request. Two-tailed *P*-values are in brackets. The coefficient estimates are transformed to represent the marginal effects evaluated at the means of the independent variables from the Probit regressions. The marginal effect of a dummy variable is calculated as the discrete change in the expected value of the dependent variable as the dummy variable changes from 0 to 1.
* Represents statistical significance at the 10% level.
** Represents statistical significance at the 5% level.
*** Represents statistical significance at the 1% level.

Table 5
Tobit regressions on the size of bank finance.

Variables	Size of bank finance			
	[1]	[2]	[3]	[4]
Lagged ROS	2.542	2.585	2.480	2.478
	[0.012]**	[0.010]***	[0.011]**	[0.011]**
State minority ownership		1.811		1.773
		[0.138]		[0.208]
CEO government official		−1.000		
		[0.284]		
Business connection		0.700		
		[0.246]		
CEO experience			0.102	0.105
			[0.028]**	[0.023]**
CEO ownership			0.629	0.629
			[0.241]	[0.239]
Annual salary system			1.838	1.880
			[0.003]***	[0.002]***
Duality			−1.082	−1.054
			[0.024]**	[0.028]**
Independent director			0.444	0.438
			[0.003]***	[0.002]***
Board ownership			1.285	1.234
			[0.034]**	[0.041]**
Business group	−0.247	−0.213	−0.285	−0.289
	[0.633]	[0.678]	[0.578]	[0.572]
Firm age	−0.358	−0.412	−0.274	−0.306
	[0.259]	[0.194]	[0.394]	[0.341]
Firm size	1.364	1.300	1.265	1.241
	[0.000]***	[0.000]***	[0.000]***	[0.000]***
Macro controls	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Observations	1689	1682	1650	1650

The dependent variable, size of banking finance is the amount of the line of credit reported by the managers scaled by the firm's total assets. Other variables are defined as previously. Please see Table 2 for detailed definitions. Macro controls (GDP per capita and population of the city) and the industry dummies are also included. For brevity, the coefficients are not presented but are available upon request. Two-tailed *P*-values are in brackets. The coefficient estimates are transformed to represent the marginal effects evaluated at the means of the independent variables from the Tobit regressions. The marginal effect of a dummy variable is calculated as the discrete change in the expected value of the dependent variable as the dummy variable changes from 0 to 1.
* Represents statistical significance at the 10% level.
** Represents statistical significance at the 5% level.
*** Represents statistical significance at the 1% level.

have business relations with the government or its affiliates. However, the ability of the private sector to extract economic benefits from former political connections may be limited as only 5.3% of CEOs of private firms are former government officials.

3.3.4. Corporate governance

The quality of a firm's corporate governance should be a concern for banks as they make decisions on whether to extend credit. This is because good corporate governance can help reduce credit risks by mitigating the agency problems between shareholders and managers and also by improving corporate transparency and the quality of financial information (Shleifer and Vishny, 1997). Consistent with theoretical predictions, Anderson et al. (2004) offer evidence that more independent and active boards are associated with a lower cost of debt financing for US firms. Ashbaugh-Skaife et al. (2006) also find that stronger corporate governance increases a firm's probability of receiving an investment-grade credit rating. Chava et al. (in press), however, find that stronger shareholder rights (as measured by fewer takeover defenses) is associated with costlier bank loans because of the potential conflicts of interests between shareholders and bondholders in takeovers. Complementing the above US studies, we examine whether the banks in a large emerging market, China, also take the corporate governance of private firms into account when they evaluate loan applications.

Utilizing the data provided by the survey, we construct two sets of corporate governance variables. The first set is related to managerial experience and incentive contracts. Managerial incentive contracts can alleviate moral hazard problems, reduce agency costs, and induce managers to maximize firm value and thus reduce credit default risk (Cull and Xu, 2003). We use three salient characteristics of the CEO in our model. *CEO experience* is the number of years the CEO has held the top management position at the firm or with previous firms. Banks may place more trust in those firms whose CEOs have substantial top management experience. The mean (median) value for experience is 6.7 years (6 years), although there is considerable variability across firms as shown by the standard deviation of 4.7 years. *CEO ownership* takes the value of one if the manager's response to the question of "Does the general manager own company stocks?" is affirmative and zero otherwise. *Annual salary system* is a dummy variable that takes the value of one if the annual salary system is adopted and zero otherwise.[7] Incentive contracts and stock ownership provide incentives to make the CEO work harder and act as a kind of intangible

[7] In recent years, the "annual salary system" (Nianxinzhi) has become increasingly popular. According to the State Asset Management Bureau (SAMB), managerial compensation in the "annual salary system" consists of two major parts: fixed base salary and performance salary. In addition to the largest SOEs, the annual salary system has also been widely adopted by the private firms.

Table 6
Split-sample analysis according to firm size.

Variables	Access to bank finance				Size of bank finance			
	Large		Small		Large		Small	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Lagged ROS	0.548	0.58	0.116	0.046	12.305	13.218	10.214	8.363
	[0.009]***	[0.007]***	[0.670]	[0.859]	[0.040]**	[0.026]**	[0.380]	[0.470]
State minority ownership	0.525	0.413	0.078	0.11	11.299	9.138	−4.233	−0.561
	[0.011]**	[0.057]*	[0.863]	[0.806]	[0.039]**	[0.101]	[0.822]	[0.977]
CEO government official	0.07		−0.657		−1.678		−21.445	
	[0.779]		[0.143]		[0.808]		[0.191]	
Business connection	0.16		0.006		3.616		2.941	
	[0.150]		[0.970]		[0.239]		[0.637]	
Duality		−0.182		−0.237		−4.154		−9.396
		[0.118]		[0.150]		[0.190]		[0.174]
Independent director		0.036		0.044		2.479		2.161
		[0.256]		[0.362]		[0.004]***		[0.257]
Board ownership		0.322		0.136		6.176		11.879
		[0.021]**		[0.467]		[0.093]*		[0.122]
CEO experience	0.023	0.023	0.022	0.023	0.352	0.384	0.65	0.861
	[0.025]**	[0.027]**	[0.097]*	[0.082]*	[0.205]	[0.169]	[0.234]	[0.125]
CEO ownership	0.334	0.268	0.006	0.003	7.622	6.152	−1.197	−3.945
	[0.001]***	[0.029]**	[0.964]	[0.982]	[0.008]***	[0.059]*	[0.810]	[0.478]
Annual salary system	0.214	0.217	0.326	0.339	9.203	9.452	5.465	5.343
	[0.038]**	[0.039]**	[0.047]**	[0.041]**	[0.001]***	[0.001]***	[0.395]	[0.412]
Business group	−0.036	−0.067	−1.232	−1.325	1.482	−0.015	−12.729	−14.44
	[0.724]	[0.524]	[0.002]***	[0.001]***	[0.604]	[0.996]	[0.174]	[0.137]
Firm age	−0.018	−0.004	−0.184	−0.191	−2.178	−0.927	−3.721	−5.023
	[0.786]	[0.956]	[0.057]*	[0.051]*	[0.244]	[0.617]	[0.353]	[0.237]
Firm size	0.234	0.254	0.255	0.259	5.555	5.826	7.899	7.592
	[0.000]***	[0.000]***	[0.000]***	[0.000]***	[0.000]***	[0.000]***	[0.001]***	[0.002]***
Macro controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	845	826	871	857	824	806	858	844

We split the sample firms into large firms (firm size measured by log total assets above the sample median) and small firms, and repeat the regressions as specified in Tables 4 and 5 within each sub-sample. Columns (1), (2), (5) and (6) are based on large firms. Columns (3), (4), (7) and (8) are based on small firms. Columns (1) to (4) are based on Probit models. Columns (5) to (8) are based on Tobit models. Two-tailed *P*-values are in brackets.

* Represents statistical significance at the 10% level.
** Represents statistical significance at the 5% level.
*** Represents statistical significance at the 1% level.

collateral in the eyes of the lenders (Jensen and Meckling, 1976). We therefore expect positive coefficients on these variables. Table 3 shows that 36% of CEOs have an ownership interest in the firm they manage. More than 20% of firms have incentive pay systems for the CEO.

The second set of corporate governance variables relates to the salient characteristics of the board. The board of directors monitors managers on behalf of the shareholders and if they are effective in their duties, they should deter wealth destroying or other wanton behavior of the CEO and top management. Other stakeholders, including lenders, should benefit from this monitoring. We capture board effectiveness with three variables. *Board ownership* is the percentage of shares owned by the directors on the board. Jensen and Meckling (1976) argue that share ownership can align the incentives of outsiders with shareholders. The average board shareholding is 29.8%. *Duality* is a dummy variable coded one when the CEO is also the chairperson of the board. Concentrating power in one person's hands runs the risk that any abuse of power will be harder to prevent (Jensen, 1993). About 28% of firms have a joint CEO-chairman. *Independent director* is the number of independent directors on the board. Independent directors are more likely to deter the top executives from pursuing personal objectives and, instead, force management to focus on firm value (Chen et al., 2006).[8]

[8] Concentration of ownership may also be a concern to banks because firms with a concentrated ownership structure are plagued less by managerial problems (Shleifer and Vishny, 1997). Unfortunately, the survey does not include any information on the ownership of large shareholders. We therefore have to leave this important issue for future research.

3.3.5. Other control variables

We include control variables to capture possible confounding effects. *Other controls* is a vector of control variables, which comprise of *Firm size*, *Firm age* and *Business group*. *Firm size* is measured as the log of total assets and *Firm age* is the log of the number of years since the enterprise was established. *Business group* is a dummy variable, which is equal to 1 if a firm belongs to a business group. We expect positive coefficients on *Firm size* and *Firm age* as larger and older firms are better known to bankers. A negative sign is expected on *Business group* because firms belonging to a business group may have access to finance through the internal capital market and thus have a lower demand for external bank loans (Khanna and Tice, 2001). Additional control variables are *GDP per capita* (of the city where the firm is located) and *City population*. Industry dummies are also included in the regressions. We also check the correlations among the firm specific variables and find that multicollinearity is not a serious problem. Most of the correlation coefficients are below 0.3, which gives us confidence to include these variables in the models simultaneously. For brevity, the correlation matrix is not reported but it is available from the authors upon request.

4. Empirical results

4.1. Base results

Tables 4 and 5 report our baseline models. In order to get some sense of the magnitude of the effects, the coefficient estimates are

Table 7
Split-sample analysis according to industry.

Variables	Access to bank finance				Size of bank finance			
	Service		Manufacturing		Service		Manufacturing	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Lagged ROS	0.250	0.197	0.530	0.529	0.767	1.247	16.455	17.029
	[0.540]	[0.634]	[0.005]***	[0.005]***	[0.993]	[0.893]	[0.006]***	[0.004]***
State minority ownership	1.373	1.330	0.234	0.172	26.458	22.673	5.696	4.216
	[0.000]***	[0.001]***	[0.254]	[0.414]	[0.006]***	[0.027]**	[0.351]	[0.449]
CEO government official	−0.142		−0.139		−4.500		−4.249	
	[0.686]		[0.551]		[0.658]		[0.557]	
Business connection	−0.240		0.116		−5.011		3.967	
	[0.464]		[0.217]		[0.441]		[0.179]	
CEO experience	0.057	0.058	0.020	0.021	0.618	0.684	0.429	0.513
	[0.006]***	[0.005]***	[0.020]**	[0.016]**	[0.278]	[0.250]	[0.104]	[0.053]**
CEO ownership	0.538	0.433	0.166	0.154	10.944	7.373	3.326	2.347
	[0.026]**	[0.088]*	[0.049]**	[0.115]	[0.037]**	[0.249]	[0.206]	[0.427]
Annual salary system	0.417	0.422	0.231	0.235	7.079	5.480	8.637	8.722
	[0.099]*	[0.106]	[0.013]**	[0.012]**	[0.260]	[0.399]	[0.002]***	[0.002]***
Duality		−0.215		−0.243		0.057		−7.204
		[0.437]		[0.016]**		[0.993]		[0.020]**
Independent director		−0.063		0.047		0.972		2.469
		[0.522]		[0.103]		[0.562]		[0.004]***
Board ownership		0.367		0.194		8.792		6.019
		[0.230]		[0.096]*		[0.245]		[0.084]*
Business group	−0.241	−0.146	−0.146	−0.200	11.795	12.785	−1.270	−3.477
	[0.369]	[0.606]	[0.123]	[0.040]**	[0.043]**	[0.037]**	[0.676]	[0.261]
Firm age	0.077	0.058	−0.100	−0.178	2.895	4.040	−3.831	−2.994
	[0.634]	[0.772]	[0.093]*	[0.199]	[0.381]	[0.249]	[0.042]**	[0.115]
Firm size	0.275	0.277	0.232	0.241	4.551	4.682	6.482	6.690
	[0.000]***	[0.000]***	[0.000]***	[0.000]***	[0.001]***	[0.001]***	[0.000]***	[0.000]***
Macro controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	356	348	1360	1335	350	343	1332	1307

We split the sample firms into service firms and manufacturing firms, and repeat the regressions as specified in Tables 4 and 5 within each sub-sample. Columns (1), (2), (5) and (6) are based on service firms. Columns (3), (4), (7) and (8) are based on manufacturing firms. Columns (1) to (4) are based on Probit models. Columns (5) to (8) are based on Tobit models. Two-tailed *P*-values are in brackets.
* Represents statistical significance at the 10% level.
** Represents statistical significance at the 5% level.

transformed to represent the marginal effects evaluated at the means of the independent variables from the Probit and Tobit regressions. The marginal effect of a dummy variable is calculated as the discrete change in the expected value of the dependent variable as the dummy variable changes from 0 to 1. *Lagged return on sales* (ROS) is significantly and positively related to both *Access to banking finance* and *Size of banking finance*. This result holds irrespective of various period lags and alternative proxies for a firm's previous performance.[9] A one standard deviation increase in a firm's one-year lag return on sales is associated with an increase of about 5 percentage points in the probability of obtaining bank credit, depending on the specification of the model (Table 4). A one standard deviation increase in a firm's return on sales performance will increase the scaled loan size by 1.09 percentage points (Table 5). Given the fact that the mean of scaled loan size is 4.66 percentage points, the effect is not trivial. Our results are consistent with those obtained by Cull and Xu (2005), which suggest that banks tend to allocate loans to private firms with better operating performance. The results indicate that banks use commercial judgments in providing loans to private firms.[10] In the absence of reliable repayment history information and a reliable credit scoring system, banks appear to rely on a company's financial reports when conducting a credit screening process for loan applications from private firms.

Columns 2 and 4 of Tables 4 and 5 report the effects of political connections. *State minority ownership* is related positively to both *Access to banking finance* and *Size of banking finance* although it is only significant for the models of *Access to banking finance*. This suggests that state minority ownership is instrumental for getting access to bank loans. The coefficients for the other two political connections variables (*CEO government official* and *Business connection*) are not statistically significant (and so we do not include them in column 4). Consistent with prior research studies, which document that political connections are important for listed firms (e.g., Fisman, 2001; Faccio et al., 2005), our results suggest that political connections (in the form of the state's minority ownership) play a role in private firms when it comes to borrowing from state-owned banks. As we have discussed previously, lending to firms that have state minority ownership may not be necessarily driven by purely political considerations and biases. Banks may lend to these firms because of informational reasons as well as the possible bailouts or other supports from the government. Given the data we have, it is not possible to distinguish between these reasons for the positive sign on minority state ownership.

Columns 3 and 4 of Tables 4 and 5 show the effects of corporate governance. The CEO experience and incentive variables are positively related to both *Access to banking finance* and *Size of banking finance*, suggesting that banks tend to allocate bank loans to firms with more experienced and incentive-driven CEOs. A one-year increase in CEO experience is associated with a 0.7% increase in the

[9] We use one-year lag, two-year lag and average performance indicators. We also use ROA as an alternative performance measure. The results are highly robust.
[10] Previous studies (e.g., Cull and Xu, 2003) find no relationship between firm performance and access to finance in a sample of SOEs. However, when private firms are competing with each other for bank loans, it is not too surprising to observe that firm performance plays an important role in bank loan decisions.

Table 8
Probit regressions on the access to bank finance with marketization index.

Variables	Access to bank finance				
	[1]	[2]	[3]	[4]	[5]
Lagged ROS	0.419	0.421	0.412	0.439	0.409
	[0.011]**	[0.011]**	[0.013]**	[0.008]***	[0.013]**
State minority ownership	0.377	0.361	0.361	0.388	0.367
	[0.046]**	[0.058]*	[0.058]*	[0.039]**	[0.053]*
CEO experience	0.025	0.025	0.026	0.024	0.025
	[0.002]***	[0.002]***	[0.001]***	[0.003]***	[0.002]***
CEO ownership	0.181	0.180	0.182	0.175	0.184
	[0.047]**	[0.047]**	[0.046]**	[0.053]**	[0.043]**
Annual salary system	0.262	0.260	0.273	0.251	0.271
	[0.003]***	[0.003]***	[0.002]***	[0.005]***	[0.002]***
Duality	−0.215	−0.216	−0.207	−0.220	−0.210
	[0.021]**	[0.020]**	[0.026]**	[0.018]	[0.025]**
Independent director	0.036	0.036	0.035	0.037	0.035
	[0.174]	[0.171]	[0.182]	[0.160]	[0.184]
Board ownership	0.210	0.209	0.216	0.205	0.213
	[0.051]*	[0.052]*	[0.046]**	[0.056]*	[0.048]**
Business group	−0.201	−0.202	−0.196	−0.201	−0.200
	[0.026]**	[0.026]**	[0.031]**	[0.027]**	[0.027]**
Firm age	−0.053	−0.052	−0.058	−0.049	−0.057
	[0.341]	[0.347]	[0.304]	[0.379]	[0.308]
Firm size	0.246	0.245	0.253	0.239	0.251
	[0.000]***	[0.000]***	[0.000]***	[0.000]***	[0.000]***
Government and market	0.012				
	[0.776]				
Development of non-state sector		0.007			
		[0.637]			
Development of product market			−0.036		
			[0.227]		
Banking sector marketization				0.037	
				[0.029]**	
Legal environment					−0.023
					[0.320]
Macro controls	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes
Observations	1683	1683	1683	1683	1683

We repeat the regressions as specified in Table 4 with five categories of marketization indices. Each index enters into regression column by column separately. The remaining variables are defined as previously. The detailed definitions can be found in Table 2. Macro controls (GDP per capita and population of the city) and the industry dummies are also included. For brevity, the coefficients are not presented but are available upon request two-tailed *P*-values are in brackets.

* Represents statistical significance at the 10% level.
** Represents statistical significance at the 5% level.
*** Represents statistical significance at the 1% level.

probability of getting credit from banks and a 0.102–0.105% increase in the loan size scaled by total assets. The probability of getting bank credit for private firms that have adopted the *Annual salary system* dominates those without such incentive payment schemes by 7.3–7.5%, depending on the model specification. Firms with such incentive arrangements also enjoy larger scaled bank loans in the order of 1.84–1.88%. Similar results also hold for the *CEO ownership* variable. For example, if the CEO owns shares in the firm, *Access to banking finance* increases by 5% and *Size of banking finance* increases by about 0.629%. The use of managerial experience and incentive compatibility as signals for borrowers' quality by Chinese banks is somewhat comparable with the use of information from credit bureaus and proprietary information from financial institutions for small business credit scoring in the US and other developed economies. This information relies mostly on information on the owner rather than firm itself and can significantly reduce the loan processing cost (Barth et al., in press).

Turning to the board characteristic variables, *CEO duality* is related negatively to *Access to banking finance* and *Size of banking finance* at the 5% level, suggesting banks are more likely to make larger loans to firms when two separate persons occupy the positions of CEO and board chairperson. *Board ownership*, on the other hand, is related positively to *Access to banking finance* and *Size of banking finance*. This provides support for the positive role of directors' share ownership in signaling a firm's quality to the banks. *Independent director* is related positively to *Size of banking finance* at the 1% level, which suggests that banks tend to allocate larger loans to firms with more independent directors. Overall, our evidence is consistent with banks analyzing the board structures of prospective borrowers when deciding whether to lend to private firms and the amount to lend. Therefore, good governance mechanisms serve as an effective signal for borrowers' quality in the eyes of banks, and thereby facilitate access to formal finance.

4.2. Further tests

Theoretically, in a world with fixed transaction costs and information asymmetries, small firms with a demand for loans face higher transaction costs, and face higher risk premiums since they are typically less transparent and have less collateral to offer. In other words, small firms are more informationally opaque and thus riskier than large firms in the eyes of the banks. As a result, small and medium enterprises tend to have a lower capacity to signal their quality because of their less reliable financial information and lower market power. The results in Tables 4 and 5 attest to the size effect. To take a closer look at whether the experimental variables have different impacts across large and small firms, we divide our sample into two groups according to asset size. A firm is classified as a large (small) firm if its asset size is above (below) the sample median. In unreported summary statistics of our

Table 9
Split sample analysis according to regional banking marketization index.

Variables	Access to bank finance				Size of bank finance			
	Poor bank marketization		Good bank marketization		Poor bank marketization		Good bank marketization	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Lagged ROS	0.419	0.425	0.447	0.474	11.12	11.958	14.089	14.746
	[0.139]	[0.139]	[0.015]**	[0.012]**	[0.187]	[0.186]	[0.002]***	[0.000]***
State minority ownership	0.685	0.53	0.442	0.406	22.104	20.042	7.361	5.646
	[0.029]**	[0.072]*	[0.129]	[0.169]	[0.003]***	[0.009]***	[0.311]	[0.408]
CEO government official	−0.181		−0.098		−2.526		−5.443	
	[0.544]		[0.732]		[0.822]		[0.516]	
Business connection	0.296		−0.031		6.643		0.509	
	[0.062]*		[0.836]		[0.129]		[0.824]	
CEO experience	0.03	0.034	0.026	0.025	0.749	1.038	0.481	0.479
	[0.019]**	[0.005]***	[0.034]**	[0.035]**	[0.018]**	[0.001]***	[0.193]	[0.166]
CEO ownership	0.426	0.466	0.084	0.036	12.141	14.468	0.672	−2.044
	[0.021]**	[0.083]*	[0.565]	[0.827]	[0.010]***	[0.073]*	[0.872]	[0.626]
Annual salary system	0.12	0.112	0.338	0.336	0.697	0.475	11.355	11.199
	[0.534]**	[0.558]	[0.000]***	[0.003]***	[0.902]	[0.926]	[0.000]***	[0.001]***
Duality		−0.216		−0.215		−7.515		−4.766
		[0.017]**		[0.005]***		[0.164]		[0.067]*
Independent director		−0.005		0.053		1.371		2.758
		[0.815]		[0.158]		[0.059]*		[0.006]***
Board ownership		0.093		0.251		4.389		6.922
		[0.668]		[0.053]*		[0.474]		[0.000]***
Business group	−0.481	−0.454	−0.01	−0.088	−6.724	−7.039	3.731	−20.588
	[0.007]***	[0.003]***	[0.913]	[0.204]	[0.376]	[0.337]	[0.089]*	[0.046]**
Firm age	−0.077	−0.08	−0.076	−0.056	−0.789	−0.499	−3.342	−2.512
	[0.355]	[0.279]	[0.092]*	[0.329]	[0.774]	[0.859]	[0.000]***	[0.009]***
Firm size	0.366	0.37	0.175	0.184	10.314	10.965	4.412	4.361
	[0.000]***	[0.000]***	[0.000]***	[0.000]***	[0.001]***	[0.000]***	[0.000]***	[0.000]***
Macroeconomic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	693	686	1023	997	678	672	1004	978

We split the sample firms into firms located in areas with a low degree of regional banking marketization index (marketization index ⩽5) and firms located in areas with a high degree of regional banking marketization index (marketization index >5). Detailed definitions of the variables are in Table 2. Two-tailed *P*-values are in brackets.
* Represents statistical significance at the 10% level.
** Represents statistical significance at the 5% level.
*** Represents statistical significance at the 1% level.

sample, 33% of the large firms get access to bank finance while only 10.8% of the small firms get access to bank finance. The average scaled loan size for large firms is 7.06%; it is only 2.23% for small firms.

Table 6 reports the results on the determinants of loan access for large and small firms separately. For large firms, financial performance is related positively and significantly to *Access to banking finance* and *Size of banking finance* (Columns 1, 2, 5 and 6 in Table 6). However, there is no significant relation for small firms (Columns 3, 4, 7 and 8 in Table 6). The results suggest that accounting performance is a positive signal for large firms but not for small firms. This may be partly attributable to the unreliable nature of financial reporting by small firms.

For large firms only, *State minority ownership* is found to exert a positive effect on *Access to banking finance* and *Size of banking finance*. For large firms, CEO experience is related positively and significantly to *Access to banking finance*, and ownership of stock by the CEO is significantly and positively related to *Access to banking finance* and *Size of banking finance*. Except for *Annual salary system* and *Board ownership* in the *Access to banking finance* regressions, political connections and corporate governance do not serve as useful signals for small firms. Overall, the results corroborate our contention that small firms lack the ability to signal their quality to banks.

Firms in our sample operate in different industries so they are subject to different industry conditions such as market competition, external financial dependence and level of information asymmetry (Rajan and Zingales, 1998). As a control for this, we include industry dummies to remove the possible confounding industry effects. To gain further insights, we also divide our sample firms into services and manufacturing firms to examine whether banks use different criteria in evaluating borrowers from different industries.

Table 7 reports the results on the determinants of loan access and size of bank finance for service and manufacturing firms, separately. Two important differences between services and manufacturing industries stand out. First, financial performance is related positively and significantly to *Access to banking finance* and *Size of banking finance* for manufacturing firms only (Columns 3, 4, 7 and 8 in Table 7) and they are not significant for the service firms (Columns 1, 2, 5 and 6 in Table 7). Firms in the service industry face lower barriers to entry and are therefore subject to more threats from potential entrants. Consequently, the historical profitability of a service industry firm is a less informative indicator of current or future performance. Banks will therefore place less weight on *ROS* when deciding whether to lend to service industry firms. Second, *State minority ownership* has a positive and significant effect on *Access to banking finance* and *Size of banking finance* for service firms but not for manufacturing firms. This may be due to the fact that services firms tend to have fewer tangible assets to serve as collaterals than manufacturing firms. The banks therefore put a greater emphasis on state ownership, which can serve as a kind of implicit collateral. Board characteristics appear to be more important in lending decisions for manufacturing firms. In sum, our results suggest that the banks in China take different industry conditions into account when they extend loans to the private sector.

In addition to different industry conditions, our sample firms also operate under various institutional environments because dif-

ferent regions in China are moving towards a market-based economy at different paces (Chen et al., 2006). In order to ensure that our results are not caused by institutional heterogeneity, we control for different market development conditions by using the NERI (National Economic Research Institute of China) marketization indexes (Fan and Wong, 2006); these indexes have been employed also by Chen et al. (2006). Table 8 show that our results are robust[11] after controlling for the different involvement of the government in the economy (*Government and market*) as well as different degrees of private sector development (*Development of non-state sector*), product market development (*Development of product market*), banking liberalization (*Banking sector marketization*) and legal infrastructure development (*Legal environment*). Furthermore, *Banking sector marketization* is found to exert a positive and significant effect on access to bank loans and size of the loan. In contrast, the other market development indexes are not significant.

To gain further insights into the impact of the development of the banking sector on our results, we split the sample into two groups, firms located in areas with a more developed banking sector and those located in areas with a less developed banking sector. Since the banking marketization index ranges from 0 to 10, the sample is divided into two sub-samples using the natural midpoint five and we examine how the degree of banking marketization affects the determinants of loan access and size of loan to the private firms. The results are reported in Table 9. Banking marketization changes the relative importance of financial performance and state minority ownership as determinants of bank loans. While financial performance is related positively and significantly to both *Access to banking finance* and *Size of banking finance* for firms in regions with a more marketized banking sector, a positive but non-significant relation is found for firms in regions with a less advanced banking sector. On the other hand, state minority ownership is instrumental in obtaining bank loans for firms in areas with a less developed banking sector. It, however, plays no role in lending decisions for firms in regions with a more developed banking sector. Our results suggest that banks in China are becoming more commercialized as China continues to reform its banking sector. While the importance of political connections will decline over time as the banking sector becomes more developed, financial performance will become a more important determinant of credit allocation to the private sector, and thus more bank loans will be allocated to firms with greater profitability.

5. Conclusion

A major contributor to China's growth has been the spectacular expansion of the private sector. This expansion is even more remarkable given the lack of a conventional financial infrastructure in China (Allen et al., 2005). In this study, we seek to determine whether in fact state banks do lend to private non-listed firms and what criteria they use in evaluating loan applications. The data come from a survey of private businesses and so our models are constrained by the information collected.

We find that commercial criteria appear to be used in banks' decision making. In particular, a firm's profitability is used as a criterion in granting loans and in determining loan size. This finding is much more pronounced for large firms, firms in the manufacturing industry, and firms in regions with a more developed banking sector. Despite these promising developments, political connections via state minority ownership still play a significant role in getting access for bank loans for large firms, firms in the service industry and firms in regions with a less developed banking sector.

We find that in the absence of credit bureaus and the exchange of loan information across the banking sector, banks rely on corporate governance as signals for borrowers' quality. Our study therefore makes a useful complement to the literature that documents the positive roles of corporate governance in reducing the costs of debt financing. We show that, in a lending environment with severe asymmetric information, good corporate governance can serve as organization collateral to facilitate access to bank loans.

We also find that small private firms in China have a lower capacity to signal their quality to the banks. The lack of effective signals for small firms indicates that outside guarantee services could play a useful role in facilitating private firms' access to bank loans. The establishment of a nation-wide credit scoring system and an inter-bank information sharing database on loan repayment history would substantially reduce transaction costs and reduce information asymmetry in the lending process. However, China's credit guarantee companies currently serve only about 1% of the country's SMEs and so there is an urgent need for China to develop additional standard credit guarantee services.

The Chinese government continues to recognize the importance of the banking sector and has promulgated further rules and regulations that will help create a more level playing field upon which private, public and mixed private–public firms operate. The rules also require banks to use commercial criteria in making loans and to hold them accountable for bad decisions. As examples, in July 2004 and May 2005, the government promulgated guidelines on commercial banks' due diligence performance in credit business and guidelines on banks' lending to small enterprises. These require each bank to clearly define the responsibilities and due diligence assessment criteria for every function involved in the lending process and to create a fair credit market and competitive lending culture to firms with differing ownership structures. The recent listing of state banks on domestic and foreign stock exchanges exerts external market pressures on banks and should reinforce the use of commercial criteria in lending decisions and reduce any discrimination against small private firms. In light of this, we expect that the financing of small private firms will come, in the fullness of time, to resemble the situation in the US and other developed nations.

Acknowledgements

We thank Ike Mathur (the editor) and an anonymous reviewer for many constructive comments that helped improve the quality of the paper significantly. Financial support from Lingnan University (DR07B2) and an earmarked grant from the HKSAR (CERG LU340307) are greatly acknowledged.

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[11] For the sake of brevity, we omit *CEO government official* and *Business connection* as they are not significant. In addition, the Tobit regression results are very similar to those based on Probit. For brevity, the Tobit results are not reported but are available from the authors on request.

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