Bank Loans with Chinese Characteristics: Some Evidence on Inside Debt in a State-Controlled Banking System

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Abstract

We study a transitional economy where state-controlled banks make loan decisions based on noisy inside information on prospective borrowers, and may lend to avert unemployment and social instability. In China, poor financial performance and high managerial expenses increase the likelihood of obtaining a bank loan, and bank loan approval predicts poor subsequent borrower performance. Negative event-study responses occur at bank loan announcements, particularly for borrowers measuring poorly on quality and creditworthiness, or for lenders or borrowers involved in litigation regarding loans. Our results highlight dilemmas in a state-led financial system and the local stock market's sophistication in interpreting news.

Keywords: bank loans, state ownership, China

JEL classification codes: G21, G28, G14

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Abstract

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I. Introduction

In supplying capital to firms, financial markets feature institutions and practices intended to mitigate problems such as transactions costs, information asymmetries, and agency conflicts, and to adapt to the regulatory environment. Much research focuses on the purposes that banks serve. Banks can intermediate the maturity preferences of lenders and borrowers (Diamond and Dybvig 1983, Rajan 1996). As a form of "inside" debt, bank loans may solve information and agency problems that public bond issues or other "outside" debt cannot (Fama 1985, Rajan 1992). If, for example, managers cannot perfectly communicate their information to capital market participants (Myers and Majluf 1984), banks may serve a very important intermediating role between savers and borrowers.

What happens if these institutions and practices do not fully extend to less-developed economies? While basic notions of what banks do and how they contribute to the economy are expected to hold for the U.S. and other highly developed environments, it is unclear what happens when per-capita income is low, legal and financial systems are weak, and government influence on banking and the economy in general is greater.

One feature that becomes more prominent as we move away from developed Anglo-Saxon capital markets is partial or total government ownership of banks. Some recent studies have examined the impact of government ownership of banks across a variety of countries and in emerging markets in some cases. La Porta, Lopez-de-Silanes, and Shleifer (2002) find a great degree of government ownership of banks, particularly in less-developed environments. This ownership appears to hinder financial development. Dinc (2005) finds that, in countries with

free elections, heightened lending by government banks in election years appears to support political goals. In Italy, elections appear to affect the lending behavior of state-owned banks and, in particular, the allocation of low-interest loans (Sapienza, 2004) while in Pakistan borrowing and default may be higher for firms with political connections (Khwaja and Mian, 2005). Under such circumstances, do banks contribute to economic efficiency as basic theories suggest? Beyond the less-developed economies, state-led banking is now of even greater interest as the recent failures in U.S. and European banking systems have led to substantial state ownership and control of banks in even the most developed economies.

The notion that banks produce information about borrowers has motivated some interesting empirical research on developed capital markets. If firms can choose between bank debt and public debt, and if banks can mitigate information problems, raising money with a bank loan, instead of a public issue of bonds or other securities, should be a positive signal, particularly for newer, smaller, or otherwise information-poor borrowers. Consistent with the information role of bank debt, stock market responses to announcements of a bond issue are typically zero or slightly negative (Eckbo 1986) but announcements of bank loans typically yield significantly positive abnormal returns for the borrower's stock (Mikkelson and Partch 1986, James 1987). Furthermore, this effect appears stronger for high quality lenders (Billet, Flannery, and Garfinkel 1995), loan renewals (Lummer and McConnell 1989, Best and Zhang 1993), smaller borrowers (Sloven, Johnson, and Glascock 1992), borrowers with high dispersion in expected earnings or negative earnings realizations (Best and Zhang 1993), and loans with particularly demanding covenants (Demiroglu and James, 2007). Recent U.S. evidence (Fields, Fraser, Berry, and Byers, 2006) suggests that the positive announcement effect has attenuated but may still appear for smaller, weaker borrowers and during times of high credit risk premiums.

Aintablian and Roberts (2000) validate the positive bank loan announcement effect using data from Canadian capital markets. Harvey, Lins, and Roper (2004) find positive abnormal returns for emerging-market borrowers who obtain internationally-syndicated term loans, with most prominent effects for subsequent, rather than first, loans and for firms with certain governance characteristics.[1] These results suggest that, when banks and prospective borrowers are independent and profit-maximizing, banks do indeed serve to generate information as suggested by "inside debt" theories of banking and bank loans. Banks give loans only to creditworthy firms, and approval of a bank loan is perceived by the stock market as a good signal, particularly for information-poor borrowers. Renewals or subsequent loan approvals may compound this effect.[2]

What happens to this certification role of banks when, as previous authors have found, government-controlled lenders serve political goals? In this paper, we study whether the notion of inside debt holds up in the context of China's banking system, a unique laboratory with which to study bank loans in an underdeveloped environment.

The poor state of law, regulation, and disclosure in China's capital market is a severe constraint on the efficiency of banks and borrowers.[3] Recent research has shown that Chinese listed companies are subject to mismanagement and outright theft in the form of "tunneling" by

[1] They also report positive abnormal returns for international bond issues, echoing Kim and Stulz (1988).

[2] However, the notion of inside debt does not explain everything. Negative abnormal stock returns and poor operating performance are often observed for a few years after the announcement of a bank loan (Billett, Flannery, and Garfinkel 2006), though this may depend on the frequency rather than the form of capital-raising (Billett, Flannery, and Garfinkel 2008).

[3] See Anderson (1999) for a case study of how Brazil's bond market has adapted to an underdeveloped environment.

controlling shareholders.[4] Furthermore, the limitations of the markets for public securities makes it difficult for firms to raise money with equity or public debt (Allen, Qian, and Qian 2005) as the stock market is relatively small and corporate bond issues are almost unheard of.[5] Thus, a Chinese firm largely relies on retained earnings and bank loans for finance, regardless of whether the firm is healthy or distressed. At the same time, the Chinese economy offers the researcher a rich cross-section of heavily-traded listed firms and a predictable source of bank loan news as mandated by disclosure regulations.

Our paper exploits China's unique setting to develop further evidence on how banks function and, in particular, how they carry out their hypothesized certification role in an environment that combines rapid economic growth, very underdeveloped capital markets, and state-controlled banks that serve political goals. Our findings are of interest to a variety of academics, policy-makers, and practitioners, and contribute to problems ranging from improving banking law and regulation to pricing bank stock issues such as the recent large bank IPOs from China.

Our paper proceeds as follows. First, we present a simple model in which state-owned banks make lending decisions based on useful but noisy inside information on prospective borrowers. Both "good" and "bad" borrowers may obtain bank loans driven by purely commercial considerations or for political reasons. The prior probabilities that "good" and "bad" borrowers get bank loans depend on the probability that a firm receives a politically-motivated loan versus a commercially-determined loan, and if the latter, on the process by which the bank

[4] See, for example, Jian and Wong (2010), Jiang, Lee, and Yue (2010), and Cheung, Jing, Rau, and Stouraitis (2006) on the use of "tunneling", loans, and other related-party transactions to extract value from Chinese listed companies.

[5] Listed companies can make a seasoned offering if three-year average ROE is above 6%, but issuance procedures are typically complicated for companies seeking immediate external finance.

decides to invest resources in investigating a potential borrower. Given a loan approval event, investors update their posterior probabilities for various publicly-observed outcomes conditional on whether the expected payoff of a loan is greater than the cost of investigation. As in Akerloff (1970), informationally-disadvantaged stock market investors cannot distinguish between good and bad borrowers. A pooling equilibrium reflecting the average quality of borrowing firms results, and, in particular, the stock price of a firm may react negatively to the announcement that the firm has received a bank loan. Second, we empirically investigate the factors affecting the likelihood of receiving a bank loan and the impact of receiving a loan on the long-term performance of borrowers. We test several hypotheses about bank loan announcements with event-study reactions and cross-sectional differences in borrower, lender, and loan characteristics. We also examine the stock price reaction for the lender, for those cases when the lending bank is listed.

A brief summary of our findings is as follows. We find that poorer financial performance and higher managerial expenses increase the likelihood of obtaining a bank loan. Furthermore, approval of a bank loan predicts poor subsequent accounting performance. Supplemental data for companies that display increased long-term debt on the balance sheet but no explicit loan announcements confirm this finding. We further examine market responses to loan announcements. Using bank loan announcements for all listed companies in China from 1999 to 2004, we find significant declines in stock prices of Chinese borrowers at times of such announcements. This is consistent with our theoretical prediction. The negative effect is typical for borrowers with frequent related-party transactions, poor subsequent performance, high state ownership, no foreign class shares, loans from the four state banks, loans from local bank branches, or loans intended to repay existing debt. Finally, for the small number of loans

originating from listed banks, we find no evidence that the lender's stock price drops at the time a loan is announced. Our evidence suggests that, under an enriched notion of inside debt, a bank loan announcement no longer sends a clear-cut positive signal about the borrower's prospects. Instead, investors must condition their assessment of the borrower's value on other firm, loan, and lender characteristics.

This paper is organized as follows. Section II briefly describes China's banking system. Section III presents a model and testable hypotheses that embrace both the existing literature and the peculiarities of China's banking system. Section IV describes the data we have gathered and the sample selection criteria employed. Section V presents empirical results, while Section VI is a summary and agenda for future research.

II. An Overview of China's Banking System

Economists, policy-makers, business managers, and investors continue to follow with great interest the rapid evolution of China's economic and financial system starting with the ascension of Deng Xiaoping as the country's leader in 1978. Under "Socialism with Chinese Characteristics", demand for banking services has skyrocketed, but the banking system is troubled. Chinese banking is dominated by state-owned banks, operates in an uncompetitive environment, and faces much pressure to contribute to political and social stability.[6] Perhaps as a consequence, Chinese banks continue to be plagued with substantial amounts of non-performing loans.[7] The web page of the Chinese Banking Regulatory Commission[8] reports a

[6] See Dinc (2005), and Brown and Dinc (2005), for studies of political influences on banks in developing countries.

[7] Podpiera (2006) reports that the ratios of non-performing loans (NPLs) to total loans for the four major state banks are 25.6%, 20.1%, and 15.6% in 2002, 2003, and 2004, respectively.

[8] http://www.cbrc.gov.cn/english/home/jsp/index.jsp.

total of 1.268 trillion yuan (about 174 billion U.S. dollars, or 6.17% of total loans) of non-performing loans on the books of commercial banks at the end of 2007. Other estimates of the problem are even larger. Asset management companies formed by the Chinese government have liquidated substantial volumes of bank assets at heavy discounts. Poorly-performing state-owned enterprises are the heaviest borrowers.[9]

China's banking sector has been the primary source of financing for China's growing economy, with the banking and credit industry accounting for over 80 percent of China's financial assets. The outstanding amount of bank loans is significantly greater than that of equity or corporate bonds. At the end of 2004, for example, total bank loans comprised 138.1% of GDP while the combined market value of China's two stock exchanges was only 27.1% of GDP.[10] Raising money with corporate bonds, rather than bank loans, is almost unheard of.[11] With bank loans accounting for 87% of total funds raised by China's non-financial sector as of June 2006, bank lending remains the dominant source of financing in China's economy.

Under its traditional communist system, China's government collected revenues from state-owned enterprises and provided financing to those firms according to the state budget. Eventually, the allocation of financing to firms was organized as bank loans from the People's

[9] Podpiera (2006) finds that state-owned commercial banks lend significantly more in provinces with lower enterprise profitability. This suggests that the lending decisions of these banks have been policy-driven.

[10] Federal Reserve Bank of Dallas report, issue 4, July/August 2005.

[11] Corporate bond issuance began in 1984 and, by 1986, 10 billion yuan ($1.2 billion) in face value was outstanding. However, many companies defaulted, leading to social unrest and subsequent government limitations on bond issuance to a small number of large state-owned enterprises. Currently only about a dozen such bonds trade on securities exchanges. Other barriers to issuing corporate bonds include high issuer qualifications, illiquidity, poor creditor protection in bankruptcy, and cheaper equity financing.

Bank of China (PBOC) and, starting in the late 1970s, from the four newly-established state-owned specialty banks, as well as joint-equity banks, city commercial banks, policy banks, and rural credit co-operatives.[12] Though their share of bank loan activity is declining, the Big Four state-owned banks still hold over 50% of the banking sector's assets as of June 2006. Joint-equity banks and city commercial banks account for nearly 16% and 6% of the sector's assets, respectively, while other financial institutions such as policy banks and rural credit co-operatives hold the remaining assets.[13]

As a result of politically-oriented lending practices and the lack of repayment guarantees, the Big Four state-owned banks have historically been plagued by large ratios of non-performing loans (NPLs) to total loans. Under the current tax regime, both lenders and borrowers receive favorable tax treatment. Banks can, in general, deduct losses from bad loans and contributions to a bad loan reserve account from pre-tax income. Actual bad loan losses are written off against the reserve and any excess can be subtracted from pre-tax income.[14] Borrowers can fully deduct

[12] Four state-owned commercial banks (China Industrial and Commercial Bank, Bank of China, China Construction Bank, and Agricultural Bank of China) were formed to replace the mono-bank system and separate commercial lending from central banking functions. Joint-equity banks are incorporated as limited companies and typically feature a state-dominated shareholding structure. City commercial banks evolved from urban credit co-operatives with business mainly in the city of location. Given strong ties to local governments, they typically obtain their deposits from local governments and corporations, and suffer high loan concentration and related party transactions. Other types of banks include policy banks, rural credit co-operatives, postal savings, and branches of foreign banks.

[13] Deutsche Bank Research, China Special, December 7, 2006.

[14] "Policy Details for Pre-tax Deduction of Bad Loan Losses in Financial Companies," State Tax Bureau of China, Policy No. 4, 2002.

interest on bank loans from pre-tax income.[15] In recent years, the government has been implementing a series of reforms to improve the efficiency and profitability of the state banks, particularly given the impending opening of the domestic financial sector to foreigners under the WTO. First, a large percentage of bad loans have been transferred from the state banks to wholly state-owned asset management corporations (AMCs) in return for bonds guaranteed by the Ministry of Finance.[16] Second, three of the Big Four state banks have changed from wholly state-owned to corporations owned by shareholders, though the state remains the largest shareholder. Shareholder meetings, boards of directors, board of supervisors, and other western-style governance measures have been adopted. Perhaps most significantly, the government has allowed foreign investors (typically global financial services firms) to take minority ownership stakes in the state banks, loosening foreign ownership ceilings in the hope that foreigners will provide additional capital, technology, and management skill.[17] Lastly, three of the Big Four have recently gone public in Hong Kong, with China Construction Bank listed in Hong Kong in 2005, and Bank of China and Industrial and Commercial Bank of China listed in Hong Kong and Shanghai in 2006. Public listing is intended to improve management, governance, transparency and, ultimately, profitability. Beyond the state banks, reforms have also extended to joint-equity

[15] People's Republic of China Corporate Income Tax, Provisional Code, December 13, 1993.

[16] Given the poor cash recovery rate (less than 25%) on these bad loans, the government is effectively transferring large amount of funds to the state banks. In some cases, there were direct cash injections. In 2003, for example, Bank of China and China Construction Bank each received US$22.5 billion from China's foreign reserves.

[17] In 2005, for example, Bank of America Corporation and Temasek invested $3.0 billion and $2.5 billion for approximately 9 and 6 percent ownership in China Construction Bank. The deal included one seat on the board of directors and transfer of some staff.

banks and city commercial banks, a number of which have obtained foreign partners or listing on mainland or Hong Kong stock exchanges.

In spite of these efforts, many problems remain in China's banking system. The ownership shares of foreign strategic investors are relatively small and their involvement in governance is still minimal. The banking system is still dominated by state-owned enterprises, and bank lending continues to be driven by the availability of funds, not borrower profitability.[18] China's banks remain largely constrained by government intervention at different levels and subject to substantial political influence, and continue to lack sound credit-risk analysis and effective monitoring of borrowers. Dobson and Kashyap (2006) provide anecdotal evidence that government influence on bank loan decisions is still widespread despite the substantial progress of reform. As they suggest, banks in China are forced to meet contradictory goals of supporting employment and changing themselves into modern commercial banks. An anonymously-quoted banker recently went so far as to say that "The Chinese banks are pure utilities…The State Council tells them to lend, and they lend."[19]

A symptom of the continuing problems in China's financial system are the highly publicized cases of embezzlement of corporate funds from listed companies through "related party transactions" (also known as "connected transactions") with controlling shareholders. Controlling shareholders extract assets or cash from a listed company to another private company mostly through self-dealing transactions. Existing studies have found a negative impact of related party transaction on listed companies' share value. For example, Cheung, Jing, Rau, and Stouraitis (2005) find that Chinese firms with higher state ownership experience more

[18] See Podpiera (2006) for details.

[19] "Red mist", 4th February 2010, www.economist.com.

negative excess returns at the announcement of related party transactions. A variation on this "tunneling" directly involves the banking system: a listed company uses bank loans to obtain funds that are subsequently transferred, via related party transactions, to its parent company or other related privately-held company. In some particularly notorious cases, the controlling shareholder subsequently sold off the heavily-indebted listed company.

III. Theory and Testable Hypotheses

A. The Announcement Effect of Bank Loans Under Different Ownership Regimes

Unlike directly placed debt whose terms depend only on public information, the bank loan decision and loan covenants are based on both public information and the information from costly monitoring. Banks have incentives to expend resources to investigate and monitor borrowers to produce valuable information and alleviate moral hazard. For example, Diamond (1984) suggests that banks exist because they can evaluate and monitor borrowers efficiently, addressing the "free rider" problem and thereby reducing information asymmetry. Since banks enjoy information advantages relative to outside investors, bank loans are viewed as inside debt that may enhance a borrowing firm's value by reducing information asymmetries and monitoring firm performance. Thus, previous studies have explained positive bank loan announcement effects with the notion of inside debt.

However, this logic implicitly assumes that banks are independent corporations governed by shareholders with the objective of value maximization. In a transitional economy like China's, banks have historically been state-owned, and may pursue goals beyond value maximization. State-owned banks have been obliged to provide loans to keep firms afloat in order to maintain employment and, ultimately, social stability given China's lack of a well-functioning social

"safety net".[20] Furthermore, Chinese banks may be pressured to issue loans to serve the political goals of local governments.

In financial markets with transparent and exclusive ownership structures, Diamond (1991) shows that borrowers with credit ratings toward the middle of the spectrum have an incentive to seek monitoring and hence rely on bank loans. Borrowers with very high or low credit ratings typically do not need bank monitoring. In China, however, state ownership of banks and lack of alternative financing vehicles compel state-controlled firms regardless of quality to seek bank loans as the primary form of external financing. Healthy firms with growth opportunities easily obtain bank loans as value maximization is one objective of the banks, and distressed firms may also receive bank loans given the political mandate of the state-owned banks. Given state ownership of both banks and borrowers coupled with the lack of enforcement of bankruptcy procedures, bank loans are frequently not serviced or repaid. In effect, the government insures deposits and, thus, the risk of a run on a state bank is minimal. Furthermore, interest rates on bank loans are regulated by the government and are not effectively linked to borrower credit ratings, giving weak firms further incentives to seek bank loans. Firms may also obtain bank loans due to contacts with, or pressure from, various levels of government. Under these circumstances, the signaling value of bank loans is no longer obvious.

A bank receives useful but noisy inside information from a prospective borrower as part of the loan application process. Thus, there are two levels of uncertainty in the process. At the first stage, both a bank and stock market participants do not know whether a particular firm is good or bad. At the second stage, the bank learns whether the firm should be judged

[20] See Bai, Li, Tao, and Wang (2000) for a theory of state enterprise reform that captures the production versus social stability trade-off.

commercially or granted a loan on political grounds. If this information, which is not observed by the market, indicates "commercial, not political," the bank then decides whether or not to invest resources to observe further private but noisy information. If, in contrast, the loan should be granted on political grounds, the bank forgoes the cost of generating further private information about the prospective borrower.

When a loan is announced, stock market participants must use public information to sort through several related uncertainties. These include whether the borrower is low or high quality whether the loan was granted on political or commercial grounds, and, if granted on commercial grounds, how to update the borrower's creditworthiness. Next, we present a model of the valuation effect of bank loan announcements in a pooling equilibrium that reflects the average quality of the borrowers financed by bank loans. An intriguing and intuitive consequence of our model is that the stock market's assessment of a borrower's value can result in a *negative* response to a loan announcement.

B. A Pooling Equilibrium for the Bank Loan Announcement Effect

We begin by assuming that there are two types of firms seeking external finance. High quality firms have a good credit rating and positive NPV projects,[21] while low quality firms do not have positive NPV projects and are unlikely to be able to service their debt. Low quality firms have a value, $\underline{V}$, which is distributed as $\underline{V} \sim G(\Omega)$ with mean μ_L and variance σ_L^2. Similarly, high quality firms have a higher market value, $\overline{V}$, with distribution $\overline{V} \sim G(\mu_H, \sigma_H^2)$.

[21] Note that "high quality" may include troubled firms that, with a loan, can implement positive NPV projects and return to health.

Independently-governed profit-maximizing banks would not lend to a low quality firm. However, when both banks and borrowing firms have mutually inclusive or connected state ownership, banks may lend not only on the worthiness of the borrower's investment projects but also for political reasons. Both high and low quality firms may obtain bank loans. From the point-of-view of stock market traders, who are informationally disadvantaged, high and low quality firms cannot be distinguished and a pooling equilibrium that reflects the probabilities that high or low quality firms can obtain bank loans prevails in the stock market.

Because stock traders cannot distinguish whether firms that obtain loans are high or low quality, they do not know the exact value of a firm. We assume that the market value of a firm, V , is a random variable that follows a mixture distribution with probability β that the firm is low quality ($\underline{V}$) and probability 1- β that the firm is high quality ($\overline{V}$). Therefore, V from the point-of-view of stock market traders can be expressed as:

$$V = \beta \underline{V} + (1-\beta)\overline{V} \quad , \quad \text{where } 0 < \beta < 1 \tag{1}$$

The ex ante mean and variance of firm value from the market's point-of-view are:

$$EV = \beta E\underline{V} + (1-\beta)E\overline{V} = \beta \mu_L + (1-\beta)\mu_H \tag{2a}$$

$$Var[V] = \beta^2 \sigma_L^2 + \left(1-\beta\right)^2 \sigma_H^2 \tag{2b}$$

Assume that a bank loan announcement is a random event from the point-of-view of stock market participants. Let "loan" equal 1 if a bank loan is issued or 0 otherwise. We assume that the prior probabilities that high and low quality firms get bank loans are as follows:

$$P(loan = 1 \mid V = \overline{V}) = \Pr_H \,,\; P(loan = 0 \mid V = \overline{V}) = 1 - \Pr_H \tag{3}$$

$$P(loan = 1 \mid V = \underline{V}) = \Pr_L \,,\; P(loan = 0 \mid V = \underline{V}) = 1 - \Pr_L$$

The priors, Pr_H and Pr_L, depend on the probability that a firm receives a politically-motivated loan versus a commercially-determined loan, and, if the latter, on the process by which the bank decides whether or not to invest resources in evaluating a loan's commercial viability.

The expected payoff to making a loan (prior to determining whether or not to incur the information cost) versus merely buying a government bond is:

$$k^* = \beta E\underline{V} + (1-\beta)E\overline{V} - R_{rf} \tag{4}$$

where R_{rf} is the risk free payoff from a government security.

A (risk neutral) bank chooses to investigate a specific firm's creditworthiness if the cost of the investigation, k , is less than the expected payoff, k^*. We assume that k is publicly known. A loan will be made under two circumstances: (1) if a firm is investigated and found to be high quality after investing k or (2) if a bad firm is to be propped up for non-economic reasons, without being investigated. The bank does not make a loan if an investigated firm is of low quality or if it chooses not to invest k in information production when there are no political considerations.

The bank does not publish the result of an investigation of a prospective borrower, nor does it even indicate whether or not an investigation was conducted. Thus, from the perspective of stock traders, only two kinds of events are observable for a potential borrowers, (1) whether the payoff, k^*, exceeds the investigation cost, k, and (2) whether the loan is made. We will analyze how stock traders evaluate a potential borrower with the following matrix of publicly-observed outcomes:

	Loan = 0	Loan =1
$k > k^*$	Scenario I	Scenario II
$k \le k^*$	Scenario III	Scenario IV

Let β' denote the posterior probability that a firm is of low quality computed by stock traders based on the four possible outcomes in the matrix.

In Scenario I, it is sensible that a loan is not granted because $k > k^*$ and stock traders know that no investigation will take place and that no loan is issued. Thus, no additional information is revealed to stock traders, and they set $\beta' = \beta$ and do not change their evaluation of the firm. In Scenario II, a loan is made even though $k > k^*$, clearly indicating to stock traders that the borrower is a low quality firm being supported for political reasons:

$$\beta' = P(\text{low quality firm}|\ \text{loan}=1, k > k^*) = 1 \tag{5a}$$

$$1 - \beta' = P(\text{high quality firm}|\ \text{loan}=1, k > k^*) = 0 \tag{5b}$$

In Scenario III, the expected payoff is greater than the cost of investigation but no loan is granted. In Scenario IV, the expected payoff is greater than the cost of investigation and a loan is issued. Under the fourth Scenario, the posterior probability, β', is updated using the method of Bayes. The loan event causes stock traders to update their beliefs about firm value, though they cannot resolve perfectly whether the successful borrower is a good firm receiving a loan on a commercial basis or a bad firm being supported for political reasons. Hence, the conditional probabilities that a firm is low quality or high quality given the firm gets a bank loan are:

$$P(V = \underline{V} \mid loan = 1, k \le k^*) = \frac{\beta \Pr_L}{\beta \Pr_L + (1-\beta)\Pr_H} = \beta' \tag{6a}$$

$$P(V = \overline{V} \mid loan = 1, k \le k^*) = \frac{(1-\beta)\Pr_H}{\beta \Pr_L + (1-\beta)\Pr_H} = 1 - \beta^{'} \tag{6b}$$

Thus, the posterior expected firm value is:

$$E(V \mid loan = 1, k \le k^*) = \beta^{'}\mu_L + (1-\beta^{'})\mu_H < \beta^{'}\mu_H + (1-\beta^{'})\mu_H = \mu_H = E\overline{V} \tag{7}$$

Finally, the incremental change in the expected value is:

$$\Delta EV = E(V \mid Loan = 1, k \le k^*) - EV = \Delta\beta(\mu_L - \mu_H) = \frac{\theta^2}{\beta \Pr_L + (1-\beta)\Pr_H}(\Pr_L - \Pr_H)(\mu_L - \mu_H) \tag{8}$$

In equation (8), $\theta^2 = \beta(1-\beta)$, and $\theta^2 > 0$ given $0 < \beta < 1$. By construction, $\mu_L < \mu_H$, so $(\mu_L - \mu_H) < 0$. Thus, if $\Pr_L < \Pr_H$, then $\Delta EV > 0$. Put another way, the expected market value of a firm announcing approval of a bank loan increases if the probability that a loan is issued to a high quality firm is higher than the probability that a loan is issued to a low quality firm, as would be the case in a "normal" environment where the loan decision is based purely on value maximization. In contrast, if $\Pr_L > \Pr_H$, then $\Delta E < 0$. The expected market value of a firm announcing a bank loan declines if a low quality firm is more likely to obtain a bank loan.

Thus, we may observe the seemingly perverse outcome of negative market responses to bank loan announcements if bank lending is not purely dependent on borrower quality and information asymmetry is severe. A positive stock market reaction would only encourage low quality firms to borrow more, yielding an increasing supply of low quality borrowers and ever-declining average quality. Thus, negative average price reactions must prevail. This echoes the used car market of Akerlof (1970): the average quality tends to decline, and only "lemons" are offered for sale.

C. Testable Hypotheses

Given the ideas outlined above, we organize our empirical tests around several testable hypotheses. We begin with basic notions of who gets a bank loan and what that forecasts about the future, contrasting conventional inside debt notions with state-led bailouts as motivations for loans:

H1a: Approval of a bank loan indicates a high-quality, creditworthy borrower.

H1b: Approval of a bank loan indicates a poor-performing firm which cannot obtain sufficient funds from operations and receives support from the state-led banking system.

Under H1a or H1b, receipt of a bank loan has implications for how the borrower is likely to fare in the future:

H2a: Approval of a bank loan predicts good borrower performance in the future.

H2b: Approval of a bank loan predicts poor borrower performance in the future.

Next, we state some hypotheses about stock market reactions to bank loan announcements. Such reactions are potentially complex: stock traders should react positively to bank loans in a banking environment driven purely by commercial considerations, but may react negatively to loans granted in an environment of bail-outs or other non-commercial motivations for lending. In our pooling equilibrium model, both high and low quality firms might get bank loans. Thus, a bank loan announcement does not send a precise signal that eliminates the information asymmetry between the stock market and the borrower, but stock market participants have some ability to estimate borrower quality:

H3a: Announcement of a bank loan is associated with a positive abnormal return on the borrower's stock if bank loans are given to creditworthy firms.

Alternatively, a bank loan conveys negative information if bank loans are associated with troubled firms being propped up for social stability or other political reasons:

H3b: Announcement of a bank loan is associated with a negative abnormal return on the borrower's stock if low quality firms have a higher probability of obtaining bank loans.

Aside from the sign of the announcement effect, we examine associations between the size of the effect and characteristics of the borrower, lender, and loan:

H4a: The borrower's bank loan announcement return is particularly positive for firms that are information-poor, in legal or regulatory trouble, weakly governed, have greater financial and operating risk, poorer operating performance, or frequent expropriation or tunneling.

Under the positive signal hypothesis for bank loan announcements (H3a), the positive effect of a bank loan announcement should be particularly pronounced for borrowers that are informationally opaque, difficult to evaluate, or seem troubled in other respects. Indicators of problematic firms include book income and balance sheet measures, indicators of audit or

regulatory scrutiny, large ownership by the state, large divergence between ownership and control rights, and potentially abusive related party transactions. If a firm that scores poorly on these measures is nonetheless able to obtain a bank loan, it is a particularly strong positive signal.

In contrast, H3b implies that a bank loan to a particularly weak firm merely confirms the impression that the borrower is a particularly bad firm:

H4b: The borrower's bank loan announcement return is particularly negative for firms that are information-poor, in legal or regulatory trouble, weakly governed, have greater financial and operating risk, poorer operating performance, or frequent expropriation or tunneling.

Some of the variables we select to test H4a and H4b proxy for the unique features of China's economic and political environment. For example, local governments have considerable influence over local branches of state banks. They may influence loan policies and make decisions that affect the operations of banks and borrowers to further their social or political agendas. Borrowers with relatively high state ownership may also be particularly subject to non value-maximizing goals. Therefore, severe moral hazard is more likely for loans from local bank branches and loans to firms with high state ownership. Agency problems may also be severe for borrowers with greater opportunities to transfers funds to related parties such as parent and subsidiary companies, business partners, influential investors, and key management personnel. As detailed later, we include proxies for all these forces among our cross sectional variables.

We offer several additional related predictions to discern whether bank loans in China signal good firms in the conventional manner, or identify "zombie" firms in need of a "transfusion":

H5: The positive (negative) return on the borrower's equity in response to a bank loan announcement is positively correlated with subsequent good (poor) corporate performance.

If a bank loan is a positive signal, it is met by an immediate positive stock market response and predicts good subsequent corporate performance. If a bank loan is a negative signal, it is met with an immediate negative stock market response and predicts poor subsequent corporate performance.

The nature of the lending bank may also explain cross-sectional differences in announcement effects. The positive signal value of a bank loan should be particularly powerful if the loan originates with a private bank since such banks have strong incentives to lend on a purely value-creating basis:

H6a: The borrower's bank loan announcement return is particularly positive for a loan from a private bank.

In contrast, state-owned banks are particularly bad at evaluating a borrower's creditworthiness or are under special pressure to supply "policy loans". Therefore, loans from such banks signal particularly weak borrowers:

H6b: The borrower's bank loan announcement return is particularly negative for a loan from a state owned or controlled bank.

Note that H6a and H6b are not competing hypotheses but are more akin to "two sides of the same coin" that may be observed in either "conventional" or "bail-out" oriented banking systems.

The intended purpose of a loan may also help explain announcement effects. In a conventional banking environment, H3a implies that the announcement of a bank loan intended to replace existing financing is less positive than the announcement of a bank loan intended to finance new value-creating investment projects. In a banking environment in which bail-outs and political motivations are common, H3b implies that the announcement of a bank loan that merely replaces existing debt identifies a struggling firm rolling over its debt. In either case, we should observe a less positive announcement effect if the loan is for refinancing purposes rather than new investment. Thus, we expect to find that the borrower's bank loan announcement return is less positive, or more negative, for loans intended to repay earlier loans.

IV. Data and Sample Selection

We first search for all bank loan related announcements in Chinese newspapers, magazines, and websites designated by the Chinese Securities Regulatory Commission (CSRC). [22] [23] Existing regulations on disclosure require listed firms to announce major events that may

[22] We also encountered "credit agreement" announcements. They indicate the ceiling on loans a bank may extend to a particular company over a period of time but are not actual loan offers for potential investment projects or other uses of funds. Credit agreements are extended to virtually all companies and thus may be thought of as a very weak loan "pre-qualification" with little information content relative to an actual bank loan announcement. Therefore, we

significantly affect their stock prices.[24] Our search yields a total of 379 announcements of bank loans issued by Shanghai and Shenzhen listed companies from January 1999 through December 2004. To minimize the effect of confounding events, we exclude 91 announcements accompanied by other corporate events such as financial reporting, mergers and acquisitions, CEO turnovers, board of director meetings, and lawsuits within the [-1,+4] window of the loan announcement. Our final sample contains 288 announcements of actual bank loans for companies listed on both the Shanghai Stock Exchange and the Shenzhen Stock Exchange. Finally, to confine our sample to non banking firms, we drop three announcements made by one financial company, yielding a final sample of 285 bank loan announcements.[25] The majority of our sample firms have a single loan announcement over the sample period, but some companies have more than one loan announcement.[26] However, enforcement on information disclosure

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exclude such announcements from our study. Indeed, credit agreement announcement effects (available upon request) are much weaker than those for bank loan announcements.

[23] The officially-designated media for corporate disclosure include seven newspapers (China Securities Journal, Securities Daily, China Daily, Financial Times, China Reform Daily, Securities Times, Shanghai Securities News), one magazine (Securities Market Weekly), and two websites (www.cninfo.com.cn , www.cnstock.com).

[24] Article 62 of Section 3 of China's securities laws requires, as of July 1, 1999, that listed companies announce major events such as major changes in management policy and business scope; decisions on major investments and property acquisition; important contracts that may impact companies' assets, liabilities, rights, and interests; major losses; major changes in the external conditions for production and management; changes in the Chairman of board of directors or over one third of the directors; and major litigation.

[25] For firms that announce bank loans, we verify that none had seasoned equity offerings during the accounting year prior to the bank loan announcement.

[26] There are 146 firms and 208 firm-year observations. 91 firms have one loan announcement, 23 have two announcements, 12 have three, 8 have four, and 12 firms have five or more announcements.

remains weak, with a low chance of violators being caught or punished severely. Thus, some companies may not actively, promptly, and fully disclose according to regulation. To account for the possibility that some firms obtained loans but made no public announcement, we also collect data on companies with no bank loan announcements but with increases in long-term loans on the balance sheet during our sample period of 1999 to 2004.

We obtain additional market and accounting data from GTI Financial Information (www.gti.cn). We collect data on related party transactions from annual reports that listed companies are required to file online.[27] The "Accounting Criteria of Corporations" issued by China's Ministry of Finance defines a "related party" as capable of benefiting from significant influence or control rights over a listed firm's financial and operational activities. Related parties of a public company may include its parent company or subsidiary companies, other companies that share its parent, its large and influential investors, its joint venture or joint operating partners, the principal individual investor or key management personnel and their family members, and other companies controlled or heavily influenced by its principal individual investor, key managers or family members. CSRC regulations require listed companies to report significant transactions with related parties such as payments for (or transfers of) goods, services, rent or intellectual property, transfers of assets or stock ownership, joint investments, providing or obtaining loans, or providing collateral or other guarantees for loans.[28] In particular, companies must disclose any related party transaction with value exceeding 30 million yuan, 5% of book value of equity, or 10% of net profit. We collect information about related party transactions

[27] See www.jrj.com.cn, which we cross-check against www.sse.com.cn and www.cninfo.com.cn.

[28] See "Disclosure Requirements for Publicly Listed Companies – Criteria of Content and Format, No. 2 – Annual Report", CSRC, 8th December 1999, at http://www.csrc.gov.cn

from the "Related Party Relationships and the Business Transactions" category in each annual report. In particular, we use "other accounts receivables" from this category to proxy for the degree of expropriation or tunneling.[29] This variable reflects the cash amount owed by related parties that are not associated with sales of goods. This accounting item largely reflects a firm's financial resources used by its related parties. This proxy for potentially abusive related party transaction parallels previous studies such as Jiang, Lee, and Yue (2010).

V. Empirical Results

A. Summary Statistics

Panel A of Table 1 provides descriptive statistics on borrowers and loans. Results indicate that borrowers are typically listed on an exchange for several years. The firm size of our sample firms is smaller than the average of all listed companies. The average total assets of sample firms is 1.3 billion yuan (about 190 million U.S. dollars), while the median is 0.92 billion yuan, slightly less than the mean and median of the total assets of all listed companies.[30] Loans are typically substantial, averaging 94 million yuan (about 13.4 million U.S. dollars), consistent

[29] The three primary types of related party transactions for which CSRC requires disclosure are purchase and sale of goods and services between a listed company and a related party, asset acquisition or stock ownership transfer between a listed company and a related party, and corporate lending or guarantees for obtaining collateral loans provided by (for) a listed company for (by) a related party. From the Related Party Transactions part of each annual report, we manually collect "other accounts receivables". We use this accounting item in our analysis, because it reflects receivables (generated from the above three types of related party transactions) owed by a related party but not paid, or at risk of never being paid and thus are likely to reflect transactions related to "tunneling" activities such as embezzlement of corporate assets by related parties.

[30] The mean (median) of total assets of all stock exchange listed companies is 2.4 (1.2) billion yuan.

with the fact that only companies obtaining large loans are required to report. There is moderate variation in maturity of loans, with the average maturity of about 2 years. Notably, there is little variation in the interest rate on loans. The mean (median) interest rate is 5.6% (5.4%). Chinese banks have had little flexibility in determining lending rates, and this is reflected in the relatively low range of rates. In recent years, the central bank has applied a floating band for the lending rate.

Panel B of Table 1 summarizes additional characteristics of the loans and borrowers. Slightly more than forty percent of the loans (118 out of 285) are from one of the Big Four state-owned banks. Of them, about two-thirds (79) are issued to state-controlled firms. Of the loans made by state banks other than the Big Four (164), over eighty percent are issued to state-controlled companies. Due to the lack of development of private banks, almost all loans are made by state-owned banks, with only three loans from a privately-owned bank, China Min Sheng Bank. Most firms are majority-owned by government entities. For example, 216 bank loan announcements are from firms with the largest shareholder being the state or state related institutions. Note that most Chinese listed companies are effectively controlled by government entities due to large, if not majority, ownership.

There is some information on the intended use of loan proceeds. For example, 22 announcements indicate that the loan will be used for new investment projects while 66 indicate that the loan will be used to repay existing debt. Furthermore, 13 announcements are for borrowers with audit problems during the announcement year, 5 are for borrowers that have been admonished for improper behavior by the China Securities Regulatory Commission (CSRC), and

19 announcements are for borrowers currently under "Special Treatment" status.[31] The largest percentage of the loan announcements is for borrowers in manufacturing industries (138 out of 285). Finally, 12 announcements are from companies whose equity includes foreign-targeted B or H shares.

B. Factors Affecting the Likelihood of Receiving Bank Loans

We first identify the factors that affect the likelihood of getting a bank loan. Given the political objectives Chinese banks traditionally have to serve, we conjecture that poorly performing firms in China can often get bank loans due to political or personal connection. For an alternative view of what types of companies are more likely to receive bank loans, we conduct a logit regression analysis. The dependent variable equals 1 for each firm-event in our loan announcement sample and equals 0 for a matching sample constructed each year from all companies that do not have loan announcements and have no increase in long term debt on their balance sheets. Specifically, for each firm-event in our loan announcement sample, we first identify all other companies from the same industry and select the one with the closest amount of total assets, as long as it is within 10% of the sample firm's total assets. Independent variables in the logit regression include return on assets, the yearly change in corporate income and business taxes (scaled by total assets) in the announcement year, a dummy variable set to 1 if the largest shareholder is a state enterprise, and the yearly change in total "managerial expenses" (scaled by

[31] In February 2001, the CSRC started delisting companies that had lost money for three consecutive years. To monitor troubled firms, the stock exchanges categorize companies that have recorded two consecutive years of losses as "special treatment" (ST) shares.

total assets) in the announcement year.[32] "Managerial expenses" include compensation, travel and entertainment, a variety of benefits and subsidies, and other perquisites. We also include a dummy variable for "entry barrier", which equals 1 for a company is in a relatively monopolistic industry[33] and 0 otherwise.

Results are reported in Table 2. Clearly, firms with poorer performance as measured by return on assets are more likely to receive bank loans. This is broadly consistent with H1b, confirming that banks in China frequently use policy loans to prop up ailing companies and that the probability that bad firms receive loans is higher than good firms. Results from other regression specifications indicate that firms with greater increase in managerial expenses have higher probability of receiving bank loans. Similar to the "expense ratio" in Ang, Cole, and Lin (2000), managerial expense reflects agency costs. This confirms that Chinese firms with higher agency costs tend to rely more on bank loan financing because they are inefficient, more in need of state support, and possibly more subject to tunneling and other forms of theft. The entry barrier dummy is significantly negative, suggesting that companies in monopolized industries generate excess cash flow from monopoly rents and have less need to raise capital with bank loans.

To examine associations between borrower characteristics and whether a loan comes from a Big Four state bank or another bank, we estimate binary logit regressions with dependent

[32] This variable is similar in spirit to the "expense ratio" used by Ang, Cole, and Lin (2000) in their study of governance in U.S. small businesses.

[33] Mining, real estate, media and culture, power, gas, and water, transportation and storage, banking, finance and insurance, metals and non metals, petroleum, and chemicals and rubber.

variable set to 1 for a loan from a Big Four state bank and 0 for a loan from other banks.[34] The results indicate that state-controlled companies are more likely than other companies to receive loans from the Big Four. Across specifications, the slope coefficient on the SOE dummy ranges from 0.874 to 0.948, implying the predicted odds that a state-controlled company receives a loan from a Big Four bank is about 2.5 times the odds for a non state-controlled firm. This is consistent with the political mandate of Big Four state banks to keep large state-controlled companies afloat. We also conduct multinomial logit regressions with dependent variable set to 1 for loans from the Big Four, 2 for loans from other banks, and 3 for matching firms without loans. Results are similar to those from the binary logit regressions.

C. Long-run Performance Following Bank Loan Announcements

We have found that poorly performing firms are more likely to get bank loans. This raises the question of whether bank loans are typically used to keep financially troubled firms afloat, rather than funding positive NPV project that improve borrower performance. Hence, we examine whether firms that receive loans display subsequent performance improvement. We investigate long term financial performance after bank loan announcements using both raw and industry- adjusted return on assets (ROA) and return on equity (ROE). We compute averages of ROA and ROE in the year before, during, and after each bank loan announcement, then test the significance of the change in mean ROA and ROE following the bank loan announcement. We exclude 19 announcements for companies that were under special treatment status (ST), as these companies are particularly prone to providing very misleading accounting information. In addition, companies with more than one announcement in a particular year are only included once for that year. The final sample size for this analysis is 251.

[34] Results are not reported for brevity, but are available upon request.

Table 3 presents the summary statistics and significance tests on borrower performance around bank loan announcements. We find that firms that obtained bank loans have significantly lower ROA and ROE in the year following the announcement. For example, ROA (ROE) declines to -1.29% (-1.39%) in the announcement year from 1.96% (2.78%) in the previous year. These numbers further declined to -3.41% (-1.67%) in the first year after the announcement and -6.78% (-32.81%) in the second year after the announcement. Industry-adjusted ROA and ROE show similar patterns, as do medians. These declines are statistically significant in most cases. Thus, firms that obtain bank loans typically experience deterioration in long term financial performance. This supports hypothesis H2b and is consistent with state banks offering loans to keep state-connected firms afloat.

To overcome any possible selection bias in our data, we conduct an additional matching sample test of whether receipt of a bank loan predicts subsequent poor long run financial performance. We examine the change in ROA and ROE for two groups of firms matched on total assets and the book value of long term loans. The first group consists of companies that do not have bank loan announcements but display increases in long-term debt on the balance sheet for a particular accounting year during our sample period of 1999 to 2004.[35] We obtain 119 such firms.[36] The second group consists of companies that do not record increases in long-term debt for any particular accounting year during our sample period. We obtain 153 such firms. Again,

[35] If loans that are not announced reflect firms hiding bad information, the exclusion of these firms from our basic event study sample should bias our event study results against finding significantly negative announcement effects.

[36] We use the increase in "long-term debt" on the balance sheet to proxy for the increase in long-term loans: "long-term debt" primarily reflects long-term bank loans since corporate bond issues are rare in China. We do not consider "short-term debt" which, according to Chinese accounting principles, "short term debt" includes many non-bank related short-term liabilities such as accounts payable, wages and benefits owed, stock dividends, and taxes owed.

we compute summary statistics for ROA and ROE for the year before, during, and after the announcement. We also compute significance tests on the changes in means and medians of ROA and ROE across the three year periods. Table 4 reports the results, with Panel A reporting the first matching group and Panel B reporting the second matching group.

Panel A of Table 4 shows that, for companies with no bank loan announcements but increases in long-term loans on their balance sheet, there are significant declines in the mean (or median) of ROA and ROE following the long term debt increase. In contrast, Panel B shows that, for companies without increases in long-term loans on their balance sheet, there is no significant change in ROA or ROE. This confirms that bank loans in China are often used to keep financially troubled firms afloat, instead of being used to fund positive NPV projects.

D. Abnormal Returns Around Bank Loan Announcements

Our evidence so far suggests that firms with poorer performance and higher agency costs are more likely to receive loans to prop them up. Our model predicts that the loan announcement effect will be negative if the probability that bad firms receive loans is higher than good firms. To test this hypothesis, we examine the average abnormal stock returns (AAR) and average cumulative abnormal returns (CAR) of borrowers around loan announcements. We compute AAR and CAR using the market model. The estimation window for calculating the market model parameters is the event time interval [-120, -21], with time 0 being the announcement day.[37] AAR and CAR are tested for significance using a two-tail t-test with the null hypothesis that abnormal returns are not statistically different from zero. We also report nonparametric sign test and Wilcoxon signed-rank test results. The sign test categorizes data into binary outcomes with null hypothesis being the percentage of negative AAR (CAR) equal to the percentage of

[37] Results are robust to a variety of estimation windows.

positive AAR (CAR). The alternative hypothesis is that the percentage of negative returns is greater than the percentage of positive returns. The Wilcoxon signed-rank test embeds the information of magnitudes with the null hypothesis being that there is no difference in magnitudes between the negative and positive AAR (CAR). The alternative hypothesis is that there is a difference in the magnitude between the two populations.

Table 5 presents summary statistics on abnormal returns around bank loan announcements. Panel A shows that for nearly all reported windows, CARs are strongly significantly *negative* under three alternative parametric and non parametric significance tests. For example, the average [-1, 1] CAR is -0.391% and the average [-1, 4] CAR is -0.640%, and they are statistically significant at the 5% level. Thus, the typical effect of a bank loan announcement is a decrease of one-third to over one-half percent in the value of the borrowing firm's equity over several days following the bank loan announcement. This is consistent with H3b. The average [-5,-2] CAR is positive and insignificant. This suggests that there is no systemic information leakage prior to the loan announcement.[38]

Panel B reports the value of CAR at different percentiles ranging from the 5th to 95th percentiles. It is evident that that the CARs are widely distributed among positive and negative values. Panel C reports loans across different types of banks and companies. We conjecture that the CARs are different for loans with different intensity of bank monitoring or likelihood of lending based on political reasons. For loans by Big Four state banks to state-controlled companies, CAR is significantly negative. However, CARs are not significant for loans by the Big Four to non state-controlled firms. Similarly, CARs are not significant for loans made by

[38] We define the announcement day (day 0) as the date that newspaper and other financial media publish the loan announcement. It is likely that some announcements occurred on day -1, but appeared on newspaper on day 0.

other state banks regardless of state control of the borrower. Interestingly, the three loans made by a privately-owned bank display positive CARs. These findings imply that stock market participants understand that bank loan decision process can vary across types of banks and types of borrowers. It is plausible that loans by the Big Four to state-owned firms are particularly likely to reflect political considerations.

The negative stock market reaction to bank loan announcements in China confirms the complex workings of China's evolving banking system, contrasting dramatically with the findings of earlier studies of more-developed countries. To further characterize this negative reaction, we group our events into pairs according to firm, loan, and lender characteristics. For example, we group bank loan announcements as those intended to repay or extend an old loan, versus those intended to supply cash for operations or fund new investments. We then conduct univariate tests to compare whether the abnormal returns are statistically different between the two groups in each pair.

Table 6 provides summary statistics on [-1, 4] cumulative abnormal returns broken down by firm (Panel A), loan (Panel B), and lender (Panel C) characteristics. Because some loan announcements may have become known just prior to the official announcement date, we focus on the CAR over a six-day event window [-1, 4] following Harvey, Lins, and Roper (2004).

We first sort the announcement data by firm characteristics. To assess the connection between potentially abusive related party transactions (RPT) and the strength of the negative bank loan announcement return reaction, we divide the sample into firms with increases in RPT and firms with no increase in RPT in the announcement year. Panel A of Table 6 shows that the negative stock return effect of loan announcement is significantly greater for firms with increased RPT (-1.173%) than for firms without increased RPT (-0.423%). The comparison

between top and bottom quintiles of net increase in RPT gives a much stronger result. The difference in CAR between top and bottom quintiles is nearly 1.4% and it is statistically significant.[39] This suggests that the market has a negative view of loans to poorly-governed firms that are more likely to engage in transferring or tunneling borrowed funds. This result supports H4b. Thus, information about the use of a firm's resources by related parties serves as an important indicator of the quality of corporate governance. Results from sorting firms based on market capitalization indicate that the negative reaction to loan announcements is stronger for smaller firms than for larger firms.

Sorts on financial performance (ROA and ROE) suggest that the negative response to bank loan announcements is stronger if performance has deteriorated in the announcement year. These findings are consistent with H3b. Panel A also shows the negative announcement effect is stronger for firms with above median percentage of shares controlled by the largest shareholder. While this contrasts with the finding of Durnev and Kim (2005) that higher ownership concentration is associated with better governance, large shareholders in China are mostly government entities which may be associated with greater probability of tunneling or weaker management. We also find that the negative announcement effect is greater for state-owned firms: for the 69 announcements from non-state owned borrowers, the average CAR is insignificant. Surprisingly the 19 announcements from firms under special treatment status (ST) display statistically insignificant average CAR. Perhaps these particularly troubled firms are perceived as already being propped up by the Chinese government and, therefore, announcements of additional bank loans have little informational value. We further sort borrowers on whether they were sued by any banks or financial institutions over credit disputes during the sample period. Such borrowers should have higher probability of default and, therefore, display stronger

[39] To conserve space, the results of quintile-based sorts are not reported.

negative bank loan announcement effects. Indeed, the results show that borrowers that have been sued experience significantly negative CAR around the loan announcement.

Sorting the announcements by loan characteristics also yield some interesting results as reported in Panel B of Table 6. The negative stock return effect of a loan announcement is significantly greater for loans used for repayment of old loans (-1.11%) versus other uses of the funds (-0.50%). This result suggests that the stock market does not like firms that appear to need to repeatedly roll over their debt. Furthermore, firms that use loans for long term investment (perhaps an indicator of heavy industry) have significantly negative cumulative abnormal return. This suggests that the market may not favor loans to troubled "rust belt" firms. Lastly, loans with shorter maturity (one year or less) have more negative average CAR than loans with longer maturity. Indeed, there are many examples of Chinese companies using short-term borrowing to fund long-term assets.

Panel C of Table 6 reports univariate statistics on announcement effects sorted on lender characteristics. Although the sample is quite small, it is notable that the three loans issued by the only private bank in the sample (China Min Sheng Bank) have a positive 5-day average CAR of 4.7%. This result supports H6a. In addition, the negative CAR is larger for loans from the Big Four state banks than for loans from other banks. This evidence supports hypothesis H6b, which predicts that the borrower's loan announcement return is even more negative if the loan is obtained from one of the Big Four state banks. Further highlighting lender characteristics, the negative CAR is stronger and significant for loans issued by a bank's local branch such as municipal or township bank branches below the provincial level (-0.63%). In contrast, the average 5-day CAR for loans issued by the provincial level branches and headquarters is not significantly different from zero. Local branches seem to be different. This is consistent with the

hypothesis that local branches are more prone to local government influence and suffer higher moral hazard. Indeed, the banking system in China remains fragmented and a significant portion of loans are made through widespread local branches.[40]

Finally, for evidence of the role of lending banks in ex post loan monitoring, we sort the banks on whether they have filed lawsuits against any borrowers during the sample period. We have two competing predictions regarding the impact of this factor, which indirectly suggests banks' monitoring effort. A bank that fails to invest adequately in evaluating a prospective borrowers' creditworthiness is more likely to be involved in lawsuits over repayment disputes. Market participants react negatively to loans from such a bank. On the other hand, if market participant view involvement in lawsuits against defaulting borrowers as a signal of a bank's active monitoring, the market reaction to a loan can be positive. The results show that stock traders react negatively to loans from banks with lawsuits, which is consistent with the first prediction. Collectively, the results in Table 6 suggest that the strength of the negative market reaction to bank loan announcements relates to firm, loan, and lender characteristics in a manner that confirms our hypotheses.

E. Cross-Sectional Analysis of Event Study Responses

Next, we conduct cross-sectional regression analysis to explain the stock price response to bank loan announcements. The dependent variable is the cumulative abnormal return for the six-day event window of [-1, 4]. We select independent variables to proxy for firm, loan, and lender characteristics as follows. Firm size (log of market capitalization) captures the idea in Diamond

[40] For example, the Agriculture Bank of China still has 31,000 branches even after eliminating 20,000 branches as of 2005 (Dobson and Kashyap, 2006).

(1991) that bank monitoring may be especially valuable to small firms with no established reputation (MKT_CAP). Profitability is measured with ROA, Corporate governance proxies reflect whether the board of directors has government connections (POLITICAL) and whether a borrower is financially distressed and officially categorized as under 'Special Treatment' (DISTRESS).[41] To account for possible expropriation or tunneling, we include the change in other accounts receivables (scaled by total assets) due to related party transactions from the accounting year prior to the announcement to the announcement year (RPT). CRTL_RIGHT is a dummy that takes value of 1 if the percentage of shares outstanding owned by the largest shareholder (usually the state) is greater than the median value and 0 otherwise. Loan and lender characteristics include a dummy indicating intended use is repaying existing debt (PURPOSE_REPAY), a dummy indicating intended use is investment (PURPOSE_INVEST), and a dummy indicating the lender is one of the Big Four state banks (BIG4_LENDER). To account for the monitoring role of lenders, we include a dummy variable indicating whether a loan is issued by a bank's local branches below the provincial level (SUB_BRANCH). Sub-branches are thought to be prone to local government's pressure and typically weaker in monitoring. To proxy for the ease of monitoring a particular borrower, we introduce asset (collateral) and earnings (ability to service a loan) measures.[42] In particular, we include as

[41] We examined other variables such as the number of employees, a dummy variable for geographic location, earning's opacity, a dummy variable for heavily regulated firms, a dummy variable if the loan announcement is preceded by another from the same company within 12 months, and the number of institutional investors in the top 10 largest shareholders. All proved insignificant, and are not reported for brevity.

[42] Recent studies have used various indirect proxies, such as ratio of salary expense to total non-interest expense (Lee and Sharpe, 2009), for bank's monitoring ability. This ratio, however, may not be applicable in Chinese banks, where salary packages for executives are largely regulated. For example, according to Wall Street Journal report

explanatory variables the ratio of net fixed assets to total assets (TANGIBLE) and the absolute value of the earnings change, $|EPS_t - EPS_{t-1}|$,[43] scaled by the standard deviation of the previous four semiannually reported earnings per share (EARNINGS_VOL). TANGIBLE indicates how easy it is for the lender to assess and monitor collateral. EARNINGS_VOL measures the volatility of earnings and, hence, the predictability of cash flows. Table 7 reports correlations among selected regression variables. They are typically insignificant or small.

Table 8 presents the regression results. A few significant results stand out. In all specifications, the coefficient for RPT, the change in other accounts receivables due to related party transactions, is significantly negative, and robust to the inclusion of other explanatory variables. This finding suggests that firms with higher growth of resources used by related parties have greater negative stock price reaction following bank loan announcements. This supports hypothesis H4b and the basic idea that China's banking system may largely serve to prop up weak or dysfunctional firms. In particular, the association between event study residuals and related party transactions indicates that the stock market is aware of the relationship between firm quality and loans that our model captures.

The coefficient for CTRL_RIGHT is significantly negative in all three specifications that include it, suggesting that the negative stock price reaction is much stronger for firms with greater than median percentage of shares outstanding owned by the largest shareholder. Because the state typically is the largest shareholder, this suggests that larger concentration of state

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(February 1, 2010) the bank's top executive of Industrial and Commercial Bank of China received total compensation of about $235,000, compared to a reported profit of $16 billion in 2008, a 36% jump from the year earlier.

[43] Given a lack of I/B/E/S or other earnings forecast data for China for the period we study, we employ the change in EPS as a proxy for the earnings surprise.

ownership signals higher probability of poor performance. This finding is broadly consistent with H4b. The coefficients for dummy variables PURPOSE_INVEST and PURPOSE_REPAY are, in most cases, marginally significantly negative. This suggests that investors react negatively to announcements of loans used for long-term investment (perhaps indicating overinvestment in employment-rich heavy industry), or for rolling over existing debt (perhaps indicating continued support for troubled firms). The variables reflecting lender characteristics (dummies for sub-branches and Big Four state banks) are not significant, perhaps because they are subsumed by bank fixed effects terms. The coefficients for the volatility of earnings surprise are negative. This suggests that, if a company's cash flow is highly unpredictable, it is more difficult for banks to monitor, and market participants react negatively to the announcement of a loan.

The ex ante probability of receiving a loan is included to control for possible sample selection bias. Following Heckman (1979), the first (unreported) stage is to estimate a probit regression that models the likelihood that a firm receives a bank loan. The dependent variable is 1 if a firm receives a loan and 0 otherwise. The explanatory variables are return on assets in the accounting year prior to the announcement year, the change in corporate income and business taxes in the announcement year over the prior year (scaled by total assets), a dummy variable set to 1 if the largest shareholder is a state enterprise, the change in total managerial expenses (scaled by total assets) in the announcement year over the prior year, and the entry barrier dummy variable. The resulting fitted values are used to compute the inverse Mills ratio. Table 8 shows that the coefficients on the inverse Mills ratio are not statistically significant, suggesting little sample selection bias.

F. Event Study Responses and Accounting Performance

As a final check of the relation between short-term market response and long-run accounting performance (H5), we group the companies based on their cumulative abnormal return (CAR) around loan announcement and test for the significance of changes in ROA and ROE before versus after loan announcements. The CAR is measured over a six day period from one day before to four days after the announcement (CAR[-1, 4]). Table 9 reports results for companies grouped on positive versus negative CAR, and on the highest and lowest CAR declines. Among the 159 events with negative CAR, ROA and ROE decline significantly from the accounting year before to the first and second accounting year after the loan announcement. In contrast, the changes in ROA and especially ROE are weaker as shown in the significance test of mean difference for the 121 events with positive CAR. Echoing those findings, significant declines in ROA and ROE in the first and second accounting year after loan announcement are observed for firms in the lowest CAR quintile while no significant changes in the first and second accounting year (as shown in t-test for mean difference) are observed for firms in the highest CAR quintile. These results generally support H5, suggesting that investors can estimate firm performance when interpreting loan announcement information based on relevant loan, firm, and lender characteristics.

G. Do Bank Loan Announcements Also Affect the Lender's Stock Price Negatively?

We have established that the announcement of a bank loan by a Chinese corporate borrower is often associated with a significant decline in the borrower's stock price. If these loans signal, or even subsidize, poorly-performing firms, there may be a response somewhere else in the banking system. Therefore, following Kang and Liu (2006), we also investigate the impact of bank loan announcements on the stock returns of lenders. Unfortunately, the largest

Chinese banks were not yet listed on stock markets during our sample period and we must rely on a small sample of loan events associated with smaller listed banks. We conducted an event study on 24 bank loan announcements involving lenders that were listed on the stock market at the time of the announcement. The results (unreported but available upon request) indicate no statistically significant market response for the stock price of the lending bank. This insignificant finding may be due to the very small sample size or the small size of our sample of bank loans relative to typical bank assets. The structure of the relationships between individual banks and the banking authorities may also subsidize bad loans to corporate borrowers. For example, state commercial banks have been permitted to liberally write-off bad loans against their earnings, effectively reducing their tax liability. State-owned asset management companies were set up to purchase troubled assets (mainly non-performing loans) from the "Big Four" state banks. Some bonds issued by the Ministry of Finance have been used to inject funds into state banks. Recently, the government has formalized the process of topping up bank balance sheets by establishing Central Hui Jin (Remittance) Investment Ltd. Co., whose shareholders include the central bank and other government agencies. The company has injected large amounts of foreign reserves onto the balance sheets of state commercial banks.

VI. Summary and Conclusions

We study the process of bank lending to corporations in a transitional environment. A simple model of a pooling equilibrium suggests that both negative and positive announcement effects are possible, depending on whether the banking system is run on purely commercial terms or is subject to political goals. Empirical results are based on a sample of large loans from Chinese banks to listed Chinese borrowers. We find that poorly performing firms are more likely

to receive bank loans, and these loans appear intended to keep troubled firms afloat as subsequent long-run performance is typically poor. Stock values for Chinese borrowers typically *decline* significantly around bank loan announcements. Furthermore, these negative announcement effects are heightened for borrowers with frequent related-party transactions, poor subsequent performance, high state ownership, no foreign class shares, loans from local bank branches, or loans intended to repay existing debt. Thus, the Chinese stock market appears to understand corporate performance and what these loans mean, and responds accordingly, in contrast to the widely-held perception that it is inefficient.[44]

Our results are of interest to a variety of policy makers and regulators. China's banking system is still a work-in-progress, as indicated by the unflattering associations between bank borrowing and poor corporate performance that we document. Our study provides lessons for other less-developed countries, and, given recent failures in U.S. and European banking systems, is of even broader interest given that state ownership and control of banks has unexpectedly become much more common around the world.

The condition of China's banking system is of interest to a variety of potential investors. For example, in 2006, Bank of China and Industrial and Commercial Bank of China raised $22 billion and $11 billion respectively in initial public offerings on global stock markets. More recently, the authorities encouraged, then reined in, large increases in bank lending intended to

[44] Economist Jinglian Wu of the Development Research Center of State Council was quoted in early 2001 that "China's stock markets are heaven for speculation, … the markets lack rules and are worse than a casino where there are rules for gambling," *The Wall Street Journal* of August 22, 2001 notes: "In ten years since they were founded, China's stock markets have operated like casinos, driven by fast money flows in and out of stocks with little regard for their underlying value."

stimulate the economy but potentially stoking another real estate bubble.[45] Foreign banks and other strategic investors placed huge amounts of funds in these banks in the form of direct purchases of minority ownership stakes. Our results highlight the substantial risks that China's banks pose for investors. While China's high savings rate (40% of GDP) helps keep the country's banks afloat, a financial crisis or significant drop in the savings rate could easily expose the poor quality of many of the banking system's assets and precipitate bank runs.

Our results also contribute to understanding broader paradoxes in China's economy. Given large imbalances in trade and investment, China has come under pressure from the U.S. and other major trading partners to make the yuan a fully convertible currency valued purely by market forces. It is commonly believed that such a move by China's government will lead to further appreciation of the yuan and a reduction in trade and investment imbalances. However, if controls are removed and China's citizens send their savings overseas for diversification or other purposes, it is plausible that a freely-floating yuan will decline in value, rather than appreciate. A stampede out of the yuan would be associated with massive withdrawals of funds from Chinese banks which, in turn, would impede the ability of the banks to continue subsidizing poor-performing Chinese corporations. This in turn could lead to massive unemployment and social instability as these firms collapse, thus threatening stability in China and beyond. Indeed, the Chinese government has indicated its belief that the currency regime cannot be fully liberalized until reform of the banking system is complete.[46] Thus, our study of Chinese bank

[45] "Loans, property surge in China", 12th February 2010, WSJ.com.

[46] See for example Xinhua News Agency report on "China Central Bank Governor Mr. X. C. Zhou on Chinese Exchange Rate Reform", October 3, 2004.

loans reminds us of the far-reaching consequences and contradictions that arise in reforming state-led banking in a transitional economy.

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Table 1
Sample Characteristics and Descriptive Statistics

The sample consists of loan announcements from 1999 through 2004 by companies listed on the Shanghai or Shenzhen stock exchanges.

Panel A: Descriptive statistics on borrowers and loans	Mean	Median	Minimum	Maximum	Observations
Years borrower listed on stock exchange	6.257	6.230	0.753	12.301	285
Total assets (million yuan)	1367.240	917.332	220.443	17692.200	285
Tradable shares market value (million yuan)	827.749	625.962	102.033	5870.492	285
Amount of loan (million yuan)	94.274	58.000	2.000	1500.000	285
Maturity of loan (years)	1.618	1.000	0.083	15.000	271
Interest rate on loan (%)	5.598	5.441	3.567	7.282	195

Panel B: Other sample characteristics	Observations
All loan observations	285
Firm-year observations	208
Borrower's largest shareholder is state or state related institutions	216
Borrower's equity includes B or H shares	12
Borrowers admonished by Chinese Securities Regulatory Commission	5
Borrowers had problems in audit in announcement year	13
Borrowers under Special Treatment (ST) status	19
Borrowers with negative profits in the previous year	19
Borrowers from manufacturing industry	138
Borrowers from information technology industry	22
Borrowers from real estate industry	14
Borrowers from transportation industry	22
Loans from one of the big-four state banks	118
Loans by big-four state banks to state-controlled firms	79
Loans by the big-four state banks to non state-controlled firms	39
Loans from local branches of state banks	142
Loans from state banks other than the Big-Four	164
Loans by above state banks to state-controlled firms	134
Loans by above state banks to non state-controlled firms	30
Loans from privately owned banks	3
Loans used for new project investment	22
Loans used to repay existing debt	66

Table 2
Factors Affecting the Likelihood of Receiving a Bank Loan

This table reports results of logit regressions for determinants of receiving bank loans. The dependent variable is for firm-events in our loan announcement sample and 0 for matching firms that did not have loan announcements and have no increase in long term debt on their balance sheets. For each firm-event in our loan announcement sample, we first identify all other companies from the same industry and select the one with the closest amount of total assets as the matching firm. We restrict the difference in total assets to ±10%. We obtain a total of 277 firms as the matching group. Thus, the total number of observation is 562. ROA is return on assets in the accounting year prior to the announcement year. TAX_CHANGE is the change in corporate income and business taxes in the announcement year over the prior year, divided by the total assets. SOE is a dummy variable set to 1 if the largest shareholder is a state enterprise. MANAGERIAL_EXP is the change in total managerial expenses in the announcement year over the prior year, divided by total assets. Entry_Barrier is a dummy variable set to 1 for borrowers in monopolistic industries (mining, real estate, media and culture, power, gas, and water, transportation and storage, banking, finance and insurance, metals and non metals, petroleum, chemicals and rubber. Z-scores are reported in parentheses. "***", "**", and "*" indicate significance at the 1, 5, and 10 percent levels, respectively.

	1	2	3	4	5	6	7
Intercept	0.261**	0.038	0.021	-0.083	0.104	0.159***	-1.637***
	-2.347	-0.454	-0.244	(-0.643)	-0.845	-16.799	-12.786
ROA	-0.070***						-1.616*
	(-3.963)						-1.948
TAX_CHANGE		-14.712					-8.791
		(-1.629)					-1.521
MANAGERIAL_EXP			0.932*		0.998*		0.881*
			1.717		1.847		1.823
SOE				0.195	0.219		0.157
				1.145	1.274		1.190
Entry_Barrier						-0.053***	-0.418***
						-3.187	-2.801
Observations	562	562	562	562	562	562	562

Table 3
Accounting Performance Before and After Bank Loan Announcements

This table reports the percentage return on assets (ROA) and return on equity (ROE) around bank loan announcements. ROA_{-1} and ROE_{-1} are the ROA and ROE of a company in the accounting year before the bank loan announcement. ROA_0 and ROE_0 are the ROA and ROE in the announcement year, while ROA_1 (ROA_2) and ROE_1 (ROE_2) are the ROA and ROE in the first (second) accounting year after the announcement. We report both raw and industry adjusted values. The adjustment consists of subtracting median or mean industry ROA or ROE from raw values. We exclude observations with negative earnings and negative assets as well as those companies under special treatment status (ST), as these companies are particularly prone to providing very misleading accounting information. The final sample size is 251. T-test (sign-test) tests the difference in mean (median) of ROA and ROE. "***", "**", and "*" indicate the test in the mean (median) difference is significant at the 1, 5, and 10 percent levels, respectively.

		ROA_{-1}	ROA_0	ROA_1	ROA_2	ROE_{-1}	ROE_0	ROE_1	ROE_2	T-test on mean (ROA_1-ROA_0)	Sign test on median (ROA_1-ROA_0)	T-test on mean (ROE_1-ROE_0)	Sign test on median (ROE_1-ROE_0)	T-test on mean (ROA_2-ROA_0)	Sign test on median (ROA_2-ROA_0)	T-test on mean (ROE_2-ROE_0)	Sign test on median (ROE_2-ROE_0)
Raw	Mean	1.96	-1.29	-3.41	-6.78	2.78	-1.39	-1.67	-32.81								
	Median	3.26	2.33	1.623	1.01	6.94	6.48	4.26	3.00								
	Max	16.14	13.71	13.29	26.67	27.91	315.86	315.86	315.86	-3.40***	-5.56***	-2.75***	-3.91***	-3.72***	-4.04***	-1.67*	-3.35***
	Min	-66.21	-311.99	-311.99	-311.99	-301.98	-1076.87	-491.91	-5763.68								
	Std. Dev.	7.35	27.33	33.02	36.00	24.49	71.06	42.45	359.77								
Adjusted by industry median	Mean	-1.71	-4.60	-6.49	-10.38	-5.18	-8.77	-8.82	-38.06								
	Median	-0.52	-0.90	-1.46	-2.34	-1.35	-1.20	-3.49	-3.83								
	Max	12.77	10.17	10.32	21.66	26.59	308.19	308.19	308.19	-2.83***	-3.66***	-2.68***	-2.78***	-3.86***	-4.55***	-1.67*	-3.28***
	Min	-70.16	-314.99	-314.99	-314.99	-309.90	-1083.03	-500.64	-5771.83								
	Std. Dev.	7.30	27.31	33.03	35.89	24.67	70.66	41.98	350.27								
Adjusted by industry average	Mean	0.17	-2.52	-3.73	-6.85	3.45	2.05	5.10	-26.84								
	Median	0.87	0.66	1.02	0.17	4.33	5.66	7.09	4.72								
	Max	14.11	31.30	16.00	26.91	444.54	324.17	324.17	324.17	-1.15	-1.39	-1.00	-2.78***	-3.30***	-1.77*	-1.64*	-2.90***
	Min	-66.96	-311.91	-311.91	-311.91	-298.45	-1064.99	-487.47	-5758.46								
	Std. Dev.	7.44	27.30	32.99	35.43	36.14	71.19	42.44	350.06								

Table 4
Accounting Performance of Matching Companies

The table reports percent changes in return on assets (ROA) and return on equity (ROE) of companies in matching groups constructed by first selecting companies that have similar total assets to our sample companies and then grouping based on long term loans on the balance sheet. ROA_{-1} and ROE_{-1} are the ROA and ROE of a company in the accounting year before the bank loan announcement. ROA_0 and ROE_0 are the ROA and ROE in the announcement year, while ROA_1 (ROA_2) and ROE_1 (ROE_2) are the ROA and ROE in the first (second) accounting year after the announcement. In panel A, the matching group includes companies that do not have bank loan announcements but have recorded increases in long-term loans on their balance sheet for a particular accounting year during our sample period. In panel B, the matching group includes companies that do not have increases in long-term loans in their balance sheet for any particular accounting year during our sample period. T-test (sign-test) is for testing the difference in mean (median) of ROA and ROE. "***", "**", and "*" indicate significance at the 1, 5, and 10, percent levels, respectively.

	ROA_{-1}	ROA_0	ROA_1	ROA_2	ROE_{-1}	ROE_0	ROE_1	ROE_2	T-test on mean (ROA_1-ROA_0)	Sign test on median (ROA_1-ROA_0)	T-test on mean (ROE_1-ROE_0)	Sign test on median (ROE_1-ROE_0)	T-test on mean (ROA_2-ROA_0)	Sign test on median (ROA_2-ROA_0)	T-test on mean (ROE_2-ROE_0)	Sign test on median (ROE_2-ROE_0)
Panel A: Companies with increases in long-term loans on their balance sheet but without bank loan announcements (Sample size: 119)																
Mean	0.51	1.36	0.24	-16.71	-13.91	0.50	-236.67	3.01								
Median	2.11	2.27	1.70	1.89	6.02	6.39	4.05	5.68								
Maximum	10.94	17.44	14.59	25.54	27.30	30.37	33.57	59.89	-1.94*	-5.67***	-2.25**	-3.70***	-2.55**	-3.70***	0.661	-3.99***
Minimum	-41.37	-62.49	-70.61	-875.34	-574.00	-230.36	-13479.38	-184.99								
Std. Dev.	8.77	7.49	10.54	121.42	82.59	32.98	1776.32	24.15								
Panel B: Companies without increases in long-term loans on their balance sheet (Sample size: 153)																
Mean	0.08	-0.39	-21.09	-0.39	2.35	-340.30	0.01	-1.59								
Median	2.34	2.32	2.03	2.38	5.29	5.11	5.67	4.80								
Maximum	13.04	17.79	22.64	20.70	81.18	342.49	30.87	621.15	-1.57	-0.57	-1.51	0.62	-2.28**	-1.37	-0.37	-1.26
Minimum	-168.64	-72.41	-875.34	-42.46	-161.00	-13479.38	-306.71	-397.07								
Std. Dev.	15.17	14.19	138.37	11.23	22.85	2131.64	30.54	66.37								

Table 5
Abnormal Returns around Bank Loan Announcements

Average abnormal returns (AAR) and average cumulative abnormal returns (CAR) are calculated using the market model and standard event study methodology. The estimation window for calculating market model parameters is [-120, -21]. AAR and CAR are tested for significance using a two-tail t-test with the null hypothesis of not statistically different from zero. The sign test categorizes data into binary outcomes with null hypothesis that the percentage of negative AAR (CAR) equals the percentage of positive AAR (CAR). The Wilcoxon signed-rank test has null hypothesis of no difference in magnitudes between the negative and positive AAR (CAR). "***", "**", and "*" indicate significance at the 1, 5, and 10 percent levels, respectively. The number of observations is 285.

Panel A: Average abnormal returns (AAR) and average cumulative abnormal returns (CAR) over various event windows

Event day or window (0: Announcement day)	AAR or CAR	Percent of AAR or CAR greater than zero	T-test	Sign-test	Wilcoxon Signed Rank test
-5	0.083%	43.860%	0.747	1.156	0.004
-4	-0.018%	45.263%	-0.169	-1.023	-1.109
-3	0.025%	41.754%	0.232	-2.171**	-1.084
-2	-0.004%	46.316%	-0.033	-0.780	-0.371
-1	-0.223%	38.246%	-2.394**	-3.431***	-3.057***
0	-0.062%	41.404%	-0.590	-2.348**	-1.781*
1	-0.106%	41.053%	-1.138	-2.524**	-1.966**
2	0.050%	41.754%	0.529	-2.283**	-1.009
3	-0.231%	42.456%	-2.092**	-2.211**	-2.177**
4	-0.068%	42.456%	-0.707	-1.701*	-1.193
5	-0.030%	46.316%	-0.334	0.544	0.349
[-5, -2]	0.087%	49.123%	0.365	0.000	0.114
[-1, 1]	-0.391%	40.351%	-2.342**	-2.983***	-2.691***
[-2, 2]	-0.345%	41.404%	-1.608	-2.625***	-1.949*
[-3, 3]	-0.551%	43.860%	-2.075**	-1.958**	-2.601***
[-4, 4]	-0.637%	44.912%	-2.039**	-1.432	-2.439**
[-5, 5]	-0.583%	42.456%	-1.655*	-2.155**	-2.113**
[-1, 2]	-0.341%	42.807%	-1.754*	-2.092**	-2.153**
[-1, 3]	-0.572%	39.649%	-2.505**	-3.221***	-2.855***
[-2, 3]	-0.575%	41.754%	-2.346**	-2.506**	-2.695**
[-1, 4]	-0.640%	42.456%	-2.556**	-2.211**	-2.546**
[-2, 4]	-0.644%	43.158%	-2.450**	-2.028**	-2.557**

Table 5 (continued)

Panel B: Values of CAR[-1,4] at particular percentiles, ranked from the highest to the lowest

95th percentile	5.775%
90th percentile	3.500%
85th percentile	2.700%
80th percentile	2.100%
75th percentile	1.700%
50th percentile	-0.600%
25th percentile	-2.525%
20th percentile	-3.000%
15th percentile	-3.800%
10th percentile	-5.000%
5th percentile	-8.800%

Panel C: Values of CAR[-1,4] for various types of banks and loans

Type of Banks	Number of Loans to SOE	CAR (t-statistic)	Number of Loans to Non-SOE	CAR (t-statistic)
Big 4 State Banks	79	-0.876%*	39	-0.423%
		(-1.886)		(-0.881)
Other Banks	134	-0.623%	30	-0.380%
		(-1.605)		(-0.461)
Private Banks	3	4.700%	0	-
		(1.709)		

Table 6
Cumulative Abnormal Returns Sorted on Firm, Loan, and Lender Characteristics

This table reports [-1,4] cumulative abnormal returns (CAR) around bank loan announcements by sub-samples with parametric and nonparametric significance tests. The sign test has null hypothesis that the percentage of negative AAR (CAR) equals the percentage of positive AAR (CAR). The Wilcoxon signed-rank test has null hypothesis of no difference in magnitudes between the negative and positive AAR (CAR). ***, **, and * denote significance at 1, 5, and 10 percent levels, respectively. Tests of "above median" and "below median" groups have 284 observations because the median observation is excluded. Firms with negative equity are dropped in the ROE sort. In some other sorts, lack of data leaves the total number of observations below 285.

Category	No. of obs.	CAR [-1, 4]	T-test of CAR=0	% CAR positive	Sign test	Wilcoxon signed rank test	CAR difference (Higher – Lower)	t-test of mean difference
Panel A: Sorted on Firm Characteristics								
Related party transaction (RPT)								
Firms with increase in RPT	117	-1.173%	-2.839***	37.607%	-2.341**	-2.338**		
Firms with no increase in RPT	99	-0.423%	-1.022	40.404%	-1.809*	-1.693*	0.750%	1.273
Market Cap								
Above median	142	-0.507%	-1.486	41.549%	-1.853*	-2.041**		
Below median	142	-0.792%	-2.143**	42.958%	-1.277	-1.619	0.285%	0.566
Firm performance - ROA								
With increase	102	-0.199%	-0.489	44.118%	-0.804	-1.031		
With no increase	183	-0.904%	-2.843***	41.209%	-2.162**	-2.432**	0.705%	1.349
Firm performance – ROE								
With increase	100	-0.580%	-1.456	43.000%	-1.111	-1.534		
With no increase	167	-0.613%	-1.927*	41.916%	-1.868*	-1.847*	0.033%	0.065
Offshore shares								
With B shares or H shares	12	0.292%	0.150	58.333%	0.289	0.196		
without B shares or H shares	273	-0.681%	-2.746***	41.758%	-2.382**	-2.741***	0.973%	0.780
Special Treatment Status (ST)								
Firms under ST status	19	0.305%	0.230	52.632%	0.000	0.181		
Firms not under ST status	266	-0.706%	-2.815***	41.729%	-2.352**	-2.679***	1.011%	1.009

Table 6 (continued)

Category	No. of obs.	CAR [-1, 4]	T-test of CAR=0	% CAR positive	Sign test	Wilcoxon signed rank test	CAR difference (Higher – Lower)	t-test of mean difference
Percentage of largest shareholder's ownership								
Above median	142	-1.126%	-3.232***	38.028%	-2.695***	-3.263***		
Below median	142	-0.157%	-0.442	46.853%	-0.339	-0.344	0.969%	1.944*
State-ownership (SOE)								
Non SOE firms	69	-0.404%	-0.907	42.029%	-1.091	-1.454		
SOE firms	216	-0.715%	-2.397**	42.593%	-1.854*	-2.137**	0.311%	0.531
Borrowers' involvement in litigation								
Borrowers not sued by banks	80	-0.563%	-1.124	42.500%	-0.911	-1.051		
Borrowers sued by banks	205	-0.670%	-2.320**	42.439%	-1.965*	-2.363**	0.107%	0.193
Panel B: Sorted on Loan Characteristics								
Repayment of old debts								
Loan used for repaying old debts	66	-1.111%	-1.903*	39.394%	-1.488	-1.912*		
Other purposes	219	-0.498%	-1.815*	43.379%	-1.637	-1.795*	0.613%	1.032
Investment								
Loan used for long term investment	261	-0.627%	-2.411**	42.529%	-2.063**	-2.373**		
Other purposes	22	-0.696%	-0.711	40.909%	-0.639	-0.796	0.069%	0.073
Maturity								
One year or shorter	218	-0.655%	-2.215**	43.578%	-1.572	-1.982**		
Longer than one year	67	-0.593%	-1.282	38.806%	-1.600	-1.546	0.062%	0.105
Panel C: Sorted on Lender Characteristics								
Bank Levels								
Loans issued by local branches	142	-0.626%	-1.753*	40.845%	-1.944*	-1.881*		
Loans issued by headquarters or main provincial branches	94	-0.465%	-1.071	43.617%	-1.037	-1.121	0.161%	0.286
Lender type								
Big 4 state bank	118	-0.726%	-2.084**	38.983%	-2.052**	-2.162**		
Other banks	167	-0.579%	-1.654*	44.910%	-1.090	-1.525	0.147%	0.289

Table 6 (continued)

Category	No. of obs.	CAR [-1, 4]	T-test of CAR=0	% CAR positive	Sign test	Wilcoxon signed rank test	CAR difference (Higher – Lower)	t-test of mean difference
Bank ownership								
Private banks	3	4.700%	1.709	100%	1.155	1.336		
State owned banks	282	-0.697%	-2.790***	41.844%	-2.403**	-2.757***	5.397%	2.215
Bank Litigation Record								
Banks that had sued borrowers	273	-0.661%	-2.570**	42.491%	-2.138**	-2.574**		
Banks with no litigation	12	-0.158%	-0.144	41.667%	-0.289	-0.118	0.503%	0.403

Table 7
Correlation Matrix for Regression Variables

CAR[-1,4] is the cumulative average abnormal return from one day prior to 4 days after the announcement. MKT_CAP is the natural log of the market value of tradable shares. RPT is the change in other accounts receivables (scaled by total assets) due to related party transactions from the announcement year over the prior year. ROA_UP is the dummy variable set to 1 if ROA increased in the announcement year over the previous year. B_H_SHARES is a dummy set to 1 if the borrower has foreign classes of equity outstanding. CTRL_RIGHT is a dummy set to 1 if the percentage of shares outstanding owned by the largest shareholder is greater than the median value. DISTRESS is a dummy set to 1 if regulators classified the borrower as under "special treatment" (ST status). SOE is a dummy variable that equals 1 if the borrowing firm is controlled by state-owned entities. POLITICAL is a dummy set to 1 if a board director of the borrower has ever worked in a government agency. PURPOSE_INVEST is a dummy set to 1 if the intended purpose of the loan is investment. PURPOSE_REPAY is the dummy variable set to 1 if the purpose of a loan is to repay old debts. SUB_BRANCH is a dummy set to 1 if a loan is originated with a bank's local branch below the provincial level. BIG4_LENDER is a dummy set to 1 if the lender is one of the four largest state-owned banks. EARNINGS_VOL is the absolute value of earnings change, $|EPS_t - EPS_{t-1}|$, standardized by the standard deviation of the previous four semiannually reported EPS. It indicates the predictability of a company's earnings per share. TANGIBLE is the ratio of net fixed assets to total assets. ***, **, and * denote significance at 1, 5, and 10 percent levels, respectively.

	MKT_CAP	RPT	ROA_UP	B_H_SHARES	CTRL_RIGHT	DISTRESS	SOE	POLITICAL	PURPOSE_INVEST	PURPOSE_REPAY	SUB_BRANCH	BIG4_LENDER	EARNINGS_VOL	TANGIBLE
CAR[-1,4]	0.070	-0.085	0.078	0.046	-0.078	0.060	-0.032	0.021	-0.037	-0.061	-0.019	-0.017	-0.097	-0.026
MKT_CAP		0.051	-0.060	0.157***	0.100	-0.010	0.117	0.012	0.002	-0.049	-0.034	-0.015	-0.048	0.086
RPT			-0.084	0.015	0.044	0.018	-0.034	-0.135	0.015	0.037	-0.060	-0.078	0.020	0.069
ROA_UP				0.244***	-0.096	0.241***	-0.091	0.064	0.087	0.111*	0.055	-0.033	0.040	-0.094
B_H_SHARES					-0.022	0.434	0.078	-0.009	0.055	0.175***	0.042	-0.034	0.141	-0.034
CTRL_RIGHT						-0.109	0.152***	-0.017	0.075	-0.087	0.255***	-0.145**	-0.193	0.178***
DISTRESS							0.020	-0.053	0.111*	0.320***	0.059	-0.053	0.112*	-0.058
SOE								0.013	0.033	-0.059	-0.006	-0.173***	-0.063	0.304***
POLITICAL									0.054	-0.044	-0.002	-0.065	-0.075	-0.007
PURPOSE_INVEST										-0.053	-0.095	-0.067	-0.016	0.046
PURPOSE_REPAY											-0.014	-0.006	0.108*	0.0002
SUB_BRANCH												-0.163***	-0.127*	-0.080
Big4_LENDER													0.036	-0.152**
EARNINGS_VOL														-0.058

Table 8
Regressions Explaining Cumulative Abnormal Returns around Bank Loan Announcements

This table reports regressions of cumulative abnormal return from one day prior to 4 days after the announcement, (CAR[-1,4]) on firm and loan characteristics. MKT_CAP is the natural log of market value (in millions) of tradable shares. RPT proxies for "tunneling" measured with change in other accounts receivables (scaled by total assets) due to related party transactions from the announcement year over the prior year. ROA_UP is a dummy set to 1 if ROA in the announcement year increased over the previous year. B_H_SHARES is a dummy set to 1 if the borrower has foreign classes of equity outstanding. CTRL_RIGHT is a dummy set to 1 if the percentage of shares outstanding owned by the largest shareholder is greater than the median value, DISTRESS is a dummy set to 1 if regulators classified the borrower as under "special treatment" (ST status). SOE is a dummy set to 1 if the borrowing firm is controlled by state-owned entities. POLITICAL is a dummy set to 1 if a board director of the borrower has ever worked in a government agency. PURPOSE_INVEST is a dummy set to 1 if the intended purpose of the loan is investment. PURPOSE_REPAY is a dummy set to 1 if intended purpose of the loan is to repay existing debt. SUB_BRANCH is a dummy set to 1 if a loan originated with a bank's local branch below the provincial level. BIG4_LENDER is a dummy set to 1 if the lender is one of the four largest state-owned banks. TANGIBLE is the ratio of net fixed assets to total assets. EARNINGS_VOL is the absolute value of earnings change, $|EPS_t - EPS_{t-1}|$, standardized by the standard deviation of the previous four semiannually reported EPS. It measures the volatility of company's earnings per share and indicates the predictability of cash flow. BANK FIXED EFFECTS is a set of dummies for the 18 major banks with multiple loans in our sample. These 18 banks include China Guangda (Everbright) bank, China Agriculture Bank, Bank of China, China Communication (Jiaotong) Bank, Huaxia Bank, Guangdong Development Bank, Shenzhen Development Bank, Shenzhen Commercial Bank, Xingye Bank, China Minsheng Bank, China Merchants Bank, China Construction Bank, China CITIC Bank, Pudong Development Bank, Beijing Commercial Bank, Shanghai Bank, China Development Bank. White heteroskedasticity-consistent t-statistics are reported in parentheses. "***", "**", and "*" indicate significance at the 1, 5, and 10 percent levels, respectively. Sample size is reduced due to unavailable data for RPT, SUB_BRANCH), or PURPOSE_INVEST. INVERS_MILLS RATIO is the inverse Mills ratio estimated by the equation: $\lambda_i = \varphi(\textit{fitted value}) / \Phi(\textit{fitted value})$, where $\varphi(\bullet)$ *and* $\Phi(\bullet)$ are the probability density function and the cumulative distribution function. Following Heckman (1979), we include the fitted values from a first stage probit regression of the likelihood of receiving a bank loan in the cross-sectional regression to control for sample selection bias.

Table 8 continued.

MODEL	1	2	3	4	5	6	7
MKT_CAP	8.175	6.595	7.581	6.782	5.079	8.172	6.123
	(1.514)	(1.181)	(1.440)	(1.339)	(1.002)	(1.518)	(1.251)
RPT	-0.917***	-1.005***	-0.921***	-0.934***	-1.076***	-0.914***	-0.908***
	(-5.691)	(-8.380)	(-5.797)	(-7.699)	(-8.300)	(-7.345)	(-7.116)
ROA_UP	0.005	0.006	0.005	0.006	0.006	0.005	0.007
	(0.739)	(0.865)	(0.786)	(0.918)	(0.970)	(0.744)	(0.985)
B_H_SHARES	0.001	0.001	0.004	0.002	0.003	0.001	0.006
	(-0.008)	(-0.008)	(0.164)	(0.073)	(0.123)	(-0.007)	(0.285)
CTRL_RIGHT	-0.017***		-0.020***	-0.016**		-0.017***	-0.018**
	(-2.851)		(-3.174)	(-2.545)		(-2.860)	(-2.832)
DISTRESS	0.005	0.007	0.005			0.005	
	(0.281)	(0.329)	(0.255)			(0.279)	
SOE		-0.002			-0.003		
		(-0.366)			(-0.391)		
POLITICAL	0.000		-0.001				
	(-0.032)		(-0.163)				
PURPOSE_INVEST				-0.011*	-0.011		-0.012*
				(-1.752)	(-1.631)		(-1.844)
PURPOSE_REPAY	-0.015*	-0.015*	-0.015*			-0.015*	
	(-1.857)	(-1.878)	(-1.765)			(-1.866)	
SUB_BRANCH	-0.002	-0.005	-0.003	-0.005	-0.008	-0.002	-0.005
	(-0.382)	(-0.739)	(-0.414)	(-0.703)	(-1.163)	(-0.384)	(-0.800)
BIG4_LENDER	-0.013		-0.012	-0.014	-0.010	-0.013	-0.012
	(-1.522)		(-1.295)	(-1.572)	(-1.175)	(-1.616)	(-1.364)
TANGIBLE			0.012				0.009
			(0.827)				(0.658)
EARNINGS_VOL			-0.001**				-0.001**
			(-2.041)				(-2.216)
INVERSE_MILLS RATIO	-0.012	-0.016	-0.015	-0.003	-0.007	-0.012	-0.006
	(-0.897)	(-1.254)	(-1.079)	(-0.280)	(-0.611)	(-0.922)	(-0.491)
INTERCEPT	0.016	0.025	0.035	-0.005	0.002	0.016	0.015
	(0.537)	(0.860)	(1.195)	(-0.199)	(0.071)	(0.546)	(0.569)
BANK_FIXED EFFECTS	Included	Included	Included	Included	Included	Included	Included
Adjusted R-sq	0.054	0.022	0.063	0.033	0.003	0.059	0.044
Observations	197	197	196	194	194	197	193

Table 9
Accounting Performance for Firms Grouped on Event Response

The table reports percent changes in return on assets (ROA) and return on equity (ROE) for subgroups of companies based on cumulative abnormal returns over the period of one day before to four days after the loan announcement (CAR[-1, 4]). ROA_{-1} and ROE_{-1} are the ROA and ROE of a company in the accounting year before the bank loan announcement. ROA_0 and ROE_0 are the ROA and ROE in the announcement year, while ROA_1 (ROA_2) and ROE_1 (ROE_2) are the ROA and ROE in the first (second) accounting year after the announcement. "***", "**", and "*" indicate significance at the 1, 5, and 10 percent levels, respectively.

	ROA_{-1}	ROA_0	ROA_1	ROA_2	ROE_{-1}	ROE_0	ROE_1	ROE_2	T-test on mean difference (ROA_1-ROA_0)	Sign test on median difference (ROA_1-ROA_0)	T-test on mean difference (ROE_1-ROE_0)	Sign test on median difference (ROE_1-ROE_0)	T-test on mean difference (ROA_2-ROA_0)	Sign test on median difference (ROA_2-ROA_0)	T-test on mean difference (ROE_2-ROE_0)	Sign test on median difference (ROE_2-ROE_0)
Panel A: Companies with negative CAR[-1,4] (Number of observations = 159)																
Mean	2.37	-0.72	-3.81	-3.80	2.48	5.21	0.22	-7.95								
Median	3.35	2.54	2.12	1.45	6.93	6.68	5.58	3.85								
Maximum	16.14	13.71	13.29	26.67	27.91	315.86	34.73	315.86	-0.89	-4.28***	-2.14**	-2.66***	-2.26**	-2.71**	-1.76*	-1.81*
Minimum	-42.93	-311.99	-311.99	-250.49	-301.98	-106.08	-138.20	-1076.87								
Std. Dev.	6.53	26.05	36.08	27.29	29.69	29.61	21.20	95.40								
Panel B: Companies with positive CAR[-1,4] (Number of observations = 121)																
Mean	1.475	-2.16	-3.064	-10.83	3.24	-10.30	-4.38	-65.35								
Median	3.192	2.20	1.029	0.65	7.08	6.29	3.56	2.21								
Maximum	11.174	11.79	12.62	19.65	23.16	29.14	315.86	36.23	-0.25	-3.46***	-0.59	-2.96***	-2.93***	-3.09***	-1.34	-1.07
Minimum	-66.21	-311.99	-311.99	-311.99	-106.08	-1076.87	-491.91	-5763.68								
Std. Dev.	8.37	29.54	29.41	45.29	15.93	103.13	60.52	541.97								
Panel C: Companies in the lowest 20% CAR [-1,4] (Number of observations = 57)																
Mean	2.17	1.589	-5.722	-7.77	2.43	9.28	-2.99	-1.43								
Median	3.16	2.330	1.588	1.21	6.92	6.93	4.55	3.29								
Maximum	16.14	13.705	13.289	26.67	24.74	315.86	34.73	33.34	-1.91*	-2.24**	-2.12**	-1.40	-2.26**	-2.80***	-2.48**	-2.51**
Minimum	-21.86	-12.410	-311.996	-250.49	-99.98	-27.84	-138.20	-133.54								
Std. Dev.	5.90	5.290	41.981	42.70	19.69	42.84	27.12	26.75								
Panel D: Companies in the highest 20% CAR [-1,4] (Number of observations = 57)																
Mean	1.30	-6.01	-1.77	-6.70	3.48	-25.27	-16.71	-36.17								
Median	3.23	2.70	1.19	1.01	6.57	6.39	3.95	2.70								
Maximum	9.54	11.79	12.62	14.45	21.47	29.14	25.29	30.61	0.78	-1.85*	-1.11	-2.04**	-1.50	0.71	-1.20	0.00
Minimum	-26.12	-311.99	-37.33	-136.32	-54.24	-1076.87	-491.91	-576.37								
Std. Dev.	6.70	42.67	10.34	27.81	13.23	149.75	75.27	115.51								