Limited loan rate differentiation, *guanxi*, loan size and loan maturity in the Chinese bank credit market

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**ABSTRACT**

Since 2004, China has partially liberalized loan rate setting by the banks, but loan rates remain stubbornly within narrow bounds. We argue that competition in the loan market is signalled through the variation of loan deal terms and loan maturity rather than loan rates. We examine the determinants of loan deal conditions in terms of size and maturity. This paper focuses on the role of single firm-bank relationships in determining loan deal conditions as evidence of *guanxi* in Chinese banking market. Commercial loan deal terms of listed companies are matched to provider banks over the period 1999–2012 and sub-sample estimation for the pre-2004 and post-2004 periods confirm a change in the bank-firm-loan relationship. We find that single firm-bank relationships are associated with larger loan size and longer loan maturity in the pre-liberalization period but that this relationship has weakened in the liberalization period.

**KEYWORDS**

China banks; loan terms; firm-bank relationships

1. **Introduction**

Up until the late 1990s, the primary function of the Chinese banking sector was to provide low-cost funds to state-owned enterprises (SOEs). Since the reform process signalled by the Banking Law of 1995, the banking sector has been gradually evolving towards full commercialisation. This gradual process has involved recapitalisation, foreign strategic investment, improved governance, stronger risk management and limited liberalisation of loan rate setting. Up until 2004 lending rates were strictly controlled within a narrow range by the Peoples Bank of China (PBOC). The legacy of the policy of strict control of lending rates along with policy directed lending was the under-pricing of risk and the well-known history of China’s non-performing loans (NPLs). After 2004 the upper limit on interest rates were lifted and banks had the capability to risk price marginal lending.

However, in the main, banks have not taken advantage of this new-found freedom and loan rates have remained clustered around the benchmark rate set by the PBOC.
In terms of average interest rate setting, Chinese banks appeared to behave much the same in the post-liberalisation period as it did in the pre-liberalisation period\(^1\). The reasons for this consistency in bank behaviour is uncertain. Podpiera (2006) surmises that interest rate pricing may have been a low priority in an environment of abundant liquidity. Another possibility is that after decades of operating in a world of administered interest rates, Chinese banks found themselves in a ‘Nash’ type outcome, as in an oligopolistic market\(^2\). A third possibility is that bank lending in China continues to be dominated by loans to the state-owned sector, which has an implicit guarantee that makes it low risk, and state intervention to support SOEs, nullify the need for risk pricing (Garcia-Herrero and Santabarbara 2013). A fourth possibility is that the post-reform period has produced a strong competitive environment that has led to price convergence (Xu et al. 2014).

However, limited loan rate differentiation is not a peculiarity of China as many markets in developed economies also exhibit similar behaviour underpinned by the familiar arguments of adverse selection and adverse incentives associated with the credit rationing literature (Stiglitz and Weiss 1981). In an environment of limited loan rate differentiation, it is arguable that the terms and conditions of the loan that make up the vector of non-interest price factors (and not just the rate of interest) can be expected to reflect risk and market conditions.

It is well-known that in the Chinese banking market, State-owned banks (SOBs) have a closer relationship with SOEs based on political imperative and political connections. Research on the banking relationship with non-financial firms has been a growing area in China. The opacity of business in China, and information asymmetry are viewed by some as the key impact variables that define the lending relationship (Cao et al. 2010; Chang et al. 2014).

The purpose of this paper is threefold. First, to explore the determinants of the terms and conditions of the bank loans of listed companies in China covering a data span 1999–2012. It argues that competition in the loan market is signalled through the variation in loan terms rather than the loan rate. We examine the determinants of loan deal conditions in terms of size and maturity of a commercial loan. A special feature of Chinese business relations is the system of ‘guanxi’, which loosely translated means transactions based on a network of business relationships that transcend conventional transactions relationships. The second purpose of the paper is to identify evidence of guanxi in the firm-bank relationship. Here, we focus on the role of a single firm-bank relationships as evidence of ‘guanxi’ type behaviour. Finally, we examine if the reform period has diluted the guanxi effect as the Chinese banking marker becomes more commercialised.

We match commercial loan deal terms of listed companies to provider banks over the period 1999–2012 and conduct sub-sample estimation for the pre-2004 and post-2004 periods. Controlling for firm, bank ownership and market characteristics, we find that single firm-bank relationships generate better loan covenant in terms of longer loan maturity, but a single firm-bank relationship is not associated with larger loan size, allowing for other factors. We also investigate the single firm-bank relationship in the context of the ownership status of the bank and the firm. We find that SOBs are associated with larger loan deals and longer maturity.
To anticipate the rest of our results we find that firm size and its debt exposure provide strong effects on loan maturity and loan size. The larger the firm measured by assets, the larger loan size and maturity of loans. The greater the debt exposure, the lower the loan size and the longer the maturity. On the supply characteristics, SOBs and single firm-bank-relationships (SBRs) are associated with longer maturity loan terms, providing indirect evidence of a guanxi effect, but have no clear relationship to loan size. Our results also confirm the well-known SOE bias in lending by SOBs. A parameter stability test shows that the firm-bank loan relationship changed after 2004 following the regime change to loan rate setting.

This paper is organised along the following lines. The next section presents a brief context of Chinese banking. The third section offers the literature review. The fourth section outlines a theoretical framework and the empirical model. The fifth section examines the data and discusses the empirical results. The final section concludes.

2. The Chinese banking context

The remarkable growth of the Chinese economy and the development of her banking system continue to generate both plaudits and scepticism in almost equal amounts. The use of the banking system for policy lending had saddled it with inefficiency and a large non-performing loans problem. Privatisation of a sort occurred with the creation of the joint-stock banks alongside the big-four SOBs, but the reality is that government remains firmly in control. Through the creation of asset management companies, the big four banks were recapitalised with the use of the dollar reserves prior to their listing. Since 2001 foreign banks and financial institutions could take a stake in selected Chinese banks. But, while control of individual Chinese banks remains out of reach for the foreign institution, the pressure to reform management, consolidate balance sheets, improve risk management and reduce unit costs has increased with greater foreign exposure.

Despite clear improvements in performance and efficiency over the reform period, the Chinese banking system remains dominated by the SOBs and its lending is largely directed to the SOEs. Firth et al. (2009) quote that although the private sector accounts for 50% of the economy it is the recipient of only 7% of bank credit. The banking system is still constrained by political influence and directed lending. Anecdotal evidence provided by Dobson and Kashyap (2007) and quoted in Bailey et al. (2011) suggest that despite the substantial progress in reform, banks face considerable political pressure in their loan decisions. Yet the Chinese approach of gradualist reform continues at its pace. There has been limited reform of loan rate setting allowed by the PBOC and previous limits to interest rate setting have been lifted. Table 1 shows the evolution of the regulation of interest rates for commercial banks.

Both anecdotal evidence and evidence in Podpiera (2006) suggest that despite the liberalisation of lending rates most new loans were contracted at or below the PBOC benchmark rate. Evidence by He and Wang (2012) confirm that even in 2010, over 80% of bank loans were contracted in the bounds 0.9–1.3 of the benchmark rate at a time when the benchmark rate was at its lowest since liberalisation. Based on the
survey data of 2400 enterprises for 2003, He (2010) shows that the length of firm-
bank relationship has no significant effect on loan interest rate. The implication is
that the importance of a single firm-bank relationship will be reflected in other
aspects of the loan contract rather than the interest rate.

The origin of the practice of limited loan rate differentiation may be traced to cus-
tom and practice, goodwill, legal constraints (such as usury laws) and institutional
rigidities. Theoretical explanations are based on asymmetric information resulting in
adverse selection and adverse incentives (Stiglitz and Weiss 1981). The Stiglitz and
Weiss (1981) model results in an interest rate effect that has not only a direct positive
effect on the bank’s return but also an indirect negative effect. This negative effect
comes in two forms. First, the interest rate charged affects the riskiness of the loan,
which is the adverse selection effect. Second, the higher the rate of interest charged,
the greater the incentive is to take on riskier projects, which is the adverse incentive
effect. While such explanations may explain limited loan rate differentiation in other
market economies, in China, even in the period, the structure and political economy
of the banking system suggests that central direction remains a strong imperative for
lending to SOEs on favourable terms (Zhang 2013).

Figure 1 shows that post-2004 after an initial widening, the variability of lending
rates has degenerated. According to data from PBOC, around 80% of the loan rate
are in the 0.9–1.3 times of benchmark interest rate range from 2004 to 2013, which

Table 1. Regulation of lending rates for commercial banks.

| Year      | Loans regulation                                    |
|-----------|-----------------------------------------------------|
| 1996      | All enterprises: 0.9–1.1 times the official benchmark rate |
| 1998      | Small enterprises 0.9–1.2 times the benchmark rate   |
|           | Medium and large enterprises 0.9–1.1 times the benchmark rate |
| 1999      | Small and medium enterprises 0.9–1.3 times the benchmark rate |
|           | Large enterprises 0.9–1.1 times the benchmark rate   |
| 2004      | All enterprises 0.9–1.7                            |
| 2004 October | Upper limit removed. Lower limit unchanged     |
| 2012 June | Lower limit changed as 0.7 times the benchmark rate |
| 2013 June | Lower limit removed.                               |

Source: PBOC.
shows that the loan rate is still limited even after the loan rate liberation in 2004. Even during the period from 2007 to 2011, the share of loans priced at 0.9–1.1 times the benchmark rate was 81.7%.

While the credit rationing arguments of Jaffee and Russell (1976) and Stiglitz and Weiss (1981) can explain limited loan rate differentiation, in other market economies, there is little suggestion that SOEs and listed companies in China faced credit rationing (Zhang 2013).

With such limited loan rate differentiation between banks, the question arises how do banks compete if the rate of interest is not used to price risk as expected following liberalisation? In this paper we propose that banks compete using the maturity of a loan as a choice variable in determining loan contracts. But first, we review the scope of relationship banking in China and briefly introduce how banks manage risk by adjusting loan size and maturity.

3. Literature review

Guanxi is a two-way relationship in traditional Chinese culture and relationship banking is subsumed within it. Relationship banking plays an important role in resolving information problems and the benefits from strong banking relationships have been shown in many empirical studies (Berger and Udell 1995; Berger et al. 2008). The level of transparency of a firm is an important factor in banking relationships, where it is argued that the relationship bank can exploit its informational advantage to ‘lock-in’ the relationship firm (Gopalan et al. 2011). The avoidance of lock-in by firms leads to the development of multiple bank relationships, and the decision between a single versus multiple bank relationships is the outcome of a trade-off between better loan terms in a single firm-bank relationship and flexibility in the provision of other bank services in a multiple bank-firm relationship.

However, banks face costs in collecting information from non-relationship firms, which make it even harder for opaque firms to secure external funds (Ziane 2003). Hence, firms that lack transparency has a higher likelihood in maintaining a single banking relationship (Berger et al. 2008).

In the China context, guanxi is an important facet of the lending relationship. He (2010) argues that commercial banks and firms tend to have closer relationships in order to communicate information and enhance the efficiency of credit financing. The ‘lock-in’ issue is examined by Chen (2008) who finds that the longer the bank-firm relationship the higher the cost of credit. Based on survey data of 1186 SMEs in China, He and Wang (2009) study the impact of the bank-firm relationship on the growth of firms and find that the longer the maturity and the greater the number of lending relationships, the slower the growth of firms.

The role of SOBs in national lending strategies is well-established in the literature. Sapienza (2004) uses information on individual loan contracts in Italy to study the effects of state ownership on bank lending behaviour, showing that SOBs charge lower interest rate and mostly favour large firms and firms located in depressed areas. The parallel with China is clear. Domestic growth was mainly promoted by state
policy banks and SOBs. Foreign banks are also observed to have higher efficiency to
domestic banks (Berger et al. 2009). However, as newcomers to the China’s banking
market, foreign banks remain in a weak position in sustaining closer banking relationships (Yin and Matthews 2016).

Unlike the past when the banking system was wedded to the socialist plan,
Chinese commercial banks, in recent years have focussed on credit quality when mak-
ing lending decisions (Chang et al. 2014). The average non-performing loan ratio of
the major commercial banks in China decreased from 17.9% in 2003 to 0.9% in
2012. Modern credit risk management methods and risk pricing since 2004 has become standard practice (He and Wang 2012). Loan quality is an important factor
in the lending decision. Banks have also reduced their loan exposure to individual
enterprises and widened the loan portfolio to more firms to diversify their risk (Yin
and Matthews 2017).

In summary, the key factors in the lending contract are the size of the loan,
loan maturity, interest rate and collateral. While risk is typically managed through
the risk premium and collateral (Berger and Udell 1995; Ferri and Messori 2000;
Lehmann et al. 2004), in practice, banks also use the loan covenant to control
default risk. Although few studies have focussed on how asymmetric information
and borrower’s risk affects the loan covenant, limiting the loan size and varying
the maturity are part of the kit-bag of risk management tools (Strahan 1999;
Ortiz-Molina and Penas 2008; Kirschenmann and Norden 2012). Short maturities
are supplied to more risky firms (Diamond 1991). Berger et al. (2005) also show
that decreasing asymmetric information is associated with an increase in loan
maturities. Larger firm secure longer loan maturity since they are more transpar-
ent and usually low risk (too big to fall), while less mature firms and firm own-
ers with poor credit histories tend to get shorter loan maturity (Ortiz-Molina and
Penas 2008).

4. A simple model

In this section, we set out a simple model of bank market behaviour based on asym-
metric information and guanxi which is the traditional business culture in China.

For the firm, the objective is to obtain finance at the best terms possible which
includes the longest maturity and most favourable repayment plan. As cash flow is
important in the early stages of investment, we argue that the success of the project
is positive in the uninterrupted access to loanable funds for the longest possible dur-
ation. The firm needs to borrow a minimum amount of funds \( L \), from the bank to
realise the project. Higher levels of loanable funds are used to obtain higher returns
from the project. Let \( y \) be the total return generated from the investment for a given
maturity of the loan.

Loan activity by the banks is highly regulated in China by the China Banking
Regulatory Commission (CBRC). A guanxi relationship with the bank will help
the firm to manoeuvre around the restrictive regulations to ensure a smooth flow of
funding. We denote the intensity of the guanxi relationship as \( G \) and other exogen-
ous factors like firms’ characteristics that may affect the return on the project as \( X \).
Let the probability of success of the investment be given by \( q \) and the probability density function be given by \( f(q) \) that describes the distribution of returns of the project. We assume that the objective of the Chief Financial Officer (CFO) of the borrowing firm is to maximise the expected cash flow \( E(C) \) over the maturity of the loan.

\[
E(C) = \int_0^\mu f(q)d\rho[y(L,G,X)] - (1 + r)^\mu L \mu \geq 1
\]

The assumptions are that bank credit is used to finance inputs to production in the sense of Bernanke and Blinder (1988). The expected value of the return on the investment by the firm is \( y \). An increase in the borrowing level, increases the return from the investment but with diminishing returns. So \( \frac{\partial y}{\partial L} > 0 \); \( \frac{\partial^2 y}{\partial L^2} < 0 \); but also \( \frac{\partial y}{\partial G} > 0 \); where \( u \) is the upper limit of the return on a successful investment, \( r \) is the fixed rate of interest, and \( \mu = \) maturity of loan. An interior solution exists for (1) on the condition \( \frac{\partial y}{\partial L} > (1 + r)^\mu \).

It can be shown that (1) yields an iso-cash flow function that can be interpreted as a demand for loanable funds that is positive in \( \mu \) and \( L \) and responds with an increase in \( \mu \) for an increase in \( guanxi \) intensity.

\[
\frac{\partial \mu}{\partial L} = \left[ \frac{\frac{\partial y}{\partial L} - (1 + r)^\mu}{\mu(1 + r)^{\mu-1}} \right] > 0 \quad \text{and} \quad \frac{\partial \mu}{\partial G} = \left[ \frac{\frac{\partial y}{\partial G}}{\mu(1 + r)^{\mu-1}} \right] > 0
\]

From the perspective of the bank, it trades off increased risk from committing the loan to a longer maturity against the greater value of the \( guanxi \) relation. Let the value function for the banks be \( V_b \), the bank’s perception of the probability of success be \( \varphi \), which is a function of the term of the loan (given by \( \mu \)). The nature of asymmetric information is that while the borrower is aware of the objective probability of the success of the investment the bank has a subjective probability of repayment which declines with the length the maturity of the loan. The amount of the loan is \( L \), collateral is a fraction \( 0 < \sigma < 1 \) of the loan, and the gain from the \( guanxi \) relation \( G \) is such that the fraction of collateral posted declines with the increase in its intensity, \( \sigma(G) \). The bank’s subjective assessment of the risk of the project increases with the term of the loan so \( \varphi' = \frac{\partial \varphi}{\partial \mu} < 0 \) and \( \sigma_G = \frac{\partial \sigma}{\partial G} < 0 \).

The value function of the bank is;

\[
V_b = (1 + r)^\mu \varphi(\mu)L + (1 - \varphi(\mu))\sigma(G)L)
\]

\[
\frac{\partial V_b}{\partial \mu} = \mu(1 + r)^{\mu-1} \varphi L + (1 + r)^\mu \varphi'L - \varphi'(\sigma L) = 0
\]

\[
= \mu(1 + r)^{\mu-1} \varphi L + \varphi'((1 + r)^\mu L - (\sigma L)) = 0
\]

Clearly the above expression cannot be zero unless the second term is negative, which holds by assumption of the collateral condition. Totally differentiating (2) and setting to zero to derive an iso-value function for the bank;
The first term in the square brackets is positive for values of $\mu$ less than the FOC of (3). Since the second term in the square brackets is positive, this results in:

$$\frac{\partial \mu}{\partial L} = - \frac{(1 + \mu \varphi + (1 - \varphi)\sigma)}{\varphi \{(1 + r)^{\mu}L - \sigma L\} + \mu(1 + r)^{\mu - 1} \varphi L} < 0$$

and

$$\frac{\partial \mu}{\partial G} = - \frac{(1 - \varphi)\sigma G}{\varphi \{(1 + r)^{\mu}L - \sigma L\} + \mu(1 + r)^{\mu - 1} \varphi L} > 0$$

Equilibrium in loan size and duration is described in Figure 2 showing a guanxi effect on loan size and duration. The firm’s iso-cost function is shown by $D_1$. The bank’s iso-value function is shown by $S_1$.

In this framework, the rate of interest $r$ is not seen as a choice variable in determining equilibrium in the loan market. An increase in intensity of guanxi shifts the supply curve up to the right and the demand curve up to the left (as shown in Figure 2). The loan duration rises. However, the effect on loan size is ambiguous, which needs further testing. We have no direct measure of intensity of guanxi, but we posit that a single bank relationship is more consistent with it than a multiple bank relationship. Hence, the first hypothesis is:

H1: In China’s banking market, firms with a single bank relationship will get more favourable loan terms.

Previous studies suggest that SOBs have a special relationship with SOEs in China (Berger et al. 2009; Lu et al. 2012). The mitigation of loan risk when banks offer more favourable loan terms to specific firms is examined by Dong et al. (2014) who find that SOBs are better in controlling the NPL ratio than other types of Chinese banks in practice. Lu et al. (2012) highlight the collateral requirement for the “related loan” in China. There is a high probability that SOBs use collateral to secure guanxi...
loans. The following hypothesis relates to the joint effect of guanxi and collateral on loan terms.

**H2:** The joint effect of a single banking relationship and collateral issued by SOBs is positively linked to loan terms.

Although traditionally SOBs have been more involved in guanxi lending (Yin and Matthews 2017), they have gradually moved towards commercial principles when making lending decisions (Firth et al. 2009). Unlike the unlisted period when the SOBs followed the dictates of the socialist plan, they have increasingly focussed on credit quality when making lending decisions (Chang et al. 2014). Furthermore, competition in China’s banking market has intensified, while the interest rate still varies in a small range, which implies the lending behaviours of SOBs have changed only gradually. The above analysis suggests that the guanxi effect weakened in the loan liberalisation period. Hence out third hypothesis is:

**H3:** Compared with the limited loan rate period, the benefits of a single banking relationship (guanxi) are weaker in the loan liberalisation period.

Other control variables [X] are: the size of the firm – it is posited that banks would make credit more easily available to large firms than small ones according to the information asymmetric theory. Also larger firms tend to have more bargaining power, which can make them secure more favourable loan terms (Harhoff and Körting 1998; Stephan et al. 2012); a vector of firm-bank characteristics (firm quality and firm age); negative demand side characteristics (debt/asset ratio); and bank ownership.

The two functions Loan and Maturity are to be interpreted as reduced form specifications and therefore SUR (seeming uncorrelated regression) method is chosen to deal with the empirical model. The Breusch–Pagan test is used to check the significant positive relationship between Loan and Maturity. The benchmark empirical equation is designed as follow:

$$\text{Loan}_{it} = \alpha_0 + \alpha_1 \text{Collateral}_{it} + \alpha_2 \ln \text{Tasset}_{it-1} + \alpha_3 \ln (\text{firmage})_{it}$$

$$+ \alpha_4 \text{Cashflows}_{it-1} + \alpha_5 \text{Liquidity}_{it-1} + \alpha_6 \text{State-owned Banks}_{it}$$

$$+ \alpha_7 \text{Single}_{it} + \alpha_8 \text{Macro}_{it} + \alpha_9 \text{Industry}_{it} + u_{it} \quad (4)$$

$$\text{Maturity}_{it} = \beta_0 + \beta_1 \text{Collateral}_{it} + \beta_2 \ln \text{Tasset}_{it-1} + \beta_3 \ln (\text{firmage})_{it}$$

$$+ \beta_4 \text{Cashflows}_{it-1} + \beta_5 \text{Liquidity}_{it-1} + \beta_6 \text{State-owned banks}_{it}$$

$$+ \beta_7 \text{Single}_{it} + \beta_8 \text{Macro}_{it} + \beta_9 \text{Industry}_{it} + \epsilon_{it} \quad (5)$$

In Equations (4) and (5), Collateral is a dummy variable, which distinguishes the loan deal with or without collateral, Tasset stands for real firm size, firm age and Cash flow ratio are denoted as firm age and Cashflows respectively, and Liquidity stands for debt/asset ratio. In order to solve the potential endogeneity problem the lagged values of Tasset, Cashflows and Liquidity are used. State-owned Banks is a dummy variable, which distinguishes SOBs with other banks. Single is a dummy variable, which distinguishes a firm keeping single banking relationship with multiple
banking relationships. Macro variables include banking market competition ratio and growth ratio of real GDP. Industry stands for three industries classification dummy variables. The details of variable definition are listed in Table 2.

### 5. Data and empirical results

#### 5.1 Data

This research has a data set assembled from the CSMAR (China Stock Market Financial Statements) database, which contains information on listed firms’ borrowing behaviour, their individual balance sheet and income statements. We conduct two sets of estimation. One set covers the period pre-2004 and the other is post-2004. The argument is that in the pre-2004 period when loan rate differentiation was even more limited, maturity of the loan played an even bigger part in defining the conditions of a loan. Specifically, we refer to the 1999–2004 period as ‘limited loan rate period’, and the 2005–2012 period as ‘the loan rate liberalisation period’.

Data on 716 firms with 7140 lending relationship are employed from year 1999 to 2012. We exclude borrowers that are in the financial services sector. However, the sample is unbalanced because of a lack of data in some years but since these gaps appear at random, they should not affect the estimation in any other way other than reducing the sample size (Wooldridge, 2009). All deals involve a single lender.

All monetary values of variables are deflated by the CPI. In the sample, the highest and lowest real loan size is 0.26 Billion and 0.1 Million CNY respectively. The average

### Table 2. Definition of the variables.

| Variables                        | Definition                                                                 | Unit |
|----------------------------------|---------------------------------------------------------------------------|------|
| Deal terms                       |                                                                           |      |
| Size of loan                     | The amount of money of each loan contract                                 | CNY  |
| Maturity of loan                 | The maturity of each loan contract                                        | Year |
| Collateral                       | Loan deal with collateral = 1, otherwise = 0                             |      |
| Firm characteristics             |                                                                           |      |
| Firm asset                       | Annual total asset of firm                                                | CNY  |
| Firm age                         | The age of firm                                                           | Year |
| Cash flow ratio                  | Firm’s annual net cash flow over total asset                              | %    |
| Liquidity                        | Firm’s total current liabilities over total asset                         | %    |
| Bank ownership                   |                                                                           |      |
| State-owned banks                | state-owned banks = 1, otherwise = 0                                     | –    |
| Banking relationship             |                                                                           |      |
| Single                           | Single banking relationship = 1, otherwise = 0                            | –    |
| Macro terms                      |                                                                           |      |
| Banking market competition ratio (HHI) | The sum of the squares of the market shares (percentage of banks’ assets over the total assets of the entire banking sector) of the five largest banks. | –    |
| Annual growth of GDP (GGDP)      | Annual growth ratio of real GDP                                           | %    |
| Industry terms                   |                                                                           |      |
| Manufacturea                     | Dummy variable for industry classification.                               | –    |
| Real estatetb                    | Dummy variable for industry classification.                               | –    |
| Service                          | Dummy variable for industry classification.                               | –    |

\^ Manufacture: Manufacture industry.
\(^b\) Real estate: Real estate industry.
\(^c\) Services: Wholesale, retail, trades hotels and catering services industry.
lending maturity in loan rate limitation period is 1.53 year, while the value in loan rate liberalisation period is 1.54-year. Most deal durations (around 65%) are between 1 and 2 years in both periods. A higher proportion of collateralised loans are observed in post-2004 period (89.6%) than in pre-2004 period (68.3%). The average values of firms’ characteristics are unaltered between the ‘limited loan rate period’ and ‘the loan rate liberalisation period’ except for firm age. Firm ages are variation from 2 to 59 years14, with the mean of 8.71 during the pre-2004 period and 15.59 during the post-2004 period. Two-thirds of firms have ages between 10 and 20 years. It can also be seen that average firm size increased slightly in the latter period. The average cash flow ratio is positive, with the mean value of 4.12 during pre-2004 and 3.39 during post-2004, respectively; while the average debt/asset ratio is 46.82 during pre-2004 and 48.24 during post-2004, respectively.

As to bank ownership, there is a big performance gap between the SOBs and other banks in both periods. It can be seen that 63.3% of the loan deals are initiated with the SOBs of deals during the pre-2004 period; and the data decreased to 45.7% in the post-2004 period. Single bank-firm relationships are in the minority with 28.3% of deals during pre-2004 period and only 13% of deals during post-2004 period, but as expected the mass of loan deals are with SOEs (around 80% in both periods) and manufacturing companies count for most of the firms from 1999 to 2012. The value of HHI as a measure of market concentration, keep decreasing from 1068.50 in year 1999 to 564.59 in year 2012, which may indicate an increasing competition in China banking market. Table 3 summarises the data.

### 5.2 Empirical results

The first set of regression results from SUR estimation is detailed below in Table 4. All data in the regression are winsorized at the 1st and 99th percentiles. We treat

| Variables            | Loan rate limitation period 1999–2004 | Loan rate liberalisation period 2005–2012 |
|----------------------|---------------------------------------|------------------------------------------|
|                      | Obs  | Mean | S.D.   | Min | Max | Obs  | Mean | S.D.   | Min | Max |
| **Deal terms**       |      |      |       |     |     |      |      |       |     |     |
| Ln (loan size)       | 2200 | 18.212 | 1.247 | 13.726 | 24.079 | 4428 | 18.458 | 1.270 | 12.300 | 27.100 |
| Maturity of loan (years) | 2218 | 1.526 | 2.211 | 0.080 | 13.020 | 4712 | 1.537 | 1.642 | 0.164 | 20.333 |
| Collateral           | 2221 | 0.683 | 0.465 | 0 | 1 | 4739 | 0.896 | 0.305 | 0 | 1 |
| **Firm characteristics** |     |      |       |     |     |      |      |       |     |     |
| Ln (firm asset)      | 2228 | 21.391 | 0.836 | 18.403 | 24.464 | 4910 | 22.005 | 1.045 | 18.802 | 28.100 |
| Firm age             | 2228 | 8.714 | 4.817 | 2 | 48 | 4739 | 15.586 | 7.220 | 2 | 59 |
| Cash flow ratio      | 2115 | 4.123 | 7.364 | -28.979 | 40.428 | 4705 | 3.386 | 8.412 | -30.576 | 50.651 |
| Liquidity            | 2115 | 46.821 | 21.232 | 0.907 | 170.429 | 4705 | 48.243 | 18.324 | 1.347 | 146.515 |
| **Bank ownership**   |      |      |       |     |     |      |      |       |     |     |
| State-owned banks    | 2228 | 0.633 | 0.481 | 0 | 1 | 4912 | 0.457 | 0.498 | 0 | 1 |
| **Banking relationship** |     |      |       |     |     |      |      |       |     |     |
| Single               | 2228 | 0.283 | 0.450 | 0 | 1 | 4912 | 0.130 | 0.337 | 0 | 1 |
| **Macro terms**      |      |      |       |     |     |      |      |       |     |     |
| HHI                  | 2228 | 870.228 | 56.004 | 819.756 | 1068.500 | 4912 | 627.304 | 41.000 | 564.589 | 788.873 |
| Annual growth of GDP | 2228 | 9.454 | 0.685 | 7.620 | 10.090 | 4912 | 10.080 | 1.416 | 7.654 | 14.166 |
| **Industrial terms** |      |      |       |     |     |      |      |       |     |     |
| Manufacture          | 2228 | 0.426 | 0.495 | 0 | 1 | 4912 | 0.408 | 0.491 | 0 | 1 |
| Real estate          | 2228 | 0.202 | 0.401 | 0 | 1 | 4912 | 0.219 | 0.413 | 0 | 1 |
| Services             | 2228 | 0.110 | 0.313 | 0 | 1 | 4912 | 0.107 | 0.309 | 0 | 1 |
Table 4. The determinants of banks’ lending behaviour during 1999–2012 (z statistics in parenthesis).

| Period Model | Loan rate limitation period 1999–2004 | Loan rate liberation period 2005–2012 |
|--------------|--------------------------------------|--------------------------------------|
|              | I                                    | II                                   | III                                  |
|              | Ln (loan) (1 + dur)                  | Ln (loan) (1 + dur)                  | Ln (loan) (1 + dur)                  | Ln (loan) (1 + dur)                  | Ln (loan) (1 + dur)                  | Ln (loan) (1 + dur)                  |
| Deal term    |                                      |                                      |                                      |                                      |                                      |                                      |
| Collateral   | −0.021−0.014**                       | −0.008−0.013**                       | −0.010−0.012**                       | −0.012−0.037**                       | −0.012−0.039**                       | −0.013−0.039**                       |
|              | (−0.431) (1.804)                     | (−0.150) (1.731)                     | (−0.202) (1.664)                     | (−0.197) (1.776)                     | (−0.198) (1.971)                     | (−0.219) (1.963)                     |
| Firm characteristics |                                      |                                      |                                      |                                      |                                      |                                      |
| Ln (firm size) | 0.715*** 0.048***                   | 0.704*** 0.045***                   | 0.700*** 0.046***                   | 0.425*** 0.016***                   | 0.424*** 0.016***                   | 0.423*** 0.016***                   |
|              | (23.405) (10.228)                    | (22.765) (9.528)                     | (22.444) (9.676)                     | (24.838) (2.885)                     | (24.808) (2.931)                     | (24.784) (2.930)                     |
| Ln (firm age + 1) | −0.084−0.012                        | −0.020−0.002                        | −0.002−0.007                        | 0.056 0.034                         | 0.050 0.027                         | 0.044 0.026                         |
|              | (−1.158) (−0.254)                    | (−0.262) (−0.766)                    | (−0.700) (−2.33)                     | (1.086) (0.783)                      | (0.986) (0.744)                      | (0.969) (0.744)                      |
| Cash flow ratio | −0.001−0.0002                       | 0.00001−0.00001                     | 0.0004−0.0003                       | 0.004−0.0003                        | 0.004−0.0003                        | 0.003−0.0002                        |
|              | (−0.714) (0.559)                     | (−0.296) (0.858)                     | (0.661) (2.401)                      | (−0.392) (−2.354)                    | (−0.213) (−1.968)                    | (−0.109) (−0.904)                    |
| Liquidity    | 0.003***−0.0003**                    | −0.002−0.001**                       | −0.002−0.001**                       | 0.003***−0.003***                   | 0.003***−0.003***                   | 0.003***−0.003***                   |
|              | (3.944) (−2.490)                     | (2.119) (−3.387)                     | (2.389) (−3.462)                     | (3.442) (−10.612)                    | (3.494) (−10.649)                    | (3.483) (−10.642)                    |
| Bank ownership |                                      |                                      |                                      |                                      |                                      |                                      |
| State-owned banks | −0.043−0.010                      | −0.035−0.009                        | 0.009−0.009                         | 0.069** 0.118**                      | 0.070** 0.118**                      | 0.070** 0.118**                      |
|              | (−0.842) (0.741)                     | (−0.690) (0.675)                     | (0.714) (1.984)                      | (1.062) (1.978)                      | (1.062) (1.978)                      | (1.062) (1.978)                      |
| Macro terms  |                                      |                                      |                                      |                                      |                                      |                                      |
| HHI          | 0.003*** 0.001***                    | 0.003*** 0.001***                    | 0.003*** 0.001***                    | −0.0001 0.001***                     | −0.0001 0.001***                     | −0.0001 0.001***                     |
|              | (3.308) (5.981)                      | (3.113) (5.606)                      | (3.113) (5.606)                      | (−0.147) (6.831)                     | (−0.196) (6.823)                     | (−0.196) (6.823)                     |
| Growth rate of GDP | −0.198*** 0.121                   | −0.197*** 0.105                      | −0.197*** 0.105                      | −0.045*** −0.009**                   | −0.045*** −0.009**                   | −0.045*** −0.009**                   |
|              | (−3.833) (1.085)                     | (−3.742) (0.903)                     | (−3.742) (0.903)                     | (−3.719) (−2.269)                    | (−3.719) (−2.273)                    | (−3.719) (−2.273)                    |
| Industry terms |                                      |                                      |                                      |                                      |                                      |                                      |
| Manufacture  | −0.156***                          | −0.012                              | −0.012                              | −0.074*                              | −0.009                              | −0.009                              |
|              | (−2.610) (−1.303)                    |                                 |                                 | (−1.869) (−0.691)                    |                                 |                                 |
| Real estate  | −0.134*                            | −0.035***                           | −0.035***                           | 0.016 0.009*                         | 0.016 0.009*                        | 0.016 0.009*                        |
|              | (−1.872) (−3.193)                    |                                  |                                  | (0.349) (2.273)                      | (0.349) (2.273)                     | (0.349) (2.273)                     |
| Service      | −0.152*                            | −0.017                              | −0.017                              | −0.045−0.017                         | −0.045−0.017                        | −0.045−0.017                        |
|              | (−1.716) (−2.699)                    |                                  |                                  | (−0.767) (−0.892)                    | (−0.767) (−0.892)                   | (−0.767) (−0.892)                   |
| C            | 2.909***−0.658***                   | 5.155***−0.379***                   | 5.297***−0.369***                   | 7.729*** 0.596***                    | 8.263***−0.042                       | 8.341***−0.023                       |
|              | (4.285) (−6.288)                     | (6.121) (−2.937)                    | (6.286) (−2.857)                    | (18.494) (4.244)                     | (16.182) (−0.262)                   | (16.276) (−0.142)                   |
| Observation  | 2065                                | 2065                                | 2065                                | 4426                                 | 4426                                 | 4426                                 |
| R-square     | 0.367                               | 0.166                               | 0.379                               | 0.191                                | 0.196                                | 0.175                                |
| Breusch–Pagan test Chi² | 87.669                            | 77.672                             | 76.017                             | 14.715                              | 16.667                              | 17.196                              |
| Prob > Chi²  | 0.000                               | 0.000                               | 0.000                               | 0.000                                | 0.000                                | 0.000                                |
| Chow test for parameter stability | 122.3*** 230.1***                 | 12.7*** 17.2***                     | 10.9*** 12.9***                     | 10.9*** 12.9***                      | 10.9*** 12.9***                      | 10.9*** 12.9***                      |

Note: *Significant at 10%; **Significant at 5%; ***Significant at 1%; z statistics in parentheses.
each period as a different sample and for each period we run three SUR models. These results represent the base case as well as variants. The Breusch–Pagan test accepts the validity of cross-equation correlation of the errors which validates the assumption of both functions being a reduced form from the same model.

A parameter stability test for the models 1 and 2 in Table 4 confirm that the firm-bank loan relationship changed after the introduction of the removal of the loan rate ceiling in 2004. Surprisingly Collateral appears to have a positive effect on loan maturity but has no effect on loan size. This suggests that collateral mitigates default risk allowing banks to increase loan maturity at the margin. From the regression results, it is also clear that the pattern of firm’s characteristics on loan terms is largely unchanged in the two periods but clearly there was a change in the impact. The results confirm our expectations. First, firm size is positively related to the size of loan and maturity. Large firms are usually more transparent and less risky. Second, older firms will have a known history but the results show that Firm age does not play a significant role. Third, the effect of the Liquidity of the firms has the effect of increasing loan size. This result supports the notion that financially leveraged firms are more likely to get a larger loan as a form of insurance. However, it is also the case that weak firms and fast-growing firms are most likely to have a high debt-asset ratio, so high financial leverage is not necessarily consistent with weak quality. It is also note-worthy that the Liquidity variable is associated with a decrease in the loan maturity, as shorter loan maturities can serve to mitigate the risk problems by banks. These results may reflect the existing risk management strategy of Chinese banks. Hence banks tend to satisfy a low liquidity firm’s loan requirement but with short maturity. Given that both weak firms and fast-growing firms will have a low liquidity ratio, this strategy will help the development of firms but effectively control the lending risk of banks.

Comparing the results of the two periods, we can see the differences in the impact of the cash flow ratio and ownership. Cash flow ratio has no significant relationship with loan size and maturity in the regulated loan rate period, but is associated with larger loans in the latter period. This implies that Chinese banks tend to offer more loans to high quality firms in the deregulated period, which is consistent with the finds of Chang et al. (2014). During the period of 1999–2004, when the SOBs dominated the market, ownership had no effect on maturity or size. However, during the loan rate liberalisation period, the SOBs are positively related to both loan size and maturity confirming the policy oriented status of its lending function.

Market structure measured by HHI is positive and significant with loan size and maturity during the loan rate limitation period, suggesting that the more concentrated bank market dominated by SOBs led to more favourable lending terms. This result suggests that the concentrated market power of the big-5 SOBs in China was used to support loss-making social projects that the collusive behaviour associated with the structure-conduct-performance hypothesis. Hence banks were less likely to consider risk control in a less competitive market. However, during the Loan rate liberalisation period, market structure has no effect on loan size but is
positively associated with maturity which suggests a complex interaction of both demand and supply effects, but ownership comes into play in this period with SOBs offering better deal terms. The negative effect of GDP growth on loan size is easier to interpret as the effect of a contraction in supply through the quantitative controls (credit quotas and window guidance\textsuperscript{15}) placed on bank lending in boom times.

We find that manufacturing firms are associated with lower loan size in both periods. And real estate firms are associated with shorter loan maturity during the pre-2004 period, but comparatively longer loan maturity during 2004–2012, reflecting the change in lending pattern and the real estate boom of this period.

We now dig deeper into the data to identify the impact of the single bank-firm relationship in the two periods. Tables 5 and 6 show these results. We treat each period as a different sample and estimate two SUR models. During the loan rate regulation period, the results of model I show that firms benefit from larger loan size and longer maturity through single firm-banking relationships. This result is consistent with the findings of Bharath et al. (2011). Single bank-firm relationships are typically associated with strong relationship banking, which alleviates the asymmetric information problem and help firms to get better lending terms. In the China context, we interpret this as evidence of guanxi behaviour. However, in the loan rate liberalisation period (Table 6), the results of model I suggests that the effect of a single bank-firm relationship falls entirely on the maturity of a loan and not the size. This may be interpreted as a weakening of the traditional bond of guanxi as more commercial imperatives began to take effect, but that banks continue to compete by using the maturity of the loan as a choice variable. It is clear that the above results generally support hypothesis 1. However, no matter in which period, firms with single banking relationship get better loan terms.

We use an interaction term between SOB and Single bank-firm relationship to identify the joint-effect of these two factors. We find that SOBs provide longer maturity loans than others. Even during the loan rate regulation period when the lending behaviour of SOBs were no different to other banks, SOBs tended to give larger loans and longer durations through a single banking relationship. Firms maintaining closer ties with SOBs were more likely to benefit from better loan terms. Model IV of Tables 5 and 6, show the effect of the interaction of SOB, single banking relationship and collateral, which reconfirms the SOB and relationship banking bias in lending in the pre-liberalization period, but a weakening in the liberalization period as only maturity seems to be affected and not loan size. The above results support hypothesis 2.

In model III of Table 5, the joint variable single*Collateral has a significant positive effect on loan size and loan maturity, which supports the notion that firms with single banking relationship tends to get more favourable loan terms even with a collateral condition. However, in the liberalization period (Table 6), this is only significant for loan maturity suggesting a weakening of the guanxi effect. This result supports hypothesis 3.
| Period                   | I         | II        | III       | IV        |
|-------------------------|-----------|-----------|-----------|-----------|
| **Bank-firm relationship** |           |           |           |           |
| Single                  | 0.486***  | 0.081***  |           |           |
|                         | (8.894)   | (9.717)   |           |           |
| State-owned banks*single|           |           | 0.490***  | 0.075***  |
|                         |           |           | (7.121)   | (7.162)   |
| Deal term               |           |           |           |           |
| Collateral              |           |           |           |           |
|                         |           |           |           |           |
|                         |           |           |           |           |
| Single*collateral       |           |           | 0.366***  | 0.083***  |
|                         |           |           | (4.13)    | (6.240)   |
| State-owned banks*Single*Collateral |           |           |           | 0.342***  |
|                         |           |           |           | (0.98***  |
|                         |           |           |           | (3.249)   |
|                         |           |           |           | (6.182)   |
| **Firm characteristics** |           |           |           |           |
| Ln (firm size)          | 0.698***  | 0.045***  | 0.696***  | 0.044***  |
|                         | (23.000)  | (9.672)   | (22.761)  | (9.494)   |
| Firm age                |           |           |           |           |
|                         |           |           |           |           |
|                         |           |           |           |           |
| Cash flow ratio         |           |           |           |           |
|                         |           |           |           |           |
|                         |           |           |           |           |
| Liquidity               | 0.003***  | 0.0004*** | 0.002**   | 0.0004*** |
|                         | (2.857)   | (2.687)   | (2.579)   | (2.976)   |
| Bank ownership          |           |           |           |           |
| State-owned banks       |           |           |           |           |
|                         |           |           |           |           |
|                         |           |           |           |           |
| Macro terms             |           |           |           |           |
| HHI                     | 0.003***  | 0.001***  | 0.003***  | 0.001***  |
|                         | (3.207)   | (3.957)   | (3.378)   | (6.100)   |
| Growth rate of GDP      |           |           |           |           |
|                         |           |           |           |           |
|                         |           |           |           |           |
| C                       | 4.651***  | 0.473***  | 5.124***  | 0.392**   |
|                         | (5.599)   | (3.745)   | (6.142)   | (3.075)   |
| Observation             | 2065      | 2065      | 2065      | 4426      |
| R-square                | 0.308     | 0.139     | 0.398     | 0.218     |
| Breusch–Pagan test Chi² | 50.088  | 60.114    | 67.969    | 70.000    |
| Prob > Chi²             | 0.000     | 0.000     | 0.000     | 0.000     |

Note: *Significant at 10%; **Significant at 5%; ***Significant at 1%. z statistics in parentheses.
Table 6. Relationship banking 2005–2012.

| Period | Model | Loan rate liberation period 2005–2012 |
|--------|-------|--------------------------------------|
|        |       | Ln (loan)   Ln (1 + dur)   Ln (loan)   Ln (1 + dur)   Ln (loan)   Ln (1 + dur)   Ln (loan)   Ln (1 + dur) |
| Bank-firm relationship |       |                            |                            |                            |                            |                            |                            |                            |
| Single |       | 0.069 **     0.032 **    0.109 *     0.047 **    0.002       0.033 *     0.012       0.034 * |
|        |       | (1.326)      (1.973)      (1.740)     (2.014)       (2.014)      (2.014)       (2.014)      (2.014)     |
| State-owned banks*Single |       |                            |                            |                            |                            |                            |                            |                            |
|        |       | -0.021     0.043 **    -0.011       0.042 **    -0.038       (1.735)     -0.188       (1.676)     |
|        |       | (-0.348)    (2.127)      (-0.190)    (2.061)       (2.061)      (2.061)       (2.061)      (2.061)    |
| Deal term |       |                            |                            |                            |                            |                            |                            |                            |
| Collateral |       |                            |                            |                            |                            |                            |                            |                            |
|        |       | -0.073       0.046 **    (-1.276)     (2.445)       (-1.276)     (2.445)       (-1.276)     (2.445)    |
| Single*collateral |       |                            |                            |                            |                            |                            |                            |                            |
| State-owned banks*single*collateral |       |                            |                            |                            |                            |                            |                            |                            |
|        |       | -0.006       0.068 **     (-0.083)     (2.728)       (-0.083)    (2.728)       (-0.083)     (2.728)    |
| Firm characteristics |       |                            |                            |                            |                            |                            |                            |                            |
| Ln (firm size) |       | 0.423 ***     0.017 ***    0.424 ***     0.017 ***    0.423 ***     0.017 ***    0.424 ***     0.016 ***  |
|        |       | (24.774)      (2.971)      (24.805)    (2.977)       (24.798)    (2.960)       (24.807)    (2.951)    |
| Firm age |       | 0.049       0.030       0.050       0.026       0.049       0.028       0.050       0.026    |
|        |       | (1.062)      (0.814)      (1.085)     (0.762)       (1.071)    (0.801)       (1.088)     (0.711)    |
| Cash flow ratio |       | 0.004 **     -0.0003     0.003 **     -0.0003     0.003 **     -0.0002     0.003 **     -0.0004 |
|        |       | (2.298)      (-0.451)     (1.975)     (-0.483)     (1.992)     (-0.395)     (1.952)     (-0.693)   |
| Liquidity |       | 0.003 ***     -0.003 ***     0.003 ***     -0.003 ***    0.003 ***     -0.003 ***    0.003 ***     -0.003 ***  |
|        |       | (3.421)      (-10.552)    (3.495)     (-10.498)    (3.405)     (-10.476)    (3.482)     (-10.469)  |
| Bank ownership |       |                            |                            |                            |                            |                            |                            |                            |
| State-owned banks |       | 0.070 **     0.117 ***    0.067 *      0.112 ***    0.071 *      0.116 ***    0.070 *      0.110 ***  |
|        |       | (1.979)      (10.016)     (1.843)     (9.231)      (1.990)     (9.967)      (1.906)     (9.137)    |
| Macro terms |       |                            |                            |                            |                            |                            |                            |                            |
| HHI |       | -0.0001     0.001 ***    -0.0001     0.001 ***    -0.0001     0.001 ***    -0.0001     0.001 ***  |
|        |       | (-0.105)     (6.583)     (-0.161)     (6.599)      (-0.095)     (6.522)      (-0.141)     (6.604)    |
| Growth rate of GDP |       | -0.044 ***     -0.009 **    -0.046 ***     -0.010 **    -0.044 ***     -0.010 **    -0.045 ***     -0.010 **  |
|        |       | (3.608)      (-2.387)     (3.720)     (-2.392)     (3.594)     (-2.475)     (3.704)     (-2.453)   |
| C |       | 8.241 ***     -0.024       8.266 ***     -0.018       8.219 ***     -0.005       8.264 ***     -0.003    |
|        |       | (16.134)     (-1.143)    (16.173)     (-1.12)      (16.061)    (-0.030)      (16.142)    (-0.019)   |
| Observation |       | 4426         4426         4426         4426         4426         4426         4426         4426    |
| R-square |       | 0.231        0.175        0.231        0.175        0.232        0.176        0.231        0.177    |
| Breusch–Pagan test Chi² |       | 15.832       16.792       15.480       16.600       15.832       16.792       15.480       16.600    |
| Prob > Chi² |       | 0.000        0.000        0.000        0.000        0.000        0.000        0.000        0.000    |

Note: *Significant at 10%; **Significant at 5%; ***Significant at 1%. z statistics in parentheses.
6. Conclusions

We have proposed a framework for understanding bank lending in an environment of limited loan rate differentiation between borrowers in China. The framework suggests that the choice variable used by banks to equilibrate the loan market is the maturity of the loan rather than the interest rate. The empirical results explain the effects of firm size, on loan deal size and maturity as well the impact of bank ownership and indebtedness of the firm. Collateral plays a weak part in the pre-liberalization period in determining the maturity of a loan but strengthens in the liberalization period.

The results for the single firm-bank relationship which we interpret as evidence of guanxi behaviour shows a change in impact and pattern between the two periods. The pre-liberalization period shows a stronger relationship for the single firm-bank relationship than in the liberalization period. This result holds true even allowing for the interaction of collateral and SOBs. The single firm-bank relationship in the liberalization period works to increase the maturity of the loan only suggesting a weakening of the traditional guanxi and greater commercialisation of the firm-bank relationship. The single firm-bank relationship is perhaps less important in the liberalization period as it is possible for firms to entertain a multiple bank-firm relationship with more than one SOB. However, guanxi and the single firm-bank relationship continues to provide benefits in terms of improved maturity loans to firms. The results confirm the standard finding of a SOB bias in lending.

The results of the model are tentative and cannot be viewed as definitive and need to be revisited with continuous change and reforms to the Chinese banking market. It also goes without saying that continuing development of the Chinese banking system is such that any empirical results describing the past are likely to be supplanted by the process of gradual but continuous change. However, given that reform in China’s banking system is gradual and not sudden, the results of this paper are indicative of recent trends in the lending behaviour of the banks.

Notes

1. Data on loan rates per loan deal has only been collected for recent years
2. However, evidence of this type of behaviour by banks is only short-run, Gambacorta (2008).
3. For example, Coase and Wang (2012) compared with Huang (2008).
4. The Joint Stock Banks, while not directly owned by the Chinese government are owned by SOEs and entities that are ultimately traced to SOEs or Provincial government.
5. There is a cap of 25% on total equity held by foreigners and a maximum of 20% for any single investor, except in the case of joint-venture banks.
6. The term of a loan is determined after consultation between the lender and the borrower according to the borrower’s production or business cycle, repayment capability, and the lender’s ability to provide funds. The term of a loan shall be stated clearly in the lending contract. Generally, the term of a loan for one’s own account shall not exceed ten years. Loans with a term exceeding 10 years shall be reported to the People’s Bank of China for a record (see Lending General Provisions (PBOC, 28 June 1996)).
7. See China banking regulatory commission annual report (year 2003–2012).
8. large firms are usually more transparent than small firms (Elyasiani and Goldberg 2004; Stephan et al. 2012).
9. See Detragiache et al. (2000).
10. Loans are categorized by purpose with regulated duration of loans. Loans for working capital are typically of one-year duration, loans for fixed asset investment will typically be for 1–3 years, loans for projects depend on the nature of the project but will have to satisfy a raft of regulations before the loan application and loans for M&A is less than a year.

11. Loan size was deflated by CPI.

13. Firm size was deflated by CPI.

14. Short firm age is caused by restructuring, mergers and acquisitions.

15. ‘Window guidance’ is a non-compulsory monetary policy tool employed by the PBOC in the form of advice to commercial banks to affect their lending behaviour, similar to the ‘moral suasion’ method employed by the Bank of England to affect bank lending behaviour in the 1960s in the UK.

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No potential conflict of interest was reported by the authors.

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