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Crony Banking and Local Growth in China

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The rise of city commercial banks (CCBs) in Chinese cities provides a unique opportunity to study the finance and growth nexus at the city level. Given the notorious inefficiency of China's "Big Four" state banks, policymakers attempted to correct the situation in 1995 through the creation of a new kind of local bank designed to promote local growth by lending to small and medium-sized enterprises. Using 1990–2009 panel data for 283 prefectural-level cities and four provincial-status municipalities, we find that the establishment of CCBs significantly reduced local economic growth overall. We suggest this outcome stems from the ability of firms to bribe local government officials to obtain credit from their local CCBs. In our proposed model for crony banking relations, large firms spend disproportionately larger amounts of time and bribe money cultivation relations with local officials involved in CCB lending decisions, so we expect large firms to have easier access to credit than small firms even if it results in inefficient lending. Using data on 206,771 firms for 1999–2007, we find that cities with CCBs had significantly lower overall growth rates. Small firms, in particular, were negatively impacted by the presence of CCBs, while large firms benefited from their presence. In the cities with CCBs, large firms, even those with relatively poor return-on-assets ratios, obtained more credit than small firms in aggregate. Using data from the 2005 World Bank Business Environment Survey, we find that an increase in a firm's crony relations with the government, measured in terms of the average number of days a month top managers of the firm spend interacting with government officials, increases the likelihood a firm will be granted bank credit. This effect was quite distinct for cities with CCBs.

Key words: crony banking; capital misallocation; China

JEL classification: G21; G28; G38

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1 Introduction

China's state-owned banks, particularly the "Big Four" (Bank of China, China Construction Bank, Industrial and Commercial Bank of China, and China Agricultural Bank) are often accused of inefficient lending practices (Allen, Qian and Qian, 2005), especially lending to state-owned enterprises. In 1995, the China Bank Regulatory Commission (CBRC) sought to rectify some of this inefficiency through the creation of small local banks to lend to small and medium-sized enterprises (SMEs) for the purpose of promoting local economic growth. Operations of these local city commercial banks (CCBs)[1] were confined by law to their designated home cities until 2006. This decade during which CCBs were under regulatory constraints provides a unique opportunity to study the heavily debated relationship between finance and growth,[2][3] because the Big Four state-owned banks maintain branches in every Chinese city.

CCBs were initially created through the merger and restructuring of more than 5,000 urban credit cooperatives. CCBs introduced a more aggressive approach to banking than that of the cooperatives they absorbed (see Section 2). For example, the Bank of Shanghai was founded through the merger of 98 urban credit cooperatives at the end of 1995. Just a year after the Bank of Shanghai was created, its total assets had risen by 89.3% and its total loan stock had increased by 82.8%.

By the end of 2012, CCBs had been established in 161 of China's 288 main cities (includes four province-level municipalities). Their assets accounted for 9.24% of total domestic banking sector assets. CCB impact at the local scale was proportionately greater, however, as CCBs were only found in about 60% of cities and their activities largely concentrated on the urban core.[4]

A report by KPMG (2007) to foreign investors notes that CCBs were widely perceived at that time to be heavily influenced by local government. This observation is hardly surprising, given that local governments on average held roughly 70% stakes in their local CCBs. The KPMG report raises the possibility that local government officials might be tempted to use their influence over local bank lending decisions to further their own personal interests. News in recent years about widespread corruption in local-level banking suggests this temptation is hard to resist. For example, the newspaper *Can Kao Xiao Xi* observed in late 2014 that most financial corruption news in the previous two years in some way involved local banks. Among the more standout stories was the tale of a local bank manager in Shenmu, Aiai Gong, who managed to amass personal real estate holdings worth approximately $2 billion on her annual salary of less than $10,000. In another story, the president of the Chengdu CCB was sentenced to death for soliciting bribes. Despite the bad press and harsh punishments for corruption, local banks continued to focus their lending on large inefficient state-owned

[1] Here, the term "local banks" is largely synonymous with CCBs. Local branches of nationwide banks, however, are not local banks. An easy clue in making the distinction is whether the bank's home city appears in the bank's name and that home city is where the bank is located. For example, the Bank of Jiujiang, based in the city of Jiujiang, is a CCB.

[2] Before 2009, CCB operations were almost exclusively confined to their home cities. Even in 2009, only a few banks had operations outside their home cities. Thus, our sample is quite robust for our purposes.

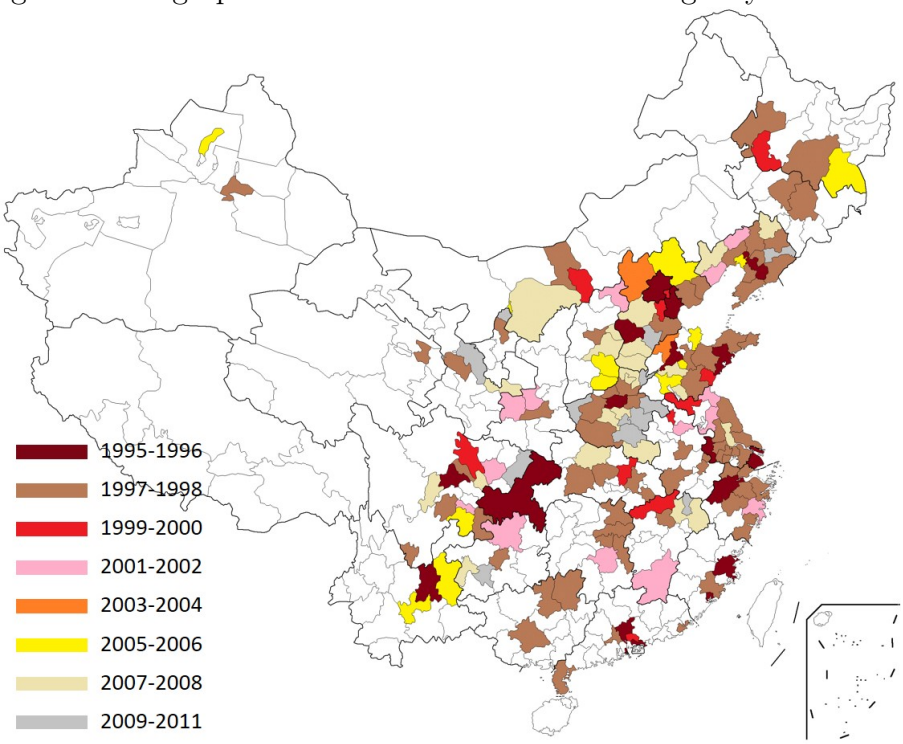
[3] The Feldstein-Horioka (1980) test shows that capital mobility among Chinese cities is low, which is also advantageous for city-level finance growth analysis.

[4] We consider this urban core ("city core area") in our empirical analysis.

enterprises (SOEs) and state-run agencies.

Given their apparent inefficiencies, we consider whether these local banks promote or hurt local growth. Using balanced panel data for all Chinese cities (except Lhasa) and firm-level data for difference-in-difference estimation, we find that cities that established CCBs experienced significant drops in economic growth, and that this reduction holds also at the firm level.

Figure 1: Geographic distribution of CCB according to years of establishment



To address possible endogeneity concerns, we use the percentage of neighboring cities that have established CCBs as our instrumental variable (IV) for the CCB establishment probability in a target city. CCBs were first established in politically important cities, i.e. provincial capitals, the four municipalities with provincial status, and the five cities with sub-provincial status. We thus consider this initial wave of CCB creation as exogenously determined. We adopt the instrumental variable IV in accordance with the policy diffusion literature. Simmons and Elkins (2004), for example, argue that neighboring regions are more likely to adopt the same policy due to factors such as altered payoff, reputation concern, and learning. We see this policy diffusion mechanism clearly at work in Figure 1 in the spread of CCBs. Our first stage regression presented below confirms a very significant relation that further validates our IV choice. Both macro and micro regressions show that establishment of CCBs reduced growth significantly.

We apply the same estimation methodology to a firm-level dataset that includes all SOEs and all non-SOEs with annual sales greater than RMB 5 million. After keeping firms with four consecutive years of appearance and controlling firm characteristics, we find that the presence of a CCB in a surveyed firm's city significantly reduced its growth rate. This negative effect was strongest for small firms.

We next develop a model that might explain for this counter-productive (at least from the central government's standpoint) result, arguing that the establishment of local banks alters local firm size distribution and consequently depresses the economic growth rate. Ostensibly, CCBs were created to foster higher growth rates by lending to small firms. As these local banks were largely extensions of local government, however, they were susceptible to capture, especially by large firms that could pay disproportionately larger bribes and devote more time to capture of local government officials. A bribe need not be monetary, but might include implicit benefits such as reputation enhancement, future employment, or the power to influence corporate decisions. Local officials taking bribes also prefer to keep their number of donors limited to avoid the risk of getting caught and punished, as well as provide adequate attention to bribe-paying patrons. This behavior comports with capture theory for democracies as developed by Bardhan and Mookherjee (2000), whereby rich voters increase campaign spending to influence campaign outcomes. Local banks controlled or heavily influenced by local governments are expected to be more inclined to lend to large firms, even when these firms are less productive than their smaller counterparts due e.g. to a decreasing return to scale for capital. The seminal work on local banks by Guiso, Sapienza and Zingales (2004) asserts that local financial development can contribute to local growth when local financial development makes it easier for small firms to obtain loans. Local development policy in the case of China's CCBs, however, seems to have achieved the opposite result.

We test our theory using data for 206,771 firms during 1999–2007, and find that large firms in cities with a CCB presence had easier access to credit, even if large firms on average were less efficient than their smaller counterparts in terms of return-on-assets (ROA), an economic efficiency measure. We also use the firm-level dataset from the 2005 World Bank Business Environment Survey, and specifically responses to the question of how much time top managers dedicate to interacting with government officials.The greater the amount of interaction, the higher the value we give to our crony relationship measure. We find that increased crony relations with government officials was associated with increased access to bank financing both in terms of improved chances of loan approval and larger loan amounts. This effect particularly strong in cities with a CCB presence. In cities with CCBs, the fact that firms tended to be larger on average may also evidence the relation of size to loan access.

The rest of the paper proceeds as follows. Section 2 offers a brief literature review. Section 3 introduces China's banking sector, especially CCBs. Section 4 describes the data and our methodology. Section 5 present the results. Section 6 develops a model to explain the results. Section 7 provides further evidence to test the mechanism. Section 8 concludes.

2 Literature review

There is a large body of literature on the effects of financial development on economic and firm growth. In China's case, some studies find that the development of financial sector, including the banking sector is significantly and positively associated with economic growth (Ljungwall and Li, 2007; Zhang, Wang and Wang, 2012). Others find no significant relation, or even a negative relation, between the Chinese financial sector and economic growth (Boyreau-Debray, 2003; Chang, Jia and Wang, 2010). This negative relation may reflect distortions caused by a state-owned banking system reluctant to lend to SMEs (and even if SMEs are, in fact, key

drivers of economic growth). For firm-level data, Ayyagari, Demirgüç-Kunt and Maksimovic (2010) and Allen, Qian and Qian (2005) also have different findings regarding the importance of formal or bank finance in China. The CBRC says that CCBs were designed to lend to SMEs to take advantage of the small bank advantage in lending to small firms. CCBs operating solely in their own home cities for our observation period provide a natural experiment in whether these newly established CCBs positively affected local economic growth. From a bank competition viewpoint, CCB entry in a local banking sector should increase competition among banks and thereby boost the local growth rate.

Studies dealing with the finance and growth nexus have their theoretical roots in the work of Joseph Schumpeter (Shumpeter, 1934), who argued that finance contributes to growth because banks can identify and loan to the most innovative and promising firms. Financing of innovative firms promotes technological innovation and consequently promotes economic growth. A survey article by Levine (2005) lists the channels of finance contributing to economic growth. These channels include producing information and allocating capital, monitoring firms and exerting corporate governance, diversifying and managing risk, mobilizing and pooling savings, and easing the exchange of goods and services. Robinson (1952) challenged the Schumpeterian view, arguing that financial sector development follows economic growth. Lucas (1998) asserted that researchers overstate the role of finance in economic growth.

Goldsmith (1969) finds a higher level of financial development is associated with higher growth after investigating 35 countries from 1860 to 1963. This finding is confirmed by King and Levine (1993), who use four different financial development indicators and expand the number of countries to 77 for the period 1960–1989. To deal with concerns about reverse causality of finance and growth, Levine, Loayza and Beck (2000) use a country's legal and accounting system as their instrumental variable and still find financial development led to economic growth for a sample of 71 countries for the period 1960–1995. Jayaratne and Strahan (1996) use a difference-in-difference estimation similar to the one we use here to study a wave of bank deregulation in the US. They find that the changes positively affected economic growth at the state level.

Regarding studies of CCBs in China, Ferri (2009) demonstrates that the efficiency of CCBs strongly depends on provincial economic growth (without addressing the obvious endogeneity problem, however). Zhang, Wang and Qu (2012) find that CCB performance and risk-taking are positively related to provincial-level law enforcement, which, considering China's poor law enforcement, motivates our study on how CCBs affect local city growth and the business environment.

Che and Qian (1998) studies how local government ownership of firms can contribute to growth when firms escape the central government's grasping hand and manage to secure property rights despite China's weak property protections. Notably, ownership of banks that can channel deposits to private firms is distinguished. Bank owners can easily instigate corrupt behavior in the private economy (which was already beginning to flourish in our sample period).

3 An introduction to city commercial banks

Urban credit cooperatives are the precursors to CCBs. The first urban credit cooperative was established in the city of Zhumadian in Henan Province in 1979. Table 1 shows the number of urban cooperatives from

1987 to 1998. There were 1,615 urban credit cooperatives in China at the end of 1987. That number increased to 5,229 at the end of 1994.[5]

In the early 1990s, many urban credit cooperatives faced financial problems, including large stocks of non-performing loans. In 1995, the State Council released a document to set up city cooperative banks (later redesignated city commercial banks) in 35 major cities through the merger and reorganization of existing urban credit cooperatives. In the same year, the first city cooperative bank was set up in Shenzhen. Some 60 cities established their own CCBs in 1996 and another 58 in 1997.[6] More than 80 cities had fully operational CCBs by the end of 1998. For instance, government of Shanghai merged 98 urban credit cooperatives into City Cooperative Bank of Shanghai (now called Bank of Shanghai) in 1995.[7] The People's Bank of China changed the names of all these city cooperative banks into CCBs in 1998.[8] At the end of 2012, CCBs could be found in 157 of China's 284 prefectural-level cities. Each of the four provincial-level municipalities had also established their own CCBs. Table 2 shows the total assets of CCBs among all banks in China from 2003 to 2012.

The CBRC forbade CCB operations outside their home cities until 2006. The Bank of Shanghai set up China's first cross-city CCB branch in Ningbo in 2006. Large numbers of cross-city CCBs only began to appear after 2008. For this reason, we consider our study period up to 2007 to be quite robust. Moreover, we also need to look at city economic growth after 2007 in order to study the lagged growth effect of CCB establishment. In any case, cross-city operations do not affect our main results.

CCBs are quite different from urban credit cooperatives. First, urban credit cooperatives are not banks. They are classed by the government as "cooperative financial organizations" and subject to the Regulation of Urban Credit Cooperatives, which e.g. sets strict deposit-taking and loan-issuing limits. Under the Regulation of Urban Credit Cooperatives,[9] "Deposits from non-cooperative members should not exceed 40% of all deposits, and deposits from any single individual non-cooperative members should not exceed RMB 150,000. Loans to any single client should not exceed RMB 500,000, and loans to non-cooperative members could not exceed 40% of all loans." Other regulations deny urban credit cooperatives access to the interbank market and the right to trade in government bonds or issue financial bonds. Such rules limit the abilities of urban credit cooperatives to serve local banking needs.

4 Data and methodology

We mainly use difference-in-difference model to estimate the effect of CCB establishment on city and firm growth. In addition to the manually collected data detailed below, we draw on the CEIC China premium database for city-level data, the China Annual Census of Enterprises for firm-level data, and various statistical yearbooks.

[5] Data source: Almanac of China's Finance and Banking, 1990–1999.

[6] Announcement about setting up city commercial banks in 58 cities, People's Bank of China, 1997.

[7] Almanac of Shanghai,1996

[8] Announcement about changing name of city cooperative banks, People's Bank of China, 1998.

[9] Document 54, Regulation of Urban Credit Cooperatives, 1997.

4.1 Macro: city-level growth

4.1.1 Model and variables

We estimate the following difference-in-difference model,

$$Economic\ Growth_{i,t} = c + \gamma \cdot CCB_{i,t} + \phi \cdot X_{i,t} + \alpha_t + \beta_i + \epsilon_{i,t} \tag{1}$$

where i and t denote city and year, α_t and β_i control time and city fixed effects. The dependent variable $Economic\ Growth_{i,t}$ is specified into two measures. The first is $GRGDP_{i,t}$, which measures the GDP growth rate for city i at time t. The second is $GRGDPPC_{i,t}$, which measures the GDP per capita growth rate. The key explanatory variable, $CCB_{i,t}$, is a dummy indicating whether city i at year t owns a CCB or not, which is equal to 1 if yes, 0 otherwise. Following Berger et al. (2005), a dynamic time variable $CCBYEAR_{i,t}$ indicating the number of years CCB has been in the city is included to measure the long-term impact of the CCB.

Our control variables $X_{i,t}$ are as follows. $LOAN_{i,t}$ is the ratio of total loans in all local financial institutions to GDP. $LnGDP(PC)_{i,t-1}$, the logarithm of real local GDP (per capita) in previous year, is used to control for the economic convergence effect. $FAI_{i,t}$ is fixed asset investment divided by GDP. $FDI_{i,t}$ is total utilized foreign direct investment divided by GDP. $FISCAL_{i,t}$ is the ratio of local government expenditure to GDP. $GRPOP_{i,t}$ is the population growth rate. $EDU_{i,t}$ is percentage of population with secondary school education or higher. These variables are summarized in Table 3.

As macro growth paths for different cities vary, we also consider a nonlinear trend with the following specifications:

$$g_{i,t} = c + \alpha_t + \beta_i + \gamma_1 \cdot CCB_{i,t} + \gamma_2 \cdot (t - 1994) \cdot CCB_{i,t} + \phi \cdot X_{i,t} + \epsilon_{i,t} \tag{2}$$

$$\begin{aligned} g_{i,t} =& c + \alpha_t + \beta_i + \gamma_1 \cdot CCB_{i,t} \\ &+ \gamma_2 \cdot (t - 1994) \cdot CCB_{i,t} \\ &+ \gamma_3 \cdot max(0, (t - \text{ CCB Establish Year }_i)) \cdot CCB_{i,t} + \phi \cdot X_{i,t} + \epsilon_{i,t} \end{aligned} \tag{3}$$

$$\begin{aligned} g_{i,t} =& c + \alpha_t + \beta_i + \gamma_1 \cdot CCB_{i,t} + \gamma_2 \cdot (t - 1994) \cdot CCB_{i,t} \\ &+ \gamma_3 \cdot max(0, (t - \text{ CCB Establish Year }_i)) \cdot CCB_{i,t} \\ &+ \gamma_4 \cdot (max(0, (t - \text{ CCB Establish Year }_i)) \cdot CCB_{i,t})^2 + \phi \cdot X_{i,t} + \epsilon_{i,t} \end{aligned} \tag{4}$$

where $CCBEstablishYear_i$ denotes the number of years the CCB has existed city i (if there is a CCB).

4.1.2 Data

China has four levels of government administration: provincial level, prefectural level, county level, and village level. The provincial-level division includes 23 provinces, five autonomous regions, four municipalities and two special administrative regions (SARs). The four municipalities with provincial-level status are Beijing,

Shanghai, Tianjin, and Chongqing. Provinces and autonomous regions are made up of prefectures. There were 284 prefectural-level cities in China at the end of 2011.[10] After dropping Lhasa,[11] our sample (see Table 4) consists of 283 prefectural-level cities and the four major municipalities. For convenience, "cities" here refers to both prefectural-level cities and municipalities. The prefectural-level city economic data is limited to years before 2001 as data for some of our key control variables are missing. Thus, the sample period chosen begins in 2001 and ends in 2011, the most recent year of available statistical data. After 2006, CCBs start to operate in cities other than their home cities. The CCBs venturing into the national market consist mainly of CCBs established in the first wave of the mid-1990s. In any case, only a few cross-city CCBs existed before 2008, and even then main operations remained focused on the home city. To study the lagged effect of CCBs, we extend our observation period through 2011.

Data for prefectural-level cities are from CEIC China premium database. Missing values are manually added from China Statistical Yearbook for Regional Economy and statistical yearbooks of provinces and prefectural-level cities. The descriptive statistics of macro variables are summarized in Table 5.

Some 157 of 284 prefectural-level cities and all four municipalities has CCBs at the end of 2011. After mergers and acquisitions, a total of 144 CCBs remain. The establishment year of CCBs is manually collected from public information, including local yearbooks, official websites and annual reports of CCBs. The dummy variable CCB is set to 1, the year after the CCB's establishment, because of the possible lag effect.

4.2 Micro: firm-level growth

4.2.1 Model and variables

A similar model to equation (1) is estimated to test the effect of establishment of a CCB on local firm growth,

$$Firm\ Growth_{i,j,t} = c + \gamma \cdot CCB_{j,t} + \phi \cdot X_{i,j,t} + \alpha_t + \beta_i + \epsilon_{i,t} \tag{5}$$

where i, j, t, denote firm, the city where the firm is located, and year, respectively, α_t, and β_i control year and firm fixed effects. Firm growth can be measured by $GRSALES_{i,j,t}$ and $GRASSET_{i,j,t}$ (see Table 6). $GRSALES_{i,j,t}$ is annual growth rate of sales of firm i, located in city j in year t. $GRASSET_{i,j,t}$ is annual growth rate of asset of firm i in city j at year t. The key variable, dummy $CCB_{j,t}$, indicates whether a CCB has already been established in city j at year t, and is equal to 1 if yes, and 0 otherwise.

Control variables Xi,j,t are listed as follows. STATECAP is the percentage of state-owned paid-up capital. In addition, SOE is a dummy variable which indicates whether the firm is an SOE or not. It equals 1 if over 50% of the firm's shares are state-owned. The size of firm is controlled by ASSETi,j,t and SMEi,j,t . ASSET is the logarithm of the firm's total assets. SME is a set of two dummies classifying firms into three groups, small firms (fewer than 300 employees, annual sales of less than RMB 30 million, or total assets of less than RMB 40 million), medium-sized firms (fewer than 2,000 employees, annual sales of less than RMB 300 million, or total assets of less than RMB 400 million) and large firms. In addition, years the firm has been active is also used as

[10] China Statistical Yearbook, 2011.

[11] Lhasa is dropped due to limited statistical data.

a control variable. Firms are divided into three groups according to their growth stages: start-ups (in business five years or less), growth phase (6 to 20 years in business), and mature (21 years or more).

4.2.2 Data

The data used for firm-level analysis are taken from the Annual Census of Enterprises produced by the Chinese National Bureau of Statistics from 1999 to 2007. The census includes all SOEs and non-SOEs with sales over RMB 5 million. It included 160,733 firms in 1999 and 335,076 in 2007. The data contains all the information from the three accounting statements (balance sheet, profit and loss, and cash flow). Only firms with records of at least four consecutive years are kept. Firms with total assets, total output, fixed asset, paid-in capital are 0 and total staff less than 8 (lack of credible accounting system) are dropped, and observations with sales growth rate and asset growth rate ranked in top and bottom 0.5% of the sample (16,231 out of 223,002) are dropped. In the end, our sample (see Table 7) consists of 206,771 firms from 40 industries[12] (mainly manufacturing) and 947,536 observations. The summary statistics of the sample are reported in Table 8.

As shown above, about three-quarters of firms are located in cities with CCBs. More than 90% of firms are non-SOEs and SMEs. As for firm ages, the majority of firms are in the growth phase of development.

4.3 Endogeneity

The endogeneity problem of CCBs in the above equation is hardly severe. After all, how likely is that a city government would set up a CCB for the purpose of lowering the city's growth rate? Of course, a CCB might be established to mitigate a potential slowdown in city growth, or there might be some omitted variables affecting growth rate and establishment of CCB simultaneously, such as city governance, all of which contribute to endogeneity problem for the above equations that we estimate.

[12]The 40 industries are Coal Mining and Dressing, Petroleum and Natural Gas Extraction, Ferrous Metals Mining and Dressing, Nonferrous Metals Mining and Dressing, Nonmetal Minerals Mining and Dressing, Other Mining and Dressing, Processing of Agricultural and Sideline Products, Food Manufacturing, Beverage Manufacturing, Tobacco Manufacturing, Textile Industry, Manufacturing of Textile Garments, Footwear and Headgear, Leather, Furs, Down and Related Products, Timber Processing, Wood, Bamboo, Cane, Palm Fiber and Straw Products, Furniture Manufacturing, Papermaking and Paper Products, Printing and Record Medium Reproduction, Manufacturing of Cultural, Educational and Sports Goods, Petroleum Processing, Coking, and Nuclear Fuel Processing, Raw Chemical Materials and Chemical Products, Medical and Pharmaceutical Products, Chemical Fiber Manufacturing, Rubber Products, Plastic Products, Nonmetal Mineral Products, Smelting and Pressing of Ferrous Metals, Smelting and Pressing of Nonferrous Metals, Metal Products, Manufacturing of General Purpose Equipment, Manufacturing of Special Purpose Equipment, Manufacturing of Transport Equipment, Manufacturing of Electric Machinery and Equipment, Manufacturing of Telecommunications Equipment, Computers and Other Electronic Equipment, Manufacturing of Instruments, Meters, Cultural and Office Machinery, Manufacturing of Handicrafts and Others, Recycling Processing of Deserted Resources and Wastes, Production and Supply of Electric Power and Heat Power, Production and Supply of Gas and Production and Supply of Water.

Using an instrumental variable (IV) method to solve the potential endogeneity problem, we see obvious clustering among CCBs in Figure 1. We find that for every province, CCB was first established at its capital cities, except five provinces which have one sub-provincial status city each. Based on the clustering observation and policy diffusion argument detailed by Simmons and Elkins (2004), we use the percentage of neighboring cities in the same province having established CCB to instrument for the CCB dummy in our regressions. We use neighboring cities in the same province as they are more likely to share the same financial and economic policies under the same provincial government leadership.

We run a two-stage regression for our endogeneity problem. The first stage takes the following form, while the second stage is the main equation described above.

$$CCB_{i,t} = c + \gamma \cdot Neighbor_{i,t} + \phi \cdot X_{i,t} + \alpha_t + \beta_i + \epsilon_{i,t} \tag{6}$$

where i and t denote city and year respectively. $CCB_{i,t}$ is what we used in equation (1) , the key explanatory variable. $Neighbor_{i,t}$ is the percentage of neighboring cities in the same province having established CCBs by year t. Alternatively, we use the percentage of cities that had established CCBs by year t.

5 Empirical results

5.1 City commercial bank and city macro performance: city-level data

5.1.1 City commercial bank establishment and city GDP growth

Table 9 reports our DID estimation results. Regression 1 only includes the key independent variable CCB and the constant. Regression 2 adds the logarithm of real GDP from the previous year to control for the convergence effect, i.e. growth in rich cities is expected to be lower than in poor cities that are catching up in economic terms. Other control variables except $LOAN$ are added in Regression 3. Regression 4 includes all control variables. City and year fixed effects are included in all regressions. Coefficients before the key independent variable CCB are significantly negative for all regressions, indicating that the establishment of a CCB significantly reduced the city's economic growth. (After the establishment of a CCB in a city, the average growth rate falls by 0.546 to 0.676 percentage points.)

Other coefficients have the expected signs. $LnRGDP_{-1}$ negatively affects grow rate, showing a strong convergence effect. $LOAN$ is negatively associated with growth rate, consistent with Boyreau-Debray (2003), who attribute the negative sign to China's distorted financial system. FAI strongly contributes to economic growth rates, but FDI is insignificant, possibly because FDI goes to developed regions which have high $LnRGDP_{-1}$. Government spending or intervention $FISCAL$ is negatively related to the growth rate and may be a reflection of China's institutional inefficiencies. $GRPOP$ and EDU_{-1} are insignificant, possibly because of relation with $LnRGDP_{-1}$, i.e. China's most developed cities usually have a large percentage of population in the higher education group and are magnets for internal migration. The results with control variables are consistent with findings in the existing literature such as Cai, Wang and Du (2002) on the existence of convergence in China,

Guariglia and Poncet (2008) and Boyreau-Debray (2003) on insignificance of loans, Boyreau-Debray (2003) on insignificance of FDI, and Fleisher, Li and Zhao (2010) on positive effect of education.

We can see from Table 10 that the effect is stronger for urban core growth rate, where CCB mainly operated in the core city area. We can also see from Tabel 11 that our negative results still hold under alternative time trend specifications.

The possible lag effect has already been taken into account when constructing the dummy variable CCB, it could conceivably take longer than a year for CCB effects to emerge. Thus, we also include the lagged values of CCB to test for this possible longer lag effect. The sample period is still 2001 to 2011 and the lagged CCB is obtained manually based on the number of years of the CCB has existed.

Table 12 reports the results using first to fifth lagged CCB as key independent variable. Cities in the experimental group change correspondingly as a result of lagged CCB used. When first to fifth lagged CCB is used, 67, 61, 68, 108 and 115 cities with their CCBs established during the periods 2000–2009, 1999–2008, 1998–2007, 1997–2006 and 1996–2005 are set as the experimental group. As a result, nearly all cities with CCBs are covered in experimental group among these regressions (only the Shenzhen and Shanghai CCBs were established before 1996). The results still show a significant negative relation between lagged CCB and local GDP growth rate for different lagged-effects and experiment group members.

We next use the GDP per capita growth rate instead of GDP growth rate as our dependent variable. Table 13 shows the results. We can see that establishment of CCBs (CCB) and their lagged effects (CCB_{-1}, CCB_{-2}, CCB_{-3}) are all significantly negative with regard to the GDP per capita growth rates of cities. We also replace the dummy variable CCB with $CCBYEAR$ in Reg2 to test the long term effect of CCB, as one might conjecture that there might be a learning curve for CCB to be effective, and the results hold.

5.2 CCBs and firm growth: micro-level evidence

Tables 14-17 show how establishment of a CCB affects the growth rates of local firms. We use data from the China Annual Census of Enterprises from 1999 to 2007, which includes 206,771 firms with at least four years of consecutive observations. The Hausman test strongly proves the fixed effect model, and we use a pooled regression model as our robustness check.

From Table 14, we see firm growth rates significantly declined after CCB establishment, which is robust to the commonly used controls including firm characteristic variables and in all the regression (controlling for both year effects and firm fixed effects). Compared to firms in cities without CCBs, the establishment of a CCB results in a decline in the growth of firm of around two percentage points, or about a third of standard deviations for the sales growth rate.

Other variables have the expected signs, including negative signs for SOE and STATECAP that indicate government intervention has negative consequences. Both size dummy and logarithm of firm assets indicate that large firms enjoy a higher sales and asset growth rate, possibly because of greater amounts of available capital and easier access to banking finance than for small firms. Firms in the start-up phase have a higher sales and asset growth rates than firms in the growth and mature phases.

Table 15 replaces sales growth rate with asset growth rate of firms as the dependent variable and generates

the same result from all the four regressions, i.e. CCB establishment has a significant negative effect on the firm asset growth rate.

While it is clear that the political justification for CCBs of creating local banks that would contribute to SME growth better than the nationwide bank has not been realized, it is also clear that impact of CCBs on firms depends on firm size. Thus, we divide firms into SME and large firm groups, and then divide the SME group into small and medium sized groups. We can see from Table 16 that SMEs and small firms experienced lower growth rates in the cities with a CCB.

To check the robustness of our results, a regression using pooled OLS with same observations is estimated and similar results are obtained (Table 17). Industry and regional (province) dummies are added to control the possible industrial and regional specification. Our results that a CCB presence leads to an approximately two percentage point decline in the firm sales growth rate and a one percentage point drop in the asset growth rate remain quite robust.

5.3 Heterogeneous impact of CCB presence on firm growth

Table 18 shows the heterogeneous impact on firm growth of a CCB presence, where $CCBSMALL = CCB * (DummySmall)$. We can see that the establishment of a CCB reduces small-firm growth rates most. We suggest that when CCB lending policies are dictated by city officials, the tendency to prefer large firms is enhanced for several reasons. First, SOEs tend to be large firms with political connections to the city government. Second, city officials may prefer large private firms as lending targets as they can provide sufficiently large bribes or because city officials have their personally connected through such favors as providing jobs for their family members. Finally, city officials might want to advance their careers or the city's reputation by attracting large brand-name firms to the city.

5.4 Endogeneity

Although, as mentioned earlier, it is hard to imagine why a local government might want to establish a CCB to lower the local economic growth rate, *some* endogeneity issues might exist. We adopt the neighboring IV estimation as mentioned in the methodology section.

The first stage regression (Table 19) displays strong predictive power of establishing CCB when there are more CCBs in neighboring cities. We use the percentage of neighbors with their own CCB, i.e. $NEIGHBOR$, in our first two regressions. We then use the percentage of cities in a province have established their own CCB, i.e. $PROV_PERCENT$, as an alternative measure. Groups are defined at the provincial level as cities are under the administration of provincial government officials.

We can see from the second-stage regression (Table 20) that CCB still has a negative impact on a city's GDP and GDP per capita growth rate. We therefore conclude that the negative impact on growth from establishing a CCB is quite robust.

6 A simple model of crony relations

Our model of crony relations is based on Bai, Hsieh and Song (2014). As the local government controls the bank, firms pay bribes to local politicians to obtain credit. Larger firms, which have more total assets than small firms, can pay bigger bribes and receive preferential treatment compared to small firms. Moreover, as officials caught taking bribes face punishment, the size of the bribe has to be big enough for the official to justify taking the risk. However, due to decreasing return to scale on capital, larger firms are less efficient than smaller firms. Therefore, the existence of a local bank that indulges in crony lending distorts the firm size distribution in that city through less-than-optimal allocation of credit. Small productive firms suffer and the overall growth rate of the local economy is reduced.

Nationwide banks are more efficient in credit allocation as politicians in central government face greater punishment and thus higher risk for bribe-taking than their local government counterparts. Indeed, there is considerable anecdotal evidence that local government officials in China tend to be more corrupt than central government officials. Therefore, nationwide banks, especially the Big Four banks controlled by the central government, are likely to restrain their crony relations with select large firms, making these nationwide state-owned banks generally more efficient than local banks.

We assume that as long as firms pay a sufficiently large bribe, the minimum loan any firm can obtain is $\underline{I}$.

There are a continuum of firms $[0, 1]$, with firm size uniformly distributed on $U[0, \overline{K}]$.

Government i's problem can thus be stated as

$$\begin{aligned} \max \quad W_i &= \varphi \int_{f_H}^{1} (K_{if} + I_{if})^{\alpha} df + G(i)^{\beta} \\ & s.t. \end{aligned}$$

$$\begin{aligned} I_i + G(i) &= B \\ \int_{f_H}^{1} I_{if} df &= I_i \\ \varphi(K_{if} + I_{if})^{\alpha} &\geq F_i \end{aligned}$$

where

$$\begin{aligned} K_{f_H} &= \arg\min_{K_{if}} \ (\varphi(K_{if} + I_{if})^{\alpha} \geq F_i) \\ K_{if} &\sim U[0, \overline{K}] \end{aligned}$$

i denotes city, W denotes total welfare, f denotes firms, φ denotes the fraction of output contributed to bribe, $\alpha < 1$ denotes decreasing return to scale, K firm f in city i's total asset, I_{if} denotes firm f's total credit obtained from local bank, $G(i)$ denotes public goods consumption. B denotes the government's budget, δ denotes the substitutability between government spending and local bank subsidy and $\delta >> 1$ indicating that subsidizing the local bank is quite costly. The first budget constraint indicates the government budget balance. The second indicates total loans obtained by firms in city i is equal to the bank's total credit. For the last constraint, F denotes the risk of punishment for accepting bribes. The left hand side is the bribe obtained from

firm f. The last constraint indicates the bribe must be sufficiently larger than the risk of being caught and punished.

FOC solutions for $f \in [f_H, 1]$ are

$$K_{if} + I_{if} = K_{if'} + I_{if'} = \left(\frac{\beta G(i)^{\beta-1}}{\varphi\alpha}\right)^{\frac{1}{\alpha-1}}$$

$$K_{if} + I_{if} = (\frac{F_i}{\varphi})^{\frac{1}{\alpha}}$$

So we obtain

$$I_i = B - \left(\frac{\varphi\alpha(\frac{F_i}{\alpha})^{\frac{\alpha-1}{\alpha}}}{\beta}\right)^{\frac{1}{\beta-1}}$$

Proposition: $\frac{\partial I_i}{\partial F_i} < 0$. A lower value for F_i, i.e. a higher level of corruption tolerance, encourages crony lending and more corruption, i.e. I_i, leading to lower growth. Nationwide banks, in turn, do a better job of promoting growth as they are more selective in their crony relations and face a higher value for F.

This proposition has the implication that local government controlled banks lead to more crony lending which consequently led to lower growth rate.

The social planner's problem can be stated as

$$\begin{aligned} \max \ W_i &= \int_0^{f_L} (K_{if} + I_{if})^{\alpha} df + G(i)^{\beta} \\ & s.t. \end{aligned}$$

$$\begin{aligned} I_i + G(i) &= B \\ \int_0^{f_L} I_{if} df &= I_i \end{aligned}$$

Proposition: Output is higher under the social planner's problem when crony lending is lower, i.e. $Y_s > Y_c$. Moreover, $\frac{Y_s}{I_s} > \frac{Y_c}{I_c}$.

We suggest from this proposition that under imperfect institutions, distortions created by local bank entities are larger than central government controlled banks.

7 Crony relations and bank behavior

We start this section with further assessment of our firm data for 1999–2007. As Table 21 shows, large firms obtain more benefits when there is a CCB operation in their city, even when they are less efficient in terms of a lower return on assets (ROA) than their smaller counterparts. Regression 1 indicates that, on average, firms overall are less likely to get bank loans in cities with a CCB presence. While we might expect a city with more banking institutions to have more lending overall and consequently more lending to firms, it appears that only large firms overcame this negative effect and obtained more loans. This could be explained by a CCB focus on lending to large firms that stems from the fact that they are structurally forced to compete with Big Four banks for deposits. Those that fail to attract deposits are left with less to lend. Regression 2 shows that cities with

CCBs have less firm investment overall, but large firms overcome this negative effect. Regression 2 is a direct a consequence of Regression 1. Regression 3 shows that the assets of the top 100 firms in cities with CCBs grew faster on average than firms in cities without CCBs. Regression 4 shows that, even though these large firms obtained loans, they had lower ROAs than their smaller counterparts.

To test whether firms with more crony relations with government officials have a higher probability of obtaining loans or obtain a disproportionally large amount of loans compared to other firms, we use the widely adopted World Bank Business Environment Survey data conducted in 2005 in 120 Chinese cities. The survey involved face-to-face interviews with top managers and business owners, and used the Global Methodology and uniform sampling. The responses were anonymous to bolster their reliability and authenticity. The survey is designed to reveal characteristics of the regional business environment. It includes categories such as regulations and taxes, corruption, crime, informality, gender, finance, infrastructure, innovation and technology, trade, workforce, firm characteristics, and obstacles to performance. Not only are the data quite representative, but 2005 is a good year for our purposes as CCBs had been around for a decade, so the effects from the presence of CCBs had accumlated but few CCBs had yet to launch operations outside their home cities.

For our key crony measure, we use the following survey question: *How many days does the GM or Vice GM spend on government assignments and communications per month?* (Government agencies include e.g. the Tax Administration, Customs, Labor Bureau, and Registration Bureau. Assignments refer to handling the relationship with government officials, consolidating and submitting various reports and statements, etc.). Response options: *J1 (1)1 day, (2) 2–3 days, (3) 4–5 days, (4) 6–8 days, (5) 9–12 days, (6) 13–16 days, (7) 17–20 days, (8) more than >21 days.* A larger response number indicates more intense crony relations. Some studies equate simply crony relations with corruption, They use either macro variable in a region to measure corruption indices constructed by international authorities such as Wei (2001) or informal payment by firms to officials also based on the same World Bank data such as Fisman and Svensson (2007).

We estimate the following equations to test our model prediction.

$$Loan_{i,j} = c + \gamma_1 \cdot CCB_j \cdot Crony_{i,j} + \gamma_2 \cdot Crony_{i,j} + \phi \cdot X_{i,j} + \epsilon_i \tag{7}$$

where i, j denote firm and located city respectively. There are two measures for variable $Loan_{i,j}$. One corresponds to a dummy variable question regarding whether firm i has obtained loans: *Does your company have loans from banks or other financial institutions? (1) Yes (2) No.* The other corresponds to the interest payments firms made to banks in 2014. We will use a Probit model to estimate the first and simple OLS regression to estimate the second. $Crony_{i,j}$ corresponds to the above survey question regarding how many days a month top managers in firm i interact with government officials in city j. X are control variables including firm age, share of state ownership, share of foreign ownership, export status, and production capacity.

From Table 22, we can see how increased crony relations alter the firm size distribution through bank loan access. Since local officials can influence CCB lending, we can see from Regressions 1 and 4 that firms that spend more time interacting with officials (i.e. have a higher crony index value) have a higher chance of obtaining bank loans, and from Regressions 2 and 5 that firms with a higher crony index obtain a disproportionately large amount of bank loans. These effects are strongest for firms in cities with a CCB presence. We also find that a high crony index value correlates with larger firm size. This effect was also strongest in cities with a CCB

presence.

8 Conclusions

Using panel data for all major Chinese cities (except Lhasa) from 2001 to 2011, CCB presence was found to have a negative effect on local economic growth (even if the CBRC's stated purpose for creating CCBs was to enhance local growth by giving local SMEs better access to credit). Moreover, firm-level data for 206,771 firms from 1999 to 2007 show that CCBs had a negative effect on firm growth, particularly in the case of small firms. Both results are quite robust. Considering the possible endogeneity problem, we borrowed from the policy diffusion literature using the percentage of neighbor cities that established CCBs as the instrument variable and found the results to still be negative.

To explain this outcome, we argue that local governments, which are directly and indirectly involved with CCB operations, may be open to bribes. Large firms can provide adequately large bribes to local government officials to entice them to risk sanctions. The resulting inefficient lending, in turn, reduces growth. We then investigate our theory using two datasets. The first is comprehensive and disnguishes firms by size. The second is a representative sample to which we attach a firm-level crony relations measure. We find that in cities with a CCB, large firms enjoyed disproportionately easier access to bank credit even with lower ROAs than their smaller counterparts. Crony relationships with government officials facilitated firm access to bank financing and large firms tended to be more likely to cultivate crony relationships.

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Tables

Table 1: Number of urban credit cooperatives in China, 1987-1998

Year	*1987*	*1988*	*1989*	*1990*	*1991*	*1992*
Number of urban credit cooperatives	1,615	3,265	3,409	3,421	3,518	4,001
Year	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*
Number of urban credit cooperatives	4,957	5,229	5,104	4,630	3,716	3,190

Data source: Almanac of China's Finance and Banking, 1990–1999.

Table 2: Total assets of CCB among all banks in China, 2003-2012 (Billion RMB)

Year	2003	2004	2005	2006	2007
All banks	27658	31599	37470	43950	53116
SOBs	16051	17982	21005	24236	28500
Shares	58%	57%	56%	55%	54%
YoY		12%	17%	15%	18%
CCBs	1462	1706	2037	2594	3341
Shares	5%	5%	5%	6%	6%
YoY		17%	19%	27%	29%
CCBs/GDP	11%	11%	11%	12%	13%
Year	2008	2009	2010	2011	2012
All banks	63152	79515	95305	113287	133622
SOBs	32575	40800	46894	53634	60040
Shares	52%	51%	49%	47%	45%
YoY	14%	25%	15%	14%	12%
CCBs	4132	5680	7853	9985	12347
Shares	7%	7%	8%	9%	9%
YoY	24%	37%	38%	27%	24%
CCBs/GDP	13%	17%	20%	21%	24%

Data source: CBRC 2006–2012 annual report. SOB stands for state-owned large commercial bank.

Table 3: Variables used in macro growth regression model

Symbol	Definition
Dependent variables	
GRGDP	Real growth rate of local GDP
GRGDPPC	Real growth rate of local GDP per capita
CCB variables	
CCB	Dummy variable indicating whether a city has its own CCB or not, equals 0 before and in the year of CCB establishment, 1 in the following year, and 0 in all periods for cities that do not have their own CCBs.
CCBYEAR	Number of years since CCB establishment, equals to 0 before and in the year of establishment, 1 in the following year, 2 in the second following year, etc., and 0 in all periods for cities without their own CCB.
Control variables	
LOAN	Ratio of total loans in all financial institutions to GDP
LnGDP(PC)	Logarithm of real local GDP (per capita)
FAI	Ratio of fixed asset investment to GDP
FDI	Ratio of utilized foreign direct investment to GDP
FISCAL	Ratio of government expenditure to GDP
GRPOP	Population growth rate
EDU	Percentage of students in secondary schools in total population.
Alternative Dependent Variables	
GR#EN	Growth rate of number of industrial enterprises above designated size
GRIP	Real growth rate of gross output of industrial enterprises above designated size

Table 4: Municipalities and number of prefectural-level cities in China (up to end of 2011)

Municipalities						
	Beijing		Shanghai		Chongqing	
	Tianjin					
Provinces and number of prefectural cities						
	Hebei	11	Shanxi	11	Liaoning	14
	Jilin	8	Heilongjiang	12	Jiangsu	13
	Zhejiang	11	Anhui	16	Fujian	9
	Jiangxi	11	Shandong	17	Henan	17
	Hubei	12	Hunan	13	Guangdong	21
	Hainan	2	Sichuan	18	Guizhou	6
	Yunnan	8	Shaanxi	10	Gansu	12
	Qinghai	1				
Autonomous regions and number of prefectural cities						
	Inner Mongolia	9	Guangxi	14	Tibet	1
	Ningxia	5	Xinjiang	2		
Total number of prefectural cities						284
Sample size			283 prefectural cities + 4 municipalities			

Data source: China Statistical Yearbook, 2011; selected sample is all but Lhasa.

Table 5: Descriptive statistics of macro variables

	GRGDP	GRGDPPC	CCB	CCBYEAR	LOAN
Mean	0.1318	0.126	0.4387	3.3392	0.7733
Std.	0.0344	0.0409	0.4963	4.5331	0.4301
Median	0.132	0.125	0	0	0.643
Min.	-0.078	-0.0904	0	0	0.0753
Max.	0.37	0.476	1	16	4.6126
Obs.	3157	3157	3157	3157	3153
	LnGDP	*LnGDPPC*	*FAI*	*FDI*	*FISCAL*
Mean	3.6412	9.3338	0.4913	0.003	0.1308
Std.	1.0225	0.7699	0.2269	0.0038	0.0755
Median	3.5771	9.2949	0.4598	0.0017	0.113
Min.	0.5839	7.0309	0.0629	0	0.0206
Max.	7.2619	11.6194	1.7467	0.0577	1.0268
Obs.	3157	3135	3154	3059	3154
	GRPOP	*EDU*	*GR#EN*	*GRIP*	
Mean	0.0086	0.0629	0.0782	0.228	
Std.	0.0147	0.0133	0.1889	0.1647	
Median	0.0065	0.0625	0.0719	0.2222	
Min.	-0.0961	0.0099	-0.7366	-0.6735	
Max.	0.184	0.1235	1.7164	3.2694	
Obs.	3150	3143	3151	3153	

Data source: CEIC China Premium Database, China Statistical Yearbook for Regional Economy, statistical yearbooks of provinces and prefectural-level cities.

Table 6: Variables used in firm growth regression model

Variables	Definition
Dependent variables	
GRSALES	Sales growth rate of firms
GRASSET	Total asset growth rate of firms
CCB variables	
CCB	Dummy indicating whether the city where firm is located has a CCB or not, equals to 0 before and in the year of CCB establishment, 1 for year following establishment, and equals to 0 in all periods for firms located in cities without their own CCBs.
Control variables	
STATECAP	Percentage of state-owned paid-up capital
SOE	Dummy indicating whether the firm is state-owned (equals to 1) or not
ASSET	Logarithm of firm's total assets
SME	A set of two dummies (MEDIUM, SMALL) indicating whether the firm is large, medium-sized, or small.
AGE	A set of two dummies (GROWTH, MATURE) indicating ages and growth phase of firms ($<= 5, 6 - 20, > 21$)

Table 7: Summary statistics of firm level data

		Number of firms	Percentage
CCB			
	Located in cities with CCB	156230	75.60%
	Located in cities with no CCB	50541	24.40%
Ownership			
	SOE	18182	8.80%
	Non-SOE	188589	91.20%
Size			
	Large	1829	0.90%
	Medium	26526	12.80%
	Small	178416	86.30%
Age			
	< 6 years	50172	24.30%
	$5 - 20$ years	126977	61.40%
	> 20 years	29621	14.30%
Total number of firms			206771
Sample period			1999-2007
Total observations			947536

Data source: China Annual Census of Enterprises.

Table 8: Descriptive Statistics for firm level data

	GRSALES	GRASSET	CCB	STATECAP	SOE
Mean	0.265	0.1977	0.7556	0.088	0.0879
Std	0.5857	0.4977	0.4298	0.2682	0.2832
Median	0.1476	0.0754	1	0	0
Min	-0.7588	-0.7421	0	0	0
Max	5.5839	5.0869	1	1	1
Obs.	947536	947536	947536	947536	947536
	ASSET	Medium	Small	Growth	Mature
Mean	10.1037	0.1283	0.8629	0.6141	0.1433
Std	1.4135	0.3344	0.344	0.4868	0.3503
Median	9.9115	0	1	1	0
Min	4.7791	0	0	0	0
Max	20.1506	1	1	1	1
Obs.	947536	947536	947536	947536	947536

Data source: China Annual Census of Enterprises.

Table 9: City commercial bank establishment and city GDP growth rate

	Reg1	Reg2	Reg3	Reg4
Dependent Variable		GRGDP		
CCB	-0.00546*	-0.00563**	-0.00530**	-0.00676***
	(0.00263)	(0.00229)	(0.00202)	(0.002)
$LnRGDP_{-1}$		-0.116***	-0.124***	-0.131***
		(0.0268)	(0.0212)	(0.0226)
$LOAN$				-0.0268***
				(0.00555)
FAI			0.0728***	0.0712***
			(0.00885)	(0.00915)
FDI			0.0608	0.028
			(0.201)	(0.174)
$FISCAL$			-0.0796*	-0.0830**
			(0.0372)	(0.0327)
$GRPOP$			-0.0211	-0.0149
			(0.0399)	(0.0488)
EDU_{-1}			0.00366	0.0105
			(0.042)	(0.0497)
$Constant$	0.0964***	0.450***	0.469***	0.515***
	(0.00089)	(0.0823)	(0.0657)	(0.0693)
City fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Observations	3,157	3,157	3,042	3,042
Within R2	0.316	0.387	0.463	0.484

Note: Standard errors robust to heteroskedasticity and autocorrelation are in parentheses. *, ** and *** denote significance at 10%, 5%, and 1% levels, respectively.

Table 10: Negative effect is stronger when using urban core growth rate

	Reg1	Reg2
Dependent Variable	GR Urban Core	
CCB	-0.145***	-0.075***
	(0.000)	(0.011)
Boundary	0.037	0.058**
	(0.054)	(0.056)
$LnRGDP_{-1}$		-0.055***
		(0.000)
City fixed effect	Yes	Yes
Year fixed effect	Yes	Yes
Observations	5166	5118
Within R2	0.316	0.387

Note: Standard errors robust to heteroskedasticity and autocorrelation are in parentheses. *, ** and *** denote significance at 10%, 5%, and 1% levels, respectively.

Table 11: Alternative Specifications: Time Trends

	Reg1	Reg2	Reg3	Reg4	Reg5	Reg6
Dependent Variable	GRGDP	GRUrban	GRGDP	GRUrban	GRGDP	GRUrban
CCB	-0.168***	-0.262***	-0.210***	-0.313***	-0.220***	-0.331***
	(0.01)	(0.00759)	(0.012)	(0.020)	(0.013)	(0.023)
CCB time trend	0.013***	0.019***	0.019***	0.027***	0.019***	0.027***
	(0.0008)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)
Post CCB setup trend			-0.008***	-0.0570***	-0.004*	-0.002
			(0.001)	(0.00337)	(0.002)	(0.004)
Sq. post CCB setup trend					-0.0003*	-0.0005
					(0.0001)	(0.0002)
Boundary	-0.076**	0.071**	-0.077**	-0.0518***	-0.076**	0.071
	(0.031)	(0.055)	(0.031)	(0.00208)	(0.031)	(0.055)
lnrgdplag1	-0.037***	-0.096***	-0.033***	-0.033***	-0.033***	-0.091***
	(0.003)	(0.005)	(0.003)	(0.00345)	(0.003)	(0.005)
Constant	0.301***	0.548***	0.297***	0.289***	0.297***	0.542***
	(0.009)	(0.017)	(0.009)	(0.00454)	(0.009)	(0.017)
Firm fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5118	5118	5118	5118	5118	5118
R-squared	0.074	0.103	0.081	0.107	0.082	0.107

Note: Standard errors robust to heteroskedasticity and autocorrelation are in parentheses. *, ** and *** denote significance at 10%, 5%, and 1% levels, respectively.

Table 12: City commercial bank establishment and city GDP growth rate: lagged effect

	Reg1	Reg2	Reg3	Reg4	Reg5
Dependent Variable			*GRGDP*		
Lagged CCB	*CCB-1*	*CCB-2*	*CCB-3*	*CCB-4*	*CCB-5*
	-0.00704***	-0.00667***	-0.00873***	-0.00546**	-0.00574**
	(0.00156)	(0.00157)	(0.00154)	(0.00211)	(0.0021)
LnRGDP-1	-0.131***	-0.130***	-0.130***	-0.130***	-0.129***
	(0.0227)	(0.0228)	(0.0233)	(0.0231)	(0.0231)
LOAN	-0.0266***	-0.0264***	-0.0260***	-0.0256***	-0.0250***
	(0.00561)	(0.00566)	(0.00552)	(0.00555)	(0.00558)
FAI	0.0711***	0.0709***	0.0708***	0.0712***	0.0713***
	(0.00913)	(0.00922)	(0.0093)	(0.00941)	(0.00944)
FDI	0.0336	0.0283	0.0356	0.036	0.0237
	(0.167)	(0.159)	(0.159)	(0.161)	(0.165)
Fiscal	-0.0832**	-0.0821**	-0.0808**	-0.0810**	-0.0818**
	(0.0332)	(0.0332)	(0.032)	(0.0322)	(0.0321)
GRPOP	-0.0176	-0.0151	-0.0131	-0.0174	-0.0164
	(0.05)	(0.0497)	(0.0496)	(0.0475)	(0.0474)
EDU-1	0.0136	0.0203	0.0223	0.0152	0.00843
	(0.048)	(0.0466)	(0.0464)	(0.0472)	(0.0461)
Constant	0.515***	0.513***	0.510***	0.508***	0.505***
	(0.0691)	(0.0692)	(0.0706)	(0.0698)	(0.0699)
City fixed effect	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes
Observations	3,042	3,042	3,042	3,042	3,042
Within R2	0.484	0.484	0.485	0.484	0.484

Note: Standard errors robust to heteroskedasticity and autocorrelation are in parentheses. *, ** and *** denote significance at 10%, 5% and 1% levels respectively

Table 13: CCB establishment and city GDP per capita growth rate

	Reg1	Reg2	Reg3	Reg4	Reg5
Dependent Variable			$GRGDPPC$		
	CCB		CCB_{-1}	CCB_{-2}	CCB_{-3}
$CCBorLagged$	-0.00419*		-0.00437*	-0.00575***	-0.00831***
	(0.00207)		(0.00215)	(0.00179)	(0.00182)
$CCBYEAR$		-0.00288***			
		(0.000597)			
$LnGDPPC_{-1}$	-0.113***	-0.114***	-0.113***	-0.113***	-0.113***
	(0.0216)	(0.0212)	(0.0218)	(0.0219)	(0.0219)
$LOAN$	-0.0310***	-0.0244***	-0.0309***	-0.0308***	-0.0304***
	(0.00573)	(0.00536)	(0.00573)	(0.00569)	(0.00563)
FAI	0.0839***	0.0811***	0.0838***	0.0836***	0.0835***
	(0.0124)	(0.0122)	(0.0124)	(0.0125)	(0.0126)
FDI	0.115	0.252	0.119	0.127	0.136
	(0.165)	(0.199)	(0.159)	(0.164)	(0.178)
$FISCAL$	0.0368	0.00264	0.0367	0.0369	0.0377
	(0.0618)	(0.0528)	(0.0616)	(0.0612)	(0.0607)
$GRPOP$	-0.241**	-0.239**	-0.243**	-0.241**	-0.239**
	(0.0997)	(0.0958)	(0.1)	(0.101)	(0.102)
EDU_{-1}	0.0987	0.0656	0.101	0.106*	0.108*
	(0.0596)	(0.0583)	(0.0572)	(0.0553)	(0.0552)
Constant	1.075***	1.087***	1.076***	1.075***	1.072***
	(0.198)	(0.193)	(0.199)	(0.2)	(0.2)
City fixed effect	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes
Observations	3,039	3,039	3,039	3,039	3,039
Within R2	0.406	0.419	0.406	0.407	0.408

Note: Regression 1 contains all control variables and dummy variable CCB. Regression 2 replaces CCBYEAR with CCB. Regression 3 to 5 employ first year to third year lagged CCB. GDP per capita is also found significantly negatively correlated with CCBs setup, lagged CCBs setup and the years of CCBs setup. Standard errors robust to heteroskedasticity and autocorrelation are in parentheses. *, ** and *** denote significance at 10%, 5% and 1% levels respectively.

Table 14: CCB and Firms Sales Growth Rate

	Reg1	Reg2	Reg3	Reg4
Dep. Var.		*GRSALES*		
CCB	-0.0154**	-0.0162**	-0.0218***	-0.0218***
	(0.00688)	(0.00687)	(0.00688)	(0.00688)
Medium		-0.0608***		
		-0.00901		
Small		-0.0846***		
		(0.00935)		
SOE		-0.0266***	-0.0291***	
		(0.00423)	(0.00423)	
ASSET			0.0826***	0.0826***
			(0.00249)	(0.00249)
STATECAP				-0.0373***
				(0.00479)
Growth		-0.0633***	-0.0691***	-0.0690***
		(0.00235)	(0.00235)	(0.00235)
Mature		-0.0415***	-0.0467***	-0.0465***
		(0.00408)	(0.00408)	(0.00409)
Constant	0.370***	0.490***	-0.392***	-0.391***
	(0.00536)	(0.0107)	(0.0251)	(0.0251)
Year fixed effect	Yes	Yes	Yes	Yes
Firm fixed effect	Yes	Yes	Yes	Yes
Observations	947,536	947,536	947,536	947,536
Within R2	0.015	0.016	0.018	0.018

Note: Regression 1 only includes key variable CCB as explanatory variable. Firm size, ownership and age are added in regression 2. For robustness check, logarithm of firms asset is used instead of size dummies in regression 3, and percentage of state-owned capital is used instead of ownership dummy in regression 4. Standard errors robust to heteroskedasticity are in parentheses. *, ** and *** denote significance at 10%, 5% and 1% levels respectively.

Table 15: CCB and Firms Asset Growth Rate

	Reg1	Reg2	Reg3	Reg4
Dep. Var.		*GRASSET*		
CCB	-0.00842	-0.0103*	-0.0537***	-0.0538***
	(0.00553)	(0.00552)	(0.006)	(0.006)
Medium		-0.0299***		
		(0.00734)		
Small		-0.0986***		
		(0.0076)		
SOE		-0.0248***	-0.0480***	
		(0.00337)	(0.00342)	
ASSET			0.641***	0.641***
			(0.00294)	(0.00294)
STATECAP				-0.0585***
				(0.00393)
Growth		-0.0520***	-0.0981***	-0.0980***
		(0.00208)	(0.00207)	(0.00207)
Mature		-0.0365***	-0.0787***	-0.0783***
		(0.00345)	(0.00367)	(0.00367)
Constant	0.253***	0.378***	-5.920***	-5.919***
	(0.00431)	(0.00869)	(0.0293)	(0.0293)
Year fixed effect	Yes	Yes	Yes	Yes
Firm fixed effect	Yes	Yes	Yes	Yes
Observations	947,536	947,536	947,536	947,536
Within R2	0.005	0.007	0.186	0.186

Note: Regression 1 only includes key variable CCB as explanatory variable. Firm size, ownership and age are added in regression 2. For robustness check, logarithm of firms asset is used instead of size dummies in regression 3, and percentage of state-owned capital is used instead of ownership dummy in regression 4. Standard errors robust to heteroskedasticity are in parentheses. *, ** and *** denote significance at 10%, 5% and 1% levels respectively.

Table 16: CCB and sales growth rate of firms in different sizes

	Reg1	Reg2	Reg3	Reg4
Dep. Var.		*GRSALES*		
Sample	SME	Large	Medium	Small
CCB	-0.0208***	-0.0243	-0.00161	-0.0192**
	(0.00703)	(0.0362)	(0.0182)	(0.0078)
ASSET	0.0824***	0.111***	0.0315***	0.0907***
	(0.00252)	(0.0216)	(0.00765)	(0.00282)
STATECAP	-0.0378***	-0.0236	-0.0364***	-0.0325***
	(0.00496)	(0.0188)	(0.00892)	(0.00609)
Growth	-0.0681***	-0.170***	-0.134***	-0.0566***
	(0.00237)	(0.0277)	(0.00772)	(0.00253)
Mature	-0.0455***	-0.132***	-0.112***	-0.0325***
	(0.00415)	(0.0283)	(0.0101)	(0.00473)
Constant	-0.386***	-1.065***	0.133	-0.459***
	(0.0252)	(0.303)	(0.0897)	(0.0276)
Year fixed effect	Yes	Yes	Yes	Yes
Firm fixed effect	Yes	Yes	Yes	Yes
Observations	934,955	12,581	121,557	817,597
Within R2	0.018	0.052	0.029	0.016

Note: Regression 1 only includes key variable CCB as explanatory variable. Firm size, ownership and age are added in regression 2. For robustness check, logarithm of firms asset is used instead of size dummies in regression 3, and percentage of state-owned capital is used instead of ownership dummy in regression 4. Standard errors robust to heteroskedasticity are in parentheses. *, ** and *** denote significance at 10%, 5% and 1% levels respectively.

Table 17: CCB and firm growth: Pooled OLS

	Reg1	Reg2	Reg3	Reg4
Dep. Var.	*GRSALES*		*GRASSET*	
CCB	-0.0168***	-0.0202***	-0.00865***	-0.0163***
	(0.00164)	(0.00164)	(0.00142)	(0.00144)
Medium	-0.0392***		-0.0249***	
	(0.00596)		(0.00482)	
Small	-0.0667***		-0.0620***	
	(0.00586)		(0.00473)	
SOE	-0.0654***		-0.0730***	
	(0.00209)		(0.00164)	
ASSET		0.0195***		0.0413***
		(0.000453)		(0.000408)
STATECAP		-0.0871***		-0.114***
		(0.00229)		(0.00191)
Growth	-0.165***	-0.169***	-0.108***	-0.115***
	(0.00166)	(0.00167)	(0.00139)	(0.00139)
Mature	-0.222***	-0.226***	-0.168***	-0.182***
	(0.00211)	(0.00212)	(0.00172)	(0.00175)
Constant	0.509***	0.254***	0.402***	-0.0624***
	(0.00898)	(0.00817)	(0.00804)	(0.00777)
Year dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Region dummies	Yes	Yes	Yes	Yes
Observations	947,536	947,536	947,536	947,536
R2	0.044	0.046	0.027	0.038

Note: Standard errors robust to heteroskedasticity are in parentheses. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively.

Table 18: Heterogeneous impact of CCB presence on firm growth

	Reg1	Reg2	Reg3	Reg4
Dep. Var	GRSALES	GRSALES	GRASSET	GRASSET
CCB	-0.616***	-0.00478	-4.691***	0.0370***
	(0.0251)	(0.00759)	(0.0359)	(0.0061)
$CCBASSET$	0.0583***		0.455***	
	(0.00236)		(0.00363)	
$CCBSMALL$		-0.0139***		-0.0570***
		(0.00404)		(0.00337)
$STATECAP$	-0.0349***	-0.0336***	-0.0397***	-0.0298***
	(0.0048)	(0.00479)	(0.00406)	(0.0039)
$Growth$	-0.0660***	-0.0630***	-0.0752***	-0.0518***
	(0.00235)	(0.00235)	(0.00208)	(0.00208)
$Mature$	-0.0439***	-0.0410***	-0.0588***	-0.0361***
	(0.00408)	(0.00408)	(0.0036)	(0.00345)
$Constant$	0.433***	0.410***	0.478***	0.289***
	(0.00573)	(0.00561)	(0.00756)	(0.00454)
Firm fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Observations	947,536	947,536	947,536	947,536
R-squared	0.017	0.016	0.097	0.007
Number of firms	206,771	206,771	206,771	206,771

Note: Standard errors robust to heteroskedasticity are in parentheses. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively.

Table 19: First stage regression results

	(1)	(2)	(3)	(4)
Dependent Variable	CCB	CCB	CCB	CCB
$Neighbor$	0.3839***	0.3846***		
	(0.0549)	(0.0551)		
$Prov_{Percent}$			0.5402***	0.5401***
			(0.0633)	(0.0638)
$LnRGDP(ER)_{-1}$	-0.0566	0.0256	-0.064	0.0038
	(0.0722)	(0.0624)	(0.0735)	(0.0633)
$LOAN$	-0.0641***	-0.0605***	-0.0624***	-0.0597***
	(0.0191)	(0.0189)	(0.0183)	(0.0183)
FAI	-0.0147	-0.0228	-0.0154	-0.0211
	(0.0331)	(0.0336)	(0.0333)	(0.034)
FDI	5.3816***	5.3965***	4.1892***	4.2600***
	(1.3977)	(1.4054)	(1.3303)	(1.3292)
$Fiscal$	-0.3940***	-0.2979**	-0.3727***	-0.2930**
	(0.1425)	(0.137)	(0.1398)	(0.1352)
$GRPOP$	0.0549	0.0542	0.0016	0.0005
	(0.3196)	(0.3168)	(0.3436)	(0.3413)
EUD_{-1}	-0.3191	-0.2701	-0.3165	-0.2815
	(0.5044)	(0.5044)	(0.5088)	(0.51)
City fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Observations	3041	3039	3041	3039

Note: Standard errors robust to heteroskedasticity are in parentheses. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively.

Table 20: Second stage regression results

	(1)	(2)	(3)	(4)
Depedent Variable	GRGDP	GRGDPPC	GRGDP	GRGDPPC
IV.	*Neighbor*	*Neighbor*	*SameProv.*	*SameProv.*
CCB	-0.0751***	-0.0701***	-0.0777***	-0.0820***
	(0.015)	(0.0181)	(0.013)	(0.0171)
$LnRGDP(PC)_{-1}$	-0.135***	-0.111***	-0.135***	-0.110***
	(0.0139)	(0.0138)	(0.0139)	(0.0141)
$LOAN$	-0.0319***	-0.0357***	-0.0321***	-0.0365***
	(0.00711)	(0.00719)	(0.00716)	(0.00733)
FAI	0.0691***	0.0814***	0.0691***	0.0810***
	(0.00533)	(0.00711)	(0.00538)	(0.00726)
FDI	0.493**	0.565**	0.511**	0.647***
	(0.236)	(0.245)	(0.231)	(0.236)
$Fiscal$	-0.111***	0.0161	-0.112***	0.0123
	(0.0282)	(0.0362)	(0.0277)	(0.0363)
$GRPOP$	-0.0036	-0.231***	-0.00316	-0.229***
	(0.0519)	(0.0631)	(0.0524)	(0.065)
EDU_{-1}	-0.05	0.0436	-0.0524	0.0337
	(0.0665)	(0.0763)	(0.0673)	(0.0791)
City fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Observations	3,041	3,039	3,041	3,039
R-squared	0.291	0.283	0.276	0.234

Note: Standard errors robust to heteroskedasticity are in parentheses. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively.

Table 21: Large firms obtain more benefits when there is CCB though inefficient

	Reg1	Reg2	Reg3	Reg4
Dep. Var	Firm Loan	Firm Investment	log(asset) for top 100 firms	ROA
CCB	-231.2***	-6886***	0.699***	
	(29.58)	(466.0)	(0.00603)	
ASSET				-0.906***
				(0.0521)
CCBASSET	6.23***	0.0901***		-0.563***
	(0.0106)	(0.000159)		(0.0509)
STATECAP	160.1***	-3,090***	-0.129***	
	(52.08)	(675.8)	(0.0137)	
FirmAge	0.488***	3.188***	0.577***	
	(0.188)	(4.850)	(0.00406)	
Constant	924.9***	16,637***	10.87***	0.015***
	(99.57)	(1,504)	(0.0225)	(0.008)
Industry dummies	Yes	Yes	Yes	Yes
Firm fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Observations	1,654,608	1,339,580	217,804	1,557,379
R-squared	0.017	0.016	0.097	0.0029
Number of firms	431,490	388,475	61,627	437,996

Data Source: Annual Census of Enterprises 1999-2007. Note: Regression 1 estimates firm asset's heterogeneity effect of CCB on firm loans. Regression 2 estimates firm asset's heterogeneity effect of CCB on firm investment. Regression 2 estimates whether CCB contributes to large firm's size increase more. Regression 4 estimates whether large firm which is conjectured to have more bank loans is more productive. Standard errors robust to heteroskedasticity and autocorrelation are in parentheses. *, ** and *** denote significance at 10%, 5%, and 1% levels, respectively.

Table 22: More firm crony led to more bank financing in cites with CCB

	Reg1	Reg2	Reg3	Reg4	Reg5	Reg6
	Probit	OLS	OLS	Probit	OLS	OLS
Dep. Var	Loan Dummy	Interest Payments	Firm Size	Loan Dummy	Interest Payments	Firm Size
$CCB * Crony$	0.025**	8.650***	0.191***	0.023**	6.693***	0.132***
	(0.01)	(1.795)	(0.018)	(0.0521)	(1.777)	(0.017)
$Crony$	0.025**	-3.711*	-0.036*	0.025**	-3.549*	-0.005
	(0.01)	(2.191)	(0.022)	(0.013)	(2.165) (0.021)	
$ln(firmage)$				0.256***	4.372***	0.991***
				(0.031)	(5.162)	(0.049)
$STATECAP$				-0.002***	78.805***	0.012***
				(0.000)	(7.289)	(0.000)
$ForeignShare$				-0.003***	-1.328	0.013***
				(0.000)	(7.593)	(0.000)
$ProductionCapacity$				0.004***	77.466***	0.014***
				(0.000)	(10.597)	(0.001)
$TaxShare$				0.001	0.001	0.009
				(0.003)	(0.004)	(0.008)
$Export$				0.002***	-1.581	0.001***
				(0.000)	(7.546)	(0.001)
$Constant$	0.180***	38.53	9.212***	-0.933***	-16.623***	4.640***
	(0.028)	(4.838)	(0.049)	(0.108)	(1.833)	(0.176)
R-squared	0.002	0.003	0.014	0.015	0.034	0.139
Number of firms	10765	10767	10757	10765	10767	10757

Data Source: World Bank Business Environment Survey

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