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Does Local Financial Development Matters for the Performance of Small and Medium Enterprises: Evidence from China

Yingying Fang [*] **and Go Yano** [†]

Abstract

By using the data of non-listed enterprises, and employing several macro-level financial proxies, this study investigates whether local financial development matters for the performance of SMEs in China. Taking both supply and demand sides into consideration, an overall positive correlation has been found between local financial development and SMEs' performances, and it is more pronounced for SMEs in the industries with more growth opportunities. The relationship is robust with different measurements of local financial development, including both local credit supply and quality of local financial market, and it holds not only at the provincial level but also at the prefecture–city level. Moreover, the heterogeneity within enterprises is also illustrated. Although the development of local financial markets could help to alleviate the financial constraints of private and small enterprises and thereby lead to better firm performance, non-private or medium-sized enterprises still have significant advantages in making use of local financial resources.

Key words: Local financial development, SMEs, Private enterprises, Small-sized enterprises

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1. Introduction

Nowadays, SMEs are believed to be the backbone of economies. They account for the vast majority of business entities, and they perform prominently in providing employment opportunities as they are more likely to be labor-intensive. Ayyagari et al. (2007) proposed that SMEs provide over 50% of manufacturing employment on average across 76 developed or developing countries. Furthermore, SMEs are regarded as the "seedbed" for further industrial growth (Biggs, 2002) and could benefit the whole economy in a wider way. Beck et al. (2005) also concluded that SMEs could enhance competition and entrepreneurship and thereby lead to external benefits in respect of economic efficiency, innovation, and productivity growth.

In the past three decades, China has experienced an impressively rapid growth, which is partly due to the prosperous development of Chinese SMEs. By the end of 2013 the number of SMEs had reached 343,135 and accounted for 97.3% of total industrial enterprises[1]. SMEs in China account for 60% of the total GDP as well as 50% of the national tax revenue, 65% of patents for inventions and 80% of new product development[2]. They not only act as the most important engine of current economic growth but are also vital for the country's future economic transformation and upgrading.

As the importance of SMEs' development has been emphasized, the bank loans extended to them have increased. In 2012 SME loans outstanding totaled 25.15 trillion RMB, representing 39.9% of total loans outstanding, and the annual growth rate was 15.5%[3]. However, the supply of financing for SMEs still not meeting the demand.

Generally speaking, compared to large enterprises SMEs have limited opportunities to secure enough financial resources, since most of them can neither go public, nor obtain financial support out of their locations. Due to their opaqueness in information provision and lack of collateral assets, they are regarded as more risky and therefore usually have difficulties in getting enough bank loans. As a result, SMEs depend more on local financial institutions, and they are eager to obtain a sufficient local financial supply of finance.

However, the Chinese financial system is considered to be undeveloped. It is dominated by the banking sector, of which state-owned banks occupy the largest share. According to the

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[1] Asia SME Finance Monitor 2014. Asian Development Bank, 2015.
[2] The State Administration of Industry and Commerce: Developing Status Report of Small and Micro Enterprises (abstract). 2014.3. http://www.gov.cn/xinwen/2014-03/31/content_2650031.htm
[3] Asia SME Finance Monitor 2013. Asian Development Bank, 2014.

market power hypothesis, the increasing market power of banks tends to intensify the financing constraints of SMEs (Ryan et al, 2014)[4]. Nevertheless, Lin et al. (2009) argue that rather than the absolute advantage of a certain financial system, the match between the financial structure and the existing industrial structure is more important for economic growth. To be more specific, for an economy with a large amount of SMEs, a lower concentration inside the bank sector could be more effective. With the reform of the financial system in the past, especially the blossoming of city commercial banks, we would like to shed light on whether these improvements in local financial circumstances could promote the performance of SMEs.

The remainder of the paper proceeds as follows. Section 2 provides the background and literature review. Section 3 introduces the data description, model, and methodology that used in the empirical analysis. The estimation results are presented in Section 4. Robustness tests are conducted in Section 5 and Section 6 sets out the conclusions.

2. Background and Literature Review

2.1 Chinese financial development

In 1911 Schumpeter proposed that the services provided by the financial intermediaries are necessary for economic development. More recently numerous empirical studies by King and Levine (1993) and others have proved this proposition through cross-country, industrial or firm-level analysis. However, Allen et al. (2005) raised a conjecture that China is a counterexample of this pervasively accepted logic, since China has been one of the fastest growing economies even though neither the legal nor financial system is well developed. The private sector has achieved a rapid growth despite the difficulties it has faced with getting enough financial resources and financial services.

In fact although the uniqueness of China's case attracts a lot of attention, no consensus has been reached. Several researchers have found a negative relationship (Boyreau-Debray, 2003; Hasan et al. 2009), but others have found supportive evidence especially by using data from more recent time periods, to prove that the Chinese financial system still has positive effects on economic growth (Chen, 2006; Zhang et al., 2012). By dividing the financial development indices into different categories, Guariglia and Poncet (2008) proposed that traditional indices are generally negatively associated with economic growth, whereas the indices measuring market driven financing have positive impacts.

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[4] Although there is another information hypothesis that argues that their market power could encourage the banks to invest in relationship building, leading to an increase of credit supply, the negative relationship between bank market power and SMEs' financing constraints is well proven (Carbo-Valverde et al., 2009; Chong et al., 2013; Ryan et al., 2014).

There is no doubt that the Chinese financial system is still not effective enough compared to the other main economies in the world, but it is also beyond doubt that the Chinese financial system has made great progress. This is evidenced by the expansion in its size and the professionalization and diversification of the financial institutions. From 1978 to 2009 the summation of M2, total bank loans and security increased from 290.6 billion to 150.25 trillion RMB, realizing a 508-fold extension[5], and more banks as well as other financial institutions were established, including institutions with foreign ownership.

Before 1978 the financial system was extremely centralized in China. People's Bank of China (PBOC) played a dual role as both the central bank and a commercial bank, with quite limited financial services being provided for both individuals and enterprises. Thereafter, a substantial reform process took place. In 1979 Agricultural Bank of China (ABC) was restored, and the Bank of China (BOC) as well as China Construction Bank (CBC) was separated from the PBOC in the same year. This was followed by the establishment of Industrial and Commercial Bank of China (ICBC) in 1984. Thereafter, PBOC officially relinquished its dual role and became the central bank in a real sense, which also represented the start of a new era for the Chinese financial system. Until 1994 each of these four state-owned banks had its own specified duties and regularly performed its own functions. Starting from 1995 a new round of financial reform was carried out. These four banks were transformed from specialized banks to common commercial banks, and at the same time three "policy banks" were established to take over the policy lending activities. From 2003 the reform of the shareholding system in these banks was initiated. All of the four state-owned banks completed the listing process by 2010.

Apart from the state-owned banks, several joint-stock commercial banks appeared in the 1980s and 1990s, such as China Citic Bank, China Merchants Bank, and China Minsheng Bank. Their headquarters were no longer limited to Beijing, and they effectively supplemented the state-owned banks, especially in the east coastal area of China, in which most of the branches were located. A large number of city commercial banks were also established by consolidating local traditional rural and urban cooperatives, especially after 1990. Their businesses were much more restricted to their location cities, and most of them did not have as many branches as other types of commercial banks; however, as they are actively exploiting the market and getting involved in the competition, they are regarded as the third tier of China's banking industry.

After China's entrance to the WTO in 2001, foreign banks started to expand in China at the

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[5] The Chinese financial system at the dawn of the 21st century: An overview. Yulu Chen, Yong Ma and Ke Tang The IEB international journal of finance, 2011.2, pp2-41.

same time as geographical restrictions were being gradually removed. More branches opened and more services were provided. Although entry barriers still exist and the market share of foreign banks is still small (around 2% since 2005[6]), the increasing openness of the Chinese financial system has strengthened market competition and provided more possibilities.

In addition to the banks, the Chinese stock market also grew out of nothing. At the end of 2015 the total market capitalization has reached 53.13 trillion RMB[7]. However, the market capitalization of listed domestic companies only accounts for 75.4% of GDP, which is much lower than the 139.7% of the United States and the 118.7% of Japan[8]. Allen at al. (2012) also claim that the stock market in China is not effective in allocating resources.

Figure 1 shows a comparison of financial systems among the major economies in 2012. The ratio of deposit money bank assets to stock market capitalization indicates the structure of the financial system. It is obvious that the banking system occupies the major place in the Chinese financial system, with the third-highest ratio of 3.04 (only lower than Germany and Japan) among all the main economies, and it is more than 5 times the ratio for the United States and 2 times the world average level. The Chinese financial market is still bank-dominated.

Figure 1: Financial system comparison among major economies (2012)

■ Deposit Money Bank Assets/Stock Market Capitalization
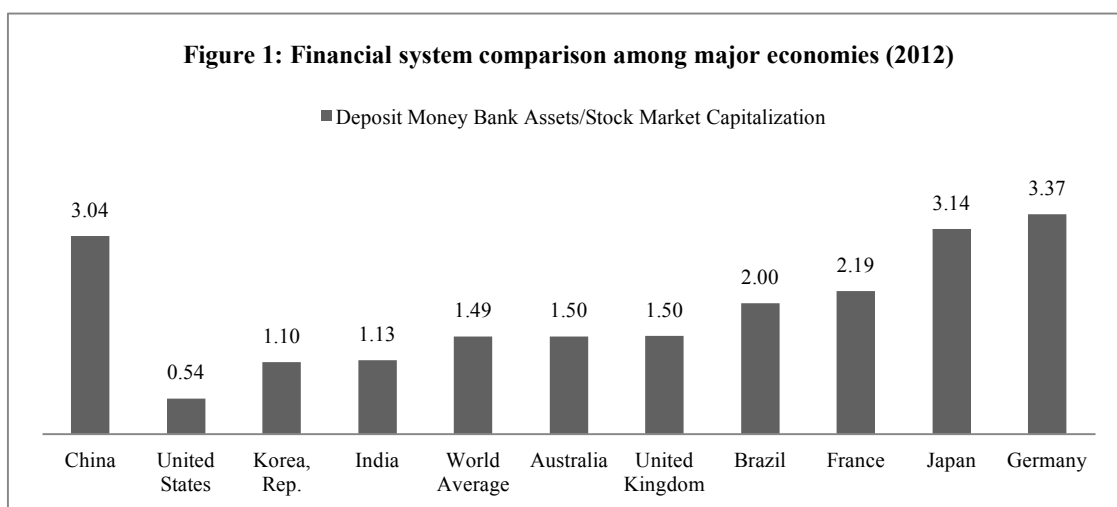
Source: Global Financial Development Database (World Bank)

Figure 2 shows the different sources of the loans that have been offered by financial institutions in recent years. The main source of loans remains the banking system with the state-owned commercial banks being the largest lenders in total, although their proportion has distinctly decreased each year. The expansion of joint-stock commercial banks, city commercial banks and rural commercial banks is apparent; they have even taken some of the market share

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[6] Almanac of China's Finance and Banking, various years

[7] Monthly report of security market. China Securities Regulatory Commission, 2015.12

[8] World Bank Data. http://data.worldbank.org/indicator/CM.MKT.LCAP.GD.ZS?view=chart

of other financial institutions[9]. The increasing diversity of the financial institutions in China reduces the market concentration in the financial industry. Chong et al. (2013) claim that this trend could alleviate the financial constraints of SMEs and help them to achieve better performance.

Figure 2: Loans offered by financial institutions (2005-2013)
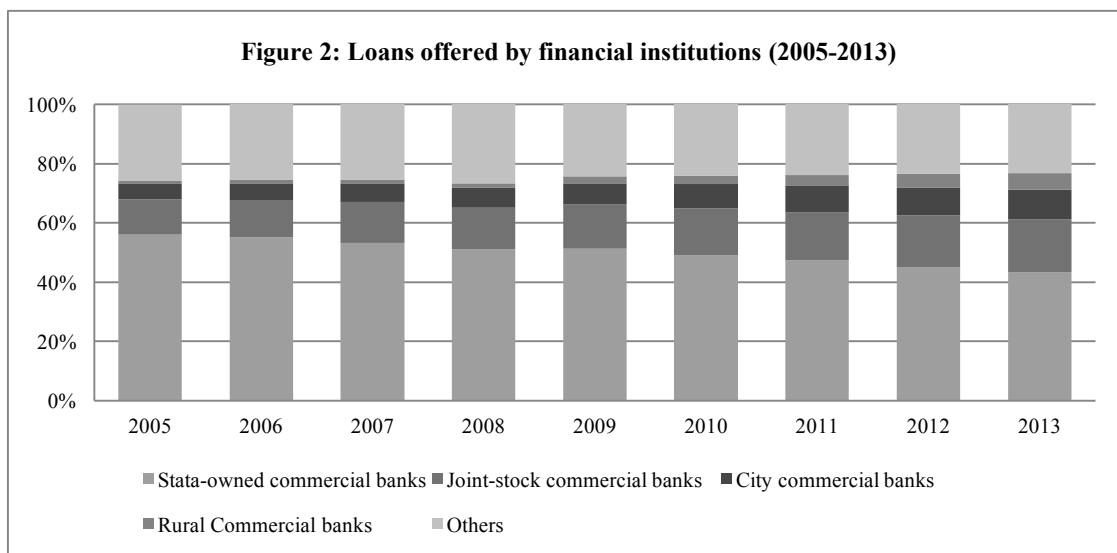
Source: Almanac of China's Finance and Banking, various years

2.2 Financial development and firm growth

The function of financial development promoting economic growth is believed to go through several different channels. One of them is supporting the development of firms and fostering the evolution of exerting their cooperate governance[10]. As the link connecting savings and investment, financial intermediaries help with the reallocation of financial resources and it is especially important for firms that need to invest but do not have enough internal financial resources.

The financial constraints of SMEs are quite universal. SMEs often turn to informal financial support and this phenomenon is particularly evident in the countries with less-developed financial systems. Informal finance intermediaries can make use of their advantages in "soft information" to identify the quality of SMEs and thereby offer an important option for SMEs looking for financing. However, since the costs of informal financial are generally higher than the interest rates of bank lending, relying on informal finance is also considered to be a reflection of the existence of financial constraints. Allen et al. (2005) argued that informal

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[9] Policy banks, rural cooperative banks, urban credit cooperatives, rural credit cooperatives, postal savings, foreign-funded financial institutions, and nonbank financial institutions are all included in the "others" category.

[10] Levine. R., 2005. Finance and Growth: Theory and Evidence, Handbook of Economic Growth, 1A, p869.

finance has acted as an alternative way to support the rapid growth of the private sector and has thus contributed to the growth of the Chinese economy. Ge and Qiu (2007) also found that non-stated-owned enterprises are more likely to use more trade credit, and most of their usage comes from financing needs rather than transaction motivations.

Although the informal finance is widely used by SMEs, the main source of their corporate finance still comes from formal finance channels. Ayyagari et al. (2008) also claimed that it is the formal finance[11] rather than the informal finance that stimulates the firm growth in China. Therefore, we would like to focus on formal finance in this study and pay attention not only to the amount of loans that are offered by local financial institutions (mainly banks) but also to the marketization of the local financial industry.

To some extent the financial constraints of SMEs come as a result of the cautious operation and risk aversion of financial intermediaries. The banks have to rationally consider their own profitability when they make their lending decisions. However, it is widely believed that discrimination based on its property rights also exists in the decision-making process of banks (Bai et al., 2005), or at least, since SMEs are less likely to know the exact standards that are followed in respect of loans approval, it is easier for them to have different cognitions from the banks, which enhance the financing difficulties (Wang and Tang, 2013). As a result, in 2006 only 500 thousand out of 40 million SMEs could obtain bank loans in China[12].

The uniqueness of the existing Chinese financial system also has an impact on the access of enterprises to loans. Many researchers have paid attention to the background of entrepreneurs, indicating that the social relationships of the entrepreneurs, especially their political status, are important for achieving access to bank loans. Although commercial banks are no longer undertaking the task of policy lending, since most banks are controlled by governments, the final decision still tends to give preference to enterprises with state ownership, thereby enhancing the financial constraints of SMEs. However, the diversification in the banking sector might have caused this situation to improve. After analyzing county-level data for 79 counties of 12 Chinese provinces, Shen et al. (2009) pointed out that the hierarchy plays a vital role in lending to SMEs rather than the asset size of the banks. The banks with lower authorities are able to lend more to SMEs, and the share of loans to SMEs increases when the bank has more self-loan approval rights. Chong et al. (2013) found that the development of joint-stock banks

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[11] Formal finance refers to the financial services provided by the legal infrastructure that is able to provide both recourse to lenders and protection to depositors, which is in contrast to the concept of informal finance. (Ledgerwood J. (1998)). Microfinance Handbook: An Institutional and Financial Perspective. Washington, D.C.: The World Bank.)

[12] Lin, Yifu. 2007. Developing Medium and Small-sized Banks to Improve the Financial Structure. Working paper. China Center for Economic Research, Peking University.

plays the most important role in alleviating the financial constraints of SMEs compared to state-owned banks and city commercial banks.

In conclusion, we have reason to believe that the development of the local financial system will have a positive impact on the growth of SMEs, although the preference given to large enterprises is more pronounced, especially to SOEs, and we would like to test this proposition by using Chinese non-listed enterprises data. The financial constraints faced by SMEs have already drawn much attention in the academic field. A lot of theoretic analysis has been done, but only a few studies have linked the performance of SMEs with the local financial development; most studies have examined the overall financial status using large-sized firm-level data. In addition to provincial–level analysis, we will also examine the issues at the prefecture–city level.

3. Model and Data Description

We construct our dataset using the "China Non-listed Enterprise Database," which contains about 2 million enterprises from 41 industries and covers a time period of 1998 to 2009. Among all the 98 indices provided, about 75% are related to the balance sheet, which comprehensively reveals relevant performance and financial conditions.

Since there are no observations for the five ethnic autonomous regions as well as Hong Kong, Macao and Taiwan, our analysis is limited to the 26 provinces in mainland China. To measure the local financial development, we employ two indices: Credit and Marketization. Credit is the ratio of the annual provincial loan balance to GDP, which come from the Almanac of Finance and Banking of the China and China Statistic Yearbook. It reflects the supportiveness of the local financial sector to local economic growth. Marketization is measured using the provincial financial industry marketization index from the NERI index of marketization published by Fan et al. (index 4a), taking the logarithm type. It is an overall evaluation of the local financial industry after taking comprehensive factors into consideration, including the credit that flows to the private sector.

However, these financial indices could only describe the supply side, and the unilateral thinking involved with this approach might lead to bias. To avoid this we follow the setting of Fafchamps and Schündeln (2013). As the demand for financial resources mainly comes from firm growth, less financially constrained enterprises could exploit more growth opportunities to realize their goals. Fafchamps and Schündeln argued that this link is only apparent when there are enough growth opportunities inside the industry that the enterprises are engaged in; that is, from the perspective of demand, enterprises in industries with less growth potential

are also less financial constrained. As a result, they combined the industrial growth opportunities and local financial development together as the main independent variable and we do the same.

To proxy the growth opportunities, we take the overall sales growth of all large enterprises within the industry[13]. Since large enterprises have relatively sufficient financial resources (even if they are not listed), they could grasp and make use of growth opportunities that appear in their industries, so their faster growth signals a greater level of opportunities in the industry. The t-test between the SME group and large enterprise group also supports this hypothesis. Regarding sales growth, the results show that the mean value of the large enterprise group (0.133) is significantly larger than the mean value of the SME group (0.126) with a P-value of 0.003. Regarding the sample time period, we divide these two groups according to the criterion issued by the National Bureau of Statistics in 2003; that is based on their assets size[14]. In fact, over 95% of the sample enterprises are SMEs, and we only put these enterprises into regression. Our baseline model is as follows:

$$Y_{it}=\beta_0+\beta_1 Gs*F_{it}+\beta_2 Pri_{it}+\beta_3 Small_{it}+\beta_4 Inter_{it}+\beta_5 X_{it}+\mu_i$$

The dependent variable proxies for firm performance, namely sales growth (defined as $\ln(sales_t)-\ln(sales_{t-1})$) and ROS here. Sales expansion represents the growth capacity of enterprises. It usually requires more investment, which naturally leads to an increasing demand for financial resources. As a result sales growth should be more sensitive to the local financial situation than the other performance measurement. ROS shows the profitability capacity, which reflects the operational efficiency of enterprises more comprehensively.

F is either *Credit* or *Marketization*, representing the local financial development. We expect the coefficient of *Gs*F* to be positive; that is, SMEs located in the provinces with better financial development could achieve better performance. However, the impact could also be affected by the industry factor. The industries with more growth opportunities could make use of the local financial advantages and better promote the performance of their firms.

To further distinguish the variations among the SME group, we identify two dummy variables, *Pri* and *Small*. *Pri* is a variable to describe the ownership status of each enterprise. *Pri* equals to 1 if the registration status belongs to the category of "Private enterprises," or

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[13] Fafchamps and Schündeln use the value added of large enterprises. Since our dataset have too many missing values of the variable "industrial value added," we use sales growth instead.

[14] According to the criteria in 2003, the enterprises with total assets of less than 300 million RMB in the agriculture industry as well as less than 400 million RMB in mining industry, manufacturing industry and supplying industries are regarded SMEs. The criteria have been updated in 2011but we still choose to use the previous criteria since the sample period covers only 1998 to 2009.

otherwise. Private enterprises, especially the unlisted ones, tend to have more obstacles than non-private ones in the same location when seeking support from financial intermediaries. Nevertheless, they are believed to be more efficient in terms of the operation of the firm, which results in better performance. We use another dummy variable *Small* to divide the SMEs into two sub-categories: medium-size and small-size enterprises. *Small* equals to 1 if the size of their assets is smaller than 40 million RMB[15]. As the size of the assets is one of the main reasons preventing SMEs from getting sufficient financial support, a discrepancy is expected to exist between these two sub-categories. Meanwhile, smaller enterprises might have difficulties in other aspects, such as expanding their sales channels and applying new technologies, thereby resulting in lower growth of sales, and since they cannot benefit from economies of scale, they might also show lower profitability.

In order to depict the enterprises' characteristics, four control variables are designed to show four different dimensions of each enterprise. First, the collateral capacity, calculated by total fixed assets divided total assets, suggests the potential ability of enterprises to get loans in the form of mortgages. Second, the leverage index (total liabilities divided by total assets) reflects the inner financial condition and risk of each enterprise. Third, the financial constraints faced by the enterprises are measured by the ratio of accounts payable to total liabilities. Rationality would lead the enterprise to choose formal finance rather than informal finance if they could get enough access to the formal credit market, since the informal finance is more costly (Petersen and Rajan, 1995). Fourth, the age (the current year minus the establishment year then plus 1, taking the logarithm type) reveals the life-time of each enterprise.

Macro-level indices are added to further control the province disparity; the local GDP per capita and the growth rate of local GDP are chosen. Meanwhile, industry dummies and year dummies are used as well. Over 90% of the observations are firms engaged in the manufacturing industry, with less than 7% of the sample enterprises belonging to the supplying and mining industry. In order to organize the panel data, only the enterprises with no less than three years of continuous observations are kept, and both the up and down 0.5% extreme values for the main variables are removed.

Table 1 shows the statistical description of the main variables in the SME group. Due to the missing values of sales in the dataset, the observation numbers for both sales growth and ROS suffered from substantial shrinkage. The industrial opportunities are measured by the sales growth of large enterprises in the industry. Both *Credit* and *Marketization* represent the local

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[15] We also applied the criteria of 2003 here.

financial development. *Pri* and *Small* are dummy variables to illustrate the firm characteristics. For convenience, the variables age and GDP per capita also take the logarithm type.

Table 1

Statistical description of main variables in provincial regression

Variable	Mean	Std. Dev.	Obs
Sales growth	0.126	0.408	583,510
ROS	0.031	0.156	884,985
Gs	0.184	0.125	622,851
Credit	1.047	0.319	1,161,412
Marketization	2.227	0.320	1,122,045
Pri	0.417	0.493	1,161,412
Small	0.763	0.425	1,161,412
Fixed assets/total assets$_{t-1}$	0.359	0.216	957,171
Total liabilities/total assets$_{t-1}$	0.579	0.292	955,629
Accounts payable/total liabilities $_{t-1}$	0.278	8.138	619,942
Age	2.122	0.794	1,161,412
Growth rate of GDP$_t$ (provincial)	0.124	0.124	1,161,412
GDP per capita$_t$ (provincial, unit: RMB)	9.857	0.659	1,161,412

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To avoid the possible endogeneity problem, GMM estimation is employed in our analysis. GMM (Generalized Method of Moments) has been widely applied in recent times, especially in research related to the impacts resulting from financial development. It hypothesizes that there are not always satisfying outside instrument variables at hand. Hence, this method provides lags of inside variables as instruments since the historical values of a certain variable are strongly related to the current value, but it can only impact the dependent variable through the current situation, which leads to the natural feasibility to be instrument variables. GMM estimation is suitable for data with short time periods and large numbers of observations ("small T, large N"), which is a march with our data. However, as too many instruments could cause an over-identification problem, we also pay attention to the Hansen J test to insure the validity of these automatically created instrument variables.

4. Empirical Results

Our baseline results are presented in Tables 2 and 3. In Table 2 either larger credit supply or a higher marketization level could help local SMEs to gain a faster growth of sales, especially for those engaged in industries with more growth opportunities. For example, in the same province, an enterprise in the industry at the 50th percentile of the *Gs* distribution (*Gs*=0.215)

would enjoy about 1% of additional benefit compared to the enterprises in the industry at the 25th percentile (Gs=0.148), but it would suffer from a 1.6% loss of expansion compared with the enterprises in the industry at the 75th percentile (Gs=0.307). SMEs with majority private ownership are more likely to have faster sales expansion. One possible explanation is that private enterprises usually focus on improving firm performance and maximizing their profit, whereas SOEs or collective enterprises might have to handle multiple goals. Meanwhile, small enterprises tend to have lower sales growth, since their expansion is strongly restricted by the size of their assets.

After adding the interaction terms with *Pri* or *Small*, the coefficient of our main variable enlarges in magnitude, indicating that given the same external conditions, non-private SMEs or medium-sized enterprises could benefit more from local financial development. Although private SMEs and small enterprises suffer from an inferior position in getting financial support, the local financial situation also makes a difference to their growth. The sum of coefficients β_1 and β_4 is larger than 0[16], suggesting that in general private or small enterprises can grasp more opportunities and thus achieve faster sales growth in provinces with better financial conditions.

Table 2

Dependent Variable: Sales Growth						
	(1)	(2)	(3)	(4)	(5)	(6)
Gs*Credit$_t$	0.155***	0.183***	0.254***			
	(18.12)	(18.15)	(20.24)			
Gs*Marketization$_t$				0.097***	0.107***	0.144***
				(22.75)	(20.25)	(22.74)
Pri	0.037***	0.046***	0.037***	0.037***	0.043***	0.037***
	(22.23)	(17.89)	(22.27)	(21.86)	(15.52)	(21.91)
Small	-0.037***	-0.037***	-0.015***	-0.037***	-0.037***	-0.013***
	(-22.83)	(-22.85)	(-5.72)	(-22.96)	(-22.98)	(-4.61)
Pri*GsCredit$_t$		-0.055***				
		(-4.88)				
Small*GsCredit$_t$			-0.137***			
			(-10.83)			
Pri*GsMarketization$_t$					-0.017***	
					(-3.07)	
Small*GsMarketization$_t$						-0.064***
						(-6.90)
Fixed assets/total assets$_{t-1}$	0.296***	0.296***	0.295***	0.294***	0.294***	0.292***
	(9.47)	(9.47)	(9.45)	(9.42)	(9.41)	(9.35)
Total liabilities/total assets$_{t-1}$	0.030	0.030	0.029	0.031*	0.030	0.031*
	(1.60)	(1.59)	(1.61)	(1.65)	(1.63)	(1.65)
Accounts payable/total liabilities$_{t-1}$	0.000	0.000	0.000	-0.000	0.000	0.000
	(0.03)	(0.08)	(0.06)	(-0.01)	(0.02)	(0.02)
Age	-0.078***	-0.079***	-0.079***	-0.078***	-0.078***	-0.078***
	(-50.89)	(-50.86)	(-50.95)	(-50.66)	(-50.67)	(-50.86)
Growth rate of GDP$_t$	1.620***	1.623***	1.624***	1.552***	1.552***	1.555***
	(29.60)	(29.63)	(29.68)	(28.31)	(28.32)	(28.38)

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[16] Wald tests for $\beta_1 + \beta_4$=0 all shown with P-value equals 0.000 for columns 2, 3, 5 and 6.

	(1)	(2)	(3)	(4)	(5)	(6)
GDP per capitat	-0.075***	-0.075***	-0.075***	-0.066***	-0.066***	-0.066***
	(-25.07)	(-25.08)	(-25.05)	(-21.75)	(-21.75)	(-21.77)
Industry dummies	yes	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes	yes
AR(2)	0.793	0.806	0.796	0.703	0.709	0.716
Hansen J test	0.430	0.446	0.436	0.426	0.438	0.435
Obs	493,705	493,705	493,705	493,705	493,705	493,705

Note:*Significant level at 10%. **Significant level at 5%. ***Significant level at 1%.

Table 3 shows the results of the ROS. As it is a measurement of profitability, the stimulation effect of local financial development on ROS is much smaller than the effects on sales growth. However, SMEs located in the provinces with more credit supply and higher marketization levels are more likely to achieve higher profitability, especially when there are more growth opportunities in their industries. Private SMEs tend to have a slight advantage in profitability whereas small enterprises do not. Non-private SMEs or medium-sized enterprises are more likely to have higher profitability with better local financial development, and local financial development also presents limited but positive impacts on the profitability of private SMEs and small enterprises.

However, we noticed that, compared to assets size, the enterprises with an inferior position caused by private ownership are weaker in sales growth regression, and it is more pronounced in ROS regression. This might be due to the relatively high finance cost of private enterprises. We also did a t-test in our sample and found there is a large difference in the average cost of bank loans between private enterprises and non-private enterprises. For non-private SMEs, this only accounts for 68.3% of the private SMEs, but if we extend the test to the whole sample, the difference is larger. Li and Liu (2009) also proved it using listed enterprises data. They found that private enterprises suffer from higher finance costs, and the costs even increase significantly with privatization.

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Table 3

Dependent Variable: ROS						
	(1)	(2)	(3)	(4)	(5)	(6)
Gs*Credit$_t$	0.017***	0.024***	0.024***			
	(11.67)	(13.04)	(9.27)			
Gs*Marketization$_t$				0.011***	0.015***	0.015***
				(16.50)	(16.44)	(12.15)
Pri	0.008***	0.010***	0.008***	0.008***	0.010***	0.008***
	(17.17)	(18.61)	(17.16)	(17.03)	(17.75)	(17.02)
Small	-0.012***	-0.012***	-0.010***	-0.012***	-0.012***	-0.010***
	(-24.44)	(-24.49)	(-16.76)	(-24.48)	(-24.56)	(-15.16)
Pri*GsCredit$_t$		-0.014***				
		(-8.42)				
Small*GsCredit$_t$			-0.009***			
			(-3.70)			

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Pri*GsMarketization$_t$					-0.006*** (-8.19)	
Small*GsMarketization$_t$						-0.005*** (-4.21)
Fixed assets/total assets$_{t-1}$	0.023** (2.41)	0.023** (2.41)	0.023** (2.40)	0.022** (2.39)	0.023** (2.38)	0.022** (2.37)
Total liabilities/total assets$_{t-1}$	-0.091*** (-13.89)	-0.091*** (-13.89)	-0.091*** (-13.89)	-0.091*** (-13.88)	-0.091*** (-13.89)	-0.091*** (-13.88)
Accounts payable/total liabilities$_{t-1}$	-0.001 (-0.64)	-0.001 (-0.64)	-0.001 (-0.64)	-0.001 (-0.64)	-0.001 (-0.64)	-0.001 (-0.65)
Age	-0.004*** (-8.32)	-0.004*** (-8.38)	-0.004*** (-8.33)	-0.004*** (-8.24)	-0.004*** (-8.32)	-0.004*** (-8.28)
Growth rate of GDP$_t$	0.120*** (9.43)	0.121*** (9.49)	0.120*** (9.45)	0.111*** (8.71)	0.111*** (8.73)	0.111*** (8.73)
GDP per capita$_t$	0.003*** (3.15)	0.003*** (3.12)	0.003*** (3.15)	0.004*** (8.71)	0.004*** (4.09)	0.004*** (4.07)
Industry dummies	yes	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes	yes
AR(3)	0.402	0.393	0.398	0.413	0.404	0.407
Hansen J test	0.263	0.274	0.270	0.255	0.267	0.264
Obs	493,872	493,872	493,872	493,872	493,872	493,872

Note:*Significant level at 10%. **Significant level at 5%. ***Significant level at 1%

For the control variables, the higher collateral capacity of the previous year shows a positive impact on sales growth; as mentioned earlier, sales expansion is very dependent on increasing the investment in fixed assets in order to produce more, and so is ROS. The one period lagged leverage level also presents positive effects on sales growth, although it is not significant in several columns. However, since a higher leverage level directly increases the interest expense, it naturally reveals a significantly negative relationship with ROS. Older enterprises tend to experience slower sales growth as well as lower ROS as the operations of these enterprises are relatively mature and have less innovation incentives. SMEs' performance can also benefit from local GDP growth, for both sales growth and ROS, while the GDP per capita is negatively related to the firm expansion, but positively affected by the profitability.

We employed the ratio of accounts payable to total liabilities to control the financial constraints faced by the SMEs—the higher the ratio the more financially constrained the enterprise. However, this variable is insignificant in all regressions, indicating that the source of the liabilities cannot observably affect the final performance of SMEs, at least in our sample[17].

To test the validity of the model, the AR(2) test and Hansen J test are applied. Both of these tests are shown in Table 2, and the results are convincing. In Table 3 we extend the lag period when the AR(2) test fails and show the AR(3) test results.

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[17] We also tried the ratio of accounts payable to total assets, and the results did not change.

5. Robustness Test

5.1 Alternative measurements for local financial development

Instead of the amount of credit provided by local financial institutions, the density of bank branches could also be used to reflect local financial development. We applied this index as a robustness test. The bank branch data are collected on the website of the China Banking Regulatory Commission. We identify every bank branch according to its permission date and calculate the bank branch density (per thousand persons) of each province in our sample period[18].

The results, which are presented in Table 4, are quite similar to the previous estimations. SMEs are more likely to perform well in the provinces with denser bank branches, especially for those engaged in industries with more potential. Private and small enterprises could also benefit from denser bank branches, although compared to their competitors, they inevitably have disadvantages.

Table 4

Dependent Variable:	Sales growth			ROS		
	(1)	(2)	(3)	(4)	(5)	(6)
Gs*Bankdensity$_t$	1.980***	2.227***	3.046***	0.165***	0.217***	0.229***
	(22.22)	(20.50)	(22.37)	(11.07)	(10.87)	(8.35)
Pri	0.037***	0.045***	0.037***	0.007***	0.010***	0.007***
	(21.60)	(16.51)	(21.64)	(1547)	(15.61)	(15.46)
Small	-0.038***	-0.038***	-0.015***	-0.012***	-0.012***	-0.010***
	(-22.92)	(-22.94)	(-5.27)	(-24.25)	(-24.29)	(-16.35)
Pri*GsBankdensity$_t$		-0.471***			-0.103***	
		(-3.74)			(-5.58)	
Small*GsBankdensity$_t$			-1.454***			-0.089***
			(10.35)			(-3.70)
Fixed assets/total assets $_{t-1}$	0.293***	0.293***	0.291***	0.015	0.015	0.015
	(9.17)	(9.17)	(9.12)	(1.59)	(1.58)	(1.57)
Total liabilities/total assets $_{t-1}$	0.023	0.023	0.023	-0.088***	-0.088***	-0.088***
	(1.23)	(1.21)	(1.23)	(-13.18)	(-13.19)	(-13.19)
Accounts payable/total liabilities $_{t-1}$	-0.000	0.000	0.000	-0.001	-0.001	-0.001
	(-0.01)	(0.03)	(0.03)	(-0.51)	(-0.51)	(-0.51)
Age	-0.080***	-0.080***	-0.080***	-0.005***	-0.005***	-0.005***
	(-49.72)	(-49.72)	(-49.81)	(-9.45)	(-9.50)	(-9.47)
Growth rate of GDP$_t$	1.524***	1.526***	1.525***	0.128***	0.128***	0.128***
	(27.51)	(27.54)	(27.54)	(9.45)	(9.99)	(9.96)
GDP per capita$_t$	-0.071***	-0.072***	-0.072***	0.007***	0.007***	0.007***
	(-23.97)	(-24.01)	(-24.07)	(7.73)	(7.66)	(7.70)
Industry dummies	yes	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes	yes
AR(2)	0.911	0.900	0.904			

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[18] Since the population data provided on the NBS website starts from 2000, the final bank density date only covers 2000-2009.

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	(1)	(2)	(3)	(4)	(5)	(6)
AR(3)				0.399	0.394	0.394
Hansen J test	0.590	0.603	0.594	0.174	0.181	0.180
Obs	493,705	493,705	493,705	493,872	493,872	493,872

Note:*Significant level at 10%. **Significant level at 5%. ***Significant level at 1%.

The index of competition measurement is also used to show another dimension of local financial development. The data comes from the marketization report of Fan et al., and we also take the logarithm type. Table 5 provides results that are consistent with the previous tables, suggesting that a more competitive local financial market also contributes to the performance of the SMEs, and this positive effect is more pronounced if the enterprises have more growth opportunities inside the industry. Competition could also alleviate the financial constraints of private and small enterprises and thereby make a difference to firm performance, although non-private and medium-sized enterprises benefit more.

Table 5

Dependent Variable:	Sales growth			ROS		
	(1)	(2)	(3)	(4)	(5)	(6)
Gs*Competition$_t$	0.111***	0.123***	0.162***	0.013***	0.017***	0.016***
	(23.60)	(21.10)	(23.19)	(17.47)	(17.30)	(12.54)
Pri	0.036***	0.043***	0.037***	0.008***	0.010***	0.008***
	(21.78)	(15.74)	(21.83)	(17.02)	(17.85)	(17.01)
Small	-0.037***	-0.037***	-0.014***	-0.012***	-0.012***	-0.011***
	(-22.96)	(-22.98)	(-4.92)	(-24.49)	(-24.57)	(-16.59)
Pri*GsCompetition$_t$		-0.020***			-0.007***	
		(-3.28)			(-8.26)	
Small*GsCompetition$_t$			-0.069***			-0.004***
			(-10.05)			(-3.28)
Fixed assets/total assets$_{t-1}$	0.294***	0.294***	0.292***	0.022**	0.022**	0.022**
	(9.42)	(9.41)	(9.35)	(2.39)	(2.37)	(2.37)
Total liabilities/total assets$_{t-1}$	-0.031*	-0.031*	-0.031*	-0.091***	-0.091***	-0.091***
	(-1.67)	(-1.65)	(-1.68)	(-13.87)	(-13.88)	(-13.87)
Accounts payable/ total liabilities$_{t-1}$	-0.000	0.000	0.000	-0.001	-0.001	-0.001
	(-0.02)	(0.02)	(0.02)	(-0.64)	(-0.64)	(-0.64)
Age	-0.078***	-0.078***	-0.078***	-0.004***	-0.004***	-0.004***
	(-50.65)	(-50.66)	(-50.84)	(-8.24)	(-8.29)	(-8.25)
Growth rate of GDP$_t$	1.551***	1.552***	1.554***	0.110***	0.110***	0.110***
	(28.30)	(28.30)	(28.36)	(8.63)	(8.65)	(8.65)
GDP per capita$_t$	-0.069***	-0.069***	-0.069***	0.004***	0.004***	0.004***
	(-22.68)	(-22.69)	(-22.72)	(3.73)	(3.72)	(3.72)
Industry dummies	yes	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes	yes
AR(2)	0.719	0.727	0.731			
AR(3)				0.413	0.386	0.390
Hansen J test	0.431	0.443	0.437	0.255	0.267	0.263
Obs	493,705	493,705	493,705	493,872	493,872	493,872

Note:*Significant level at 10%. **Significant level at 5%. ***Significant level at 1%.

5.2 Trials at prefecture–city level

We try another robustness test using prefecture–city level information. Since China is a large country, some territories that are part of a single province are even broader than a small country. There is also a disparity among provinces. Doing prefecture–city level analysis could control for the local financial development as well as make local economic growth data more accurate thus leading to more convincing results. Credit is calculated by the ratio of gross loans to local GDP. The gross loan data come from CEIC dataset. Due to the limitations of this dataset, the financial data only cover a time period from 2003 to 2009. Considering the difference between prefecture cities and municipalities, in the analysis at the prefecture–city level, we exclude all the observations that related to Beijing, Tianjin, Shanghai, and Chongqing. As they benefit from more resources and have priority compared to other cities due to their higher political hierarchy, we regard them as outliers. Table 6 provides a detailed description of the variables that are used in the prefecture–city level regression. Although the sample size shrinks by about one third, we did not lose much in terms of the final valid observations as there are quite a lot of missing values of sales before 2003.

Table 6

Statistical description of main variables at prefecture–city level

Variable	Mean	Std. Dev.	Obs
Growth rate of sales	0.147	0.405	460,432
ROS	0.041	0.067	654,133
Gs	0.168	0.107	480,311
$Credit_t$	0.947	0.685	647,917
$Citybank_t$	0.750	0.433	753,906
Pri	0.528	0.499	753,906
Small	0.534	0.499	753,906
Fixed assets/total assets$_{t-1}$	0.359	0.219	610,215
Total liabilities/total assets$_{t-1}$	0.560	0.304	610,215
Accounts payable/total assets$_{t-1}$	0.275	7.607	568,542
Ln(age)	2.022	0.750	753,906
Growth rate of GDP$_t$	0.172	0.045	643,462
GDP per capita$_t$	3.264	0.656	745,378

However, the NERI index only provides information at a provincial level. In order to check the situation at the prefecture–city level, we compute a dummy variable to approximate it. *Citybank* equals to 1 if at least one local city commercial bank exists in year t, or otherwise. Since 1979 urban credit cooperatives have appeared and spread quite rapidly all over China. As part of further reform in the financial industry, permission for new urban credit cooperatives stopped in 1993 and PBOC started to encourage them to reorganize into city commercial banks. The transformation from urban credit cooperatives to city commercial banks is a result of the

increasing marketization of the financial industry, so we choose the whether there is a local city commercial bank (which are usually named after the local city) to show the development situation of the local financial system in a certain prefecture–city, since cities with a higher marketization level are more likely to have local city commercial banks earlier[19].

Tables 7 and 8 present the results at the prefecture–city level. For SMEs in industries with growth potential, those located in the cities with a more sufficient level of financial supply can achieve faster growth as well as better profitability. The establishment of local city commercial banks also helps in promoting the performance of local SMEs, and the enterprises in fast growing industries could capture more of the benefits.

Private enterprises still show their vitality, but it is noticeable that private SMEs have no significant disadvantage in realizing sales expansion when they compete with non-private enterprises if local city commercial banks have been established. However, they still have a weakness in promoting ROS, which indicates that at a prefecture–city level, private enterprises could not avoid credit discrimination due to their property rights, even when the lenders are local city commercial banks. Firm size has a negative impact on sales growth and ROS, and these enterprises benefit less from the increasing supply of local loans as well as the better environment in local financial markets.

All of the control variables remain stable and are consistent with the previous provincial–level regression, suggesting that our results are basically reasonable and predictable. The autocorrelation test and Hansen J test also exhibit reasonable variations.

Table 7

Dependent Variable: Sales growth						
	(1)	(2)	(3)	(4)	(5)	(6)
Gs*Credit$_t$	0.048***	0.066***	0.105***			
	(8.73)	(8.41)	(10.95)			
Gs*Citybank$_t$				0.121***	0.121***	0.216***
				(15.40)	(11.44)	(16.44)
Pri	0.041***	0.046***	0.041***	0.041***	0.041***	0.041***
	(18.94)	(17.57)	(18.99)	(18.92)	(15.82)	(19.01)
Small	-0.043***	-0.043***	-0.030***	-0.043***	-0.043***	-0.027***
	(-23.53)	(-23.53)	(-12.44)	(-23.60)	(-23.59)	(-10.59)

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[19] Before the establishment of city commercial banks in China, there were urban credit cooperatives in every city. However, the change from urban credit cooperatives to city commercial banks represents the marketization of the local financial industry. In this sense, the branches opened by the local city commercial banks strengthen the competition, and the change of form could also be seen as a symbol of a higher level of marketization.

	(1)	(2)	(3)	(4)	(5)	(6)
Pri*GsCredit$_t$		-0.030***				
		(-3.17)				
Small*GsCredit$_t$			-0.083***			
			(-7.83)			
Pri*GsCitybank$_t$					0.001	
					(0.11)	
Small*GsCitybank$_t$						-0.127***
						(-9.15)
Fixed assets/total assets $_{t-1}$	0.179***	0.179***	0.176***	0.178**	0.178**	0.098**
	(4.18)	(4.18)	(4.10)	(4.16)	(4.16)	(4.16)
Total liabilities/total assets $_{t-1}$	-0.097**	-0.097**	-0.097**	-0.097**	-0.098**	-0.098**
	(-2.27)	(-2.27)	(-2.28)	(-2.29)	(-2.29)	(-2.30)
Accounts payable/total liabilities $_{t-1}$	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008
	(-0.93)	(-0.93)	(-0.93)	(-0.92)	(-0.92)	(-0.93)
Age	-0.078***	-0.078***	-0.078***	-0.079***	-0.079***	-0.079***
	(-45.56)	(-45.54)	(-45.60)	(-45.64)	(-45.60)	(-45.70)
Growth rate of GDP	0.672***	0.672***	0.672***	0.647***	0.647***	0.644***
	(17.21)	(17.21)	(17.22)	(16.66)	(16.66)	(16.60)
GDP per capita	-0.052***	-0.052***	-0.051***	-0.055***	-0.055***	-0.056***
	(-16.25)	(-16.24)	(-17.22)	(-17.12)	(-17.13)	(-17.15)
Industry dummies	yes	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes	yes
AR(3)	0.462	0.462	0.438	0.454	0.454	0.440
Hansen J test	0.698	0.696	0.701	0.717	0.717	0.731
Obs	454,051	454,051	454,051	454,051	454,051	454,051

Note:*Significant level at 10%. **Significant level at 5%. ***Significant level at 1%.

Table 8

Dependent Variable: ROS

	(1)	(2)	(3)	(4)	(5)	(6)
Gs*Credit$_t$	0.004***	0.008***	0.006***			
	(4.96)	(7.08)	(4.53)			
Gs*Citybank$_t$				0.010***	0.017***	0.015***
				(9.72)	(10.75)	(7.89)
Pri	0.007***	0.008***	0.007***	0.007***	0.009***	0.007***
	(18.18)	(18.68)	(18.19)	(18.16)	(20.54)	(18.19)
Small	-0.013***	-0.013***	-0.012***	-0.013***	-0.013***	-0.012***
	(-37.94)	(-37.95)	(-30.64)	(-37.97)	(-37.93)	(-27.53)
Pri*GsCredit$_t$		-0.006***				
		(-4.67)				
Small*GsCredit$_t$			-0.003**			
			(-2.04)			
Pri*GsCitybank$_t$					-0.012***	

						(-6.69)
Small*GsCitybank t						-0.007***
						(-3.61)
Fixed assets/total assets t-1	0.009	0.009	0.009	0.009	0.009	0.009
	(1.20)	(1.20)	(1.18)	(1.19)	(1.18)	(1.17)
Total liabilities/total assets t-1	-0.082***	-0.082***	-0.082***	-0.082***	-0.082***	-0.082***
	(-10.60)	(-10.60)	(-10.60)	(-10.62)	(-10.62)	(-10.62)
Accounts payable/total liabilities t-1	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
	(-1.33)	(-1.33)	(-1.33)	(-1.32)	(-1.33)	(-1.32)
Age	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***
	(-5.41)	(-5.44)	(-5.42)	(-5.45)	(-5.47)	(-5.47)
Growth rate of GDP	0.044***	0.044***	0.044***	0.043***	0.043***	0.043***
	(10.89)	(10.87)	(10.90)	(10.55)	(10.52)	(10.53)
GDP per capita	-0.001**	-0.001**	-0.001**	-0.002***	-0.002**	-0.002***
	(-2.09)	(-2.08)	(-2.08)	(-2.58)	(-2.55)	(-2.59)
Industry dummies	yes	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes	yes
AR(3)	0.631	0.632	0.629	0.622	0.623	0.621
Hansen J test	0.266	0.267	0.266	0.274	0.269	0.275
Obs	454,185	454,185	454,185	454,185	454,185	454,185

Note:*Significant level at 10%. **Significant level at 5%. ***Significant level at 1%.

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6. Conclusions

Along with economic growth, the Chinese financial system has also experienced a great degree of reform and progress. The supply of financial resources has expanded and the financial system has also become more market-oriented and competitive. Expect for large enterprises, in this process SMEs, which rely more on local financial institutions, also derived benefits.

In this study, we have considered not only the supply side, which is illustrated by local financial development, but also the credit demand of enterprises (the growth opportunities inside the industry) has been bilaterally considered. Using micro-level panel data of non-listed enterprises with different measurements of local financial development at the provincial level, a significantly positive relationship was found between local financial development and the firm performance of SMEs, especially for SMEs in fast growing industries.

When the heterogeneity of enterprises is taken into consideration, private enterprises tend to have a positive impact on firm performance, whereas small enterprises are more likely to experience lower sales growth and profitability. However, both private enterprises and small enterprises suffer from a disadvantage in respect of benefitting from local financial development.

These relationships also appear when the proxies of local financial development are changed to bank branch density and a competition index, and the results do not alter much when we do the same trial with prefecture–city level analysis, proving the validity of the previous results

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