

# Financial Market Structure and SME's Financing Constraints in China

Jiaobing<sup>1</sup>, Yuanyi<sup>2</sup>

<sup>1</sup> School of Economics Xi'an University of Finance and Economics, Shaanxi Xi'an, China

<sup>2</sup> School of Business Xi'an University of Finance and Economics, Shaanxi Xi'an, China

**Abstract.** Theoretical models of financial institution theory predict that firm access to credit depends on financial market structure. But empirical studies offer mixed results. Some studies find that higher concentration is associated with higher credit availability consistent with the information hypothesis that less competitive banks have more incentive to invest in soft information. Other empirical studies, however, find supports for the competitive financial market hypothesis that credit can be easily got in competitive credit market. The paper choosing China's financial market as a research sample, studies on the relationship between financial market structure and SME's financial constraint in China. The result shows that when more SME banks were built up in China's financial market and more foreign banks were allowed to open business in China, SME's are easier to get credit.

**Keywords:** financial market structure, SME banks, financing constraint

## 1. Introduction

The potential relationship between financial market structure and access to bank's credit has raised considerable interests recently among researchers as well as policymakers (Rajan and Zingales,1998; Berger et al.,2004). The traditional market structure view was that monopoly financial markets are associated with less credit availability and a higher ration trend for credit. However, an alternative view has emerged over the past decade which argues that the impact of competition on credit market may be related to the level of asymmetric information in the market. And this information hypothesis holds that competitive financial markets will weaken bank-enterprise relationship by depriving banks of the incentive to invest in soft information. Therefore, less competitive markets may be associated with more credit availability(Lin,2001).

The issue of financial market structure and credit availability may matter most for small and mid-sized enterprises (SME s) for three reasons. First, SMEs are more vulnerable to asymmetric information problems. Second, SMEs are much more bank-dependent. Third, SMEs have less collateral. The argument on the link between financial market structure and SME access to credit has become an urgent policy issue in China because the structure of the China's financial system has been significantly affected by government. In 2009, SMEs in China contributed 35% of the national GDP, however, their access to loans accounted for only 6% of all.

With the rapid growth of the Chinese economy, SMEs play an increasingly important role. They exert functions such as promoting employment, technological innovation, training of entrepreneurs, developing international economic relationships, accelerating market competition, maintaining economic vitality and so on. Generally speaking, the specific nature of Chinese SMEs manifests their special influence on the transition of China's economic system and social structure. In order to solve financial difficulties of China's SMEs, government has gradually relaxed the control of financial markets, such as allowing to establish small and medium financial institutions and open china's financial market to foreign banks. Therefore, the effect of SME banks on the credit of SMEs should be tested, in order to enact targeted policies by policymaker in China.

We proceed with a literature review on the relationship between financial market structure and access to financial credit in the next section. In Section 3, we introduce the data and variables which was used in the empirical test. Section 4 makes a relationship between financial market structure and firm using a dynamic panel methodology. Section 5 offer conclusions.

## **2. Literature Review**

### **2.1. Asymmetric information and credit rationing**

On the research of asymmetric information and credit rationing, the paper of Stiglitz and Weiss (1981) is a classic literature. This paper suggested that asymmetric information could explain the existence of a loan market disequilibrium characterized by excess demand for credit. This, in turn, led to credit rationing. Subsequent empirical works found supports for this view of Stiglitz and Weiss (James, 1987; Lummer and McConnell, 1989).

Later in 1990s, economist found that the problems created by asymmetric information are more acute for SMEs than large enterprises because these firms are much more informational opaque. So researchers' focus switched to look for a more comprehensive explanation for how banks and other financial institutions might mitigate information problems in SME commercial lending. But these studies are too concerned about 'lending technologies' rather than on individual elements of the commercial loan contract. 'relationship lending' was one of the most influential studies on lending technologies. It was proposed by Petersen and Rajan (1995). They argued that 'relationship lending' is based significantly on 'soft' qualitative information gathered through face-to-face communication over time with the SME and often with its owner and members of the local community. The empirical evidences suggested that the strength of the bank-borrower relationship is positively related to credit availability and credit terms such as loan interest rates and collateral (Cole, 1998).

Recently, researchers began to investigate the propensity of different types of banks to provide relationship lending, and the general conclusion was that smaller domestic banks may have comparative advantage in delivering relationship lending (Berger et. al., 2005).

### **2.2. Financial market structure and SME Financing**

There were many empirical tests on the relationship between financial market structure and SME financing. For example, Peek and Rosengren(1996) investigated the merger of New England Bank from 1993 to 1994, and found that the credit of SMEs were less after the merger than before. According to the 1993 survey data from SMEs in US, Berger (1998) found out that SMEs get loans reduced after large bank merged while the merger of small banks would increase the loan for SMEs. Strahan and Weston(1998) had reached similar results, and they provided an explanation for this phenomenon which was that at the beginning of Small banks merge diversification enhanced anti-risk ability of the banks after the merged so they can provide more credits to SMEs. But with the further expansion of the banks' scale, they tend to loan to large enterprises, therefore, the ratio of loans to small businesses will drop. With more time and research, economists gradually discovered that large institutions are found to lend to larger, older SMEs with stronger financial ratios, and small institutions are found to rely more on soft information and lend to SMEs with which they have stronger relationships(Scott ,2004;Berger,Miller,2005).Since SMEs play an increasingly important role, more and more researchers began to investigate whether building up a large number of SME financial institutions is effective to promote credit availability for SMEs. One study found that the local market shares of SME banks in U. S. had relatively little association with SME credit availability (Avery and Samolyk 2004).However, these findings may not apply to other nations because of differences in financial institution structure and lending infrastructure. So we employ China's data to examine the relationship between financial market structure and SMEs financing constraint.

## **3. Data and Variable**

### **3.1. Data**

Our primary source for firm information in this paper comes from China's Second Economic Census, which was conducted by the State Council of the People's Republic of China in February 2008. The second

national economic census was targeted at the second industry and tertiary industry in China, including all corporate units, establishments and individual households. The main contents of economic census are the basic properties, employees, financial status, production and business operation, production capacity, energy consumption, scientific and technological activities and so on. To ensure a comprehensive study, some of SMEs' financial data originate from China's Financial Statistics Yearbook.

### 3.2. Variables

#### main variables

In order to test our hypothesis that concentration and competition among banks have independent effects on the number of financing relationships maintained by SMEs, include the Herfindahl-Hirschman index (HHI) to measure the concentration of china's financial market. This index is computed as the sum of the market shares each one of the banks operating in a given region. The coefficient on HHI bank deposits will enable us to compare the impact of concentration on SMEs financing constraints in China with the results found in other countries. HHI index is widely used as a measure to describe concentration in banking markets. In addition, we use Lerner index to measure the degree of monopoly in China's financial market. The index is calculated as the ratio  $(\text{price of total assets} - \text{marginal costs of total assets}) / \text{price}$ . The price of total assets is directly computed from the bank-level auxiliary data as the average ratio of "bank revenue/total assets" for the banks operating in a given region.

#### Control variables

We include Banking Freedom to assess the openness of China's banking system. Banking Freedom is a composite index of whether foreign banks are allowed to operate freely, the difficulties faced when setting up domestic banks, government influence over the allocation of credit, and whether banks are free to provide insurance products and securities to customers. The index is expected to be positively associated with the number of financing relationships.

Additionally, we use Access to Financial Services to capture the geographic penetration of the banking system measured by Stock Market Capitalization/GDP, to gauge the influence of stock market development on the number of bank relationships given that well developed securities markets might function as a substitute for the transaction services of banks.

We also employ two dummy variables for bank characteristic. First, we include Bank Type that takes on the value one if the bank is a national bank, or zero otherwise. Since a particular SME can obtain bank financing from either Regional or National banks, or both, the two bank types are not mutually exclusive and are both included in the quantitative analysis. Banks with different organizational structures may use different lending technologies to produce soft information. Small regional banks may have a comparative advantage in producing soft information, while banks with multi-layered hierarchies may perceive this as a comparative disadvantage. Hence we design a dummy variable Bank Size that takes on the value one if the bank is large or zero otherwise.

To capture organizational form and distinguish between firm type, we include a dummy variable Firm Type that takes on the value one if the SME is private or zero otherwise. Public firms will have easier access to the capital markets and this might impact the number of bank relationships they maintain. We include this variable as the degree of informational asymmetry varies with organizational form due to agency conflicts between owners, managers, and creditors.

### 4. Regression results

We use firm-level regressions of the number of bank relationships on firm, market structure, and regional and country-specific variables. The dependent variable is the financing credits variable. SMEs are classified as having trade credit, and output growth. We employ a Tobit specification because the dependent variable is discrete-valued and truncated at the number of bank relationships below one.

**Table 1 China's financial market structure and SMEs financing credits**

Dependent	Trade Credit	Output growth
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Variable	(I)	(II)	(I)	(II)
Constant	0.1574** (0.0610)	0.1571** (0.0605)	0.1048* (0.0551)	0.01078 (0.0648)
HHI bank deposit	0.6357** (0.4152)		0.5148*** (0.0568)	
Lerner index		-1.7312** (-0.2435)		-1.6779** (-0.0401)
Bank freedom	0.3084*** (0.0621)	0.3553** (0.0694)	0.2530** (0.0628)	0.3012*** (0.0513)
Access to Financial Service	0.2165** (0.0651)	0.2242** (0.0652)	0.2085*** (0.0605)	0.2010** (0.0602)
National Bank	0.9196*** (0.0852)	0.8535*** (0.0946)	0.7108*** (0.0827)	0.8399*** (0.0845)
Reginal Bank	1.1744*** (0.0844)	1.1628*** (0.0845)	1.0772*** (0.0756)	1.0885*** (0.0801)
Large Bank	-0.3542** (0.0583)	-0.3498*** (0.0580)	-0.0177* (0.0662)	-0.0183 (0.0531)
SME Bank	0.1996*** (0.0506)	0.2037** (0.0478)	0.2464** (0.0457)	0.2432** (0.0415)
F-statistic	0.022	0.025	0.027	0.021
Pseudo R <sup>2</sup>	0.62	0.64	0.67	0.65
Observations	278	278	278	278

\*, \*\*, \*\*\* indicates statistical significance at the 1%, 5%, and 10% level respectively

Table 1 presents the main results. There are two specifications for each main variable alternatively including the HHI of bank deposits and the Lerner index. The values of the F-test indicate the high overall statistical significance of these equations. The results in Table 1 show that the concentration measure (HHI) and the monopoly degree indicator (Lerner Index) offer the opposite results. In particular, bank concentration is positively and significantly related to trade credit and output growth.

However, Lerner index suggests that higher monopoly degree is negatively associated with a more intensive use of trade credit and output growth. The literature on monopoly market structure suggests that the Lerner index is the more accurate measure of realized bank competition than the HHI. Under this interpretation, Lerner index is the superior measure, so we can get the most useful conclusion that when the financial market structure in China is more competitive, SMEs are easier to get loan.

Therefore, building up more SME banks and attracting more foreign banks to establish branch institutions in China can partly relieve SMEs financial difficulties. Other bank characteristics are also found to affect firm borrowing constraints significantly. The variables for Bank freedom and Access to Financial Services enter significantly with a positive sign. These are consistent with common sense. The freer the market, the easier SME seeks additional bank relationships. Likewise, when the stock market developed more mature, SMEs can get more capital from stock market, so the credits from bank will drop. The dummy variables for National and Regional Bank enter positively and significantly. Doing business with a regional bank increases the number of bank relationships as the regional bank may not be able to provide as broad a range of services as required by the SME. On the other hand, doing business with a national bank may not be sufficient as the SME may want to retain a relationship with a local lender that is better able to process 'soft' information. The dummy variables for Large Bank and SME Bank are negative and positive respectively. These mean that the more SME banks, the easier SMEs get credits. Otherwise the more difficult SMEs allocate credits.

By contrast, Firm Type enters negatively and significantly in Table 1. Private firms are less likely to have more credits from banks when compared to public firms, suggesting that more opaque firms tend to have less bank credits as providers of funds that do not have access to 'soft' information will incur greater monitoring costs. Distance enter positive and significantly. That means the nearer between SME and bank, the easier to get credit.

## 5. Concluding remarks

For SMEs banks appear to play a particularly important role in providing external financing, and SMEs are much more dependent on bank financing than their larger counterparts, the paper focuses on the relationship between financial market structure and firm borrowing constraints.

Most previous researches of SME financing have confined their analysis to concentration indicators such as the HHI index. However, several studies have suggested that other alternative measures based on direct estimations of prices and marginal costs such as the Lerner index are more accurate indicators of bank competition than HHI. In order to measure financial market structure more comprehensive, we employ both HHI index and Lerner index. The results obtained from two measures are not consistent.

Importantly, our results substantiate the assertion in recent empirical work that competition and concentration describe different characteristics of banking systems. More precisely, the findings underscore that decreasing effects on the number of bank relationships arising from increased consolidation in banking are offset by increased competition.

These findings bear important policy implications: In particular, the results imply that measures of market structure such as the HHI and CR4 may be inappropriate proxies for the degree of competition in banking as we reveal that both structure and conduct affect SMEs' financing relationships in opposite directions. Moreover, the frequently raised concern among policymakers and in the media about the adverse ramifications from an increase of consolidation in banking concerning the provision of banking services to SMEs is not justified, given that these negative effects are fully offset by the increased competition in banking. In addition, the finding that firm type is an impediment to diversifying lending relationships indicates that policies aimed at encouraging SMEs to expand in scope and scale (which often requires setting up additional bank relationships) are bound to be successful if legal institutions are amended accordingly. Finally, removing barriers and obstacles that hamper setting up SME banks and open new branches of banks will enable SMEs to develop and mature by making use of more sophisticated financial services, thus ultimately promoting economic growth.

Our results also suggest some policy implications. The blurring wall between different types of banks now facilitates inter-type competition among China's banks in a manner that seems to be unfavorable to SME banks. The results obtained in this paper imply, however, that SME banks have a comparative advantage in relationship lending and in establishing strong relationships with their borrowers. However, we cannot conclude that the future is necessarily bright for SME banks in China. Large banks in China have been increasing their lending to small firms. This may imply that although the comparative advantage of SME banks in providing relationship lending to SMEs may not change, large banks may nevertheless displace SME banks partly.

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