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Bank Size and Small- and Medium-sized Enterprise (SME) Lending: Evidence from China

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Summary. — Using panel data collected in 2005, we evaluate how bank size, discretion over credit, incentive schemes, competition, and the institutional environment affect lending to small- and medium-sized enterprises in China. We deal with the endogeneity problem using instrumental variables, and a reduced-form approach is also applied to allow for weak instruments in estimation. We find that total bank asset is an insignificant factor for banks' decision on small- and medium-enterprise (SME) lending, but more local lending authority, more competition, carefully designed incentive schemes, and stronger law enforcement encourage commercial banks to lend to SMEs.

Key words — SME lending, bank size, loan approval rights, reduced-form approach, soft information

1. INTRODUCTION

The discrepancy between China's economic structure and financial structure is best manifested by the mismatch between the contribution of small- and medium-sized enterprises (SMEs) to economic growth and the amount of credit they have obtained from formal financial institutions. Since China launched its economic reform in 1978, its economy has switched into the fast lane of economic growth. China had achieved 9.75% annual GDP growth during 1979–2007, making it one of the fastest growing economies in the world by any standard. SMEs have played an active role in economic growth. According to the National Bureau of Statistics, 99.6% of enterprises in China are SMEs at the end of 2005. These enterprises account for 59% of GDP, 60% of total sales, 48.2% of taxes, and about 75% of employment in urban areas. SMEs' participation in international trade and outward investment is also very significant, representing 68.85% of the total import and export values and about 80% of outward investment.

In contrast to its contribution to the economy, the difficulty of SMEs to obtain external financing from formal financial institutions is widely recognized. Lin (2007) documented that no more than 0.5 million of over 40 million SMEs could obtain bank loans in 2006. In other words, over 98% of SMEs have no access to formal financing. The World Bank Investment Climate Survey for China also indicates that SMEs in China are facing greater credit constraints and have more limited access to bank loans than in other Asian countries. According to this survey, SMEs in China obtain only 12% of their capital from bank loans, while their peers obtain 21% in Malaysia and 24% in Indonesia. The survey also shows that "the lack of formal finance among small firms becomes starkly worse as firm size decreases. Firms with at least 100 employees finance 27% of their capital through bank loans, compared to 39% in India. Firms with between 20 and 100 employees finance 13% of their capital through bank loans, compared to 38% in India. Firms with fewer than 20 employees finance only 2.3% of their capital, on average, through bank loans, compared to 29% in India." (Dollar, 2003, p. 41).

Lacking appropriate financing channels has become the main hurdle for the development of SMEs. Lin (2007) argues that as SMEs are often labor-intensive enterprises, their ability to absorb labor costs are reduced when they face credit constraints. Many Chinese economists have therefore encouraged the establishment of small- and medium-sized banks to deal with the difficulty of accessing bank credit for SMEs (Guo & Liu, 2002, in Chinese; Li, 2002, in Chinese; Lin & Li, 2001, in Chinese; Wang & Zhang, 2003, in Chinese; Zhang, 2000, 2002, in Chinese). These proposals are based on the idea that small- and medium-sized banks have comparative advantage in lending to SMEs because they tend to interact much more personally with their borrowers (e.g., Berger, Miller, Petersen, Rajan, & Stein, 2002) and are able to utilize more soft information (Petersen, 2004) to address problems such as informational opaqueness, moral hazard, and adverse selection (e.g., Stiglitz & Weiss, 1981).

Regardless of size, however, banks in China may lack the incentive to identify the most profitable SMEs because of the following reasons:

- Not all banks in China are solely profit-maximizing financial institutions so determining the most profitable SMEs may not suit the best interest of bank governors.

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- Even if local branch managers are able to distinguish credit-worthy SMEs, they may not do so because they do not have full control over lending.
- Bank managers may not have the incentives to work hard because better quality does not necessarily mean better benefits to them.
- Factors outside of financial institutions, like bank competition, government influences, and law enforcement, can either encourage or discourage banks' lending to SMEs.

These factors raise policy concerns about the effect of establishing small- and medium-sized banks on the supply of credit to SMEs.

Existing literature has intensively studied the relationship between bank size and loans to SMEs, but it provides little information on the overall impact of the above factors. This paper therefore makes two important contributions to the literature. First, we use a unique data set to see how the factors identified in the existing literature and those unique to China affect lending to SMEs in China. These panel data were collected by us from a retrospective survey that covers 79 counties in 12 provinces in 2005. They include information on banks' governance structure, deposit, and loan policy, incentive scheme, and banks' balance sheet from 2001 to 2004. One particular strength of these data is detailed information are collected on loans. The questionnaire surveys banks' loan policy, loan approval rights, loan structure, their subjective evaluation of government influences and law enforcement, and basic information about their customers. These institutional-level data are then combined with county-level statistics to construct the final panel data. The second contribution is we provide a careful treatment of the endogeneity problem caused by the influence of SME lending share on the explanatory variables in this study. We propose instruments for our main endogenous variable and further use the reduced-form approach to provide consistent inferences even if the instrument is weak. We find that the bank size alone is not an important factor in determining SME lending. The factors affecting the bank manager's incentives, like the linkage of wage with loan quality, tend to have a significant impact on SME loans. Competition and institutional arrangements can also significantly affect loan decisions to SMEs.

Section 2 reviews the empirical literature that has examined the relationship between bank size and SME lending, and provides our main hypothesis on the role of banks in lending to SMEs in China. Section 3 gives some background information about China's banking system, describes the data set, and gives our methodology for testing the hypotheses. Section 4 presents our study's empirical results, and Section 5 concludes our work.

2. THE LITERATURE AND THE MAIN HYPOTHESES

Lending to small business can be difficult to financial institutions because of informational opaqueness, moral hazard, and adverse selection problems (e.g., Stiglitz & Weiss, 1981). Berger and Udell (2002) categorized small business lending by financial intermediaries into four main distinct technologies-financial statement lending, asset-based lending, credit scoring, and relationship lending. The first three technologies are usually referred to as transaction-based lending, which are based more on "hard" information than on "soft" information gathered over the course of a relationship with the borrower. Hard information is always recorded as numbers, while soft information is often communicated in text. This difference means that hard information can be collected, stored, and transmitted with relatively low cost. In addition, from the collection method point of view, those persons collecting and using hard information are often different, while soft information is often collected and evaluated by the same person (Petersen, 2004).

Many empirical studies support the "small bank advantage" hypothesis with regard to banks' decisions on financing small businesses. Berger and Udell (1995, 1996), Peek and Rosengren (1998), and Strahan and Weston (1996) found that small banks tend to invest a much higher share of their assets in small business loans. Berger, Saunders, Scalise, and Udell (1998), and Peek and Rosengren (1998) studied size changes due to mergers and acquisitions (M&A) and found that bank M&A reduce small business lending. Cole, Goldberg, and White (1999) studied the lending behavior of large banks to small business and found that large banks approve their small business loans based more on financial ratios and less on the existence of prior relationships as compared with small banks, and tend to favor transactions-based lending.

However, other studies suggest that bank size does not necessarily need to decrease small business lending. For example, Strahan and Weston (1998) examined the effects of bank M&A on small business lending, and found that the M&A between small banks increased lending to small enterprises. Even though China has not experienced M&A, a similar phenomenon is the reduction of local branches during the covered sample period; hence, the bank size of local branches may not have a definite impact on small business lending. Berger, Rosen, and Udell (2001) studied the relationship between lending to SMEs and banks' share of the local loan market. They found that the share of small business lending is roughly in proportion to small banks' loan market share. Such phenomenon motivates us to study small business lending in China from the perspective of competition in terms of loan market structure.

A study that is of particular relevance to China is that of Berger and DeYoung (2001). They found that it is difficult for bank holding companies to control the efficiency of small banks located at a significant distance from their headquarters. This is consistent with the possibility that relationship lending may be difficult to operate from afar. As China's financial system is dominated by four main state-owned banks and the headquarters are quite far from county-level local banks, the efficiency of small banks in making small business loans needs careful investigation. In addition to physical distance, other measures of distance can be hierarchical levels of the banks, and the loan approval rights that the local branches possess. If there are more layers between the headquarters and the local branches, relationship lending will be more difficult. On the other hand, if the local bank has 100% self-loan approval right, its physical distance from its headquarters and the bank hierarchical level are less important. China's financial system provides enough variation in loan approval rights to study its impact on small business lending.

Berger, Klapper, and Udell (2001) also raised the distressed-bank barriers hypothesis. That is, banks in financial distress are less likely to lend to small businesses. Such negative effect will be exemplified if financial distress is directly linked to the income of loan managers because the risks of these loans cannot be easily verified. Researchers also tested whether tougher supervisory standards in examining bank portfolios will decrease relationship lending. While conclusions were mixed, they generally found that tougher standards decrease small business lending. Whether such an observation applies to China, however, remains an open question.

The literature has emphasized small banks' advantage in accessing soft information and assumes that banks will fully