Chapter 6 SME Financing and the Financial Crisis: A Framework and Some Issues

Gregory F. Udell

Abstract Studies of net job creation generally confirm the importance of the SME sector as an engine that can drive the economy out of a recession. The SME sector cannot perform this role without access to external finance. This article examines new paradigms that have expanded our understanding of how SME loans are underwritten and how underwriting changes during a macro financial shock. We also use these paradigms to examine two interesting issues related to SME financing during the current financial crisis: the behavior of foreign-owned banks particularly in developing economies and the efficacy of government guarantee programs.

6.1 Introduction

Not surprisingly the health of the SME sector during the current global crisis is a major policy concern in both developing and developed economies. In developing economies the reason is obvious – developing economies are highly skewed toward the SME sector. But, even in the largest developed economies, the SME sector is extremely important. For example, the SME sector in the U.S. represents roughly half of the economy in terms of employment. Also in large developed economies it is widely viewed that the SME sector will likely lead the economy out of the recession because it tends to be viewed as the job creation engine of economic performance. This has certainly been the view in the U.S. and it was also the view in Japan during the "lost decade" of the 1990s.

No doubt populist sentiment in favor of helping the "little guy" fuels legislator enthusiasm for pulling policy levers targeted to small business even in large economies. Nevertheless, in general, the existing empirical evidence provides some

G.F. Udell (⋈)

Chase Chair of Banking and Finance, Kelly School of Business, Indiana University at Bloomington, 1309 E. 10th Street, Bloomington, IN 47405, USA e-mail: gudell@indiana.edu

¹The SME's fraction of the U.S. economy is sensitive to the choice of definitions (see Stangler and Litan, 2009)

justification for this view – or a least a more nuanced version. In the U.S., for example, the net addition of jobs appears to be skewed toward younger firms, particularly start-ups and firms that are ages one to 5 years. And, younger firms tend to be smaller. But, there is also a "barbell effect" where the largest and oldest firms also contribute to job creation. In addition, there is a significant amount of destruction of jobs by small firms also (see Stangler and Litan, 2009). But, again, in terms of net job creation, the SME sector deserves the policy attention that it gets in developed economies as well as in developing economies.

One major impediment to the performance of the SME sector is the availability of external finance. SMEs in general do not have access to the capital markets where they can issue publicly traded stock and corporate bonds. Thus, they tend to be dependent on financial institutions (particularly banks and finance companies) and mercantile trade (i.e., trade credit). Even in normal times, access to external finance can be problematic, particularly for those SMEs who are more opaque. This can become acute during a financial crisis that induces a credit crunch in the form of a contraction in the supply of credit.

In this article I would like to discuss several factors associated with how the SME sector might be affected by this financial crisis. In the next section, I discuss a paradigm in the academic literature that provides a useful framework to think about how SMEs obtain financing and how the flow of financing might be affected by a credit crunch induced by the current financial crisis. This paradigm emphasizes that there are a number of *lending channels* through which SMEs obtain financing. The ultimate net effect of this credit crunch on the SME sector will depend on how these lending channels contract and expand.

In the next section, I expand this paradigm to include the foreign sector of the banking system. In some countries the banking system has been substantially acquired by foreign banks. For example, many central and eastern European banks (and banking systems) have been acquired by western European banks. In this section I discuss how foreign ownership of the banking system might affect SME access to finance. In the final section, I will discuss one of the more popular policy levers that have been used to mitigate the effects of credit crunches on the SME sector – government guarantee programs. For example, Japan implemented an enormous government guarantee program to address concern that the financial crisis during the 1990s was severely constraining credit extension to SMEs and the U.S. has significantly expanded its program during this crisis.

6.2 Lending Technologies

Without too much risk of over-simplification, it can be said that the emphasis in the academic literature on SME financing has tended to be focused on *relation-ship lending*. The genesis of this emphasis can been traced back to the modern theory of the banking firm that emphasized the role of financial intermediaries as delegated producers of information about opaque borrowers (e.g., Diamond, 1984; Boyd and Prescott, 1986), and the early empirical literature on *bank uniqueness* that

emphasized the impact on firm value of the renewal of a firm's bank loans (e.g. Lummer and McConnell, 1989). This strand of literature evolved into an emphasis on *soft information* and the strength of banking relationships (e.g. Petersen and Rajan, 1994, 1995; Berger and Udell, 1995; Cole, 1998; Elsas and Krahnen, 1998; Harhoff and Körting, 1998). In the background, there was also some discussion in the literature of (what was viewed as) the opposite of relationship lending, hard information-based *transactions lending* (e.g., Berger et al., 2005). This dyad was formalized in models that connected the delivery of these two types of lending to different types of banks (e.g., Stein, 2002; Berger et al., 2005).

However, more recently some authors beginning with Berger and Udell (2006) have begun to emphasize an alternative view where SME lending comes in many forms. Berger and Udell (2006) applied the label *lending technologies* to these alternative types of lending. An expanded list of these lending technologies is shown in Fig. 6.1.

To be fair, most of the lending technologies listed Fig. 6.1 had been discussed in the academic literature in individual isolation. Moreover, all of these technologies would be familiar to most bankers in countries where they all exist (e.g., the U.S.). Missing from the academic literature on SME financing, however, was a discussion of how these types of lending can be viewed as alternative sources of external funding – and the circumstances where one is preferred over the other.

Figure 6.1 lists each of the lending technologies and: (i) whether it is relationship-based or transactions-based; (ii) the type of SME for whom the technology is best suited (either relatively transparent, or relatively opaque); and, (iii) whether the technology is soft information-based or hard-information based. Soft information is non-quantifiable information such as the loan officer's assessment of an entrepreneur's managerial ability and hard information is quantifiable information such as a financial ratio or a collateral appraisal.

Most of these lending technologies do not need an explanation. But, a few comments are in order here. Financial statement lending is underwritten by an

TECHNOLOGY	TYPE	BORROWER	INFORMATION
Relationship Lending	Relationship	Opaque	Soft
Financial Statement Lending	Transaction	Transparent	Hard
Asset-Based Lending	Transaction	Opaque	Hard
Factoring	Transaction	Opaque	Hard
Leasing	Transaction	Opaque and Transparent	Hard
Small Bus. Credit Scoring	Transaction	Opaque	Hard
Equipment Lending	Transaction	Opaque and Transparent	
Real Estate-Based Lending	Transaction	Opaque and Transparent	Hard
Trade Credit	?	Opaque and Transparent	Soft and Hard

Fig. 6.1 Lending technologies. Based on Taketa and Udell (2006)

²For a more extensive discussion of the evolution of the literature on SME financing and relationship lending see Udell (2008).

assessment of an SME's financial statements. This type of lending requires that the financial statements be credible – which means they need to be audited. Many SME's, particularly smaller SMEs, cannot afford audited financial statements so this technology is not feasible for them. Asset-based lending is unique to the common law countries of Australia, Canada, New Zealand, the U.K. and the U.S. It is focused on providing working capital finance to relatively highly leveraged SMEs based on a daily (i.e., continuous) assessment of the collateral value of the accounts receivable and inventory. Factoring, which is globally ubiquitous, is a cousin of asset-based lending based on a continuous assessment of the value of accounts receivable. Unlike, asset-based lending, factoring involves the *purchase* of accounts receivable. This protects a lender's position in the event of borrower bankruptcy because the receivables are not part of the bankruptcy estate making this lending technology attractive in countries with weak commercial laws and weak bankruptcy systems (see Bakker et al., 2004; Klapper, 2006). Leasing, equipment lending, and real estate-based lending are all transactions-based lending because their underwriting centers on the appraised value of an underlying fixed asset.

The last lending technology has been the focus of considerable attention in the finance literature. Some argue that relationship lending is transactions-based while others have suggested that it may be relationship-based. Importantly, some have emphasized that it may play an important role in providing financing to SMEs during periods of financial distress.³ We note in Fig. 6.1 the uncertainty in the literature about whether trade credit is relationship based.⁴

The notion of lending technologies provides a framework to think about how financial shocks will affect SME access to finance. Taketa and Udell (2006) extended the concept of lending technologies to *lending channels* where lending channels are two dimensional combinations of a lending technology and a financial institution. This concept recognizes two fundamental characteristics of lending technologies: first, not all types of financial institutions deliver all types of lending technologies; and, second, the provision of lending technologies may be affected during a crisis by the health of the financial institutions that are capable of providing those technologies. Figure 6.2 shows what lending channels might look like during a normal expansionary period in the U.S.

Note that some lending technologies are very dependent on a single source. Relationship lending may be best (or at least mostly) delivered by small banks where soft information doesn't have to be delivered through different levels of organizational hierarchy located across a spatial divide (e.g., Stein, 2002; Berger et al., 2005; Alessandrini et al., 2009; Kano et al., 2010). Also, trade credit is only extended by commercial enterprises.

It is also interesting to note that some lending technologies that are well suited for both opaque and transparent SMEs are offered by different types of financial

³See Carbo-Valverde et al. (2009) for a discussion of the literature on trade credit.

⁴For empirical investigations of the mix of technologies in Japan and the U.S. see Uchida et al. (2008) and Berger and Black (2009) respectively.

	Large Banks	Small Banks	Large Com. Finance Cos.	Small Com. Finance Cos.	Corporations
Relationship Lending		0			
Financial Statement Lending	0	0			
Asset-Based Lending	0	0	0	0	
Factoring	0	0	0	0	
Equipment Lending	0	0	0	0	
Leasing	0	0	0	0	
Real Estate-Based Lending	0	0			
Small Bus. Credit Scoring	0				
Trade Credit					0

Fig. 6.2 Lending channels. Based on Taketa and Udell (2006)

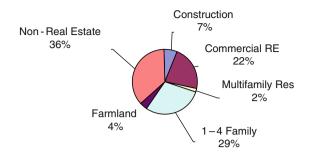
institutions. For example, leasing and equipment lending are routinely offered by large and small banks and large and small financial companies. These lending technologies have been utilized by large banks to lend to informationally opaque borrowers even in developing economies (de la Torre et al., 2010).

Importantly, the concept of lending channels allows us to think about how access to SMEs might be affected during a macro shock like the current credit crisis. In particular, some lending channels might shrink during a credit crunch, for example, while others don't. Some might even substitute for others during a credit crunch. That is, some might expand in order to offset those that contract. For example, there is evidence in the U.S. that during monetary shocks or credit crunches large companies might extend more trade credit to SMEs (e.g., Calomiris et al., 1995) or that commercial finance companies might have increased asset-based lending during the 1990–1992 credit crunch (e.g., Udell, 2004). Figure 6.3 shows what the lending channels might have looked like during the 1990-1992 credit crunch in the U.S. where capital shocks to U.S. banks contracted their SME lending. To the extent that commercial finance companies (both large and small) and large company trade creditors picked up the slack, firms "crunched" out of the banking market may have been able to find alternative financing. However, firms dependent on relationship lending that don't have collateral to post (i.e., accounts receivable, inventory, equipment and/or real estate to post) may not have been so fortunate given that relationship lending is only offered by one type of institution – small banks.

	Large Banks	Small Banks	Large Com. Finance Cos.	Small Com. Finance Cos.	Corporations
Relationship Lending		Х			
Financial Statement Lending	х	Х			
Asset-Based Lending	Х	Х	0	0	
Factoring	х	Х	0	0	
Equipment Lending	Х	Х	0	0	
Leasing	Х	Х	0	0	
Real Estate-Based Lending	Х	Х			
Small Bus. Credit Scoring	х	Х			
Trade Credit		·		_	0

Fig. 6.3 1990-1992 U.S. Credit crunch

Fig. 6.4 U.S. Lending by Small Banks (2000)



There is reason to be concerned that the situation may be worse in the U.S. during this financial crisis for two reasons. First, while small banks weren't initially the focus of attention in the U.S., they now are. (Again small banks are a particular concern because they are the sole source of relationship lending.) The problem stems from the fact that small banks significantly shifted their loan allocation toward one of the riskiest types of lending, commercial real estate – specifically, commercial real estate mortgages and construction loans. This problem was not initially obvious because the commercial real estate market collapsed in the U.S. with a significant lag relative to the collapse of the residential real estate market. As of this writing it is too early to tell whether small banks will be affected more in this crisis than in the 1990–1992 credit crunch (in which real estate problems were also a factor), but the stunning portfolio shift reflected in Figs. 6.4 and 6.5 is a cause for significant concern.

One hypothesis that might explain this enormous portfolio shift is the deregulation of the U.S. banking system. Spatial constraints on cross-state banking were sequentially removed during the 1980s and 1990s. Thus, small banks found themselves competing with large banks including several giant banks that became powerful nationwide competitors (e.g., JPMorgan Chase and Bank of America). Deregulation of the banking industry may also have an impact elsewhere in the world. Spain is a particularly interesting example. The savings bank industry was spatially deregulated and many of these banks aggressively expanded beyond their

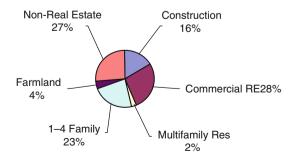


Fig. 6.5 U.S. Lending by Small Banks (2007)

home states at potentially the expense of credit quality – a problem now compounded by a severe deterioration in the Spanish real estate market (just as in the U.S.). To the extent that Spanish SMEs rely on these savings banks for relationship lending, the Spanish credit crunch could be similarly problematic.⁵

Another problem in the U.S. is that most of the large independent commercial finance companies have virtually disappeared since the 1990–1992 credit crunch. They have either been acquired by large commercial banks or they have failed (e.g., CIT). Thus, large commercial finance companies are not likely to provide a safety valve like they appear to have done in 1990–1992. Also, it is too early to tell whether large corporations have offered another safety valve by providing more trade credit to SMEs funded by issuing more commercial paper. Initial problems in the commercial paper market may have inhibited this alternative. ⁶

One last comment on lending channels is in order. Figures 6.1, 6.2, and 6.3 describe lending technologies and lending channels as they exist *in the U.S.* Lending technologies and lending channels vary across countries as does their relative size. As we noted above, asset-based lending – while very important in five countries – does not exist in other countries. Recent legislation on security interests (i.e., collateral) in movable assets (e.g., accounts receivable) in countries such as China and Japan allow for the *possibility* that asset-based lending might be introduced in the future. But, other infrastructure improvements are necessary first. Some countries have just recently adopted some lending technologies (e.g., factoring in Vietnam). Also, the institutional landscape varies significantly across countries. For example, in many countries state-owned banks play a very important role. The Indian banking system, for example, is highly influenced by the presence of one very large state bank, The State Bank of India. Hence, lending channels will look very different, and may behave very differently in response to financial shocks, across countries.

6.3 The Financial Crisis and Foreign Bank Ownership

Next we turn to another dimension not addressed in Figs. 6.2 and 6.3, the importance of foreign-owned banks. While this is not a huge issue in either the U.S. or western Europe, it is a significant issue in other parts of the world such as eastern and central Europe and Latin America. In some areas foreign bank entry has been truly dramatic. For example, by 2008 foreign banks controlled about 80% of the banking assets in central and eastern Europe. There are several potential benefits that may be associated with this phenomenon. Large foreign-owned banks may be able to increase access to financing for SMEs through the introduction of

⁵See Munoz et al. (2009) for an analysis of savings bank deregulation in Spain.

⁶See Udell (2009a, 2009b) for more detailed discussion of lending channels and SME access to finance in the U.S. during this credit crunch.

the lending technologies that we have described above. For example, there is evidence that this has happened in Latin America (de la Torre et al., 2008). It may also be the case that large foreign owned banks may be able to introduce best practices in the banking system that significantly improve the efficiency of the banking system.

However, there may be a dark side to foreign bank entry if this integration leads to a quicker spreading of financial crises – i.e., if it facilitates contagion across countries. Some recent evidence suggests that this may have happened in central and eastern Europe. One study has found that SMEs in central and eastern Europe were more constrained after the start of the financial crisis if their banks' parents had been affected by the financial crisis including losses in ABS and MBS investments, and that foreign-owned banks shrank their portfolios more in response to financial distress than domestically owned banks (Popov and Udell, 2010). This suggests that lending channels for eastern and central European countries should distinguish between foreign- and domestically-owned banks. Unfortunately, data constraints virtually everywhere make it quite difficult to distinguish among lending technologies and lending channels.

6.4 Bank Guarantee Programs as a Policy Solution

The lending technology and lending channel paradigms are helpful in identifying more precisely how SMEs have access to external finance. But even in large developed economies with sophisticated financial systems it is not clear that bankers have a large enough tool bag to eliminate credit rationing. That is, even economies where are all of the lending technologies that are shown in Fig. 6.1 exist, they may not be collectively sufficient to avoid a *funding gap* caused by informational opacity. The use of government subsidies to the SME sector has long been a popular public policy remedy for this problem. Particularly common among these programs has been government guarantee programs where the government guarantees (or partially guarantees) loans made by private banks. These programs exist across the globe and are predicated under the assumption that this funding gap exists. In addition to informational opacity this funding gap could be caused by gender and racial discrimination.⁷

But the success of government guarantee programs will ultimately depend on a trade-off. Assuming that market imperfections cause credit rationing, then the net benefit of these programs will be determined by whether the aggregate reduction in the funding gap is offset by the perverse effects associated with adverse selection and moral hazard. It is certainly the case that the appetite for these programs can be a political football with critics arguing that these programs provide financing at the taxpayers' expense, on balance, to firms with a negative net present value. Ultimately, this is an empirical question.

⁷For a broad discussion of funding gaps and policy implications see Cressy (2002).

It can be argued that the best place to test the efficacy of government guarantee programs would be in the most advanced economies. The argument here is that if it can be shown that government guarantee programs work in economies with the strongest lending infrastructure (i.e., the most, and the strongest, lending channels), then they will likely work anywhere. Recent evidence in the U.S. where the menu of lending technologies is quite broad suggest that the Federal government's loan guarantee program does add value. For example, it has been found in the U.S. that the Small Business Administration's guaranteed lending program has a positive impact on personal income growth, employment, wages and salaries – although the positive effects were not necessarily large (Craig et al., 2005; Hancock et al., 2007).

It is also important to assess how these programs work during periods of macroe-conomics shocks. As we note above, many lending channels will likely contract in this financial crisis and it is likely that these will not be offset by the limited number of channels that might be able to expand. Thus, if government guarantee programs are justified during normal times, they might be even more potent during periods of financial distress. There is evidence in the U.S. that government guaranteed lending is less pro-cyclical than non-guaranteed lending suggesting these programs may be relatively more useful during a crisis such as the one we are now experiencing (Hancock et al., 2007). Perhaps more informative is the experience of Japan's government guarantee program during its financial crisis in the 1990s. The importance here derives from two factors. First, the severity of the Japanese financial crisis was comparable to the current crisis today. Second, the guarantee program implemented by the Japanese government from 1998 to 2001 was enormous and unprecedented. Empirical evidence indicates that the positive effect of stimulating small business investment was greater than the adverse selection effect (Uesugi et al., 2006).

Perhaps an answered question regarding government guarantee programs is whether they can be better targeted to SMEs who need it the most. Of course, most programs place an upper limit on the size of loans that can be guaranteed which will effectively target the programs to smaller companies that are likely more opaque and more financially constrained *ceteris paribus*. But the lending technology paradigm suggests that this targeting could be more tightly focused. For example, firms for whom alternative lending technologies are not available may be more vulnerable during a credit crunch. For example, service firms without tangible assets such as inventory, equipment and real estate will not have access to the equipment, leasing and real estate-based lending technologies. If these firms had depended on smaller banks for relationship loans – and small banks were hit by capital shocks – then targeting an expansion in the government guarantee program to these types of SMEs might be appropriate. However, considerably more research is needed in this area. Unfortunately, there is a severe and universal lack of data on the mix of lending technologies across the globe.

⁸There is also some evidence that in Japan increases in guaranteed loans induced increases in non-guaranteed loans in the SME sector (Wilcox and Yasuda 2008).

6.5 Conclusion

Studies of net job creation generally confirm the importance of the SME sector as an engine that can drive the economy out of a recession. A key determinant of how well small business can perform this role is its access to external finance. This article examines new paradigms that have expanded our understanding of how SME loans are underwritten and how this can change during a macro financial shock. We also used these paradigms to examine two interesting related issues associated with SME financing during the current financial crisis: the behavior of foreignowned banks particularly in developing economies and the efficacy of government guarantee programs as a possible solution.

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