

Small and Medium Enterprises (SMEs) Financing Revisited: Lessons for Bangladesh

Md. Alamgir Hossain Bhuiya*
Md. Kamal Uddin*

Abstract: Based on existing literature this paper provides a clearly conceptual framework for Small and Medium Enterprises (SMEs) financing in the global context. The conceptual framework has been organized in terms of some selected crucial aspects, such as: the financial institution structures; the lending infrastructures, and finally the lending strategies in using SME financing. The financial institution structures deals with the comparative advantages of different types of financial institutions. Here we focus mainly on the comparative advantages of large vs. small financial institutions; foreign-owned vs. domestically-owned institutions, and state-owned vs. privately-owned institutions in lending to SMEs. The lending infrastructure includes: the information environment; the legal, judicial and bankruptcy environment, and finally the tax and regulatory environments, all of which may directly or indirectly affect SME credit availability. Regarding lending strategies, we focus mainly on the core technologies such as: financial statement lending; small business credit scoring; asset-based lending; factoring; trade credit, and finally the relationship lending technology. We focus on the parts of the financial system that are most relevant to SME finance. We concentrate on the private debt markets that provide external finance to SMEs, and exclude discussions of the public equity and debt markets, which are generally beyond the reach of SMEs. Small and Medium Enterprises (SMEs) Financing Revisited: Lessons for Bangladesh

1. Introduction

Small and medium sized enterprises (SMEs) are defined by the European Commission as independent enterprises that have fewer than 250 employees, and an annual turnover not exceeding E40/£25 million or a balance-sheet total not exceeding E27/£17 million (extract from the 96/280/EC, Commission Recommendation of 3 April 1996). In most part of the world, SME means organizations with up to 250 or 500 employees. In USA, SMEs are defined either by maximum number of employees, which varies from 100 to 1500, or maximum turnover per year, which varies from \$0.75 to \$30 million, or the amount of financial assets, that goes up to \$150 million, depending upon the type of

* The authors are Associate Professors, Department of Economics, Islamic University, Kushtia-7003.

business (website for small business in U.S.A). In Germany, SMEs normally mean organizations with an annual turnover of up to DM 100 million and/ or with a maximum number of 500 employees.

SMEs make up the largest portion of the employment base in many developing countries and, indeed, are often the foundation of the local private sector. The entrepreneurs behind them could play a much larger role in development, but too often are held back by a lack of access to financing from formal sector of financial institutions. In all countries of the world, companies start as proprietorships, become small business units and then grow up to medium size units or SME's, all in the same category. SMEs comprise up to 80% of many Middle Eastern economies, and represent the lifeblood of local trade, commerce and industry. About 98 percent of all enterprises in the world are SMEs and they account for nearly 80 percent of the employment and nearly eighty percent of all value addition within the economy, directly and indirectly. One could expect a similar number as far as GDP and exports are concerned (Harold Rosen 2004).

The SME financing is a topic of significant research interest to academicians and an issue of great importance to policy makers around the globe. The conceptual framework to which most of the current research literature adheres has proven to be quite helpful to advancing our understanding of the markets for providing funds to SMEs in both developed and developing nations. As well, this framework has aided our understanding of the effects of policies that both facilitate and hinder the access to funding by credit worthy SMEs in these nations. However, we argue that the current framework presents an oversimplified model that overlooks some important distinctions across national financial institution structures and lending infrastructures.

By financial institution structure, we mean the market presence of different types of financial institutions that provide credit. By lending infrastructure, we mean the rules and regulation set up mostly by governments that affect financial institutions and their abilities to lend to different potential borrowers. We argue that differences in the financial institution structure and lending infrastructure may significantly affect the availability of funds to SMEs. This may happen especially by affecting the feasibility with which financial institutions may employ the different lending technologies in which they have comparative advantages to provide funds to different types of SMEs. This paper, on SME access to finance, focuses mainly on the comparative advantages of different types of financial institutions in using transactions lending technologies versus relationship lending.

Transactions lending technologies are primarily based on 'hard' quantitative data that may be observed and verified at about the time of the credit origination. This hard

information may include, e.g., financial ratios calculated from certified audited financial statements; credit scores assembled from data on the payments histories of the SMEs and its owner provided by credit bureaus. This information may be relatively easily observed, verified, and transmitted through the communication channels within the financial institutions. On the other hand, the relationship lending technology is based significantly on “soft” qualitative information gathered through contact over time with the SME and often with its owner and members of the local community. The soft information may include the character and reliability of the SME’s owner based on direct contact over time by the institution’s loan officer; the payment and receipt history of the SME gathered from the past provision of loans, etc. The soft information may often be proprietary to the loan officer and may not be easily observed by others, verified by others, or transmitted to others within the financial institution.

There are a number of different transactions lending technologies based on hard information. We analyze 5 of these core transactions technologies: financial statement lending, small business credit scoring, asset-based lending, factoring, and trade credit. We show that while financial statement lending may be limited to transparent borrowers, the other 4 transactions technologies may be well-suited to providing credit to informationally opaque SMEs. Depending upon the borrower characteristics as well as the financial institutional structure and lending infrastructure, one or more of these 4 transactions technologies may be used to supply funding to very opaque SMEs even when relationship lending cannot be effectively employed.

An additional area of concern regarding SME credit availability is the lending infrastructure of a nation, which defines the rights and flexibility of financial institutions to fund SMEs using the lending technology that best fits the institution and the borrower. This infrastructure includes the commercial and bankruptcy laws that affect creditor rights and their judicial enforcement; the regulation of financial institutions, including restrictions on lending, barriers to entry etc. As shown in recent study that the lending infrastructure are quite heterogeneous across both developed and developing nations and may have important effects on the capacity of financial institutions and markets to provide finance in these nations (La Porta, et. al.,1998). We show how a nation’s lending infrastructure directly affects the extent to which each of the individual lending technologies for SMEs are employed. For examples, weak accounting standards may restrict financial statement lending; weak commercial laws and enforcement of collateral rights may inhibit asset-based on lending; and poorly-designed creditor rights and judicial enforcement of these rights may limit most types of lending. We also show how other shortcomings in the lending infrastructure may restrict SMEs loan availability indirectly by constraining the potential financial institution structure. To illustrate, implicit or

explicit government barriers to the entry of foreign financial institutions limit the degree to which foreign institutions may compete to provide credit to SMEs, using the technologies in which they perform exceptionally well.

Thus, the conceptual framework that emphasize in this paper represents an extension of the framework to which most of the extant research adheres. We focus on the parts of the financial system that are most relevant to SME finance. We concentrate on the private debt markets that provide external finance to SMEs, and exclude discussions of the public equity and debt markets, which are generally beyond the reach of SMEs.

This paper on ‘conceptual framework for SME financing’ has been organized in terms of some selected crucial aspects, such as: the financial institution structures; the lending infrastructures, and finally the lending technologies used to finance SMEs. Based on the identified indicators this paper has been organized by the following sections: section 2 mentions the objectives of the study; section 3 focuses on the financial institution structure and lending to SMEs; section 4 deals with the lending infrastructures of nations along with mentioning how they affect SME financing; section 5 briefs the lending technologies in supplying credit to SMEs, and finally section 6 represents concluding discussion and policy recommendations arising out of the study.

2. Objectives

The main purpose of this paper is to provide a more clearly conceptual framework for SME financing in the global context. To that end, the specific objectives are:

- i) to brief the comparative advantages of different types of financial institutions in using transactions lending technologies versus relationship lending;
- ii) to focus on the lending infrastructures and how they affect the financing of SMEs;
- iii) to focus on the lending technologies used to finance SMEs, and finally-
- iv) to suggest policy implications arising out of the study.

3. Financial institution structure and lending to SMEs

At the outset it ought to be mentioned that, this section reviews some of the literature related to the comparative advantages of large versus small financial institutions, foreign-owned versus domestically-owned institutions, and state-owned versus privately-owned institutions in lending to SMEs. Here we also review the literature on the effects of bank market concentration on the supply of SME credit. We show how these literatures generally are able to differentiate at most between transactions lending and relationship lending. Finally, we note some general issues with measuring the effects of financial

institution structure on SME credit availability.

3.1 Large versus small institutions

There are a number of reasons why large institutions may have comparative advantages in employing transaction lending technology, which is based on hard information, and small institutions may have comparative advantages in using the relationship lending technology which is based on soft information. Large institutions may be able to take advantage of economies of scale in the processing of hard information, but be relatively poor at processing soft information because it is difficult to quantify and transmit through the communication channels of large organizations. Under relationship lending, there may be agency problems created within the financial institution because the loan officer—who has direct contact over time with the SME, is the repository of soft information that cannot be easily communicated to the management or owners of the financial institution. This may give comparative advantages in relationship lending to small institutions with lower agency costs within the institution, because they typically have less separation (if any) between ownership and management and fewer layers of management (Berger and Udell 2002). Finally, it is often argued that large institutions are relatively disadvantaged at relationship lending to SMEs because of organizational diseconomies. Large institutions are found to lend to larger, older, more financially secure SMEs (Haynes, and Berney 1999). Large institutions are also found to charge lower interest rates and earn lower yields on SME loan contracts (Berger, et. al, 2003, Carter, et. al. 2004). In addition, large institutions are found to have temporally shorter, less exclusive, more impersonal, and longer distance relationships with their SME loan customers. These findings suggest weaker relationships with borrowers for large institutions, which are indicative of transactions loans. Finally, large institutions appear to base their SME credit decisions more on strong financial ratios than on prior relationships (Cole, Goldberg, and White 2004). It is argued that both the dependence on strong financial ratios and the non-dependence on prior relationships for large institutions are indicative of the use of transactions lending technologies. We argue that these findings are not as clear-cut in their support of the comparative advantages by institution size as they might at first seem. We agree with the findings that SME credits by large institutions tend to be associated with weaker lending relationships and less often based on prior relationships and are indeed consistent with the predicted comparative disadvantage of large institutions in relationship lending. However, we do not agree with the contentions in the prior literature that greater SME transparency, safer SME borrowers, lower interest rates, and possible lower operating costs for large institutions provide strong support for the hypothesis that these institutions have comparative advantages in transactions lending technologies.

To illustrate, note that two of the transactions lending technologies that are often used by large U.S. banks are not consistent with these characteristics. As indicated above, small business credit scoring appears to be employed by large U.S. banks to lend to SMEs that are relatively opaque and risky, and these loans have relatively high interest rates. As discussed further below, this technology is based largely on the personal credit of the SME owner, rather than on strong financial ratios of the firm. Similarly, the asset-based lending technology employed by many large banks is generally used to lend to relatively opaque and risky borrowers at relatively high interest rates. These loans typically involve relatively high processing costs of monitoring the accounts receivable and inventory pledged as collateral and the primary information is based on the value of the collateral, rather than strong financial ratios of the borrower. Moreover, even to the extent that large institutions may be disadvantaged in relationship lending and tend to lend to more transparent SME borrowers on average than small institutions- this does not necessarily imply that a sizeable presence of small institutions is necessary for significant credit availability for opaque SMEs. Several researches find that the local market shares of large and small U.S. banks have relatively little association with SME credit availability in their markets (Jayaratne and Wolken 1999, Berger, Rosen, and Udell 2003).

The finding that the availability of credit to SMEs does not appear to depend in an important way on the market presence of large versus small institutions, does not necessarily apply to other nations because of other differences in the financial institution structures of these nations or lending infrastructures in these nations. In an international comparison, greater market shares for small banks are found to be associated with higher SME employment, as well as more overall bank lending (Berger, et. al 2004). These findings hold for both developed and developing nations along with controlling for some other aspects of the financial institution structure (e.g., shares of foreign-owned and state-owned banks), and lending infrastructure (e.g., regulation, legal system).

3.2. Foreign-owned versus domestically-owned institutions

Foreign-owned institutions may have comparative advantages in transactions lending and domestically-owned institutions may have comparative advantages in relationship lending for a variety of reasons,. Foreign-owned institutions are typically part of large organizations, and so all of the logic discussed above regarding large institutions generally applies to foreign-owned institutions as well. Foreign-owned institutions may also face additional hurdles in relationship lending because they may have particular difficulties in processing and transmitting soft information over greater distances, through more managerial layers, and having to cope with multiple economic, cultural, language, and regulatory environments (Buch 2003). Moreover, in developing nations, foreign-

owned institutions headquartered in developed nations may have additional advantages in transactions lending to some SMEs because of access to better information technologies for collecting and assessing hard information. For example, some foreign-owned institutions use a form of small business credit scoring to lend to SMEs in developing nations based on the SME's industry. There is very little empirical evidence on SME lending by foreign-owned institutions in developed nations, although some research finds that these institutions tend to have a wholesale orientation, and in some cases tend to specialize in serving multinational corporations, presumably using transactions technologies applied to hard information (Goldberg and Saunders 1981, DeYoung and Nolle 1996). The empirical findings regarding foreign-owned institutions in developing nations are quite different. Foreign-owned banks usually appear to be more profitable and efficient than domestically-owned banks on average in these nations (Claessens, et. al. 2001). The better performance of foreign-owned banks in developing nations relative to developed nations may be due to the better technology access noted above, or some combination of better access to capital markets, superior ability to diversify risks, or greater managerial experience. In most of the studies, foreign-owned banks individually or along with larger shares are associated with greater credit availability for SMEs (Clarke, et. al. 2002, Beck, et. al. 2004), although one study finds that foreign-owned banks may have difficulty in supplying SME credit (Berger, Klapper, and Udell 2001). As above for the U.S. data, the lending technologies are generally unobserved, and there is even less information available about the characteristics of the SME borrowers or contract terms from which to infer these technologies. Although the foreign-owned institutions almost surely use transactions technologies, it is usually not known which among the technologies is employed or the opacity of the borrowers served.

3.3. State-owned versus privately-owned institutions

State-owned institutions may be expected to have comparative advantages in transactions lending and privately owned institutions may be expected to have comparative advantages in relationship lending simply as because state-owned institutions are typically larger. State-owned institutions generally operate with government subsidies and often have mandates to supply additional credit to SMEs. Although in principle, this might be expected to improve funding of creditworthy SMEs, it could have the opposite effect in practice, because these institutions may be inefficient due to lack of market discipline. Much of their funding to SMEs may be to firms that are not creditworthy because of the inefficiency. The credit recipients may also not be creditworthy because the lending mandates do not necessarily require the funding be applied to positive net present value projects. As well some of the funds may be channeled for political

purposes, rather than for economically creditworthy ends. State-owned institutions may also provide relatively weak monitoring of borrowers and/or refrain from aggressive collection procedures as part of their mandates to subsidize selected borrowers or because of the lack of market discipline. In nations with substantial state-owned banking sectors, there may also be significant spillover effects that discourage privately-owned institutions from SME lending due to “crowding out” effects of subsidized loans from state owned institutions.

The empirical evidences are generally consistent with the negative performance effects of state ownership. Studies of general performance typically find that state-owned banks are relatively inefficient and that large shares of state ownership bank are typically associated with unfavorable macroeconomic consequences (Clarke and Cull 2002, Berger, Hasan, and Klapper 2004). The evidence also generally suggests that less SME credit is available in nations with large market shares for state-owned banks (Beck, Demirguc-Kunt, and Maksimovic 2004). The negative consequences of state ownership are also observed in the studies of the effects of bank privatization in both developed and developing nations typically found improvements in performance following the elimination of state ownership (Verbrugge, Megginson, and Owens 2000, Otchere and Chan 2003).

3.4. Market concentration

Higher market concentration of financial institutions may either reduce or increase the supply of credit available to creditworthy SMEs. Under the traditional structure-conduct-performance (SCP) hypothesis, greater concentration results in reduced credit access through any lending technology. This may occur in several ways as institutions in more concentrated markets may exercise greater market power. These institutions may choose to raise profits through higher interest rates on loans to SMEs. They may choose to reduce risk or supervisory burden by tightening credit standards for SMEs. Institutions in more concentrated markets may increase SME access to credit using relationship lending technology. Greater concentration may encourage institutions to invest in relationship lending because the SMEs are less likely to find alternative sources of credit in the future. Market power helps the institution enforce a long-term implicit contract in which the borrower receives a subsidized interest rate in the short term, and then compensates the institution by paying a higher-than-competitive rate in a later period (Petersen and Rajan 1995).

Although both theories may apply simultaneously, empirical studies have not come to consensus as to which of these may dominate empirically and whether the net supply of SME credit is lower or higher in concentrated markets. Some studies found that higher

concentration is associated with higher SME loan interest rates (Hannan 1991, Berger, Rosen, and Udell 2003). As above for the empirical literatures on large vs., foreign-owned vs. domestically-owned, and state-owned vs. privately-owned institutions, much of the difficulty arises in interpreting the effects of market concentration, because the lending technologies are generally unobserved. A number of recent studies examined the effects of bank market concentration and the results show mixed evidence. Some of the studies found unfavorable effects from high banking market concentration and restrictions on competition (Black and Strahan 2002, Berger, Hasan, and Klapper 2004), others found favorable effects of bank concentration (Petersen and Rajan 1995, Cetorelli 2004).

4. The lending infrastructure

This section briefs the lending infrastructures of different nations and how they affect the financing of SMEs. The lending infrastructure includes: i) the information environment; ii) the legal, judicial and bankruptcy environment, and iii) the tax and regulatory environments. All of these elements may directly or indirectly affect SME credit availability by affecting the extent to which the different lending technologies may be legally and profitably employed.

4.1 The information environment

The information infrastructure has a significant effect on the availability of credit to SMEs. One important aspect of the information infrastructure is the accounting environment. Here the key issues are existence of strong account standards and credible independent accounting firms. These are necessary conditions for informative financial statements. These are also necessary conditions for the feasibility of many components of loan contracting. For example, financial covenants are not feasible if the financial ratios, calculated from bank financial statements, are not reliable. Indices of global accounting standards indicate considerable variation across countries — not only between developed and developing economies but even among developed economies. Another important aspect of the information infrastructure is the availability of information on payment performance. The extent to which, lenders share information about performance has been shown to have a significant effect on credit availability (Love and Mylenko 2003).

The business credit bureaus provide a formal organizational mechanism for the exchange of commercial payment performance information. Survey data also indicate that without credit bureaus the time to process loans, the cost of making loans, and the level of defaults would all be higher. These exchanges can be privately owned, such as the

worlds largest, Dun and Bradstreet – or they can be publicly owned – such as the national credit registries in Italy and Argentina. There is considerable variation across countries in terms of existence information exchanges, whether they are public or private (Miller 2003). Empirical evidence suggests a statistically important link between the existence of third-party information exchanges and credit availability (Jappelli and Pagano 2001).

4.2. The legal, judicial, and bankruptcy environment

The legal and judicial infrastructure of a country significantly influences the context in which loan contracting is conducted. The legal infrastructure that affects business lending consists of the commercial laws that specify the property rights associated with a commercial transaction and enforcement of these laws. The latter determines the confidence of contracting parties in financial contracts. Collectively, these two features constitute the rule of law as it relates the extension of credit. Countries differ significantly on this dimension: for some, commercial laws are unambiguous and conducive to commercial transactions and enforcement is predictable; for others, commercial law is ambiguous and incomplete, enforcement is problematic, and criminal and racketeering behavior block the creation of new businesses, undermine existing ones, and deter foreign investment (EBRD 2003). One study found that the effect of financial, legal and corruption problems consistently constrained the growth of smaller firm's more than larger firms in a cross-country analysis (Beck, et.al.2003).

A country's commercial and bankruptcy laws and the enforcement of these laws directly affect the ability of banks to deploy specific contracting elements that can be used to mitigate the problem of informational opacity. The commercial law on security interests (collateral liens), are crucially important in determining the efficacy of collateral in a loan contract. Key issues included whether a country's commercial law clearly defines how a collateral lien can be perfected, how collateral priority is determined, and how notification of a lien is made. There is considerable variation across countries in terms of existence of commercial laws. At one extreme are countries such as the U.S. that have a well-developed set of commercial laws (Article 9 of the Uniform Commercial Code) and well-defined registration system. At the other extreme are countries, such as many of those in Eastern Europe where commercial laws have only been implemented recently.

The efficiency of bankruptcy system is also critical. How long a company stays in bankruptcy either in liquidation or in reorganization is important. Also important is the degree to which the bankruptcy laws and their enforcement adhere to absolute priority. For example, the power of collateral will ultimately depend on whether the priority rights of secured lenders are upheld in bankruptcy. Details of the laws that are often missed in

academic analyses can be extremely important here. For example, the rights of secured lenders in the U.S. may at first seem relatively weak because an automatic stay is immediately invoked upon acceptance of a bankruptcy petition by the bankruptcy court. The automatic stay prevents all creditors from collecting payments from the bankrupt firm and otherwise enforcing their financial claims. However, under U.S. bankruptcy law, the judge is required to preserve the collateral claim of secured creditors and to give them “adequate protection” if the collaterals are denied to the secured lender. That is, the bankruptcy judge is obligated to preserve the value of a secured lender’s claim (Udell 2004).

Strong commercial and bankruptcy laws are not sufficient to create good lending conditions without strong enforcement of these laws. A recent study of the Czech Republic by the World Bank illustrates some of the problems that can occur on this dimension that may inhibit the amount and type of credit that is made available to SMEs. In pursuing commercial claims outside of bankruptcy, the World Bank found that time absorbed in enforcing loans contracts is considerably longer in the Czech Republic than in five other transition economies that have joined the EU, and somewhat longer than the non-accession EU countries, although it is shorter, than in the U.S.

4.3 The tax and regulatory environments

The tax and regulatory environments may have direct effects on SME credit availability. For example, stamp taxes on factored invoices and certain types of value-added taxes can have a negative impact on factoring. In another direct effect, changes in capital regulations and tougher bank supervision in the U.S. are often cited as contributing to the U.S. credit crunch in the early 1990s through a reduction in the supply of business credit (Berger and Udell 1994). The implementation of the new Basel Risk-based Capital requirements – to the extent that they impose a differential implicit tax on SME lending – could also have a direct impact in the future (Berger 2004). The indirect effects of the lending infrastructure on SME credit availability may occur through regulations that constrain the potential financial institution structure, preventing institutions from capitalizing on their comparative advantages in the different lending technologies. We mention here government policies that affect entry of different types of financial institutions, their market shares, their abilities to compete, their corporate governance structure, and so forth.

However, as discussed earlier, the effects of bank size structure on SME credit availability are ambiguous. Government policies that restrict foreign entry may have larger effects on SME credit availability, given the findings in Section 1.3.2 that larger market shares for foreign-owned banks are often associated with greater SME credit

availability in developing nations. Other research has also found that regulatory restrictions on the entry of foreign banks may be more strongly linked to bank performance than the market presence of foreign-owned banks (Levine 2003), which may suggest these restrictions have particularly strong effects on competition, with potential consequences for SME customers. Finally, government policies with respect to state ownership of financial institutions clearly have important effects on credit availability. Choices to start a state-owned institution, take over a private institution, or privatize an existing state-owned institution may be viewed as regulatory changes to the financial institution structure. As shown in Section 3.3, state-ownership is generally found to have significant negative effects on SME credit availability.

5. Lending strategies and the supply of SME credit

This section describes the transactions lending strategies and the relationship lending strategies. For each of these strategies, we discuss the primary source of information used in underwriting the credit and the extent to which the technology is used to lend to transparent and opaque SMEs. We also thrash out the financial institution structures and lending infrastructures that are needed for the technology to be legally and profitably employed to lend to these SMEs. For that, the lending strategies that have been investigated here are: i.) financial statement lending; ii) small business credit scoring; iii) asset-based lending; iv) factoring; v) trade credit, and finally the vi) relationship lending strategy.

In addition to a brief description of each technology, we highlight the nature of the information used in underwriting by each technology (e.g. soft vs. hard), and how capital have been associated with the strength of these regulations (Black, et.al 2003). We also discuss how the financial institution structure and the lending infrastructure affect the feasibility and efficacy of each technology. We further explore the likely variation in the mix of these technologies across financial systems.

5.1 Financial statement lending

Financial statement lending involves underwriting loans based on the strength of a borrower's financial statements. There are two requirements for this technology. First, the borrower must have informative financial statements (e.g., audited statements prepared by reputable accounting firms according to widely accepted accounting standards, such as GAAP). Second, the borrower must have a strong financial condition as reflected in the financial ratios calculated from these statements. The loan contract that arises out of the analysis of these financial statements may reflect a variety of different contracting

elements including collateral, personal guarantees and/or covenants. However, under financial statement lending, the lender will view the expected future cash flow of the company as the primary source of repayment.

Financial statement lending, is reserved for relatively informationally transparent firms. For these firms, financial statement lending provides a distinct advantage: the informativeness of the financial statements addresses the information problem in a very low cost manner. Importantly, the efficacy of financial statement lending depends crucially on the lending infrastructure. Specifically, it depends on the existence of a strong information environment, particularly with respect to accounting standards and credible auditors. Thus, it seems likely that it is not feasible for financial institutions in many developing economies to offer a substantial amount of financial statement lending.

5.2 Small business credit scoring

Small business credit scoring is a transactions lending technology based on hard information about the SME and its owner. The information on the owner is primarily personal consumer data (e.g., personal income, debt, financial assets, etc) obtained from consumer credit bureaus. This is combined with data on the SME collected by the financial institution and in some cases from commercial credit bureaus (Feldman 1997). The data are entered into a loan performance prediction model, which yields a score, or summary statistic for the loan. In some cases, financial institutions make underwriting decisions based on “rules” automatically accepting or rejecting based on the score (with some manual overrides). In other cases, the score is used with “discretion” in conjunction with information gathered using other lending technologies.

Small business credit scoring is a relatively new technology, which was not widely used in the U.S. until the mid-1990s. Similar statistical techniques, such as discriminant analysis, were used in lending to larger firms before this time, but they were based on business data, not the personal credit history of the owners (Saunders 2000). The use of the personal credit history may be viewed as the key innovation behind the development of the small business credit scoring technology. The key motivation for using this technology may often be its low cost – external providers typically charge a modest fee for each score. Small business credit scoring clearly fits our definition of a transactions technology, given that it is based on hard information that is observed and verified at about the time of the credit origination. It is equally clear that this technology may be applied to very opaque SMEs, given that much of the information that determines the score is based on the personal history of the owner, rather than the SME. As indicated above, small business credit scoring appears to be associated with an increase in lending to opaque SMEs in the U.S. Additional empirical findings show an overall increase in

lending, that the increase occurs primarily in institutions that follow “rules” rather than “discretion” in underwriting, and that the increase is primarily outside of the banks’ local markets (Frame, et. al. 2004). The research also suggests that large U.S. banks adopted this technology earlier than small banks (Akhavain, et.al. 2005).

We don’t have significant research evidence on small business credit scoring outside of the U.S., although as noted above, some foreign-owned institutions from developed nations use a form of this technology in developing nations. It is necessary to have a large database on SME loan performance and the variables used to predict that performance in order to estimate a credible credit scoring model. In the U.S., most large banks use external vendors to create the scores, and these vendors rely on a strong information environment in which credit bureaus share consumer information and financial institutions share their loan performance data to estimate the model. Thus, either a strong information environment, large institution size, or both appear to be needed to use this technology. The finding mentioned above that the technology was generally adopted earlier by larger institutions, although any size level of institutions can employ small business credit scoring by purchasing scores from external vendors.

5.3 Asset-based lending

Under asset-based lending, the financial intermediary looks to the underlying assets of the firm (that taken as collateral) as the primary source of repayment. For working capital financing, banks use short-term assets, such as accounts receivable and inventory. For long-term financing, they use equipment. The pledging of collateral by itself, does not distinguish asset-based lending from any of the other lending technologies. Collateralization with accounts receivable, inventory and/or equipment is often associated with financial statement lending, relationship lending, and credit scoring, where collateral is used as a secondary source of repayment. Under asset-based lending, the extension of credit is primarily based on the value of specific borrower assets rather than the overall creditworthiness of the borrower.

Under this lending technique, the amount of credit extended is linked to the value of the collateral on a formula basis to a dynamically managed estimation of the liquidation value of the underlying assets that are used as collateral (i.e., the accounts receivable, inventory and equipment). Thus, asset-based lending is a transactions-based technology based on hard information. In asset-based lending, underwriting focuses on the value of specific business assets, not personal assets. Thus, this technology focuses on “inside” collateral not “outside” collateral (Berger and Udell 1995).

Nevertheless, outside collateral can be used as a supplementary or secondary source of

repayment. The linkage is then managed dynamically (daily in the case of accounts receivable, and typically weekly or monthly in the case of inventory) so that the liquidation value of the underlying assets used as collateral always exceeds the amount of credit exposure (Berger and Udell 2002). Thus, it can be delivered by large and complex financial institutions without incurring organizational diseconomies. For example, the largest banks in the U.S. have asset-based lending departments. It should be noted that the intensive monitoring of receivables and inventory that typically includes daily flow of information and periodic field audits add significantly to the cost of asset-based lending. Asset-based lending solves the informational opacity problem by shifting the underwriting criteria from a comprehensive evaluation of a firm's risk profile to a specific evaluation of a subset of the firm's assets – specifically the tangible assets of accounts receivable, inventory and equipment.

The efficacy of asset-based lending depends on the lending infrastructure- that affects the perfection and enforcement of collateral liens. In particular, the lending environment must include a strong and unambiguous set of commercial laws governing security interests such as those contained in Article 9 of the U.S. Uniform Commercial Code. In addition, it must have an efficient registration system so that lenders can determine the existence of existing liens and priority time-register new liens. And, finally, the lending environment must include a legal and bankruptcy environment that ensures the preservation of collateral priority in liquidation and reorganization. The fact that asset-based lending in its pure form exists in only four countries suggest that these lending environment conditions represent a significant hurdle. Nevertheless, in the countries where it exists it appears to be quite important. In the U.S., for example, the stock of total asset based lending is about \$300 billion (CFA 2003). This compares to the stock of commercial and industrial loans in the U.S. of about \$900 billion (inclusive of bank asset-based loans).

5.4. Factoring

Factoring involves the purchase of accounts receivable by a “lender” known as a factor. Like asset-based lending the underwriting process of factoring focuses on the value of an underlying asset. In some sense it is a cousin of asset-based lending. However, there are three important distinctions. First: factoring only involves the financing of accounts receivable unlike asset-based lending which involves financing inventory and equipment. So factoring is more focused. Second: under factoring the underlying asset (accounts receivable) is sold to the “lender”. Thus, the asset passes from the borrower to the lender. The third distinguishing feature of factoring is that it is essentially a bundle of three financial services: a financing component, a credit component and a collections component. Essentially, under most factoring relationships the borrower out sources its

credit and collections activities in addition to obtaining financing.

Factoring is a transactions technology because it utilizes an underwriting process which is based on hard information –i.e. the value of a “borrower’s” accounts receivable. Like asset-based lending it is delivered by many large financial institutions as well as smaller financial institutions. Factoring solves the informational opacity problem because under this technique credit extension does not primarily depend on an overall assessment of the quality of the firm. Factoring may be a particularly valuable technology in countries with weak lending infrastructures. Because it involves removing the underlying asset from the bankruptcy state, it is still feasible in countries with weak commercial laws on security interests, weak collateral registration systems, and/or weak bankruptcy systems. It can also work well in weak information environments if the receivables are associated with large obligors. For example, the receivables of an Estonian firm whose customers are located in Germany might be an ideal candidate for factoring because the factor can efficiently assess the value of the receivables (i.e., the creditworthiness of the German account obligors) even though the factor can not easily assess the overall creditworthiness of the Estonian client company.

5.5 Trade credit

Any of the procedures associated with other lending technologies appear to be utilized in underwriting trade credit. For example, credit scoring and similar quantitative techniques have long been a part of the underwriting process used by credit managers. For larger accounts, financial statements are analyzed as part of the underwriting process (Bakker, et. al. 2004) in the context of Eastern Europe. No doubt, soft information and mutual trust play a role in some trade credit underwriting that is similar to relationship lending. However, a compelling argument can be made that trade credit is a distinct lending technology.

Several researchers suggest comparative advantages in funding management, price discrimination or product quality guarantees in evaluating their customers’ ability to pay (Emery 1987, Petersen and Rajan 1997). Some studies suggest trade creditors may have an informational advantage over other lenders in evaluating their customers’ ability, solving incentive problems more effectively’, in repossessing and reselling goods in the event of default (Emery 1984; Petersen and Rajan 1997). It has also been suggested that trade credit technology may have an advantage over other forms of lending in developing economies (Cook 1999). Finally, it has been argued that if product sellers have an informational advantage over other lenders and have an automatic collateral priority under local commercial law, then a greater amount of trade credit will be used by less

creditworthy companies than higher creditworthy companies (Frank and Maksimovic 2003). The ubiquitous nature of trade credit also suggests that it may have advantages over the other technologies, particularly in the nations with the most problematic financial institution structures and lending infrastructures.

5.6 Relationship lending

Relationship lending is designed to address information problems that are not feasible for a more complete summary of theories of trade credit. The primary information used by lenders is based on “soft” information about the relationship between the lender and the borrower (Petersen and Rajan 1997). It provides emphasis on soft information in order to distinguish it from all of the other technologies. Under relationship lending, the lender acquires proprietary information about the borrower and the business activities over time with respect to the provision of loans and the provision of other products (Petersen and Rajan 1994, Berger and Udell 1994). Relationship lenders collect information beyond that which is available on the firm’s financial statements and information that is readily available to the public. This includes information on the entrepreneur’s local community/business environment, the entrepreneur and the SME’s interaction with that environment.

The labor-intensive nature of relationship lending makes it quite costly. These costs may be passed on to the borrower in the form of higher fees and a higher rate of interest. As we emphasized earlier, under many circumstances opaque borrowers have an alternative to relationship borrowing. For small SMEs in information rich environments, small business credit scoring may be feasible. In very strong lending environments, asset-based lending may be feasible for those borrowers with good quality accounts receivables, inventory and/or equipment. Factoring is feasible even in weak lending environments, but it depends on the existence of high quality receivables. While trade credit is ubiquitous, it is quite expensive. Thus, for opaque SMEs for whom small business credit scoring, asset-based lending or factoring are not feasible or cost-effective, relation lending may be the best alternative. However, the availability of relationship lending also appears to depend on the financial institution structure.

6. Concluding discussion and policy recommendations

This paper tries to offer a more complete conceptual framework for thinking about the research and policy issues surrounding the availability of credit to informationally transparent and opaque SMEs in various circumstances around the globe. We suggest some relatively complex interactions among the elements of the financial institution

structure of a nation, the lending infrastructure of that nation, and the lending technologies that are used to provide funding to SMEs.

Most of the lending technologies are mutually exclusive. That is, a borrower utilizes one to the exclusion of the others. Trade credit, however, is an exception. Most SMEs likely obtain some amount of trade credit. However, trade credit is quite expensive, so entrepreneurs may benefit considerably by displacing trade credit with one of the other technologies.

The market presence of different types of institutions and the competition among them may have important effects on SME credit availability — because institutions of different types may have comparative advantages in different lending technologies. The lending infrastructure, the information environment, the legal, judicial and bankruptcy environment, and the tax and regulatory environments — may directly affect SME credit availability by affecting the extent to which the different lending technologies may be legally and profitably employed. The lending infrastructure may also restrict SME credit availability indirectly by constraining the potential financial institution structure through a restrictive regulatory environment.

We acknowledge that this more complete conceptual framework is difficult to apply to empirical research because lending technologies are typically unobserved. It is much more straightforward to treat transactions lending technologies as a collective whole, but we argue that this conventional approach may yield some potentially conclusions concerning the effects of different financial institution structures and lending infrastructures. A clear implication is that- more research is needed on the use of individual lending technologies and how they are affected by elements of the financial institution structure and lending infrastructure.

In this paper, we review much of the extant research on SME credit availability through the lens of this more complete and conceptual framework, which yields several conclusions.

i) First, the findings argue against drawing simplistic conclusions from the extant research, such as that a substantial market share for small financial institutions is needed to supply credit to opaque SMEs. Although large institutions may have a comparative disadvantage in relationship lending, they appear to have comparative advantages in some transactions lending technologies — such as small business credit scoring and asset-based lending — that are well-suited for funding opaque SMEs. Moreover, the research evidence on U.S. data suggests relatively little association between the local market shares of large and small banks and SME credit availability. This is consistent with the

hypothesis that large institutions are able to provide credit to opaque SMEs using some of the transactions technologies, offsetting their disadvantage in relationship lending. However, as because lending technologies are generally unobserved, it is difficult to distinguish this hypothesis from the alternative hypothesis that market forces efficiently sort the opaque SMEs to small institutions in the market.

ii) Second, the results make a strong case for taking account of the presence of foreign-owned and state-owned institutions, as well the presence of large and small institutions and the financial institution concentration, particularly when analyzing developing nations. All of these elements of financial institution structure may affect SME credit availability through comparative advantages in the different lending technologies. In particular, a greater presence of foreign-owned institutions and a lesser presence of state-owned institutions are likely to be associated with significantly higher SME credit availability in developing nations, because foreign-owned institutions appear to have advantages in some of the lending technologies, and state-owned institutions appear to be generally disadvantaged.

iii) Third, the outcome of our investigation strongly suggests that “better” lending infrastructures may make significant differences in SME credit availability directly through facilitating the use of the various lending technologies. Moreover, better creditor protections through the legal, judicial and bankruptcy environment may significantly improve the feasibility of any of the lending technologies other than factoring. For instance, strong commercial law and enforcement with respect to security interests are necessary conditions for asset-based lending to be profitably used. Interestingly, “worse” lending infrastructures may promote the use of the technology of factoring, as financial institutions may refuse direct credit to SMEs, but be willing to buy their receivables in which an obligor is from another nation that can be evaluated because of a “better” lending infrastructure.

iv) Fourth, our review of the extant literature suggests that “worse” lending infrastructures may also reduce SME credit availability indirectly. This may occur if a restrictive regulatory environment constrains the potential financial institution structure, preventing some types of financial institutions from gaining sufficient market shares to capitalize on their comparative advantages in specific lending technologies. The research evidence suggests that some of these effects may be quite strong. Many nations explicitly or implicitly restrict the entry of foreign institutions. These restrictions may have significant negative effects on SME credit availability. In addition, the governments of a number of nations maintain large market shares for state-owned financial institutions with lending subsidies and tax collection procedures. These practices appear to “crowd

out” more efficient privately-owned institutions and result in lower overall SME credit availability, despite the mandates of state owned institutions to the contrary.

Finally, we conclude that, no effort toward poverty reduction in developing nations would be sustainable without growth of SMEs. One of the first steps toward a vibrant SME sector is the opening of more financing channels, and ensuring that they are focused on building strong partnerships and trust between SMEs and their local financial sources. This would have sustainable impacts in helping local entrepreneurs to obtain the capital they need to build and expand their businesses and create more employment opportunities, which is the pre-requisite for economic development of a nation.

7. References

1. Akhavan, Jalal, W. Scott Frame, and Lawrence J. White. 2005. “The Diffusion of Financial Innovations: An Examination of the Adoption of Small Business Credit Scoring by Large Banking Organizations.” *Journal of Business* 78.
2. Bakker, Marie H.R., Leora Klapper, and Gregory F. Udell. 2004. *Financing Small and Medium size Enterprises with Factoring: Global Growth and Its Potential in Eastern Europe*. World Bank Monograph, Washington, D.C. (<http://wbln0018.worldbank.org>).
3. Beck, Thorsten, Asli Demirguc-Kunt, and Ross Levine. 2003. “SMEs, Growth and Poverty: Cross-Country Evidence. World Bank Working Paper.
4. Beck, Thorsten, Asli Demirguc-Kunt, and Vojislav Maksimovic. 2004. “Bank Competition and Access to Finance: International Evidence.” *Journal of Money, Credit, and Banking*
5. Berger, Allen N., 2004. “Potential Competitive Effects of Basel II on Banks in SME Credit Markets in the United States.” Finance and Economics Discussion Series paper 2004-12, Board of Governors of the Paper.
6. Berger, Allen N., Iftekhar Hasan, and Leora F. Klapper. 2004. “Further Evidence on the Link between Finance and Growth: An International Analysis of Community Banking and Economic Performance,” *Journal of Financial Services Research* 25: 169-202.
7. Berger, Allen N., Leora F. Klapper, and Gregory F. Udell. 2001. “The Ability of Banks to Lend to Informationally Opaque Small Businesses.” *Journal of Banking and Finance* 25: 2127-2167.
8. Berger, Allen N., Richard J. Rosen, and Gregory F. Udell, 2003. “Does Market Size Structure Affect Competition? The Case of Small Business Lending.” Board of Governors of the Federal Reserve System working paper.
9. Berger, Allen N. and Gregory F. Udell. 1994. “Did risk-based capital allocate bank credit and cause a ‘credit crunch’ in the U.S.?” *Journal of Money, Credit and Banking* 26: 585-628.
10. Berger, Allen N. and Gregory F. Udell. 2002. “Small Business Credit Availability and Relationship Lending: The Importance of Bank Organisational Structure.” *Economic*

Journal 112: F32-F53.

11. Black, Bernard S., Hasung Jang, and Woochn Kim, 2003. Does corporate governance predict firms' market values? Evidence from Korea, Stanford Law School working paper No. 237.
12. Black Sandra E., and Philip E. Strahan. 2002. "Entrepreneurship and Bank Credit Availability." *Journal of Finance* 57: 2807-2833.
13. Buch, Claudia M. 2003. "Information versus Regulation: What Drives the International Activities of Commercial Banks?" *Journal of Money Credit and Banking* 35: 851-869.
14. Carter, David A., James E. McNulty, and James A. Verbrugge. 2004. "Do Small Banks have an Advantage in Lending?" An Examination of Risk-adjusted Yields on Business Loans at Large and Small Banks, *Journal of Financial Services Research* 25: 233-252.
15. Commercial Finance Association (CFA), 2003. Marketing Survey for the Asset-Based Financial Services Industry. 34
16. Cetorelli, Nicola. 2004. "Bank Concentration and Competition in Europe." *Journal of Money, Credit, and Banking* 36: 543-558.
17. Claessens, Stijn, Asli Demirguc-Kunt, and Harry Huizinga, 2001. "How Does Foreign Entry Affect the Domestic Banking Market?" *Journal of Banking and Finance* 25: 891-911.
18. Clarke, George, and Robert Cull, 2002. Political and economic determinants of the likelihood of privatizing Argentine public banks. *Journal of Law and Economics* 45, 165-97.
19. Clarke, George, Robert Cull, and Maria Soledad Martinez Peria. 2002. "How Does Foreign Bank Participation Affect Access to Credit by SMEs? Evidence from Survey Data," World Bank Working-paper.
20. Cole, Rebel A., Lawrence G. Goldberg, and Lawrence J. White. 2004. "Cookie-cutter versus character: The Micro Structure of Small Business Lending by Large and Small Banks." *Journal of Financial and Quantitative Analysis* 39: 227-251.
21. Commercial Finance Association (CFA), 2003. Marketing Survey for the Asset-Based Financial Services Industry.
22. Cook, L., 1999, Trade credit and bank finance: Financing small firms in Russia, *Journal of Business Venturing* 14, 493-518.
23. Demirguc-Kunt, Asli, and Vojislav Maksimovic, 1998. Law, finance, and firm growth. *Journal of Finance* 53, 2107-2137.
24. DeYoung, Robert, and Daniel E. Nolle. 1996. "Foreign-Owned Banks in the U.S.: Earning Market Share or Buying It?" *Journal of Money, Credit, and Banking* 28: 622-636.
25. Emery, G.W., 1987, An optimal financial response to variable demand, *Journal of Financial and Quantitative Analysis* 22, 209-225.
26. European Bank for Reconstruction and Development (EBRD), 2003. Transition Report

- 2003.
27. Feldman, R., 1997, Banks and a big change in technology called credit scoring, Federal Reserve Bank of Minneapolis, September, 19-25.
 28. Frame, W. Scott, Michael Padhi, and Lynn Woolsey. 2004. "Credit Scoring and the Availability of Small Business Credit in Low- and Moderate Income Areas." *Financial Review* 39: 34-54.
 29. Frank, M.Z., V. Maksimovic, 2003, Trade Credit, Collateral and Adverse Selection, University of Maryland working paper.
 30. Goldberg, Lawrence G., Anthony Saunders, 1981. The determinants of foreign banking activity in the United States. *Journal of Banking and Finance* 5, 17-32.
 31. Harold Rosen, (2004), Improved Access to Finance: A Key to SME Growth
 32. Hannan, Timothy H. 1991. "Bank Commercial Loan Markets and the Role of Market Structure: Evidence from Surveys of Commercial Lending." *Journal of Banking and Finance* 15: 133-49.
 33. Haynes, G. W., Charles Ou, and Robert Berney. 1999. Small business borrowing from large and small banks, in *Business Access to Capital and Credit*, edited by Jackson L. et.al., A Federal Reserve System Research Conference, 287-327.
 34. Jappelli, T., and M. Pagano, 2001. The European Experience with Credit Information Sharing, *Journal of Banking and Finance*.
 35. Jayaratne, Jith, and John D. Wolken, 1999. "How Important Are Small Banks to Small Business Lending? New Evidence from a Survey of Small Firms." *Journal of Banking and Finance* 23: 427-58.
 36. Klapper, L., 1998, Short-term collateralization: Theory and evidence, New York University working paper.
 37. La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer. 1993 "Government Ownership of Banks" *Journal of Finance* 57: 265-301.
 38. Levine, Ross. 2003. "Denying Foreign Bank Entry: Implications for Bank Interest Margins" University of Minnesota mimeo.
 39. Miller, M., 2003, Credit Reporting Systems and the International Economy, Cambridge: MIT Press.
 40. Otchere, Isaac, and Janus Chan. 2003. Intra-industry effects of bank privatization: A clinical analysis of the bank privatization of the Commonwealth Bank of Australia; *Journal of Banking and Finance* 27, 949- 975.
 41. Petersen, M. A. and R. G. Rajan. 1995. "The Effect of Credit Market Competition on Lending Relationship." *Quarterly Journal of Economics* 110: 407-443.
 42. Petersen, M.A. and R.G. Rajan, 1997, Trade credit: Theories and evidence, *Review of Financial Studies* 10, 661-669.
 43. Saunders, A., 2000, *Financial Institutions Management*, Boston: Irwin McGraw-Hill