Chapter 2

Framework Chapter: SME Access to Finance in Selected East Asian Economies

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CHAPTER 2

Framework Chapter:
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1. Introduction and Background

The onset of globalization, with expanded regional economic integration in the context of East Asia, has intensified the competitive pressures on regional SMEs in both domestic and international markets. Despite their perceived weaknesses, related to their relatively small size and limited resources, the region retains a dynamic, entrepreneurial and increasingly internationalized SME sector (Hall, 1995, 1999, 2002). SMEs have not been swept away with the process of globalization and regional integration, but, rather, their role and contribution have evolved as they attempt to retain a competitive position in the domestic and global marketplaces (Harvie, 2002; Harvie and Lee, 2002, 2005; OECD, 2006a). This has involved the adoption of effective business strategies in response to global competition, as well as meeting the needs of the new economy with its emphasis on knowledge, skill and innovation as key sources of competitiveness. Those enterprises most able to respond flexibly and adaptively to rapidly changing regional and global markets will be the most successful (Harvie, 2002). A critical issue is how best to ensure that they fully participate in the business opportunities that will present themselves, including the adoption of international strategic alliances involving

other SMEs and participation in global and regional value chains, or production networks with multinational enterprises. Knowledge and production networking participation by SMEs enables them to combine the advantages of their flexibility, arising from small scale, with the advantages of economies of scale and scope (OECD, 2006a).

Findings from ERIA's SME research project in FY 2009 confirmed that access to finance is amongst the most critical factors determining the competitive readiness of regional SMEs. This in turn determines their ability to fully exploit and participate in the global economy, and the business opportunities stemming from regional economic integration, and, in particular, participation in regional production networks (Thanh, Narjoko, Oum, 2009). In this context the present study is concerned with (1) elaborating in more detail the key factors that are statistically significant in impacting upon SME access to finance, and that contribute to credit rationing to such firms, (2) identifying the significance of limited access to financing, or credit rationing, upon the performance of SMEs, and (3) providing evidence-based policy recommendations addressing the issue of credit rationing, or limited access to finance, for this group of enterprises which is critical for the regional economy. Hence the primary focus of this study is upon deepening our understanding of SME access to finance in selected East Asian economies and in the region as a whole, and its implications for SME performance.

2. SME Access to Funding – Key Issues and Overview

Access to funding is the lifeblood of any enterprise, enabling it to grow, and to generate more output and employment (Ang, 1992; Beck *et al.,* 2005, 2006, and 2008; Berger and Udell, 1998; Chittenden *et al*., 1996; OECD, 2006a, 2006b, 2006c; Vos *et al*., 2007). There is considerable evidence to support the contention that SMEs, in particular, face a number of obstacles and problems in accessing finance, mainly related to their limited resources and perceived risk by lenders (Cassar and Holmes, 2003). This is particularly problematic, and worrisome for policy makers, given that SMEs and entrepreneurship are widely recognized as being the key sources of dynamism,

innovation and flexibility in advanced industrialized, emerging market and developing economies, and are major net job creators in these economies (OECD, 2006a, 2006c). In developing economies, in particular, SMEs make a significant contribution to employment and national income. Without access to finance SMEs are unable to invest, impairing their capacity to: improve productivity; raise competitiveness; promote innovation; generate employment; and contribute to economic growth and development (OECD, 2006a).

2. 1. SME Financing Issues

Compared with the position of large enterprises, the provision of finance to SMEs by lending institutions can be problematic for a number of reasons (Berger and Udell. 2006; Frank and Goyal, 2003). First, such institutions need to be able to effectively monitor the performance of the enterprise and ensure that: the enterprise is abiding by the initial terms of the contract; the enterprise is making satisfactory business progress; the necessary means are available to ensure that the interests of the lender are being respected. Such monitoring, however, is difficult due to a lack of transparency in the operation of SMEs, which are less likely to follow expected norms of corporate governance. This is compounded by the fact that SMEs experience greater volatility in profitability, growth and earnings in comparison to larger firms, and their survival rate is much lower (Storey and Thompson, 1995). SMEs also suffer from principal-agent problems, and asymmetric information, which can lead to investment in more risky projects and present lenders with the difficulty of distinguishing good loans from bad loans. In these circumstances banks find it rational to engage in credit rationing (e.g. not extending the full amount of the credit requested, even when the borrower is willing to pay a higher interest rate). In addition it can be difficult to disentangle the financial position of the owner from that of the firm. SMEs tend to have a much less developed bank-client relationship, which can be important for successful access to finance. These difficulties can be further compounded in the cases of start-up and young enterprises, which can have difficulties in providing the necessary collateral, and may be seen as potentially offering high returns but at high potential risk (Nofsinger and Wang, 2011). For all of these reasons there may be a ‘pecking order’ in terms of firm lending, with

larger firms favored by lending institutions (Seifert and Gonenc, 2008; Watson and Wilson, 2002).

SME problems in accessing finance are further exacerbated by rigidities in macro level policy, institutions and the regulatory environment. At the macro-economy level, government policy may require access to large amounts of finance, crowding out access to finance for SMEs. This is likely to be most severe in economies with a chronic shortage of national savings. Government policies could also favor implementing industrialization and/or import substitution development strategies that result in large domestic firms being given favorable access to finance to the exclusion of other smaller enterprises. The domestic legal system may not adequately protect lending institutions from delinquent payments and bankruptcy, nor protect property rights, thus increasing the risk inherent in lending to SMEs. The financial system may not provide a range of products and services to meet the needs of SMEs. The tax and regulatory system may encourage firms to operate opaquely, thus reducing the tendency to lend to them.

In addition, the characteristics of banks in emerging market economies, in particular, can further compound SME difficulties, even for those in the formal sector (Firth *et al*., 2009; Ngoc and Nguyen, 2009). Most banks are state-owned, with government guaranteed finance available to priority or targeted sectors. Banks may be subject to interest rate ceilings which make it impossible to cover the price (inclusive of perceived risk) of lending to SMEs. In a system unaccustomed to borrowing from banks, firms will not produce credible accounts and will tend to operate opaquely. Hence many SMEs in the formal sector will shun formal bank lending. Those in the informal sector are already excluded from such a source of funding.

2. 2. Schematic Summary of SME Finance Issues and Framework

Figure 1 provides a schematic summary of the major sources of finance for SMEs (formal (Box 1), informal (Box 2) and internal (Box 3)), key issues relating to SME access to and their cost of finance from the literature (Box 4), elaboration of specific issues impacting access to finance for SMEs (Box 5) and the cost of finance for SMEs (Box 6), the importance of access to and the cost of finance for firm performance, and *vice versa* (Box 7), the importance of the policy, legal, institutional and regulatory

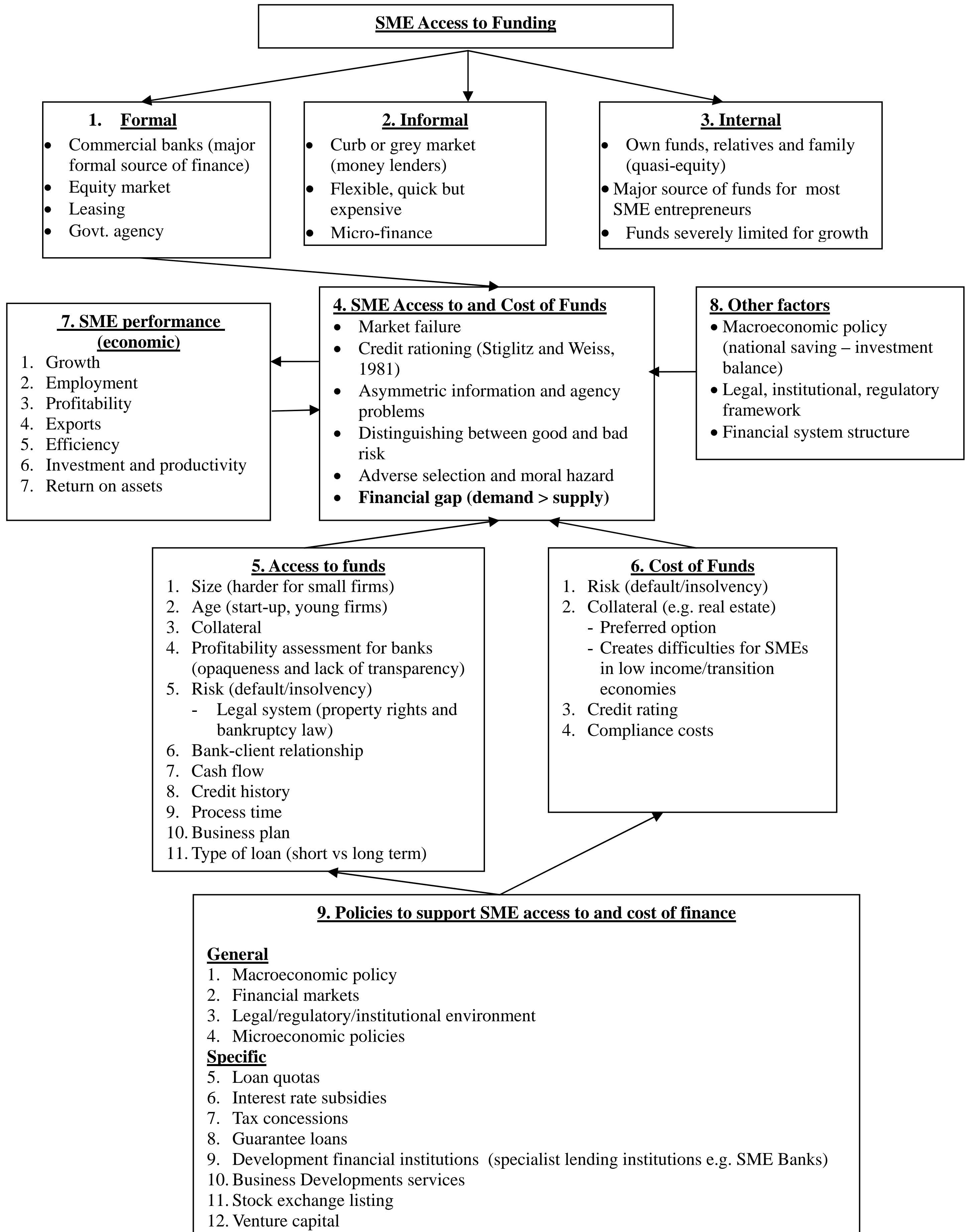
environments to SME access to finance (Box 8), and, finally, specific policy measures that have been and could be adopted to tackle the shortage of finance for SMEs.

Boxes 1-3 in Figure 1 emphasize that there are three major sources of finance for SMEs[1]. These being formal sources (Box 1) (the main external source of finance being from commercial banks, as well as other financial institutions including that of micro-finance institutions), informal sources (Box 2) (such as that from the curb or grey market) which can also be important, particularly in emerging market and developing economies that are dominated by SMEs in the informal sector[2], and have the advantage of flexibility and quick response to SME needs but have extremely high rates of interest, and, finally, the most important source of funding, for between 75-90% of entrepreneurs, that of internally generated funds (Box 3). In many emerging market and developing economies there is a tendency for SMEs to shun the official financial system and remain informal, which further exacerbates their problem of access to funding. This could be due to a lack of interest on the part of banks in lending to SMEs, as well as to a lack of interest on the part of SMEs in becoming formal, which is likely to involve greater scrutiny and transparency of their activities, tighter bureaucratic regulation, and taxation. In addition to these factors, a lack of institutional capability on the part of the authorities to impose laws and regulations may also contribute.

[1] Figure 1 does not include the most important source of finance to SMEs from non financial institutions, which is trade credit. Trade credit has always been an important source of finance for SMEs, and particularly so for those SMEs in emerging and developing economies. Without the provision of such finance the development of the SME sector would have been severely constrained in these economies.

[2] Schneider (2002) estimates that for the average developing economy the informal sector accounts for around 41 percent of official gross national income, compared with 18 percent in the European OECD countries, and that the proportion could be as high as 78 percent in Africa, 57 percent in Latin America and the Caribbean, and between 45-85 percent in Asia (ILO, 2002).

Figure 1. Study Framework



The focus of the study, however, is only on formal sources of finance (i.e. commercial banks and other financial institutions), and it is clear that, in this context, market failure exists (Box 4). SME access to and cost of finance do not compare favorably with the experience of large enterprises. From the literature, market failure in lending to SMEs can arise for a number of reasons, primarily relating to their relatively small size, lack of resources and opaqueness. In the seminal contribution by Stiglitz and Weiss (1981) they show that, due to asymmetric information and principal-agent problems, lending institutions find it difficult to distinguish between good and bad risks, resulting in adverse selection and moral hazard problems. In this context, lending institutions such as banks find it less risky and less costly to lend to large enterprises. From their point of view, therefore, it is rational to apply credit rationing to SMEs, which are subject to greater opaqueness and risk. Problems in accessing finance for SMEs are further compounded by countries imposing import protection for large scale, capital intensive firms. This makes such firms more profitable, less risky and more desirable to lend to. SMEs face higher transaction (compliance) costs in obtaining loans. In many emerging market economies SMEs are discriminated against, and the private sector is still in an embryonic form where many remain in the informal sector, and operate in an environment of underdeveloped financial markets.

SME access to finance is dependent upon a number of factors, both on the supply (lenders) and demand (borrowers) sides (Box 5). These include firm characteristics such as: the size of the SME; the age of the SME, (since start-up and younger enterprises tend to be at a disadvantage relative to older SMEs, because they have no credit track record, less experienced entrepreneurs, and limited collateral); limited availability of collateral, and in particular fixed assets (property, plant and machinery etc.); perceived lack of profitability arising from lending to SMEs by banks; perceived higher risk of lending to SMEs due to higher probability of default and business insolvency; limited bank-client relationships, making it difficult for the bank to assess the viability and business track record of the business; limited cash flow, which exacerbates the risk of default and business insolvency; lack of credit history and credit rating if the business has not borrowed in the past; high process time and cost for loan approvals (due to inadequate data or track record of the company's finances; lack of a bankable business plan by the

SME; and the likelihood that the duration of any loan that is approved will be short term and not long term.

The cost of funds to SMEs will also likely be higher due to a number of the factors previously listed that limit access to funding (Box 6). These include: greater perceived likelihood of default and insolvency by SMEs relative to large enterprises, a lack of clear ownership of collateral (e, g, real estate), a limited track record of having received credit already and, therefore, no credit rating upon which banks can proceed with the loan, the higher compliance costs faced by SMEs in applying for a loan, and the higher assessment and processing costs required by banks on SME loans relative to the amount borrowed. Assessment costs relative to the size of loans to large enterprises are also likely to be much lower than for SMEs.

Access to finance is critical to the performance of SMEs in a number of areas (Box 7). Access to finance, rather than the cost of finance appears from the literature to be the biggest problem for SMEs. SME performance and development will be severely hindered from a number of perspectives (e.g. growth, employment, profitability, exports, efficiency, productivity and returns on assets) without adequate access to formal sources of finance, as informal sources are very limited and cannot be used as a basis for on-going finance. In turn, an inhibited or poor performance by SMEs in these areas will constrain access to funds and raise the cost of these funds in the future. That is, there is likely to be a bi-directional relationship between the variables contained in Boxes 4 and 7.

Box 8 highlights the fact that access to finance and the terms of this access will be impacted upon by factors beyond the control of the SME itself. Even allowing for the factors previously mentioned as impacting SME access to finance, and the cost of such finance as can be obtained, this problem may be further exacerbated by structural rigidities and distortions in the business environment and financial system. Specifically highlighted here are (1) macroeconomic policy and the relationship between national savings and investment, (2) the legal, institutional and regulatory framework, and (3) the structure of the financial system. These are likely to be quite different across developed, emerging market and developing economies, depending upon their stage of economic development, government policies and the depth and breadth of coverage of the legal system. Emerging market and developing economy SMEs are likely to be at a particular

disadvantage in respect of each of these factors. These economies are most likely to have macroeconomic imbalances that result in excess demand for available domestic savings (financial resources), to have institutional weaknesses that encourage SMEs to participate in low productivity and informal activities, and to possess financial systems that have been less subject to deregulation, openness, and reform of governance and supervision. Given the predominance in such economies of a large number of small and informal enterprises, these are most likely to be at the biggest disadvantage in such an economic system in terms of access to finance.

Finally, many policies have been tried by governments to channel funds to private sector SMEs (Box 9). These include: loan quotas imposed on commercial bank lending to private sector SMEs, interest rate subsidies to SMEs, tax concessions, loan guarantees, the establishment of specialized development financial institutions such as an SME bank, and the provision of business development services that can assist SMEs with business training (e.g. business plan preparation) and network promotion. Macroeconomic policy settings and performance, establishing and deepening financial markets with the requisite regulatory and institutional environment, and appropriate microeconomic policies can establish a sound footing for development of the overall private sector, and for the establishment, nurturing and growth of SMEs. Many initiatives conducted by policy makers in the context of SMEs have failed. The micro-finance literature and experience can shed some light on how such policies can be made more effective.

3. The Existence of SME Financial Gaps[3]

The previous discussion suggested the likelihood that SMEs face a deficiency in obtaining the finance that they require, and that this will act as major inhibitor in terms of their performance – growth, employment, and productivity etc. This section discusses the existence of ‘financial gaps’ for SMEs. From a theoretical perspective it was considered for a long time that it was not meaningful to talk about a financing gap, except where the authorities deliberately kept interest rates below the market clearing level. As risks increased financial lenders would be required to increase interest rates to bring market demand into equilibrium with market supply. However, Stiglitz and Weiss (1981) showed that under certain conditions financing gaps can exist for all firms, as banks respond in a rational fashion by imposing credit rationing. While the arguments were not specifically targeted at explaining credit rationing for SMEs, these enterprises possess characteristics that make them more prone to credit rationing than larger enterprises. This position has been applied more generally to problems encountered in emerging market and developing economies in particular.

3.1. Concept and Causes of a Financial Gap

The issue of access to finance by firms in general, and the theoretical recognition that financing gaps can exist for firms, can be traced back to the theory of imperfect information in capital markets (Stiglitz and Weiss 1981). Table 1 summarizes the key issues. From the lender’s perspective (or supply side), banks have difficulty differentiating between good (high quality) and bad (low quality) loan applicants. As a result banks are likely to adopt more stringent lending policies favoring those who are able to provide more collateral assets, or who have a more established credit record. In other words banks have to adopt **credit rationing** measures to minimize problems from

[3] The term “financial gap” is used here to refer to the existence and extent of difficulty faced by SMEs in attaining access to finance. This could arise as consequences of the implementation of credit rationing by banks, or of the extent of market failure in financial markets. It could be measured by the difference between desired access to finance and actual access to finance, and by the cost and terms of access to finance.

adverse selection and moral hazard. The potential for credit rationing is thought to be greater for small firms.

On the demand side, as argued by Petersen and Rajan (1994), the amount of information that banks could acquire is usually much less in the case of small firms, because banks have little information about these firms' managerial capabilities and investment opportunities. The extent of credit rationing to small firms may also occur simply because they are not usually well-collateralized (Gertler and Gilchrist 1994). The most recent paper by Torre *et al.* (2010) also attributes hindrances to SMEs' access to finance to ''opaqueness'', meaning that it is difficult to ascertain if firms have the capacity to pay (have viable projects) and/or the willingness to pay (due to moral hazard). This opaqueness particularly undermines lending from institutions that engage in more impersonal or arms-length financing, requiring hard, objective, and transparent information (Hyytinen and Pajarinen, 2008).

The problem of a mismatch between the supply of funds (loans) and the demand for funds (loans) leads to the notion of "financial gaps" (Industry Canada, 2002), which can be defined as an imperfection (of geography, laws, transaction costs, and regulations) that impedes supply of and demand for financial products from clearing, with the result that markets do not function efficiently. The gaps exist if particular categories of firms that ought to receive financing are systematically unable to obtain it, despite a willingness to pay higher interest rates, indicating market failure particularly if such lending opportunities are profitable. A mismatch between demand for finance and supply of finance can arise due to asymmetry in information and consequent difficulty in distinguishing between good and bad loans, leading to the application of credit rationing. This is potentially more severe for SMEs than for large enterprises. In emerging market economies there is also greater likelihood of Demand > Supply for loans as a result of the implementation of credit rationing.

Table 1. Financial Gap and SMEs

Demand for finance (SMEs)	Supply of finance (financial institutions)
Size	Asymmetric information
Age	Collateral
Collateral	Property rights/contract laws
Transparency – accounting	Bankruptcy laws
Skills/knowledge base	Assessment knowledge
Credit rating	Margins
Taxes/regulations	Risk
Compliance costs	Financial products/services
Formal/informal	Credit rating information
Other	Other

This study intends to elaborate upon the following questions:

(i) To what extent, if any, are the SME sectors identified by size, country and in aggregate, for a sample of countries in East Asia, systematically disadvantaged, or rationed, with respect to access to external financing,

(ii) What are the key factors contributing to the extent of this rationing (or greater likelihood of successful access to finance) focusing upon firm characteristics, owner characteristics and firm performance

(iii) How important is rationing for the performance of SMEs in a sample of East Asian economies?

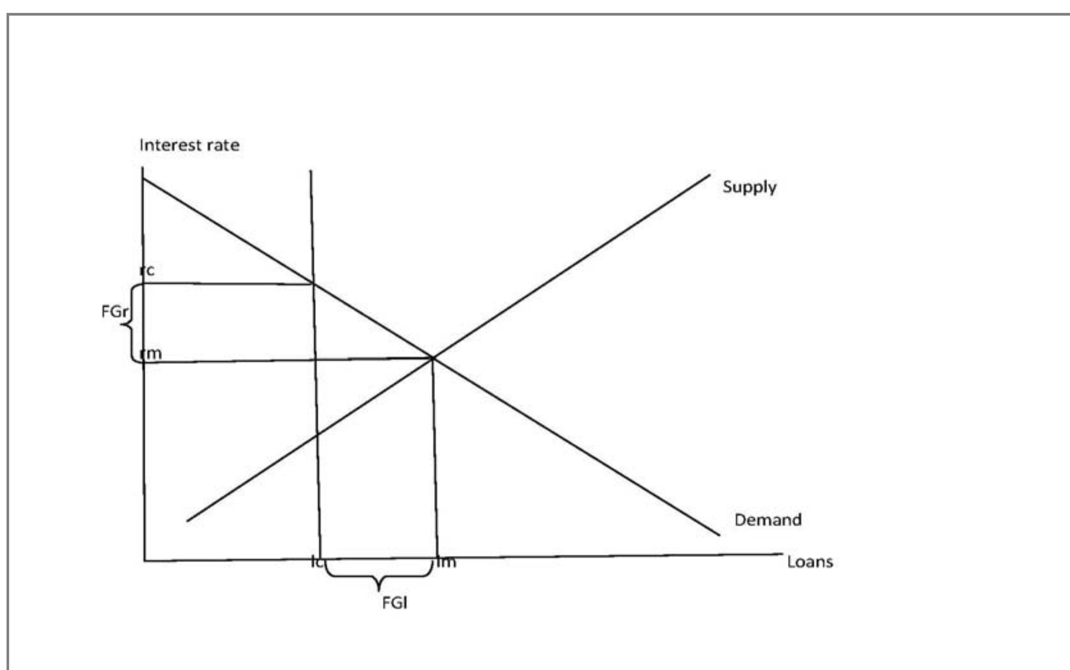
It is worth noting, however, that, for many developing and emerging market economies, household enterprises are predominantly in the informal sector, making access to formal sources of finance virtually zero. However, even these enterprises are potentially viable to lend to. This is the whole basis of the micro-finance literature. The development literature emphasizes livelihood and growth enterprises. The former are potentially good for poverty alleviation, while the latter have the potential for employment generation. The micro-finance literature is, therefore, of relevance in this context.

3.2. Measuring the Extent of a Financial Gap - a Diagrammatic Representation

Critical to the conduct of this study, and to the derivation of robust empirical results addressing the above questions, is the need to derive meaningful indicators of the extent

of any financial gap, or difficulties in accessing finance, relating to SMEs. Figure 2 shows how we can potentially identify the existence of a financial gap, or difficulties in accessing finance for SMEs, and what indicators can be used in the conduct of an empirical analysis. In a financial market with no asymmetric information the market clearing interest rate would be *rm* and the quantity of loans demanded and supplied would be *lm*. However, with asymmetric information and an inability to determine good risk from bad, it may well be rational for banks to engage in credit rationing so that they restrict the total amount of loans available to firms (specifically SMEs) to *lc*. As a consequence the interest rate charged on available loans is *rc*. and the extent of any financial gap, or the extent of the problem for SMEs in accessing finance, for an empirical analysis, can be effectively measured or indicated in two ways:

Figure 2. Financial Gap or Indictors of Difficulty in Accessing Finance



1. by the distance *FGl*, or by the ratio of successful loans (*lc*) to that applied for (*lm*) (the higher this ratio the lower is the amount of the financial gap or credit rationing), or as the ratio of loan rejections to total credit applied for (the lower this ratio the lower is the financial gap or credit rationing), or

2. by the distance *FGr*, or the difference between the market clearing interest rate on loans (proxied by the risk free interest rate on government bonds) and that currently being charged on successful loans to SMEs. The cost of finance for SMEs could also be broadened to include other factors such as the term, or duration, of the loan.

It is important to mention that, without access to extensive and reliable data, it will be difficult to accurately capture these measures (or gaps) indicating the existence and extent of credit rationing, or degree of difficulty in accessing finance for SMEs. As a consequence suitable alternative measures and proxies (such as size of the loan, term of the loan, interest rate on the loan) may be required in order to conduct an empirical analysis.

3.3. Factors Contributing to the Financial Gap or Extent of Credit Rationing

Based upon information contained in Table 1 and information from individual country surveys we can postulate, and test the significance of, the following variables as being potentially influential upon the existence and size of financial gaps, credit rationing or general access to finance, as in Equation 1:

FG = f(S, A, SMEP, I, G, T, O, BP, OT, BSE, CR, CT, Coll, FD, FML) ….. (1)

where:

FG = financial gap/credit rationing/access to finance (this can be based on the relationship between actual loans received and those applied for (*FGl*), or that between the actual interest rate to be paid on the loan and the risk free interest rate (*FGr*), see above, or appropriate proxies for these)

S = firm size (micro, small and large), $s' < 0$

A = firm age, $a' < 0$

SMEP = firm performance (as measured by profitability, productivity, output, sales, exports) $p' < 0$

I = firm innovation (as measured by new products, processes and organizational innovations), $i' < 0$

G = gender of owner/entrepreneur (male/female), $g' <> 0$ (ambiguous)

T = transparency (financial statements), $t' < 0$

O = sector of operation (agriculture, manufacturing, services etc.), $o' <> 0$ (ambiguous)

BP = business plans (preparation/non preparation), bp'<0

OT = ownership type (individual, partnership, joint stock, limited liability etc.), ot' <>0 (ambiguous

BSE = business skill of entrepreneurs (education, training, networking etc.), bse'<0

CR = credit rating, or credit worthiness (availability/non availability), cr'<0

CT = credit terms of the loan (only relevant where the financial gap is measured in terms of loans), ct'>0

Coll = collateral (physical, financial and other assets), coll'<0

FD = financial depth of domestic financial markets, fd'<0

FML = financial market liberalization, fml'<0

Factors emphasized here are predominantly firm characteristics and SME demand for loans/ finance. This study does not attempt to derive from the survey any knowledge about financial institutions/ markets, and hence factors impacting upon the supply of loans. However, we can use proxies for the extent of financial market depth (FD) (notes and coins to total money supply) by country and indexes of financial market liberalization (FML) etc. as measures of the potential supply of finance or financial development and depth within each of the sample of countries.

From Equation 1 we can postulate that the signs of the respective coefficients for each of the independent variables are as follows, to be confirmed or refuted by the subsequent empirical analysis. The coefficient for firm size can be reasonably anticipated to be negative, indicating that as firm size increases the financial gap or credit rationing they face is likely to decline. Firm age is also likely to be negatively related to a financial gap, indicating that the older firm is likely to have a longer track record of being in business, have established dealings with a bank and to be perceived as being less risky and more transparent. Good firm performance in terms profitability, productivity, output, sales and exports is likely to make the firm more attractive to lending by a bank and, therefore, to be negatively related to a financial gap or credit rationing. The greater the demonstrated innovative capacity of a firm, the more likely a bank will lend to it and, as a consequence, it should face a lower financial gap. The impact of the gender of the firm owner on the extent of a financial gap is not clear, or is ambiguous, from the literature. If there is a bias against women entrepreneurs by lending institutions this would be of considerable concern to government authorities, as

approximately one-third of regional SMEs are owned and operated by women. SME transparency (as represented by clarity and depth of financial accounts and statements) can be expected to be negatively related to the financial gap facing SMEs. Greater transparency will make it easier for banks to assess risk in lending to such a firm. Sector of operation by an SME may also be an important factor determining the financial gap for SMEs. However, the outcome, positively or negatively related to the financial gap, is likely to be ambiguous. Certain sectors of the economy may be exposed to more competition and, therefore, be seen by banks as being more risky. Other sectors may be dominated by "informal" SMEs that are in any case effectively excluded from formal sources of finance. Preparation of business plans by SMEs is likely to further facilitate transparency, and reduce risk and asymmetric information as perceived by banks. A negative relationship between this variable and the size of a financial gap can be reasonably anticipated. The relationship between ownership type (individual, partnership, joint stock, limited liability etc.) and the size of financial gap faced by SMEs could be expected to be ambiguous. However, with limited liability ownership, greater information disclosure is likely to be required. As a consequence, for this type of ownership there is a strong likelihood of a negative relationship with the financial gap. The business skills of the entrepreneur/ SME owner can be postulated to be negatively related to a financial gap. Greater demonstrated skills by SME owners will provide banks with greater confidence that loans extended will be more effectively and profitably utilized, thereby reducing perceived risk. The establishment of a credit rating and worthiness by a firm will also contribute to reducing perceived risk by banks, and can be anticipated to reduce the size of any financial gap. The terms of any loan agreement could have an important impact on a financial gap (as measure by the difference between loans applied for and loans obtained). The more costly are the terms of a loan agreement, or the shorter the duration of the loan, the greater the potential gap between desired and actual loans obtained, and the greater the extent of the financial gap. The greater the amount of collateral possessed by an SME, the lower is likely to be the extent of the financial gap. In more general terms it can be postulated that the greater the financial depth or development of a financial system, the greater will be the availability of loans to firms, including SMEs, and, therefore, the lower will be the extent of any financial gap. This variable can be proxied by the ratio of notes and coins

in circulation to the total money supply. Finally, the extent of financial market liberalization or deregulation could give a good indication of the degree of competition in domestic financial markets. The greater the degree of competition, and consequent potential availability of borrowing sources, the lower would be the extent of a financial gap.

3.4. Financial Gaps and SME Sector Performance

The conceptual framework outlining the existence of financial gaps, credit rationing and difficulty of accessing finance for SMEs, and measurement of the difficulty, can also be used to identify the significance of such gaps upon the performance of SMEs. Performance can be measured using a number of variables such as profitability, productivity, output or sales growth, exports, return on assets and other measures as appropriate. It can be empirically estimated using the following Equation 2:

$$SMEP = f(S, A, I, G, T, O, BP, OT, BSE, CR, CT, Coll, FG) \quad \ldots\ldots\ldots \quad (2)$$

where:

SMEP = SME performance (as measured by profitability, productivity, output or sales growth, exports, return on assets and other measures obtained from the survey)
S = firm size, s’<>0, ambiguous
A = firm age, a’<>0, ambiguous
I = innovation, i’>0
G = gender of entrepreneur, g’<>0, ambiguous
T = transparency (financial statements), t’>0
O = sector of operation, o’ <>0, ambiguous
BP = business plans, bp’>0
OT = ownership type, ot’ <>0, ambiguous
BSE = business skill of entrepreneurs, bse’>0
CR = credit rating or credit worthiness, cr’>0
CT = credit terms, ct’>0
Coll = collateral, coll’>0
FG = financial gap (measured in terms of loans or interest rate gap, see above), fg’<0

Equation 2 again emphasizes the importance of firm characteristics and access to finance on SME performance. From Equation 2 it can be postulated that SME

performance is dependent upon firm size (micro, small and medium), but the nature of this relationship is likely to be ambiguous. Firm age may also be significant for performance but the direction of this will be dependent upon other factors that make the outcome from this also ambiguous. Gender of the SME owner is also likely to be ambiguous, as well as sector of operation and impact of ownership type. Firm innovation can be postulated to be positively related to firm performance, as with business transparency, preparation of business plans, the skill level of the entrepreneur, credit rating of the business and access to collateral. Finally, and of particular interest in the context of this study, the size of the financial gap or credit rating facing SMEs is postulated to contribute negatively to SME performance.

4. Methodology

The research methodology adopted in this study consisted of four stages. Stage 1 involved **generating and compiling data** obtained by means of a structured questionnaire survey of SMEs conducted in eight East Asian countries (Cambodia, China, Indonesia, Laos, Malaysia, Philippines, Thailand and Vietnam), with the aim of generating a total of 150 useable samples for each country. Individual country reports were compiled from this data, and included relevant contextual and policy related information and analysis. These country chapters highlight specific country conditions and issues in relation to SME access to finance. This is important, as not all country conditions are similar, and reflect different stages of economic, institutional, legal and regulatory development. In Stage 2 the data generated and compiled from stage 1 is used to **empirically estimate** Equations 1 and 2 outlined in the previous section. Equations 1 and 2 are estimated (1) in aggregate using all the data from each of the individual countries in the study, (2) by individual country, (3), using different measures or proxies where necessary for FG (credit rationing or access to finance), by disaggregated source of finance where possible (e.g. by bank credit, equities, leasing, micro finance/informal and government), and (4) by size of enterprise (micro, small and medium). From this empirical analysis it is possible to identify statistically significant

factors contributing to financial gaps or credit rationing faced by SMEs for (1) the sample in aggregate, (2) by individual country, (3) by source of finance and, (4) by size of SME. In addition, we can identify the impact of financial gaps or credit rationing, in aggregate and by source of finance, on SME performance (using various measures of performance) (1) for the sample in aggregate, (2) by individual country, and (3) by size of SME. Equations (1) and (2) can be estimated simultaneously using the maximum likelihood estimation technique to test for and obtain more accurate results for the statistical significance of the variables identified in each equation.

Stage 3 of the study involved a **detailed analysis of the empirical results** obtained in Stage 2, aimed at highlighting important differences between the results obtained for the sample in aggregate, by individual country, by source of finance and by size of SME. In particular, a number of testable hypotheses are given particular focus:

4.1. Testable Hypotheses

A number of testable hypotheses are highlighted during this stage of the study. These include:

4.1.1. Hypothesis 1

The measures (or proxies) used in this study for capturing the extent of the financial gap, credit rationing or financial constraints faced by SMEs (1) in aggregate for all countries, (2) by individual country and (3) by size of SME (micro, small and medium) is positively (or negatively) and statistically significantly related to firm attributes or characteristics (size, age, innovation, transparency, sector of operation, preparation of business plan, ownership type, credit rating and credit terms), owner attributes (gender, business skills and collateral) and firm performance (profitability, productivity, exporting and output growth). Each of the above is identified separately.

4.1.2. Hypothesis 2

The measures (or proxies) used in this study for capturing the financial gap, credit rationing or financial constraints faced by SMEs, by individual source of finance (1) in aggregate for all countries, (2) by individual country and (3) by size of SME (micro, small and medium) is positively (or negatively) and statistically significantly related to

firm attributes or characteristics (size, age, innovation, transparency, sector of operation, preparation of business plan, ownership type, credit rating and credit terms), owner attributes (gender, business skills and collateral) and firm performance (profitability, productivity, exporting and output growth). Each of these is identified separately.

4.1.3. Hypothesis 3

SME performance (as measured by profitability, productivity, exporting and output growth) in (1) aggregate, (2) by individual country and (3) by size of SME (micro, small and medium) is negatively (or positively) and statistically significantly related to firm attributes or characteristics (size, age, innovation, firm transparency, sector of operation, preparation of business plan, ownership type, credit rating and credit terms), owner attributes (gender, business skills and collateral) and the measures (proxies) of size of financial gaps/credit rationing in aggregate and by source of finance.

Stage 4 of the study emphasized and derived **key policy implications** arising from the empirical results from the study. The empirical analysis enables identification of statistically significant factors contributing to financial gaps, credit rationing or financial constraints (in aggregate and by type of finance) faced by SMEs. It emphasizes firm attributes and characteristics, owner attributes and firm performance. Observable differences in outcomes relating to these factors by individual country, by size of SME and by source of finance in particular, have enabled identification of appropriate evidence-based policies, tailored to fit the particular circumstances and requirements of each country. A "one size fits all" approach is inappropriate given the diversity of the economies studied and differences in their respective stages of economic, institutional and regulatory development. The empirical results shed light on the major weaknesses of SMEs in relation to attaining finance on the demand side, as well on the supply side (financial depth and liberalization), and, therefore, by implication, provide specific policy recommendations on how to improve accessibility to finance for SMEs.

The study enabled validation, or otherwise, of the assertion that access to finance, and therefore minimizing any financial gaps and credit rationing, is critical to improving the performance of SMEs based upon a number of performance measures. This was done in the context of all the country samples in aggregate, by individual country, by

size of SME and by source of finance. In terms of the latter it is possible to also identify the most important sources of finance impacting SME performance.

5. Summary and Conclusions

This chapter has provided a framework within which the concept of a “financial gap” or “credit rationing” can occur in the context of SMEs, and alternative measures of it can be developed and proposed. Its measurement is critical for the conduct of an empirical study concerned with identifying statistically significant factors influencing the magnitude of this funding or credit gap in relation to the SME sector. Data for the study is generated from a structured questionnaire conducted in eight East Asian economies. Focus is placed upon identifying the significance of firm attributes or characteristics, owner attributes and firm performance upon the existence of financial gaps or credit rationing, in aggregate and by source of finance, for SMEs (by size micro, small and medium). The statistical significance of financial gaps and credit rationing for the performance of SMEs in aggregate for the eight countries, by individual country and by size of SME will also be investigated.

The empirical results obtained from this study are of considerable policy relevance. They will facilitate identification of country differences, firm size differences, and source and cost of finance differences for SMEs across the participating economies, as well as key factors contributing to difficulties in accessing finance and the cost of this finance. The importance of such financial constraints on various indicators of SME performance will highlight the urgency, depth and type of response required by individual surveyed countries. Such evidence-based policy recommendations will likely highlight the need for individual countries to tailor their policies aimed at meeting the financial requirements of their domestic SMEs to their own circumstances, needs, priorities and stage of economic development.

References

Ang, J. S. (1992), “On the Theory of Finance for Privately held Firms”, *The Journal of Small Business Finance*, 1(3), pp.185-203.

Beck, T., Demirgüç-Kunt, A. and Maksimovic, V. (2005), “Financial and Legal Constraints to Growth: Does Firm Size Matter?”, *The Journal of Finance*, 60(1), pp. 137–177

Beck, T., and Demirguc-Kunt, A. (2006), “Small and Medium-size Enterprises: Access to finance as a growth constraint”, *Journal of Banking & Finance*, 30(11), pp. 2931-2943.

Beck, T., Demirgüç-Kunt, A. and Maksimovic, V. (2008), “Financing Patterns around the World: are Small Firms Different”, *Journal of Financial Economics*, 89(3), pp. 467-487.

Berger, A. N. and Udell, G.F. (1998), “The Economics of Small Business Finance: the Roles of Private Equity and Debt Markets in the Financial Growth Cycle, *Journal of Banking & Finance*, 22, pp.613-673.

Berger, A. N. and Udell, G.F. (2006), “A More Complete Conceptual Framework for SME Finance”, *Journal of Banking & Finance*, 30(11), pp. 2945-2966.

Cassar, G. and Holmes, S. (2003), “Capital Structure and Financing of SMEs: Australian Evidence”, *Accounting & Finance*, 43(2), pp.123–147.

Chittenden, F., Hall, G. Hutchinson, P. (1996), “Small Firm Growth, Access to Capital Markets and Financial Structure: Review of Issues and an Empirical Investigation”, *Small Business Economics*, 8, pp.59-67.

Firth, M., Lin, C., Liu, P. and Wong, S.M.L. (2009), “Inside the Black Box: Bank Credit Allocation in China’s Private Sector”, *Journal of Banking & Finance*, 33(6), pp.1144-1155.

Frank, M.Z and Goyal, V.K. (2003), “Testing the Pecking Order Theory of Capital Structure”, *Journal of Financial Economics*, 67(2), pp.217-248.

Gertler, M. and Gilchrist, S. (1994), “Monetary Policy, Business Cycles, and the Behaviour of Small Manufacturing Firms”, *Quarterly Journal of Economics*, CIX, pp.309-340.

Hall, C. (1995), APEC and SME policy: suggestions for an action plan (available at http://www.arts.monash.edu.au/ausapec/smepolic.html)

Hall, C. (1999), Using the International Entrepreneurial Engine to Restart Asian Growth, in Leo Paul Dana (ed) International Entrepreneurship, an Anthology, NTU Entrepreneurship Development Centre, Singapore.

Hall, C. (2002), Profile of SMEs and SME Issues in East Asia, in C. Harvie and B.C. Lee (eds.), Chapter 2, pp.21-49, *The Role of Small and Medium Enterprises in National Economies in East Asia*, Edward Elgar, Cheltenham, UK, Chapter 2, pp.21-49.

Harvie, C. (2002), The Asian Financial and Economic Crisis and Its Impact on Regional SMEs, in C. Harvie and B.C. Lee (eds.), *Globalization and Small and Medium Enterprises in East Asia*, Edward Elgar, Cheltenham, UK, Chapter 2, pp.10-42.

Harvie, C. and Lee, B.C. (2002), (eds.) *The Role of Small and Medium Enterprises in National Economies in East Asia*, Edward Elgar, Cheltenham, UK.

Harvie, C. and Lee, B.C. (2005), "Introduction: the role of small and medium-sized enterprises in achieving and sustaining growth and performance (with B.C. Lee), in C. Harvie and B.C. Lee (eds.), *Sustaining Growth and Performance in East Asia: the role of small and medium sized enterprises, Studies of Small and Medium sized Enterprises in East Asia*, Volume III, Chapter 1, pp. 3-27, Edward Elgar, Cheltenham, UK..

Hyytinen, A. and Pajarinen, M. (2008), "Opacity of Young Businesses: Evidence from Rating Disagreements", *Journal of Banking and Finance*, 32, pp.1234–1241.

ILO (2002), Women and Men in the Informal Economy: a Statistical Picture, Geneva, ILO.

Industry Canada (2002), *Small and Medium-Sized Enterprise Financing in Canada,* Ottawa, Industry Canada.

Ngoc, T.B.L. and Nguyen, T.V. (2009), "The Impact of Networking on Bank Financing: The Case of Small and Medium-Sized Enterprises in Vietnam", *Entrepreneurship Theory and Practice*, 33(4), pp.867–887.

Nofsinger, J.R. and Wang, W. (2011), "Determinants of Start-up Firm External Financing Worldwide", *Journal of Banking & Finance*, in press, Corrected Proof, Available online 28 January 2011.

OECD (2006a), The SME Financing Gap, (Theory and Evidence), Vol. I, Paris, OECD.

OECD (2006b), The SME Financing Gap, Vol.II, Proceedings of the Brasilia Conference, March, Paris, OECD.

OECD (2006c), Financing SMEs and Entrepreneurs, *Policy Brief*, Paris, OECD.

Petersen, M.A. and Rajan, R.G. (1994), "The Benefits of Lender Relationships: Evidence from Small Business Data", *Journal of Finance*, 49(1), pp.3-37.

Schneider, F. (2002), Size and Measurement of the Informal Economy in 110 Countries Around the World, World Bank, Mimeo, July.

Seifert, B. and Gonenc, H. (2008), "The International Evidence on the Pecking Order Hypothesis", *Journal of Multinational Financial Management*, 18(3), pp.244-260.

Stiglitz, J.E. And A. Weiss (1981), "Credit Rationing in Markets with Imperfect Information." *American Economic Review*, 71(3), pp.393-410.

Storey, D.J. and Thompson, J. (1995), "The Financing of New and Small Enterprises in OECD Countries, Paris, OECD.

Thanh, V.T., Narjoko, D. and Oum, S. (Eds.) (2009), Integrating Small and Medium Enterprises (SMEs) into the More Integrated East Asia, ERIA Research Project No. 8, Jakarta. Available at http://www.eria.org/research/y2009-no8.html

de la Torre, A., Soledad, M., Pería, M. and Schmukler, S.L. (2010), "Bank involvement with SMEs: Beyond Relationship Lending", *Journal of Banking & Finance*, 34(9), pp. 2280-2293

Vos, E., Yeh, A.J.Y., Carter, S. and Tagg, S. (2007), "The Happy Story of Small Business Financing", *Journal of Banking & Finance*, 31, pp.2648–2672.

Watson, T. and Wilson, N. (2002), "Small and Medium Size Enterprise Financing: a Note on Some of the Empirical Implications of a Pecking Order", *Journal of Business Finance & Accounting*, 29(3) & (4).