

# AN EMPIRICAL INVESTIGATION OF SMALL AND MEDIUM ENTERPRISES' ACCESS TO BANK FINANCE: THE CASE OF AN EMERGING ECONOMY

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## ***Abstract***

*A survey of the literature dealing with financing Small and medium sized enterprises (SMEs) indicates there is a significant gap in knowledge of the determinants of access to finance by the SMEs in developing countries, including Sri Lanka. Therefore, this study examined what determines access to bank finance in Small and medium sized enterprises in Sri Lanka. The data utilised in this research was obtained from the Investment Climate Survey carried out by the World Bank for Sri Lanka. Hypotheses for this study have been derived utilising eleven factors which affect credit worthiness which have been identified in the previous research. Since the variables are nominal variables, Chi square statistic is chosen to assess whether the determinants of access to credit is significantly different among the credit rationed firms and not rationed firms. The chi square results indicated that, education of the entrepreneur and having membership with business association are associated with access to bank finance. Somewhat unexpectedly, all other factors identified in the study did not show any association with access to credit. In terms of policy, the findings of this dissertation will provide banks, training institutions and policy makers with new insights on investigation of loan evaluation process, tailoring new training programmes for entrepreneurs and developing relationships with business associations.*

## **1. INTRODUCTION**

The capacity for Small and Medium sized Enterprises (SMEs) to fulfil their potential in an economy depends on the availability of finance (Cook, 2001; Whincop, 2001). Finance in general and credit in particular is especially important for SMEs, since they are unable to finance themselves through retained earnings or equity financing.

Despite the fact that financing is a major factor for growth of SMEs, a number of studies and government enquiries have mentioned that SMEs face problems when accessing to bank finance, due to a market failure in credit markets. Although, a considerable number of research papers and consultancy reports have mentioned that the access to finance has been a major problem in the SME sector, a survey of the literature dealing with this area indicates there is a significant gap in knowledge of the determinants of access to finance by the SMEs in developing countries, including Sri Lanka.

There are few studies undertaken which investigated the determinants of bank credit. However, these studies are limited to one category of determinants and do not give an overall picture of determinants of access to credit. For example, several studies build upon human capital theory have looked at education, age, work experience and social background of the owner when accessing credit from banks (see Cavalluzzo and Cavalluzzo, 1998; Biggs et al 2002;

Storey,2004).There are few other studies which investigated the firm characteristics such as size, age of the business, legal status and financial characteristics such as profit, fixed assets base etc. According to the current knowledge of the researcher, no studies done in this area investigated all three characteristics (entrepreneur characteristics, firm characteristics and financial characteristics) in one study. This research aims to fill that gap by looking at all three characterises together and investigate what factors determine the access/use of bank credit, using the firm data from Sri Lanka.

In the light of the above, the research question employed in this study is to explore the determinants of access to credit among the SMEs in Sri Lanka.

The article proceeds as follows. The first section presents a brief summary of the literature concerned with access to credit by Small and medium sized enterprises. Drawing upon this theoretical overview, testable hypotheses are derived. In the following section, the data and research methodology are detailed. Results are then presented and the derived hypotheses are formally tested. Finally, conclusions and implications for academics, policy makers and practitioners are presented.

## **2. THEORETICAL FRAMEWORK AND DERIVATION OF HYPOTHESES**

### **2.1 Theoretical foundations for credit rationing by banks**

Finance theorists' view of access to credit (referred to as credit rationing) exists due to adverse selection, moral hazard and contract enforcement problems.

The adverse selection theory of credit markets originates with the paper by Stiglitz and Weiss (1981) in which they explained why the interest rate could not equate the supply and demand in the credit market.

As discussed by Stiglitz and Weiss (1981), borrowers have 'inside information' about the nature of the project they want financed and may reap substantial rewards from 'talking up' their projects. Moreover, while the lender gains if the loan is repaid with interest, it is not a beneficiary of any upside gain in the firm's performance; it is, however, a victim of any downside losses in the case of default. Lenders like banks therefore face difficulties in discriminating between good and bad credit risks and simply increasing the price of credit to all potential borrowers can lead to adverse selection; rather than driving potential non payers out of the market, there may be systematic reasons why some of the highest risk firms are those willing to pay high interest rates (Pollard, 2003).

The other problem, moral hazard can arise when lenders are unable to discern borrowers' actions that would affect the distribution of returns from an investment. This means, after a lender has extended finance to a firm they are exposed to moral hazard, the risk that the firm will not perform in a manner sufficient to meet the contract. For example, once a loan has been secured, a borrower could use the

proceeds of the loan for a higher risk purpose or a non income generating activity, necessitating costly ex post monitoring of the financial contract.

The third reason to cause credit rationing is the contract enforcement problems. Mushinski (1999) argued that credit market imperfections in developing countries derive not only from moral hazard and adverse selection problems but also from costly monitoring and contract enforcement. In contrast, countries characterised by well functioning legal systems, the problems are not as pronounced as in those where the mechanisms for enforcement of contracts, property verification and ownership are weak. Hence, the main reason for the contract enforcement problem is the poor development of property rights. Although this argument is not specifically drawn at SMEs, these problems are more associated with SMEs than large companies.

The above literature review demonstrates that information and enforcement problems inherent in credit transactions can lead to imperfect credit markets. It is also clear from the above arguments that the small firms' access to financing may either come from supply side market failure (rejection from the bank's side for reasons not connected with the viability of the proposal or high risk and costs associated with such loans) or demand side market failure (insufficient information in the project proposal, high cost of bank credit etc).

## **2.2 Derivation of hypotheses**

This section formulates hypotheses derived from literature to test whether there are statistically significant relationship exists between the variables. These hypotheses focus on the determinant variables that have been identified in the previous literature which has been associated with access to credit. In this study, the explanatory variables have been classified as: firm characteristics, entrepreneur characteristics and financial characteristics. These are discussed below:

### **Firm characteristics**

Firm characteristics affect SMEs ability to access to bank finance. Firm Size, age, ownership type, industry sector and location were identified as important variables under this category.

#### **2.2.1 Firm size and access to credit**

Firm size is one of the most important variables in literature related to access to credit. This was true for both developed as well as developing countries. Numerous studies have discussed that small and medium enterprises are financially more constrained than large firms. For example,

Calomiris & Hubbard (1990) noted that when the company is smaller, the restrictions on credit are greater.

As this study is focused on small and medium sized firms, it does not seem logical to consider size as a determinant of access to finance. However, even among the Small and mediums sized enterprises' category, there is still a large variation in size and there are 'small SMEs' and 'large SMEs' in terms of number of employees. Hence, it turns out that firm size could be an important determinant in this study.

Previous studies have mentioned several reasons for small firms to have less access to credit. Firstly, the small firms face with information opacity such as unable to provide financial information (Binks & Ennew 1996). When the firm is small, most of the time it is owned and operated by the entrepreneur himself and there is no such legal requirement to regularly report financial information and many firms do not maintain audited financial accounts.

Second reason is smaller firms have less assets to offer as collateral. In order to reduce the anticipated risk and moral hazard associated with lending, the banks use collateral as one of the instrument. The collateral is an assurance to the bank in case of default and it also ensures the borrowers commitment to the loan repayments. Berger and Udell (1995) found smaller and younger firms are more likely to face higher cost of financing and they are required to offer collateral.

The third reason is smaller the firm, there is high risk involved because small firms have high failure rate compared to large firms. For example, Schiffer and Weder (2001) sampled firms across a number of countries and found that there was a negative relationship between the size of a business and the risk it might pose for a lender.

In contrast, Lopez- Gracia and Aybar Arias (2000) came up with a different explanation stating that the smaller firms may themselves limit their financial structure with the aim of avoiding the need to share control of the business with others.

The above arguments give rise to the first hypothesis to be tested in this study.

***H 1: Smaller firms are more likely to face limited access to finance***

### **2.2.2 Age of the firm and access to credit**

Firms' sources of finance change over time. For instance, a firm may start as a family owned business, by using its internal financing sources such as personal savings and family finance. Subsequently, it will then grow to obtain funds from its suppliers. When it has well established a good business track record, developed accounting systems and established a legal identity, it may be able to obtain loans from banks.

Therefore, it is worth investigating the firm age. A number of studies have found that there is a correlation between firm age and access to credit. Being in the business for many years suggests that the firms are at least competitive on average. It can be argued that being an older firm means there is lower informational opacity. The reason is information required by the lenders to evaluate and process applications is readily available because these businesses have an established reputation or track record.

On the other hand, the new firms are not likely to meet the collateral requirements of the banks since they have not accumulated sufficient assets. Combined with the absence of information on their financial records, this makes difficult to lenders to assess lending proposals submitted by new firms.

The studies conducted in the past have found that the financing constraints are particularly severe in start up enterprises and relatively young firms (three years old or less). For example, Aryeetey et al (1994) conducted a survey of 133 firms, of which 76 had less than 10 workers, in various industries in Ghana in the early 1990s. They found that only 10 percent of start up firms in Ghana could obtain bank loans but medium size enterprises and older firms are provided with credit three times more often than their smaller counterparts. The similar survey was conducted Levy (1993) in Sri Lanka and Tanzania and reported that 80 percent of firms with 16 or more workers and with 6 or more years in operation are able to access bank loans, compared to the success rate of around 55 percent in the case of smaller firms with 6-15 employees of similar age, and less than 10 percent for firms with 5 or fewer workers, regardless of age.

The above evidence drives the second hypothesis:

***H 2: Younger firms are more likely to be credit constrained than older firms***

### **2.2.3 Ownership type & access to credit**

Entrepreneurs choose ownership structures in large part to ensure adequate financing and because of the selection effect whereby finance goes to firms with conducive ownership structure. Ownership structures in the firms can influence the ability to have access to finance. For example, previous research has found that listed firms and foreign owned firms face lesser financial constraints (Harrison and McMillan, 2003; Beck et al, 2006).

Storey (1994), found that legal status influence the bank lending. He further states that corporate status at start up appears to be associated with a greater likelihood of bank lending.

This suggests testing the following hypothesis:

***H 3: Ownership type affects the firm's ability to access bank finance***

### **2.2.4 Industry sector and access to credit**

Industry sector also can be stated as a factor affecting access to finance. The lending banks may have favours towards to industry sectors that are growing. For example, some studies have shown that industries with significant external financing needs, such as textiles, machinery or drug manufacturing, have grown more rapidly in countries with greater financial development (See Levine, 2004). The research done by Byiers et al (2010) using data from Mozambican manufacturing firms also found that sector seems important for having credit access. The results of their research indicated that both metal-mechanic and wood-furniture sectors have significantly lower credit access than the food processing sector. Their interpretation for this was that banks attach a lower risk premium to food processing sector compared to other two sectors.

On the other hand some industries are more likely to depend on external financing than others, depending upon project scale, and cashflows. Firms in certain sectors will require more credit to invest in equipment, machinery, buildings, labour and raw materials than firms in other industry sectors. For instance, the industries with more capital requirements may face proportionately greater constraints (Kumar & Francisco, 2005).

Silva and Carreira (2010) argue that, for most services, the main input is human and not physical capital and therefore service sector firms find it hard to use this physical capital as collateral when resorting to external finance.

Previous research has also found that the survival rates of small businesses vary between sectors (see Gimeno et al, 1997; Storey & Wyncarczyk 1996).

Therefore, sector can be identified as a variable in the provision of bank loans to small businesses.

Hence, it is reasonable to derive the following hypothesis:

#### ***H 4: Manufacturing Firms are more credit constrained than the service sector firms***

##### **2.2.5 Location and access to credit**

It can be argued that spatial variations exist in both the cost and availability of finance, especially for small firms. There are a variety of factors which may contribute to spatial variations in the availability of bank finance for small firms in rural areas. Firstly, there may be an absence of financial institutions in these rural areas. Sometimes, there may be a single bank branch available to the location, which may enjoy a 'monopoly power' in the area, and small firms may not have much financing alternatives available. Due to this, they may end up paying high interest on bank loans or may have to adhere to restricted covenants such as collateral and other conditions.

Secondly, the bank branch managers assigned in these rural bank branches may have limited delegation of authority. As a result, there may be delays in approving loans requested by rural firms or high amount of loan rejections, as the bank loans are processed and approved by the head office officials who have no personal knowledge of customers or projects based in rural locations.

Thirdly, banks may be reluctant to lend to small firms located in rural areas, as the assets offered as collateral by these firms may have less market value, and in case of default, they may find it difficult to realise these assets.

However, the previous studies done in this topic have contradictory views which are discussed below:

Keeble (1990) investigated the constraints to growth experienced by urban and rural firms in the UK and suggest that the problems facing firms in urban and rural areas are broadly similar except finance. They reported that only significant difference is that rural firms feel themselves more constrained in terms of finance compared to the urban firms. O'Farrell (1990) suggests on the basis of research in Nova Scotia, Canada that banks appear to be more reluctant to lend to small firms in rural areas, because if the firm fails, the bank considers that it will be more difficult to sell the assets. Kumar & Francisco (2005), also found that there is a large variation in branch density across different regions in Brazil and argued that well branched regions in Brazil would be expected to ease physical access and also lower information asymmetry problems as a consequence of greater ratios of banks per firm and they argued that the firms located in these regions have ease access to credit.

However, Perry (1988) found no clear evidence that small firms in a rural region of New Zealand are disadvantaged in the search for debt finance. Tucker and Lean (2001) also examined the relationship between firm location and success in obtaining external finance, by dividing the firms into two groups, the first containing firms located in the north of the England and the second containing firms in the south, found that there was no significant variations exist, although there is some indication that firms in the south of England are more successful in obtaining term loans guaranteed under the Small Business Loan Guarantee Scheme.

However, a difference of opinion was found by (Rand, 2007).According to him, probability of accessing credit is higher in rural than in urban areas. He further states that "most of government bank credit is allocated towards rural areas confirming that local governments often are distinctly protective of firms in rural areas, which are more oriented towards serving local markets and therefore tend to escape from some of the credit barriers inherent in larger, possibly more outward oriented markets"(Rand, 2007,p.10).

Another contradictory argument of some researchers is that the distance between lenders and borrowers has no influence on financing small businesses is the development of new

technologies. These changes in technology have lowered search costs enabling easier access to lenders. However, this argument has not got much relevance with the SMEs located in the developing countries due to limited developments in the information technology and limited usage of such services by the SMEs.

As discussed in the above section, previous research had indicated that SMEs are likely to be affected by the location. It was therefore considered important to test the following hypothesis:

***H 5: There is an association between location of SMEs and having access to bank finance***

### **Financial characteristics**

Financial characteristics have been categorised into three types namely, having audited financial statements, tangibility, and firm performance.

#### **2.2.6 Having audited financial statements and access to bank credit**

Bass & Schrooten (2005) concluded that the lack of reliable information leads to comparably high interest rates even if a long term relationship between borrower and bank exists. In a situation like this, having audited financial statements play a major role.

Audited financial statements are very useful in accessing credit from financial institutions. Often, banks require audited financial statements before granting credit. For example, Berry et al (1993) found that lenders in the UK pay much attention to accounting information in order to deal with the loan applications of small firms. Given the reduced information risk arising from audited financial statements, potential lending institutions may offer low interest rates as well. In other words, audited financial statements improve borrower's credibility and therefore reduce risk for lenders.

However, most of the SMEs in the South Asia have difficulty in getting credit from the formal financial institutions because they lack proper financial records. Most of the businesses in these countries often keep multiple sets of books and do not have audited financial statements based on reliable accounting standards. On the other hand, these firms end up getting loans at higher interest rates because banks considered them as high risk borrowers.

According to the discussion above, it is clear that when an SME is audited by an external organisation, this indicates that its financial status is healthier than those not audited.

Accordingly, the following hypothesis is drawn for testing:

***H 6: SMEs that have not reviewed their financial statements by an external auditor are more likely to have limited access to bank finance***

#### **2.2.7 Asset Tangibility**

Previous researchers suggest that bank financing will depend upon whether the lending can be secured by collateral (Storey,1994;Berger and Udell,1998). Johnsen and McMahon (2005) also stated that other factors held constant, firms with more intangible assets need to borrow less, compared with firms with more tangible assets, because of collateral factor. In the previous research, collateral has been proxied by land, machinery or personal assets (see Kumar and Francisco, 2005).Bennett and Donnelly (1993),used plant and machinery divided by total assets as a proxy for the securability of assets. Bhaduri (2002), used three proxies for the collateral asset attribute, namely, the ratio of land and buildings to total assets, the ratio of plant and equipment to total assets and the ratio of inventories to total assets.

SMEs have fewer collateralisable assets than large firms. This may partly relate to the stage of growth the firm belongs to. In the earlier stages of the firm, it may have lower retained profits which may hinder them to purchase fixed assets compared to the larger firms which has a longer history. Another reason for small firms to have a smaller proportion of fixed assets is the capital

constraints faced by them. Because of the need to raise large amounts of capital, it finds difficult for them to acquire a large number of fixed assets.

Hence a positive association between collateralizable assets and having access to credit can be expected and the following hypothesis is developed.

***H 7: Firms with lower tangible fixed assets are more likely to have limited access to bank finance***

### **2.2.8 Firm performance and access to credit**

Although it is difficult to construct the measures for firm performance in the SME sector, many studies have attempted to do this and found that greater sales and profits are associated with greater access to credit (see Bigsten et al., 2000; Topalova, 2004). The European Commission (2003) also stated poor business performance as one of the reasons for not receiving Credit. In addition, firms with increasing sales and increasing sales turnover ratios would be expected to have less credit constraints.

This leads to the following hypothesis:

***H8 : Low performing firms have limited access to bank finance***

### **Entrepreneur characteristics**

Entrepreneur characteristics have profound consequences for running a business. In the case of SMEs the owner's characteristics are hard to separate from those of the business. Previous research has been conducted to explore the managerial characteristics and enterprise growth. For example, Lucas (1978) assumed individuals have certain business or management ability which will influence their success in business. Schmitz (1982) also highlighted that the small scale producers in developing countries fail to expand primarily because they lack managerial ability. For this reason, entrepreneur related factors take a priority position in all credit assessments by the borrowers. The entrepreneur related factors are discussed below:

### **2.2.9 Education background of entrepreneur and access to credit**

Past research found a positive relationship between higher educational qualifications and business growth (Dunkelberg & Cooper, 1982; Johnson, 1993; Kozan, Oksoy, & Ozsoy, 2006). Education affects entrepreneurs' motivation (Smallbone & Wyer, 2000). Furthermore, education helps to enhance the exploratory skills, improves communication abilities and foresight (Dobbs & Hamilton, 2007). These enhanced skills are positively related to present a plausible case for a loan to a banker at the time of preparing a loan proposal and the convincing the banker during the client interview.

Previous research, in particular has explored how the managerial education affects the access to credit. For example, Kumar & Fransico (2005), found a strong education effect in explaining access to financial services in Brazil. The most recent research done by Irwin and Scott (2010) using a telephone survey of 400 SMEs in the UK also found that graduates had the least difficulties raising finance from banks. The researchers have given three interpretations for this finding. Firstly, more educated entrepreneurs have the ability to present positive financial information and strong business plans and they have the ability to maintain a better relationship with financial institutions compared to less educated entrepreneurs. Secondly, the educated managers/owners have the skills to manage the other functions of the business such as finance, marketing, human resources and these skills results to high performance of the business which

helps those firms to access finance without any difficulty. The third reason stems from the supply side, where the bankers value higher education level of the owner/manager in the loan approval process as an important criterion (Irwin and Scott, 2010).

The study of 600 SMEs in Britain, France and West Germany (Watkins and Morton, 1982) interviewed the participants from the financial institutions as part of their main study and found that they were much less concerned about the difficulty in compliance with new laws and regulations and much more concerned with the managerial capability of the owner, which was given first rank in France, and second rank in Britain and West Germany.

In contrast, Han (2008) found that entrepreneurs with undergraduate degrees are more likely to be financially constrained than those without formal education background. Han believes the reason to be that better educated entrepreneurs normally own and manage large businesses which are more likely to be constrained by finance.

The other opposing argument is that educated individuals are more likely to discard the traditional concept of a loan as risky, and thus would have a higher probability to borrow from formal financial institutions.

It can be also assumed that educated entrepreneurs are likely to have better managerial skills and are better equipped to go through difficult administrative procedures in the credit system, increasing their standing in lenders' eyes.

Based on the above previous research, it is reasonable to yield the following hypothesis:

***H 9: Entrepreneurs/managers with less education background find it difficult to access bank finance***

#### **2.2.10 Entrepreneur's experience and access to credit**

Previous researchers have found positive relationships between previous management experience and business growth (Dahlquist, Davidsson, & Wiklund, 1999). Furthermore, Storey (1994) explained this was due to the desire of owner managers to exceed the wage level they sacrificed in becoming self-employed. Dobbs and Hamilton (2007) emphasised the positive effect of past experience on small business growth by proposing that owner-managers with previous experience are more likely to avoid costly mistakes than those with no prior experience. To the current knowledge of the researcher, there is no study done in the past specifically to explore the relationship between owners'/ managers' experience and access to credit.

Hence, it would be interesting to test the following hypothesis:

***H 10: Entrepreneurs with less or no work experience find it difficult to access bank finance***

#### **2.2.11 Networking and access to credit**

Previous researchers have emphasised that networks can be used as the solutions to overcome the problems of access to limited resources and markets. For example, Curran et al (1993) argue that networks help to provide advice, information and capital to small firms. Applying this idea in the context of banking, it can be also argued that, having associated with a professional, trade or social associations such as Chambers of Commerce, Clubs and Societies may also lead to having access to bank loans. For example, some associations like Chamber of Commerce conduct seminars, workshops and industry visits to develop various skills and knowledge of the

members. At times, the workshops are conducted on preparing project proposals for banks and managing finances in the business. In some occasions, one prominent and established member in an association may introduce another member to his or local bank managers and loan officers, and that referral may be used as a best screening method for the bank loan officers to get some idea of the character of the borrower. Further, the members of these associations are also been given information on various credit schemes available in the banks etc. There could be instances where one members act as a guarantor for another member at the time of obtaining a loan from a bank.

Talavera, Xiong and Xiong (2010) investigated the impact of social capital on financial obstacles faced by entrepreneurs using a pooled data of about 270 small companies. This is the only study we have found in the literature which investigated this issue. The researchers concluded that membership in business associations increase the probability of having a loan by 14.8 percent.

Levitt & March (1988) have acknowledged that networking sometimes called external relations, of firms among industry, trade associations and other forms of association create learning by facilitating the sharing of knowledge, providing a means for organisations to learn from the experience of others in the industry. It is therefore clear that small business owner managers use networking to obtain key information, learning opportunities and problems and to gain access to, or enhance understanding of sources of finance. Thus, it is logical to assume that businesses with networks are more likely to have easy access to bank credit compared to those who do not have such networks.

Hence, the following hypothesis has been formulated:

***H 11: Entrepreneurs with no affiliations with business associations have limited access to bank finance***

### **3. DATA AND METHODOLOGY**

#### **3.1 Data**

The Investment Climate Survey in Sri Lanka undertaken by the World Bank (2004) offers the best opportunity to examine the above research questions. This survey was carried out by the Asian Development Bank and the World Bank with support from the Sri Lanka's Department of Census and Statistics and AC Nielsen (Pvt) Lanka.

This survey was conducted as a part of the World Bank surveys and used standardized survey instruments and a uniform sampling methodology to understand the investment climate of countries across the world and how it affects business performance. The survey covered a nationally representative sample of enterprises of Sri Lanka in 2004. The survey data includes a wide range of firm level characteristics. To researcher's knowledge, this is the only recent representative data set of firms that includes such information required for this study.

The Survey sample included 452 enterprises. As the study is only related to the small and medium sized category, the enterprises belong to large category (more than 100 employees) were excluded. As a result of this, only 228 enterprises belong to small category (fewer than 20 employees) and medium category (between 20-99 employees) were considered in the data analysis. Since the variables are nominal variables, Chi square statistic is chosen to assess whether the determinants of access to credit is significantly different among the credit rationed firms and not rationed firms.

#### **3.2 Variables**

In the literature review section discussed above, the factors affecting access to credit have been identified based on the previous research. The definitions of those variables are given below:

### **3.2.1 Measurement of access to credit**

In order to provide evidence on who gets credit among small and medium sized businesses, the firms are divided in two based upon their response to question whether they have a bank loan or overdraft. If the firm answered ‘Yes’, they are classified as ‘non constrained firms’. If they answered ‘No’ there may be two possibilities. One possibility may be that they do not need credit or did not apply credit due to religious or cultural reasons (voluntary exclusion). Others may not have a loan due to the reason that they applied for a bank loan and rejected by the bank or did not apply for a loan thinking it will get rejected by the bank. All of these types of firms are classified as non borrowers and categorised as ‘constrained firms’ in this research. Although it is not perfectly correct to classify the firms who do not have bank loans as ‘credit constrained’ firms, there is no information available in the Sri Lankan ICS data set to identify the category of non borrowers in the sample.

### **3.2.2 Size of the firm**

A firm size is measured by number of employees of the firm. Small enterprises have been defined as employees with fewer than 20, medium size enterprises comprise of 20-99 employees. In a practical sense, an employment based proxy has a number of advantages over financial measures of size, specifically: number of employees is easily understood and readily visualised, it maintains status quo and is the current measure used by many government and other formal institutions like the banks and financial measures would, overtime, need to be adjusted for inflation

### **3.2.3. Age of the firm**

The number of years in business has been identified as an important variable in the previous studies which determines the creditworthiness of the business. The information required by the lenders at the time of granting credit may be limited for younger firms due to lack of established track record. Hence, the transaction costs associated with lending to younger firms are likely to be relatively high. Further, the younger firms may not be able to offer collaterals acceptable to the banks as those firms have not accumulated sufficient fixed assets.

Age of the business is measured by the number of years the business in operation.

### **3.3.4 Ownership type**

Firms were classified by six organisational types in the survey; Sole proprietorships, partnerships, private held limited company & publicly listed Company and Cooperative and Other.

### **3.3.5 Sector**

The sectors were classified into five categories namely; Food, garments, metals and machinery, non metallic and plastic materials and textiles.

### **3.3.6 Location**

Location is classified as capital city (more than 250,000 population), city of 50,000-250,000 population and population fewer than 50,000.

### **3.3.7 Availability of audited financial statements**

If the firm has audited financial statements = 1      If the firm does not have audited financial statements = 0



<b>Firm size</b>					1.40	0.236
Small (less than 20 employees)	22	20	23	28		
Medium (20-99)	86	80	60	72		
<b>Age of the firm (in years)</b>					3.75	0.586
10>	21	19	22	27		
11-20	27	25	19	23		
21-30	17	16	15	18		
31-40	18	17	7	8		
41-50	7	6	6	7		
50<	18	17	14	17		
<b>Ownership type</b>					4.81	0.186
Sole proprietorship	29	27	13	16		
Partnership	22	20	14	17		
Private held limited Company and Publicly listed company	52	48	50	60		
Cooperative and other	5	5	6	7		
<b>Industry sector</b>					3.17	0.530
Food	36	33	32	39		
Garments	15	14	9	11		
Metals and machinery	6	6	9	10		
Non-metallic and plastic materials	13	12	7	8		
Textiles	38	35	26	31		
<b>Location</b>					3.23	0.199
Capital city	27	25	12	14		
City of 50,000-250,000 population	26	24	22	26		
Town/location with > 50,000 population	55	51	49	59		
<b>FINANCIAL CHARACTERISTICS</b>						
<b>Tangibility</b>					3.07	0.546
Fixed assets ratio 20% or less	4	4	5	7		
Fixed assets ratio 21-40%	10	10	12	17		
Fixed assets ratio 41-60%	16	16	8	11		
Fixed assets ratio 61-80%	22	23	15	21		
Fixed assets ratio more than 80%	46	47	30	43		
<b>Firm performance</b>					0.10	0.754
Positive sales growth	28	30	23	32		
Negative sales growth	65	70	48	68		
<b>Having audited financial statements</b>					1.72	0.190
Yes	88	82	61	74		
No	19	18	21	26		
<b>ENTREPRENEUR CHARACTERISTICS</b>						
<b>Education of the entrepreneur</b>					9.25	0.026
Did not complete secondary	11	13	9	11		
Secondary school	47	55	32	41		
Vocational training and some university	10	11	24	31		

Graduate or postgraduate degree	18	21	13	17		
<b>Experience of the entrepreneur (years)</b>					6.74	.081
No experience	24	22	18	22		
10 years or less	49	45	24	29		
11-20 years	23	21	27	32		
21 years or more	12	11	14	17		
<b>Networking</b>					8.21	0.004
Member of a business association or chamber of commerce	73	68	39	47		
Not a member of business association or chamber of Commerce	35	32	44	53		

**4.1 Firm size and access to credit**

The Pearson Chi-Square statistic (1.40) with a significance value of 0.236 is below the alpha level (0.05). This suggests that a statistical significant relationship does not occur between the firm size and having a bank loan. Therefore Hypothesis 1 is not supported.

**4.2 Age of the firm and access to credit**

The results of this survey suggests that there is no relationship between the age of the firm and having access to credit ( $X^2(5) = 3.75, p > 0.05$ ). Possible reason for this could be the average age of the firm in this survey is 28-29 years. Prior research indicates that more mature firms are less likely to use debt than younger ones (Cole & Wolken, 1995). Another possible reason would be that small and young firms may have obtained cheaper credit from the credit schemes funded by multilateral institutions like the World Bank, Asian Development Bank, Japan Bank for International Construction and kFw.

**4.3 Ownership type and access to credit**

The Pearson Chi-Square statistic (4.81) with a significance value of 0.186 is below the alpha level (0.05). This indicates that there is no relationship between ownership type and having a bank loan. There is not enough evidence at the 5% significance level to infer that ownership type and having a bank loan are related.

**4.4 Industry Sector and access to credit**

The Pearson Chi-Square statistic (3.17) with a significance value of 0.530 is below the alpha level (0.05) which suggests there is no evidence to prove that there is a significant relationship between the industry type and having a bank loan. As a result of that we cannot reject the null hypothesis 4.

**4.5 Location and access to credit**

*H5* cannot be confirmed. There is no evidence at the 5% significance level to infer that location and having a bank loan are related. This may be due to the very small size of Sri Lanka and its high population density that makes almost any location close to a sizeable market.

**4.6 Having audited statements and access to credit**

The Pearson Chi-Square statistic (1.72) with a significance value of 0.190 is below the alpha level (0.05) which suggests there is no evidence to prove that there is a significant relationship

between the industry type and having a bank loan. As a result of that we cannot reject the null hypothesis 6.

The findings of the study is consistent with the results of Vos et al (2007) study which showed that financial information does not seem to play a role in the loan granting decision by examining the NSSBF 1998 and the membership survey of the British Federation of Small Business 2004.

#### **4.7 Asset tangibility and access to credit**

Somewhat surprisingly, it was found that there is no significant association between asset tangibility and whether or not firms have a bank loan ( $\chi^2(4) = 3.07, p > 0.05$ ). However, it should be noted that tangibility does not always reflect the availability of collateral. For example, the personal assets of the proprietor or partner represent an important element in the security offered for the bank loan. However, these personal assets are not shown in the balance sheet of the business. This could be a reason why the results do not indicate an association between asset tangibility and access to credit.

#### **4.8 Firm performance and access to credit**

The Pearson Chi-Square statistic (0.10) with a significance value of 0.754 is below the alpha level (0.05). This suggests that a statistical significant relationship does not occur between the firm performance and having a bank loan. Therefore Hypothesis 8 is not supported.

This finding suggests that firms with positive sales growth are less likely to use bank credit, possibly because their earnings were sufficient to fund growth and capital requirements. This is consistent with Myer's "pecking order theory" (Myers, 1984).

#### **4.9 Level of Education of entrepreneur and access to credit**

As might be expected, firms with educated owner managers are more likely to obtain credit, presumably due to their knowledge in the loan application process and their knowledge in financial management.

Above table shows that the value of chi-square statistic is 9.25. This value is significant ( $p < 0.05$ ), indicating that there exist some relationship ( $p < 0.05$ ) between level of education of the owner/managers and having access to credit. Therefore, the hypothesized relationship ( $H9$ ) between level of education of the owner/manager of the firm and having a bank loan is supported. This positive relationship could possible as a result of educated managers/owners ability to smooth complicated loan application procedures, presenting positive financial information and building closer relationships with their bankers.

#### **4.10 Years of experience of entrepreneur and access to credit**

The above table shows that the value of chi-square statistic is 6.74. This value is not significant ( $p > 0.05$ ), indicating that there does not exist a significant association between the years of experience of the top manager and having a bank loan. Therefore, the hypothesized relationship ( $H10$ ) between experience of top manager of the firm and having a bank loan is not supported.

#### **4.11 Networking and access to credit**

Hypothesis 11 stated 'entrepreneurs with no affiliations with business associations have a limited access to bank finance'. As shown in the above table, the variable is statistically significant with a chi square statistic of 8.21 with a p value of 0.004 ( $p < 0.05$ ). This proves that there is an association with entrepreneurs having memberships in some clubs and/or professional associations and having access to bank credit. Hence, the networks are particularly important because they allow SME operators to reconfigure relations with bankers.

## **5. CONCLUSION AND IMPLICATIONS**

Access to finance is topic of great interest to both academics and practitioners. A considerable number of studies in the past have mentioned that access to finance has been a problem in this sector. However, few studies are done with regard to investigating the determinants of access to bank finance for SMEs. Hence, this study examined what determines access to bank finance in SMEs and offered a comprehensive exploration of the determinants of access to bank finance in Sri Lankan SMEs.

A priori reasoning, and an overview of the literature, suggested a number of factors that are likely to be associated with the access to credit. The factors identified were size of the firm, age of the firm, ownership type, sector, location of business, asset tangibility, firm performance, availability of audited financial statements, education level, experience and networking skills of the entrepreneur. Based on these factors, twelve hypotheses have been derived for testing.

The chi square results indicated that, education of the entrepreneur and networking are the main determinants of access to credit. Also, somewhat unexpectedly, all other factors identified in the study did not show any association with access to credit by banks.

The results obtained from this research yields a range of implications for policy for these stakeholders which are discussed below:

The first contribution of this study is a new investigation of loan evaluation process. Findings of this research can be applied to the evaluation of credit proposals and select the credit worthy borrowers from the rest of the applicants.. For example, education of the owner/manager and networking ability play a key role in access to bank finance. Therefore, loan officers must devote sufficient time to attempting to determine these characteristics of the borrowers. Banks could implement more personalised relations to their Small business clients and improve their methods of checking customers.

The financial and non financial variables identified in the study can be used to develop a credit scoring that can be used by the financial institutions to decide whether to approve or reject a loan application. Effective use of this type of credit scoring model can reduce the number of loan applications that need manual review. By scoring loan applications on the factors found to be predictive of loan performance, a lender may be able to review questionable loan requests and also can monitor existing loans that may be in arrears position. Such type of application scoring will enable banks to prevent themselves from insolvency due to bad loans in advance and helps them to sustain profitability from its proper lending practices. This method also reduces the cost and time of making a loan, as only a smaller pool of borrowers need a more rigorous individualised review. Like many other emerging countries, Sri Lankan banks can start with simpler 'judgmental' scoring models, based on qualitative parameters, and later switched to more complex and powerful 'statistical' scoring models. Furthermore, these scoring systems can be used to arrive at a rating for individual borrowers and can be used for management reporting, pricing, limit setting and loan loss provisioning apart from loan approval.

It was found in this study that the SME clients who are the members of SME representative organisations such as Chamber of Commerce has high probability of accessing bank finance. Since these organisations have close contacts and affinity based relationships with SME owners/managers, they are aware of problems and needs of the SME sector. Therefore, organisations like Chamber of Commerce and other business associations can play a key role in assisting their members to access bank loans from banks. For this reason, it is recommended that banks can have cooperation with these organisations to identify credit worthy SME clients.

It was also revealed in this study that education is a very important element in the demand for credit among SMEs. This suggests that it is an area that the policy makers should look at in an

effort to promote access to credit among SMEs .In particular, the government could support the education and training of small and medium business operators to make them better qualified for financing and to assist them in responding to markets.

This study investigated whether the Owners'/Managers' membership in various clubs and societies has any association with having access to bank finance. Therefore, relevant associations representing SMEs can play an active role in assisting SMEs to access credit from banks.

The policy makers, small entrepreneurs, donors and others, who deal with the development of small enterprises in developing countries, should focus their attention and programs not only on providing increasing resources but also on providing more facilities and efforts on 'networking' and developing skills

The SME owners/managers are advised to explore and strengthen the relationship with local business associations such as Chamber of Commerce and other range of network relations.

This research study has made a number of contributions to knowledge in the fields of SME finance. Firstly, this research explored the relationships between a large numbers of variables used to evaluate the credit determinants of borrowers. Specifically, it explored new variables like owner managers experience, education and networking skills and access to credit.

A longitudinal examination of capability to access to credit should be done as it varies through various growth stages of firms. Hence, a longitudinal measurement would complement the findings of this study. If the future surveys examine the same level of information for both approved and denied firms, it will give more reliable regression results for the models used in the study.Future research can also deal with separate measures for 'short term and 'long term loans' rather than having an aggregate measure of 'total loans'.

Finally, it should be also noted that the policy implications suggested in this study are of importance to policy makers, not only in Sri Lanka, but also in many developing countries in their similar situations or growth process.

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