Factors that influence the availability and accessibility of external finance to the Tanzanian Small and Medium enterprises (SME).

A Research Report

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Abstract

This paper examines the factors that influence the availability and accessibility of external finance to small & medium enterprises. Using a sample of 232 credit files of 8 commercial banks in Tanzania, we find that, SME Credit decision making in Tanzania is positively influenced by a firm's – size, equity, profitability, length of relationship with bank and negatively influenced to the firm's – levels of existing debt, gearing rations, loan amount & tenor.

The Declaration

I, Shose Sinare declare that this research report is my own, unaided work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Leadership in the University of South Africa, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Shose Sinare

30 November 2007

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1. Chapter 1: Orientation

1.1 Introduction

The purpose of this research is to evaluate factors that influence the availability and accessibility of external finance to SME.

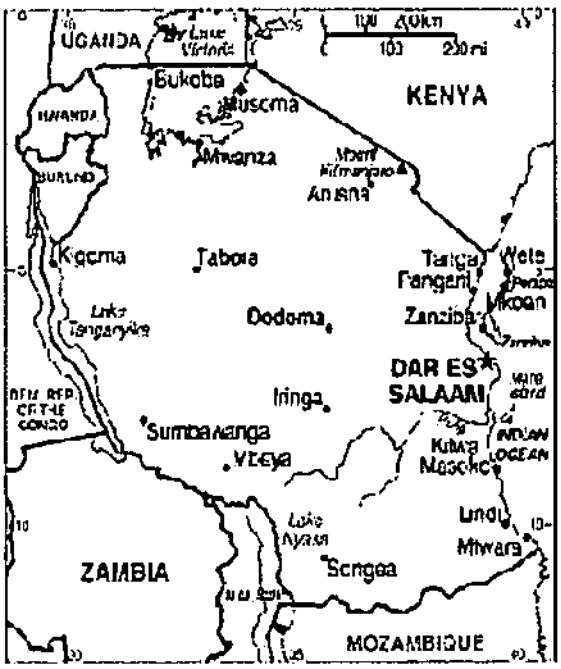
In this report, we look at supply side variables that influence the availability of external finance to SME. We look at the impact of the financial institution structure, the impact of the lending infrastructure (i.e. the information environment, the legal, judicial & bankruptcy environment, and the tax and regulatory environment), and, the impact of lending technologies on the availability of external finance to SME. We evaluate demand side variables that impact the accessibility of external finance to SME, by evaluating the impact of firm characteristics, loan characteristics and country specific developmental variables (i.e. a countries business environment, regulatory environment and general development levels), on a firm's access to external finance.

We use micro level data from a sample of 232 credit files from 8 financial institutions in Tanzania, to evaluate factors that influence the availability and accessibility of external finance to SME in Tanzania, during the period 2006 & 2007.

This research is important because it enables us to use micro level data to test empirical literature findings on the Tanzania environment, thereby contributing to existing literature. SME finance is an important subject in Tanzania because SME constitutes a significant share of the countries GDP and employment. SME development is also often associated with economic development and with a more equitable distribution of income.

About Tanzania:

Figure 1: Map of Tanzania



- Tanzania gained its independence in 1961.
- Land mass of 886,037 sq. km
- A population of 39 million
- GDP growth at 5.7%.
- GDP per head at USD 259.
- Import cover of 9 months.
- External debt at USD 7,540 billion.
- 42% of government budget is dependent on donor funds.
- Inflation at 6.9%
- Trade balance at deficit USD 700ml.
- Exchange rate currently at 1180, average depreciation over last 5 yrs at 10%.
- Interest rates have been on the rise. Current 1 year treasury bills at 16%p.a.
- Politically stable

Source: <http://www.cia.org>

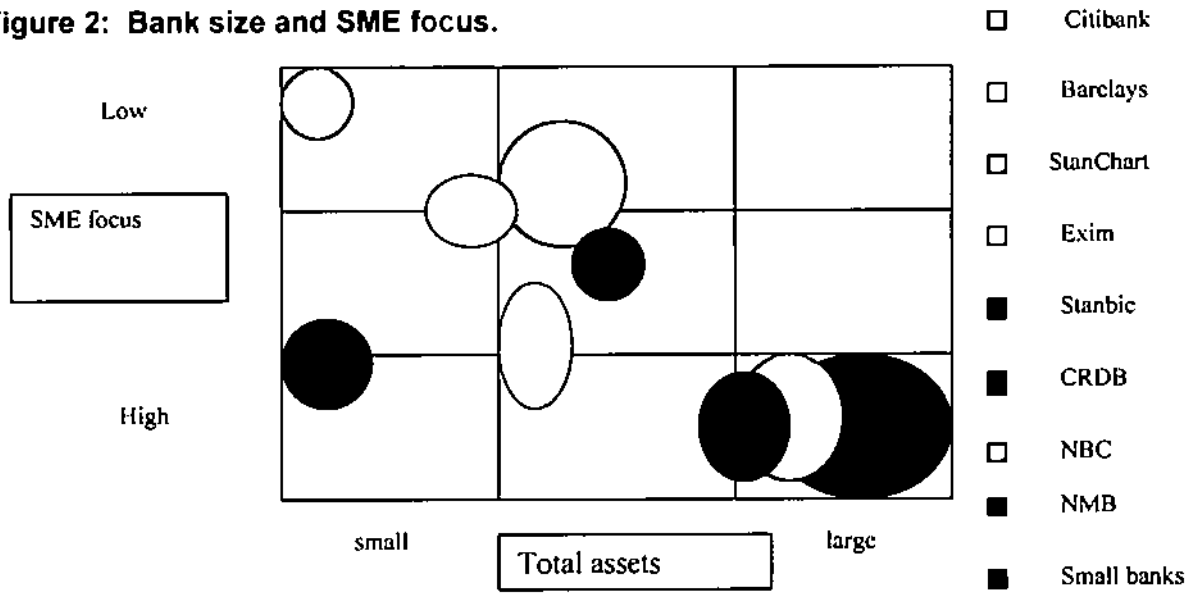
Tanzania, although relatively better in terms of economic development, business and regulatory environment compared to most Sub- Saharan countries, is nonetheless a poor country with many challenges. Information is limited, communication is difficult, and infrastructure is poor. The legal and judicial system is present but enforcement is often difficult, and the laws covering bankruptcy are still open to disputes and blockages. Like most African systems, it is also faced with corruption challenges. Commercial laws have been changed to encourage business creation; however Taxation is relatively high and prone to burdensome disputes with the authorities.

SME operating in the Tanzanian informal sector, account for 47% of the countries GDP and employs around 42.24% of the labour force. Formal SME account for around 17%

of the countries GDP and employs around 32.10% of the labour force (Ayyagari, Beck & Demirguc-Kunt, 2003).

The Tanzania Financial industry has a total of 24 banks (local & international), 10 financial institutions and 87 Bureau De Changes. It can be considered as being at the growth stage of the industry business cycle.

Figure 2: Bank size and SME focus.



Source: Author's Illustration

The banking industry can be classified into three main groups: the first group comprises of banks large banks. These banks are characterized by local currency large balance sheets and very cheap liabilities. There are 3 banks in this category: National Microfinance bank (recently privatized with 41% privately owned by Rabo Bank, a foreign entity and 59% government owned), National Bank of Commerce (70% owned by ABSA of South Africa and 30% Government) and CRDB (80% owned by local private investors, 30% DANIDA).

The second category consists of mainly international banks; characterized large USD balance sheet, expensive local currency liabilities and fewer branch networks (most have positioned themselves towards the large wholesale customers or larger SME and the higher segment of retail customers). These are Standard Chartered bank (a British owned bank); Stanbic Bank (a South African owned bank), Barclays bank (a British owned bank) and Citibank (an American owned bank).

The third group comprises of small banks, mostly locally privately owned. These have positioned themselves to serve mostly the Smaller SME segments.

1.2 Purpose of the research

The purpose of this research is to analyze factors that influence the availability and accessibility of external finance to small and medium enterprises (SME) in Tanzania.

1.3 Statement of the problem and sub-problems

Main Problem: What are the factors that influence the availability and accessibility of external finance to small and medium enterprises (SME) in Tanzania?

Sub-problem 1: An analysis of how the current composition of the banking industry in Tanzania influences the availability of external finance to small and medium enterprises (SME) in Tanzania.

Sub-problem 2: An analysis of factors that that are considered when making lending decisions to SME in Tanzania.

1.4 Definitions

SME: There have been several empirical researches on various aspects of the Small and Medium Enterprise (SME) sectors, mostly in the developed world, and to a limited extent in the developing worlds; however, there is no homogenous definition of SME. Most

definitions have used a classification of size, whether asset size of firms, annual turnovers, size of the investment, or size of its work force (i.e. number of employees), to classify firms between what is micro, small, medium or large.

In this research, we adopt the definition used in the Tanzanian SME Development Policy. Small enterprises are mostly formalised, employing up to 49 employees, with a capital investment of up to Tanzanian Shilling (Tsh) 200 million now equivalent to US$ 175,000, and Medium enterprises employee up to 99 employees, with a capital investment of up to Tsh 800 million now equivalent to US$708,000 (United Republic of Tanzanian. Ministry of Industry and Development, 2002).

Micro enterprises employee up to 4 people, mostly family members, with capital of up to Tsh 5 million now equivalent to US $4,500. The majority of Micro enterprises fall under the informal sector, these are not included in our definition of SME, and large enterprises are those employing more than 100 employees, with a capital investment size greater than Tsh 800 million now equivalent to US$650,000.

Financial institutions: is defined as the different types of financial institutions that provide credit, to SME. These include, commercial banks whether, large or small, local or foreign, state own or private; community development banks, microfinance banks and cooperative banks.

External finance: includes only external debt finance and does not include equity finance whether from the stock exchange or from private venture capitalists. It also does not include finance from family members, friends or other entrepreneurs which is referred to as internal sources of finance or network externalities in the case of finance from other entrepreneurs.

Availability of finance: refers to the supply of finance, i.e. the availability of external debt instruments.

Accessibility of finance: refers to the ability of SME borrowers to gain access to the supply of credit.

1.5 Delimitation of the study

The researcher will review SME activities in 8 commercial banks in the Tanzanian financial institutions market. It will limit the review to information obtained only from each bank's head office location, in Dar-Es-Salaam, the commercial capital of Tanzania and will not do a comprehensive review of all the SME activities throughout other branches in the country.

The researcher will limit this study to current data (2006/7) and will not attempt to conduct a trend analysis, of past SME activities.

The focus will be on external commercial debt from the above banks and will exclude discussions of the public equity and debt markets, which are generally beyond the reach of most SME (Beck, Demirguc-Kunt, Laeven, & Levine, 2004a). It will also exclude funding from internal or nearly internal sources like the entrepreneur, family, and friends.

For the sack of brevity, we will mainly focus on the financing of SME and not on the link between SME activity and economic growth.

1.6 Importance of the study

A research, on the factors that influence the availability and accessibility of external finance to SME in Tanzania is important because, like many developed and developing economies, SME in Tanzania constitute a significant share of the countries employment, i.e. over 30%, and up to 60% of total employment in manufacturing in many countries as defined by World Bank being firms that employee up to 250 staff (Ayyagari, *et al.*, 2003). The Tanzania government recognises that SME development is crucial to the development of the Tanzanian economy and associates SME with more equitable distribution of income to the country and hence poverty alleviation (United Republic of Tanzanian. Ministry of Industry and Development, 2002). The most recent World Bank Review on Small Business Activities establishes the commitment of the World Bank Group to the development of the SME sector as a core element in its strategy to foster economic growth, employment and

poverty alleviation (Ayyagari, *et al.*, 2003). In the last 5 years, the World Bank has approved over US$ 10 billion in support of SME activities (Beck, Dermirguc-Kunt & Levine, 2007).

There are some scholars that have the opinion that SME are the engine of economic development (Levine & Renelt, 1992). The empirical research on the economic impact of SME is however, ambiguous. There is cross country evidence suggesting a robust partial correlation between the importance of SME in manufacturing & economic dev. But there is no causal impact of SME (Beck, Dermirguc-Kunt & Levine, 2005a).

SME in developing economies, generally face many obstacles that hinder their growth, such as lack of: markets, technical skills, education, quality products & quality manufacturing, standardization, capital and finance. In addition they face harsh regulatory & business environment, government policies and taxes. Evidence suggests that access to finance plays a very important role in the overall business environment, potentially constraining both firm entry & growth (Ayyagari, Demirguc-Kunt & Maksimovic, 2005). Beck and Dermirguc-Kunt, investigating the impact of access to finance, property right protection, provision of infrastructure, inefficient regulation & taxation, and broader governance features such as corruption, macroeconomic & political stability on firm growth, find that finance, crime & political stability are the only obstacle that have a direct impact on firm growth, and that finance is the most robust one among those (Beck and Dermirguc-Kunt, 2006).

Both in the developed and developing world, small firms have less access to external finance & are more constraint in their operation & growth than large firms (Berger and Udell, 1998; Galindo and Schiantarelli, 2003).

There has been limited research on the SME sector conducted on micro level studies in emerging countries. The researcher is not aware of a study which has reviewed the availability and accessibility of external finance to the Tanzanian SME sector, at a micro level. This research therefore will add to the available literature by providing micro level data on the factors that influence the availability and accessibility of external finance in the Tanzanian SME sector, by testing the empirical literature findings in the Tanzania

environment. The researcher hopes to provide valuable information that will aid the Bank's (my employer's) SME strategy as well as information that will provide a better understanding of the overall Tanzania SME financing environment so as to aid future SME policy updates as this paper will be shared with the country's Mkukuta committee, responsible for poverty alleviation and SME strategy.

1.7 Outline of the research report

The research report is structured into five chapters. The next section, chapter 2 review the empirical literature on the subject of SME finance. Here we evaluate the literature on supply side variables that impact the availability of SME finance and the demand side variables that impact the accessibility of this finance. Chapter 3 outlines the research methodology adopted: phase one being a qualitative phase where we a interview a number of credit managers in commercial banks and phase two the quantitative phase, where we design and adopt a questionnaire to collect data from credit files of eight commercial banks in Tanzania. Chapter 4 outlines our findings, discussions & interpretations in relation to the literature. Chapter 5 concludes with recommendations.

2. Chapter 2: Literature review

2.1 Introduction

An extensive body of literature has been researched on factors that impact SME finance both supply side variables and demand side variables.

Supply side variables include the impact of financial institution structure on the availability of external finance to SME (Hannan, 1991), such as the impact of bank ownership on bank lending to SME (Wright, 1999; Claessens, Demeirguc-Kunt & Huizinga, 2001; Sapienza, 2004; Guiso, Sapienza & Zingales, 2004; Clarke, Cull, Martinez Peria, & Sanchez: 2005c). The financial institution structure is influenced by a countries business environment. Berger and Udell, 2006 argue that the availability of SME credit is a function of the structure of a nation's financial institutions, its lending infrastructure and the deployment of lending technologies. These lending technologies are transactional in nature (e.g. financial statement lending; leasing (International Finance Corporation, 1996; Hendel and Lizzen, 2002) & credit scoring (Frame, Padhi & Woodsley, 2004; Miller and Rojas, 2004) or relational in nature (i.e. lending decisions based on the strength of the borrowers relationship with the bank).

Demand driven variables include the impact of firm characteristics such as size, age & ownership on his ability to access finance (Schiffer and Weber, 2001; Robb, 2002; Beck, Demirguc-Kunt & Maksimonic, 2004). It includes the characteristics of the loan being requested, i.e. loan amount, tenor, type & security (W. Voordecker, 2006). Demand side variables also include country specific development variables which for the sack of brevity, will only briefly be discussed in this paper.

2.2 Supply Side Variables

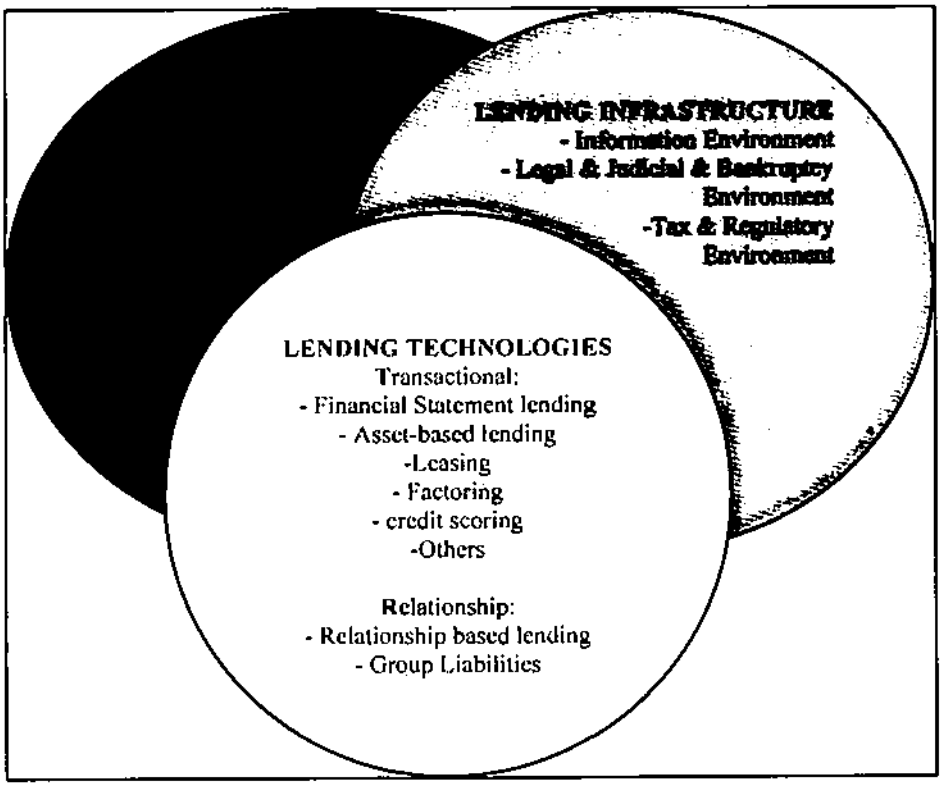
Berger and Udell, 2006 has proposed that the availability of external finance to SME is influenced by a nation's financial institution structure; a nation's lending infrastructure and the use of lending technologies.

A nation's financial institution structure can be described as the nature and type of its institutions, whether it comprises of large, small, foreign, local, state, private financing institutions and their competitiveness.

A nation's lending infrastructure include the regulator legal laws (bankruptcy laws & their enforcements; regulatory restrictions to lending & barriers to entry, property rights & their enforcements, etc), the information infrastructure (accounting standards & rules for sharing information) and tax environments that affect credit extension.

Lending technologies include relationship lending technology which is primarily based on 'soft' qualitative information gathered through contact over time, and transaction lending technologies which is based on 'hard' quantitative data gathered through audited financials, & credit scoring.

Figure. 3: Factors that influence the availability of SME finance.



Source: Author's illustration

2.2.1 Financial Institution Structure

2.2.1.1 Does Financial Institution Size Matter?

The findings from historical research are that large financial institutions have comparative advantages in transactions lending to larger, older, more transparent & relatively safer firms based on hard information, while small financial institutions have comparative advantages in relationship lending to information opaque smaller firms based on soft information (e.g., Haynes, Ou, & Berney, 1999; Berger, Miller, Petersen, Rajan, & Stein 2005c; Cole, Goldberg, & White 2004).

Berger, Hasan and Klapper find evidence of an association between the presence of small financial institutions and greater availability of SME credit (Berger, Hasan, & Klapper 2004b).

The rational is that large financial institutions are less able to transmit 'soft' information through their more layered, complex, internal approval chains (Stein, 2002). It is also argues that large financial institutions have diseconomies in lending to small firms whilst also lending to large firms (Williamson 1988).

However, more recent research has shown that several transactional lending technologies, such as Credit Scoring and Factoring, may be extended to information opaque borrows, hence enabling even large financial institutions to service information opaque SME. These lending technologies are discussed further in section 2.3.3.

The implications of the above findings is that the availability of SME credit is greater where there is a market presence of both small banks because of their comparable advantage in relationship lending and large banks because of their comparable advantage in transaction lending and the use of transaction lending technologies to lend to even information opaque SME.

2.2.1.2 Foreign Vs Local Financial Institution.

For similar reasons as above, foreign banks are found to have comparative advantages in transaction lending whilst local banks have comparable advantage in relationship lending, with the added complications of distance, culture, language & economic barriers in transmitting soft information within foreign bank structures (Guiso, *et al.*, 2004).

The evidence from most studies in developing nations have found that foreign-owned banks are associated with greater credit availability for SME (Claessens, *et al.*, 2001; Clarke, *et al.*, 2005a; Beck, *et al.*, 2004a; Berger, *et al.*, 2004b), - because foreign banks can bring new transaction lending techniques and through competition with local banks, they can force local banks to go down market to cater to smaller SME (Claessens, *et al.*, 2001).

One study however finds that foreign-owned banks may have difficulty in supplying SME credit (Berger, Klapper, & Udell, 2001). However, the lending technologies were generally unobserved.

The implication from the above is that financial institution markets with both foreign and local banks can positive affect the availability of SME credit due to the comparable advantages of both foreign and local banks in the lending technologies.

2.2.1.3 State Vs. Private Financial Institutions.

Although the rational is that state owned banks should result in increased availability of credit to SME due to subsidies and specific focus on important sectors, the cross country & section studies however have commonly found negative effect of a dominated state owned banking market and credit availability to SME (Beck, *et al.*, 2004a; Berger, *et al.*, 2004b).

There are few exceptions to the rule as has been found in Townsend and Yaron's research, where state firms who have operated more independently have been seen to show better performance and to provide significant SME credit (Townsend and Yaron, 2001).

The implication is therefore that a banking market with more privately owned banks will foster greater availability of SME credit, unless the state banks operate independently like private banks.

2.2.1.4 Market concentration

Hannan argues that the lack of competition in the banking market as a result of fewer players results in decreased availability of credit (Hannan, 1991):

It is suggested that a concentrated market might encourage institutions to invest in lending technologies that increase the availability of credit to SME as SME may be unable to

access other markets for funds and therefore have a certain dependency on banks for external sources of funds (Kashyap and Stein, 1994).

Empirical studies however are not consistent as to whether SME credit is higher or lower in concentrated markets. (Petersen and Rajan, 1995; Berger, *et al.*, 2004b). The implication is therefore ambiguous; concentration might and might not lead to lower availability of SME credit.

2.2.2 The Lending Infrastructure

The lending infrastructure may directly affect the availability of SME credit by affecting the way in which lending technologies may be employed. The regulatory environment may in addition also indirectly affect SME credit availability by constraining the potential financial institutional structure (Berger and Udell, 2006).

2.2.2.1 The Information Environment

Credit availability depends on the infrastructure than supports financial transactions, this includes the information environment. The information environment include the accounting environment – i.e. the existence of strong accounting standards and creditable accounting firms that support finance that is based on 'hard' quantitative information such as financial ratios. The information environment also includes the ability to share credit information, through, for example, the availability of data base of payment performance through credit bureaus (Berger and Udell, 2006).

Literature has shown the positive effect that credit information sharing has on credit availability to SME (Love and Mylenko, 2003). Empirical evidence has found that there is greater bank lending relative to GDP in countries that have stronger formal information sharing and that these credit bureaus reduce credit risk (Jappelli and Pagano, 2002). (Bernanke, Gertler & Gilchrist, 1999; Friedman and Kuttner, 1993; Bernanke, 1995) have explored the credit channel of monetary transmission under imperfect information, and also finds support for the link between information and credit availability.

2.2.2.2 The Legal, Judicial, and Bankruptcy Environment

The legal and judicial infrastructure, i.e. the existence of appropriate commercial laws and property rights, and their enforcement affect the context and reliability of loan contracting, which directly impact the availability of SME credit, by affecting the ability of banks to use loan contracting as a tool - (e.g. through the use of covenants, collateral and personal commitments in loan contracts) - to minimize problems of adverse selection, moral hazard and informational opacity (Sharpe 1990).

The empirical research have shown that firms in countries with greater financial development and stronger property rights have higher levels of external finance than firms in countries with weaker financial development and property rights, whose main source of finance is through informal sources, govt or development banks (Beck, *et al.*, 2004a).

Commercial laws on collateral on both fixed and movable assets & their enforceability, and the existence of an efficient collateral registers systems also affect the use of asset based lending, or collateralised lending, and hence the availability of these lending technologies.

The efficiency of bankruptcy system affects the availability of finance because it impacts a bank's ability to claim quickly on secured assets of a bankrupt firm. A system that is too long and costly, and that does not give protection of priority rights of secured lenders will discourage collateral based lending, but might encourage factoring (Berger and Udell, 2006).

2.2.2.3 The Tax and Regulatory Environment

Tax and regulatory environment directly affect the availability of SME finance. Taxes (stamp duty, VAT, capital gains tax, etc) on the lending technologies will encourage the use of some technologies, whilst discouraging the use of others. E.g. VAT (value added tax) on leasing (where the bank takes ownership of the collateral as opposed to a mere charge) which is not applicable on traditional lending technologies will discourage leasing whilst

encouraging traditional lending. Similarly, stamp duties on factoring can have a negative impact on factoring.

Tighter bank regulations can impact financial institutions, by reducing the supply of credit (Kashyap and Stein, 1994; Bernanke, et al., 1995). In Mexico in the 19th & 20th C, for example, strict government barrier to the formation of financial institutions resulted in the scarcity of credit to the majority of firms, such that, only those companies whose directors were boards of the few existing banks got access to credit. This had detrimental consequences for the growth of the SME (Haber, 1997).

Basel II requirements (Berger, 2006), affect the availability of some forms/types of lending technologies. E.g. revolvers, which are committed long term facilities are, discourage due to higher commitment fee that must be placed on committed funds, or the accounting standards that fees are amortised over the life of the loan means that banks might be tempted to encourage shorter tenor loans than longer tenor loans, etc.

2.2.3 The Lending Technologies

There are various lending tools/ technologies that financial institutions can employ, however these can not all be practically discussed in this paper. Lending technologies enable financial institutions to provide credit to suit particular firm characteristics whilst overcoming problems asymmetric information, adverse selection and monitoring. For the sack of brevity, we have selected only a few lending technologies to discuss in this section, specifically those pertaining to debt instruments only. These are discussed here under Transactional Lending technologies and Relationship lending technologies categories.

2.2.3.1 Transactional Lending Technologies

Transactional Lending Technologies are all lending technologies that involve arm's length lending decisions, based on specific criteria. In this section, we discuss financial statement lending, small business credit scoring, Asset-based Lending, Leasing and Factoring.

2.2.3.1.1 Financial statement lending

Financial statement lending decisions are made from the strength of a firm's audited financial statements. Analysing the financial performance through income statement analysis, the financial condition of the firm through analysis of the firm's balance sheet and ratio analysis; and, analysis of the firm's future cash flows, this is viewed as the primary source of loan and interest repayment. Various literature has been written on banks use of balance sheet lending such as the research by Kashyap and Stein, 1994; Bernanke, *et al.*, 1999; Bernanke, 1995, all pointing evidence of bank's use of financial statements to make lending decisions.

A good rate of return on capital (PROFIT) should improve access to short term and long term debt. In practice Boughean, Mizen, Yalcin using empirical research on UK data, find that it improves access to short term debt but not long term debt (Boughean, Mizen & Yalcin 2005). Boughean, *et al.*, 2005, also finds evidence to suggest that firms with very low values of collateral, high risk default, large projects relative to their size, and high levels of accumulated debt, might not be able to get access to external finance.

Kashyap and Stein, 1994, however, find that RISK SCORE, as measured by Moody's and Standard & Poor's bond ratings , is inversely related to firm debt i.e. a good credit rating is associated with lower debt in general possibly because these firms make greater use of non-debt finance.

Financial statement lending technology requires firms which have suitably audited and transparent accounts. This technology is more suited to larger relatively less risky firms with long histories and strong financial statements and for markets with the existence of large financial institutions and a good information environment (Stein, 2002).

2.2.3.1.2 Small Business credit scoring

Credit scoring is a method for making lending decisions, which uses statistical techniques, to analyse appropriate data. Lending decisions based on credit scoring uses hard information about the SME, collected by credit bureaus and its owner's personal data such

as personal income, debt, home ownership, financial assets. Empirical evidence from the US, has shown that the use of credit scoring is associated with increased lending to information opaque SME (Frame, *et al.*, 2004). Miller and Rojas, 2004, using data from Brazil, Colombia and Mexico, finds evidence to suggest that public own credit registers do improve information flows, and that this can increase the proportion of the population with access to credit by as much as 50%. This transactional lending tool helps to overcome constraints posed due to lack of collateral by SME, whom traditionally would otherwise only acquire credit through building and fostering good & long relationships with their bankers.

For credit scoring to be effectively employed it requires the availability of third party credit bureaus or credit rating technologies, and a strong information environment. In the US for example, the credit scoring systems are very efficient and sophisticated, in most parts online (e.g. Dunn & Bradstreet ID reports are available online), and the information environment is very strong, hence allowing for automated credit approvals.

2.2.3.1.3. Asset-Based Lending

Asset-based lending decisions are based on the quality of available collateral for a loan, such as the firms' inventory, account receivables and equipment. Finance is usually extended on a formula basis e.g. 70% of the asset value is availed (Udell 2004). This type of lending is available to all firms, but often requires a high level of collateral to be pledged. Such lending is often expensive for banks, which are bound to monitor the ongoing value of collateral.

Asset – based lending can be extended to information opaque SME as primary information needed for analysis is the information on the underlying asset and not necessarily on the SME.

The empirical evidence founded on microeconomic theories of banking and finance contracting has explained the widespread use of collateral by its functions to reduce credit rationing under asymmetric information. Models of bank behaviour under asymmetry information show that security reduces adverse selection & moral hazard (Voordecker and Steijvers, 2006).

Berger and Udell, 2006 argue that large banks have comparable advantage in Asset-Based Lending due to scale economies in the monitoring of hard information needed on the daily value of the collateral.

Asset- Based lending is effectively employed where there is a strong lending environment with strong and effective commercial laws, property rights, and an effective register system governing security interests. It also requires strong and effective legal and bankruptcy laws that ensure the protection of collateral priority in liquidations and/or reorganisations (Berger and Udell, 2006).

2.2.3.1.4. Leasing

In Leasing, lending decisions are also made primarily on the basis of the value of the underlying assets, however, in leasing transactions, the lessor (lender) owns the equipment whereas in asset based lending, the underlying security is used as collateral.

Leasing may have tax advantages or disadvantages if lessor & lessee face different marginal tax rates and there are no tax laws in support of lease treatments (International Finance Corporation, 1996).

For leasing to be effectively employed it therefore requires appropriate leasing tax laws. Because the assets belong to the lessor, this form of lending technology does not necessarily require strong commercial laws, property rights, bankruptcy laws, and an effective register system, governing security interests that ensure the protection of collateral priority in liquidations and/or reorganisations.

2.2.3.1.5. Factoring

Factoring involved the purchase of accounts receivables by the financial institution. Lending decision is based on the value of the factored receivables and therefore allows financing to be extended to information opaque SME, as it also does not rely on information about the borrower (Bougheas, *et al.*, 2005). In Eastern Europe for example,

factoring is used to extend credit to information opaque SME (Klapper, 2006). Factoring can be done on a non recourse or on recourse.

The argument for factoring as an enabling tool is that because receivables are sold rather than collaterised, the tool may allow a high –risk supplier to transfer its credit risk to higher quality buyers. Factoring therefore does not rely on strong commercial laws on property rights, security rights and bankruptcy laws. Hence, factoring may be attractive in financial systems with weak commercial laws & enforcement. Klapper finds weak evidence that factoring is relatively larger in countries with weak contract enforcement, which suggests that factoring may substitute for collateral lending (Klapper 2006).

However factoring might still be hampered by weak legal, regulatory and tax impediments. Factoring requires the legal environment to sell or assign account receivables, therefore some of the legal challenges could be whether commercial laws recognise factoring as a sale & purchase. If so then creditor rights & enforcement of loan contracts diminish in importance for factoring because factors are not creditors. Equally important is whether a factoring Act exists, or a reference in the law which legally recognises factoring as a financial service. In a sample of central European countries, factoring as a percentage of GDP is higher in countries with a factoring act (Klapper, 2006).

Burdensome & costly prudential regulations placed on factoring comps that do not take deposits might discourage such activities. Capital controls may prevent non banks from holding foreign currency accounts for cross boarder assignments. Hence for factoring to be effectively employed, it requires an appropriate regulatory environment.
Like in the case of Leasing transactions, if the buyer and seller of factored receivables have different Tax treatments, i.e. the seller may be VAT except whilst the buyer is not and the tax laws do not recognise the factored transaction as a simply financial lending tool, thereby placing a requirement for the buyer to pay VAT on the entire factored transaction and not just on the service fee, this would discourage factoring activities. Also, excessive stamp taxes that may be applied to factored receivables would also served to discourage factoring. Some other tax challenges could be if interest on factoring arrangements are not tax deductible, this would discourage factoring activities as it would render them more expensive.

A weak Information infrastructure is problematic for factoring because the lack of data on payment performance can discourage factoring. Factoring is greater in countries with better credit information (Love and Mylenko, 2003). Reverse factory may mitigate the problem of borrowers' information opacity if only receivables from high quality buyers are factored. The Nafin factoring program in Mexico is a good example of a successful reverse factoring online system (Klapper, 2006).

2.2.3.2 Relationship Lending Technologies

Young and risky SME in particular often only have short-term financial data, little collateral and require relatively small amounts of lending. As such, transactional methods of lending decision making may not be suited for all forms of banking lending to SME.

2.2.3.2.1 Relationship Lending

Relationship lending relies on primarily on 'soft' or personal data about the firm owner, and the firm's local reputation. The relationship is built through repeated contacts between a dedicated bank official(s) and the firm owner and through this relationship the bank often gains exclusive access to firm-level financial data such as payment history, sales collections history, etc - information that is often beyond that which is available on the firm's financial statements and information that is readily available to the public. This technology provides expensive, yet often good information for basing lending decisions to SME. (Petersen and Rajan 1994; Sharpe, 1990; Fohlin, 1998; Boot, 2000; Berger, *et al.*, 2001; Cole, *et al.*, 2004; Elsa, 2005).

Under this bank-lending technology the firm gives the bank exclusive access to data and provides deposits at low cost. Thus, the longer the relationship or multi-period contract the greater the incentive for banks to both invest in developing SME banking data into useful information for lending decision making. Equally, through the development of firm data, a bank loan may be made under relationship lending which would not have been granted under different bank-lending technologies. In return for cheap core deposits and long-term

relationships, it is widely proposed that banks will grant credit when it otherwise would not be granted and 'lean into the wind' or informally insure SME during times of economic difficulty (Sharpe, 1990).

Berger and Udell argue that relationship lending technologies is mostly effectively employed by smaller banks (Berger and Udell, 2006).

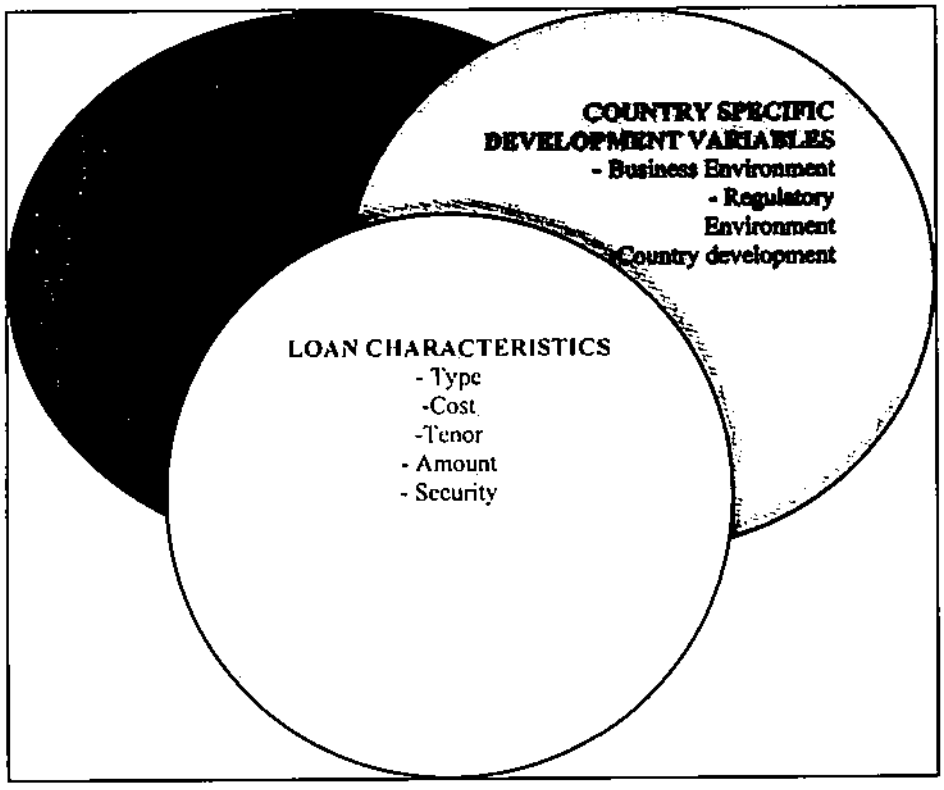
2.2.3.2.2 Group Liabilities

Here, we focus on group lending that is extended to a group of individuals forming a cooperative or society which are then registered as operating businesses. In Tanzania, these are usually associated with lending to agro based cooperatives/societies for the sell or purchase of cash crops. Winner, 1995, in a survey in Costa Rica, of FINCA group credit programme, finds that group credit schemes improve information transfer and hence helps overcome information asymmetry inherent with most SME. Advocates for group schemes argue that group schemes improve repayment rates and lowers transactional costs by providing incentives for peers to screen, monitor and enforce each other's loans (Gine and Karlan, 2007).

2.3 Demand Side Variables

In this section, we discuss demand side variables that impact the accessibility of external finance to SME. These include the impact of firm characteristics, loan characteristics and country specific development variables. As mentioned in section 2.1, country specific development variables will be briefly mentioned but not fully discussed in this paper.

Figure 4: Factors that influence the accessibility of SME finance.



Source: Author's illustration

2.3.1 Firm specific characteristic: Size, Age and Ownership

2.3.1.1 Firm size

Extensive empirical evidence has been complied, that find evidence for the correlation between a firm's size and its access to external finance. Boughean, *et al.*, 2005, have used firm specific variables to assess access to external finance and have confirmed that firm size is a major determine of access to bank & marketable debt. Similar findings have been evidence by Gertler & Gilchrist, 1994; Becks, Demirguc-Kunt, Laeven, Maksimovic, 2003; Becks, *et al.*, 2004a; Becks, Demirguc-Kunt, Maksimovic, 2004. As the World Bank Investment Climate Surveys 2002-3 (ICS) confirms, large firms everywhere generally have

more access to bank credit , both local & foreign, than small firms, whereas the later rely heavily on internal funds and retained earnings (Becks, *et al.*, 2003).

Using the World Business Environment Survey (WBES), Becks, *et al.*, 2003, find evidence to suggest that small firms face larger growth constraints & have less access to formal sources of external finance than larger firms. Small firms obtain 13% less formal finance than medium/large firms (Becks, *et al.*, 2003). Schiffer and Weber, 2001 – show that small firms consistently report higher growth obstacles than medium size/larger firms. As a response to these constraints, small firms are seen to use informal financing sources (Becks, *et al.*, 2004a).

Earlier surveys by Hubbard, 1998 which estimates financing constraints of firms also find evidence to suggest that small firm face greater constraints in accessing external finance than larger firms. These literatures relies on the assumption that external finance is more costly than internal finance due to asymmetric information and agency problems, and that the 'premium' on external finance is an inverse function of a borrower's net worth. A firm is defined to be financially constrained if a windfall increase in the supply of internal funds results in a higher level of investment spending.

Becks, *et al.*, show that size, age & ownership are the most reliable predictions of firms' finance obstacles (Becks, *et al.*, 2003). This is true in developed and developing countries and confirms the theory: In a world with fixed transactional costs and information asymmetry, small firms with demand for small loans face increased transactional costs and face higher risk premiums since they are typically more opaque and have less collateral to offer.

2.3.1.2 Age

Empirical research finds evidence to suggest that older firms have greater access to finance than younger firms. The rational for this trend is that older firms usually have established a good reputation and financial stable track record with financial institutions that provides comfort to lending institutions. This supports both relationship lending literature a well as transactional lending. Becks, *et al.*, 2004 argues that information

asymmetries are likely to be especially large for young and newly established firms, because creditors have not had enough time to monitor such firms and because such firms have not had enough time to build long-term relationships with suppliers of finance, and that due to these realities, younger firms tend to have more constraints accessing external finance than older firms. Becks, *et al.*, 2003 using a data base of over 10,000 firms in 80 countries, finds that older, larger, and foreign –owned firms report less financial obstacles than younger, smaller, locally - owned firms.

2.3.1.3 Ownership

Becks, *et al.*, 2003, have found that multinational or foreign owned firms have easier access to international sources of external finance.

Biggs and Shah, 2006 looking at Indian firms in East Africa, Lebanese firms in West Africa and European firms in South Africa have shown that these ethnic groups have greater access to external finance because they form ethnic business networks whose members lend to each other, provide personal references and ease transactions with an informal contract enforcement system based on reputation. These networks help overcome the problems of asymmetry information & weak financial contract enforcement systems both for new firms & existing firms.

Laeven 2003 has also found that government owned institutions often are likely to experience less obstacles to accessing external finance because they often receive preferential treatments by government owned financial institutions.

Hoshi, Kashyap, and Scharfstein, 1991 find that firms that belong to a business group often face lower financial obstacles because these firms are more likely to have close ties with banks.

2.3.2. Loan characteristics.

2.3.2.I Loan Type

The impact of the loan type on the accessibility of external finance to SME is linked to our discussions in section 2.2.3 above. In summary, various forms of lending technologies enable SME to access finance where they might otherwise not be able to (e.g. through credit scoring, leasing, etc). These have been discussed in full in section 2.2.3 and hence will not be repeated here.

2.3.2.2 Loan Pricing

In a survey conducted by Becks, *et al.*, 2003, high interest rates top the lists of specific financial obstacles. More than 50% of the firms in Beck's sample rated high interest rates as a major obstacle. High interest rates and fees on SME finance is a real obstacle to their accessibility. The rational for financial institutions to charge relatively higher interest rates and fees on MSE loans is partly to account for the inherently higher risk associated with lending to relatively financially weaker firms, and also to cater for the high monitoring costs associated with lending to smaller firms due to the smaller size of loans.

2.3.2.3 Loan Tenor

Firms rated lack of access to long term debt as the second major obstacle (Becks, *et al.*, 2003). Longer term debt is more risky than short term debt, hence most financing that can be accessed by inherently riskier SME tend to be shorter tenor debt (Boughean, et al., 2005).

2.3.2. 4 Loan Amount

Boughean, et al., 2005, finds that firms with large projects in relation to their size may not get access to external finance. Hence, due to the relatively smaller size of SME, there are

therefore natural restrictions on the size of loan that may be accessed. It is therefore more difficult for SME to access larger loan.

2.3.2.5 Loan Collateral

Security is viewed by most financial institutions as a tool to reduce moral hazard and adverse selection (Voordeckers and Steijvers, 2006). Due to the relatively riskier characteristic of SME, most financing to SME requires security to be pledged. Hence, SME who do not have access to adequate and appropriate security might not have access to external finance.

2.3.3 Country specific developmental variables

2.3.3.1 Business Environment

In addition to findings that firm size is directly correlated to greater access to finance, Ayyagari, et al., 2003 also argue that the business environment impacts directly firm characteristics. They find that survey evidence consistently show a positive association of a competitive business environment with entry, entrepreneurship & investment, as does Schiffer and Weder, 2001; Becks, *et al.*, 2003. Ayyagari, *et al.*, 2003 using cross-country data find evidence of the impact of the business environment on a firm's size in so far as it impacts a firm's decision to be formal or informal. This business environment includes: the cost of entry for new firms, bankruptcy laws & property rights, the cost of juridical proceedings, the cost of contractual enforcement, the regulatory environment, and institutional development - which is the average of six institutional variables: voice & accountability, government effectiveness, regulatory quality, rule of law, political stability and control of corruption. Ayyagari, *et al.*, 2003 showed that in countries where there were many obstacles to firm growth, firms tended to migrate to the informal sector to overcome these obstacles.

Beck, *et al.*, 2006 – in cross country sample (44 country data) shows that firms are larger in countries with better legal systems. There is also less robust evidence that firms are larger in countries with more rapid judicial conflict resolution mechanisms & better property rights protection.

2.3.3.2 Regulatory Environment

The regulatory environments impacts Loan characteristics. Monetary policy can affect the access of firms to external finance because it alters the cost of funds. Gertler and Gilchrist, 1994 find greater sensitivity on small firms than for larger firms. For example, tight monetary policy mops up liquidity and drives up interest rates, thereby increasing the cost of bank debt, making it unaffordable and therefore inaccessible for some firms. In a survey conducted by Becks, *et al.*, 2004a high interest rates top the lists of specific financial obstacles. More than 50% of the firms in Beck's sample rated high interest rates as a major obstacle.

Central Bank regulations may also impact the amount that can be obtained from the bank due to e.g. single lending limit limitations placed on commercial banks. It may impact the nature of the loan security. For example in Tanzania Central Bank regulations governing the conduct of commercial banks requires that all financing, whether short term in nature (i.e. working capital) or long term in nature; and whether contingent or direct, be secured 125% by tangible assets. Banks are permitted to lend only 5% of their core capital unsecured and 10% partially secured. If the security is in the form of cash or near cash (i.e. a first class bank guarantee) then a 1 to 1 ratio of cover is acceptable (United Republic of Tanzania, Central Bank, 1991).

2.3.3.3 Country development

Ayyagari, *et al.*, 2003 have found evidence that in countries with relatively higher GDP, in general developed economies, have a greater share of formal businesses and a greater demand for banking services than in less developed economies.

Case studies in the Central France region - which is a region that lacked natural endowments, was located far from markets, and had a population that was not particularly well educated, significant out migration, and generally poorer that other parts of France - revealed that although there it was a requirement by law for banks to have at least one branch per district, this was not sufficient to create the demand for banking services and these branches did very little business in the region. Hence, the act of merely opening a branch was not sufficient to create a demand for its services in this region, supporting the theory of natural endowment to create the necessary demand for finance (Cull, Davis, Lamoreaux & Rosenthal, 2006).

In more recent research in Chile, Colombia & Peru, Governments did not intervene in the financial markets, and took a more laissez faire stance towards financial systems (Zegarra, 2006; Islas Rojas, 2005). Although these countries had considerably more banks per capital than Mexico for most of the half century preceding world war one, nonetheless, compared to North Atlantic economies in the 19th century, their banking sectors look underdeveloped. As Luis Zegarra (2006) has argued, this difference seems to have resulted from the relative absence of demand for financial services. A combination of high levels of wealth inequality and the general poverty of the population meant that there just was not much opportunity for small local financial intermediaries to make money (Cull, *et al.*, 2006). It thus seems that, even where the regulatory environment was supportive, there were factors on the demand side that limited financial development across Latin America.

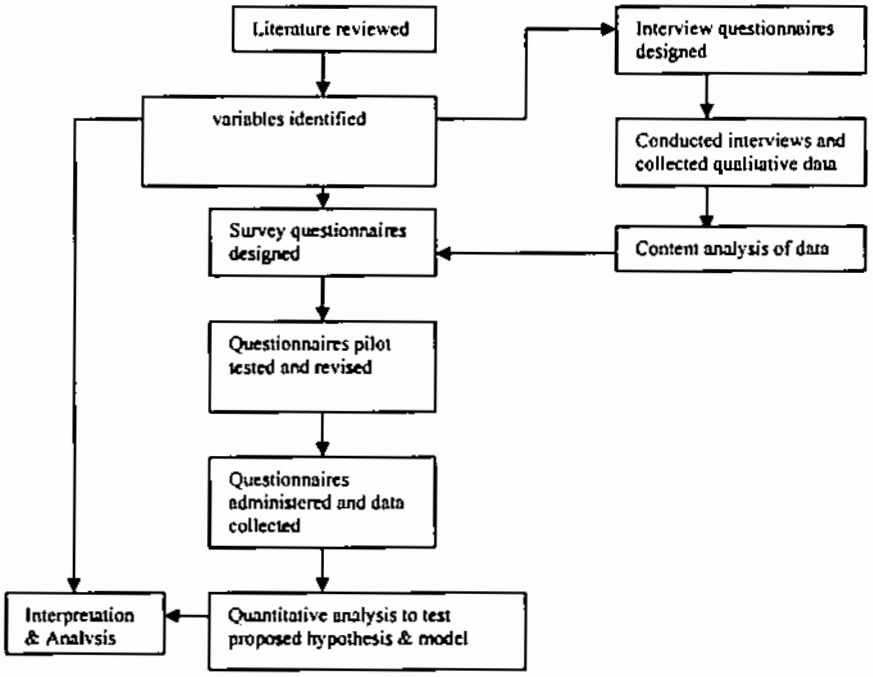
3. Chapter 3: Research methodology

3.1 Introduction

The research design for this survey comprised two phases of fieldwork. Phase one involved explanatory qualitative research. The objective was to confirm the applicability & measurability of the demand & supply side variables identified from the literature review to the Tanzanian commercial banking context and within this context to uncover any possible additional explanatory variables and/or to remove those that had measurement limitations. This first phase concluded with the development and pilot testing of a survey instrument to be used in the second phase to collect data from participating banks.

This chapter of the report provides details of each phase of the fieldwork and describes how the data resulting from the second phase was analysed using SPSS (Statistical Package for Social Sciences). Figure 5 graphically represents the methodology employed.

Figure 5: Graphic representation of the methodology employed



3.2 Fieldwork Phase One - The exploratory qualitative study

The purpose of the explorative qualitative study was to confirm the applicability & measurability of the demand & supply side variables identified from the literature review to the Tanzanian commercial banking context and within this context to uncover any possible additional explanatory variables and/or to remove those that had measurement limitations. This involved interviewing credit managers using semi structured questionnaires. A total of sixteen suitable variables were identified from the literature review and interviews, as having a direct influence on credit decisions. These variables were deemed to be measurable and data accessible from standard credit file record keeping. These were included in the survey instrument to be pilot tested and used in phase two of the research fieldwork.

3.2.1 The research population

The population comprised all credit managers employed by commercial banks in Tanzania.

3.2.2 The research sample

Samples of five credit managers were selected on an access and availability basis. The research sample was thus convenient in nature.

3.2.3 Data collection and analysis

Interviews were set up and carried out using semi structured interview instruments. The semi- structured interview revolves around a few central questions aligned with the objectives of the interview. See Appendices 2 for a copy of the instrument used for interviewing the credit managers. Each interview was conducted in person by the researcher and digitally recorded (with permission). Two of the credit managers requested that the interview not be recorded. Notes were taken throughout all the interviews by the researcher. The interviews were transcribed and then content analysed by the researcher. The responses were matched to the variables identified through the literature review.

3.2.4 Results

A total of sixteen variables were identified, comprising of variables from bank characteristics, borrower characteristics, loan characteristics and relationship measures.

3.2.5 Survey instrument design and pilot testing

Based on the above results, a survey instrument using a categorized questionnaire were designed to be used by the credit managers/bank representative to collect data from credit files. These were pilot tested on three internal credit managers.

Leedy & Ormrod (2001) recommend the use of a brief pilot study to test the validity and reliability of a measurement instrument developed for a specific purpose and never previously tested or used in practise. Respondents in the pilot test were requested to provide their comments and criticisms on the survey content and structure. The survey statements and answer grid structure were modified to take into account all issues and concerns raised.

Fieldwork phase one concluded with a refined list of 16 variables that impact credit decisions in commercial banking in Tanzania. The list below provides a description of the variables used in the final questionnaire:

Q1 (FINANCIAL INSTITUTION SIZE) measures the importance of Financial Institutions Size on the credit decision.

Q2 (FINANCIAL INSTITUTION OWNERSHIP) measures the importance of financial institutions Ownership on the credit decision

The impact of firm characteristics are measured by Q3.1, Q3.2, Q4 & Q5, where:

Q3.1 & Q3.2 (FIRM SIZE I & II) are explanatory variables that measure the importance of Firm Size, as defined by the number of the work force and by the level of capital investment respectively, on the credit decision.

Q4 (FIRM OWNERSHIP) is a measurement of the importance of Firm Ownership on the credit decision.

Q5 (FIRM AGE) is an explanatory variable to measure the importance of a track record on the credit decision.

The impacts of firm financial characteristics are measured by Q6, Q7, Q8, Q9 & Q10, using the audited 2006 financials of firms in the sample, where:

Q6 (DEBT) measures the importance of the level of existing external debt on the credit decision.

Q7 (EQUITY) measures the importance of the level of existing equity on the credit decision.

Q8 (GEARING) is a measure of senior debt to equity, and its impact on the credit decision.

Q9 (TURNOVER) measures the importance of annual turnovers on the credit decision.

Q10 (NET INCOME) measures firm's profitability and its impact on the credit decision.

The impacts of relationship measures on credit decision making are measured by Q11 & Q12, where:

Q11 (LENGTH OF RELATIONSHIP) measures the importance of the length of the relationship a firm has with a bank on the credit decision.

Q12 (EXCLUSIVITY) measures the importance of the nature of the relationship a firm has with a bank on the credit decision.

The impact of loan characteristics on credit decision making are measured by Q13, Q14, Q15 & Q16, where:

Q13 (LOAN AMOUNT) measures the importance of the size of the loan being requested on the credit decision.

Q14 (TYPE OF FACILITY) measures the importance of the type of the loan being requested on the credit decision.

Q15 (LOAN TENOR) measures the importance of the tenor of the loan being requested on the credit decision.

Q16 (COLLATERAL) measures the importance of the type of the collateral being offered to secure the loan on the credit decision.

See Appendices 3 for the modified final survey answer grid used in Fieldwork Phase Two.

3.3 Fieldwork Phase Two - The quantitative study

The quantitative survey was the primary research methodology employed. Based on the above variables, the following Hypothesis was identified:

H0: SME Credit decision making in Tanzania is influenced by the bank's size and ownership; the firm's size, ownership, age, existing debt level, equity, debt to equity ratio, turnovers and net income; the length & nature of the bank relationship; and, the loan amount, type, tenor & security.

H1: SME Credit decision making in Tanzania is not influenced by the bank's size and ownership; the firm's size, ownership, age, existing debt level, equity, debt to equity ratio, turnovers and net income; the length & nature of the bank relationship; and, the loan amount, type, tenor & security.

Using the above hypothesis, a model was proposed for factors that influence SME credit decision making in the Tanzania commercial banks:

Model I:

$$Q17= \beta_0 + \beta_1 Q1 + \beta_2 Q2 + \beta_3 Q3 + \beta_4 Q4 + \beta_5 Q5 + \beta_6 Q6 + \beta_7 Q7 + \beta_8 Q8 + \beta_9 Q9 + \beta_{10} Q10 + \beta_{11} Q11 + \beta_{12} Q12 + \beta_{13} Q13 + \beta_{14} Q14 + \beta_{15} Q15 + \beta_{16} Q16$$

Where:

Q17 = the dependent variable
β_0 = a Constant
β_1 to β_{16} = coefficients
Q1 to Q16 = are the explanatory variables explained in section 3.2.5.

3.3.1 The research population

The research population comprised of all credit decisions made in Tanzania in 2007.

3.3.2 The research sample

10 of the commercial banks active in Tanzania were approached and asked to participate in the survey. Helpful factors in obtaining these highly confidential data were: a) the researcher has many connections in the banking industry, being the current head of corporate banking in one of the participating banks and after working for 3 years in another; b) the researcher signed confidentially agreements with participating banks confirming that the researcher would in no way reveal or implicate any name of a bank in the research report and the questionnaires would not have information about a customer's names or contacts; and c). participating banks were also offered a summary of the findings as an incentive for participation. The following eight banks participated in

the survey. Below are the profiles of each bank that participated, we can not disclose the name of the banks, as per the confidentiality agreements:

- A Medium Foreign Bank (South African)
- A Medium foreign Bank (American)
- A Large Foreign Bank (British)
- A Large Local Bank (Black Tanzanian owned)
- A Medium Local Bank (Asian owned)
- A Large Foreign Bank (South African)
- A small local bank (Black Tanzanian Owned)
- A (medium/small state owned bank)

Two other small local banks initially agreed to participate but then failed to take any action to do so and were consequently excluded from the survey. Together the participating banks represent a market share estimated at over 80% of the Commercial Banking market in Tanzania.

The primary selection criterion for the review of the credit files was to cover credit granting decisions in 2006 & 2007. The second criterion was to consider both approved and declined credits.

Each bank assigned a representative to review the credit files, fill in the questionnaire and return the same to the researcher. Between 17 and 50 questionnaires where returned from each bank that participated.

3.3.3 Data collection and analysis

The Survey instruments were distributed to the bank representatives by electronic mail. On completion these were returned to the researcher using electronic mail in excel format. The Survey was sent to the participating banks on 15 August 2007. Between this date and end of October 2007 the researcher was in telephonic and electronic mail contact with the contact person at each of the participating banks on a weekly basis urging completion and return of the survey instruments.

In analysing the data it was important to bear in mind the limitations inherent in the sample. Random sampling is probabilistic sampling. Each member of the population has an equal and known chance of being selected. When there are very large population, it is often difficult and impossible to identify every member of the population, so the pool of available subjects becomes biased. Our data did not represent rural based financial institutions. Only one small bank and one state bank participated in the survey. The data had greater representation of data from foreign banks and large/medium banks. Further, not all financial institutions in Tanzania participated. Because most financial institution either archive or throw out declined facilities (i.e. the care of record keeping of declined facility application is not the same as the record keeping of approved facilities), it was more difficult to gain access to these files where available. Further, not all declined credit files were available, hence biased was towards approved files. Due to these data distortions and limitations, we can not therefore fully rely on our sample as being 100% representative and inferences made through analysis of the data can not be generalised and extended to the general public.

However the sample is considered to be fairly representative of the credit decision making in 2006/2007 in Commercial Banks in Tanzania. The database includes the data needed concerning bank characteristics, firm characteristics, relationship characteristics, loan characteristics and lender characteristics.

The raw data from the returned survey instruments was captured and collated using Microsoft Excel, and analysed using SPSS.

4. Chapter 4: Research Results

4.1 Descriptive Statistics and Analysis: Frequencies

Table 1: Summary of Frequencies

Variables	Variable description	Categories	Frequency	Percent
1	Bank Size	Large:	99	42.7
		Medium:	96	41.4
		Small:	37	15.9
2	Bank Ownership	Foreign	116	50
		Local African	74	31.9
		Local Asian	28	12.1
		State	14	6
3.1	Firm Size (no. of employees)	Medium:	111	47.8
		Small	121	52.2
3.1	Firm Size (capital invested)	Medium:	115	49.6
		Small	117	50.4
4	Firm Ownership	Foreign	37	15.9
		Local African	105	45.3
		Local Asian	62	26.7
		Local Arab	21	9.1
		State	7	3
5	Firm Age	Over 10 yrs	72	31
		over 5 years but below 10 years	71	30.6
		over 1 year but below 5 yrs	50	21.6
		below 1 yr	39	16.8
6	Existing Debt	Very high	58	25
		High	28	12.1
		Medium	21	9.1
		Low	33	14.2
		Very low	92	39.7
7	Existing Equity	Very high	64	27.6
		High	37	15.9
		Medium	64	27.6
		Low	65	28
		Very low	2	0.9
8	Debt to Equity ratio	high	59	25.4
		Medium	146	62.9
		Low	27	11.6
9	Turnovers	high	95	40.9
		Medium	20	8.6
		Low	117	50.4

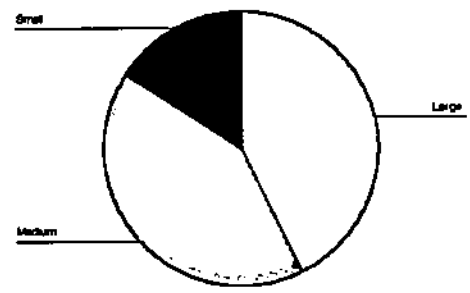
Table 1: Summary Frequencies Continued

Variables	Variable description	Categories	Frequency	Percent
10	Net Income	high	48	20.7
		Medium	18	7.8
		Low	94	40.5
		Negative	72	31
11	Length of Bank Relationship	Over 10 yrs	75	32.3
		over 1 year but below 5 yrs	75	32.3
		up to 1 year	23	9.9
		No relationship	59	25.4
12	Nature of Bank Relationship	Exclusive	89	38.4
		non-exclusive	81	34.9
		no relationship	62	26.7
13	Loan Amount	Very large	40	17.2
		large	69	29.7
		medium	44	19
		small	29	12.5
		very small	50	21.6
14	Type of Loan	overdraft	106	45.7
		term finance	87	37.5
		leasing	14	6
		Trade (structure)	19	8.2
		trade/LC/Guaranteed	6	2.6
15	Loan Tenor	Long term	11	4.7
		medium term	91	39.2
		short term	129	55.6
16	Collateral Offered	cash cover /first class bank guaranteed	6	2.6
		mortgage and /or debenture charge over fixed & floating asset	180	77.6
		unsecured	8	3.4
		parent guarantee	2	0.9
17	The Credit Decision	Approved	152	65.5
		declined	80	34.5

4.1.1 Bank Characteristics:

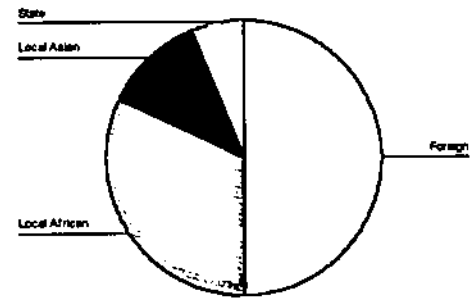
Out of 232 credit files reviewed, 43% where from large banks, 41% from medium banks and only 15.9% from small banks . In total, 8 banks participated in the survey, 3 out of the 8 where classified as large bank, 3 as medium and 2 as small banks. This can possibly explain the relatively low percentage of files from small banks and can be a cause of bias against the data received from small banks.

Figure 6: Bank Size

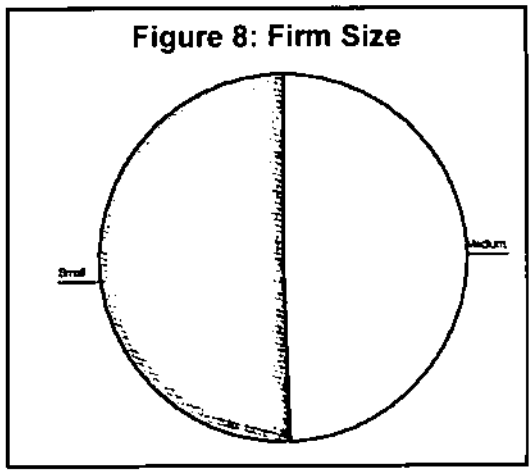


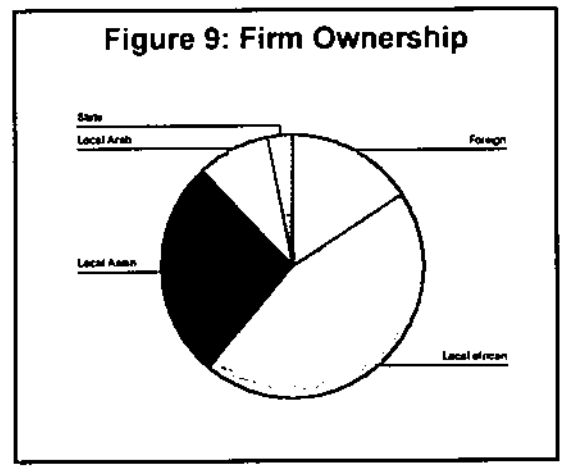
50% of all files reviewed credit files where from foreign banks, 32% of local African owned banks and the balance from Local Asian owned banks & state owned banks. This gives us an insight into the financial institution structure in Tanzania. It is a liberal industry with the presence of foreign, local, large, small & state banks.

Figure 7: Bank Ownership

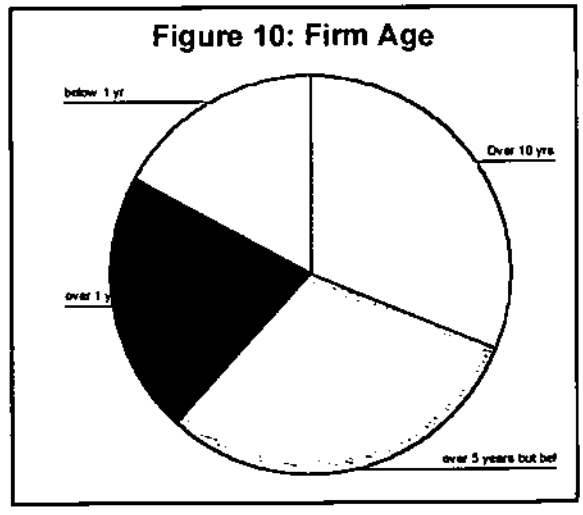


4.1.2 Borrower Characteristics:





Our data was fairly equality represented by small and medium firms, and majority represented by local African and local Asian firms.



62% of the files reviewed were loans requested by older, relatively more established firms who have been in operation for over 5 yrs. Only 17% of the credits reviewed were from young firms with less than one year of operations.

4.1.3 Relationship Characteristics:

Figure 11: Length of Bank Relationship

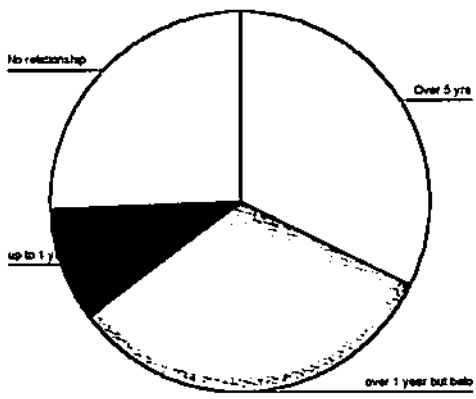
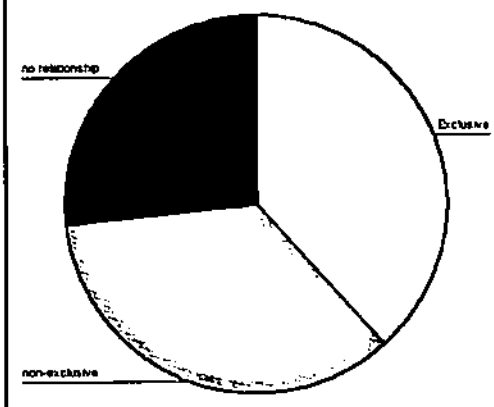


Figure 12: Nature of Bank Relationship



A graphical representation of the frequency distribution of the relationship measurements variables.

4.1.4 Loan Characteristics:

Figure 13: Security

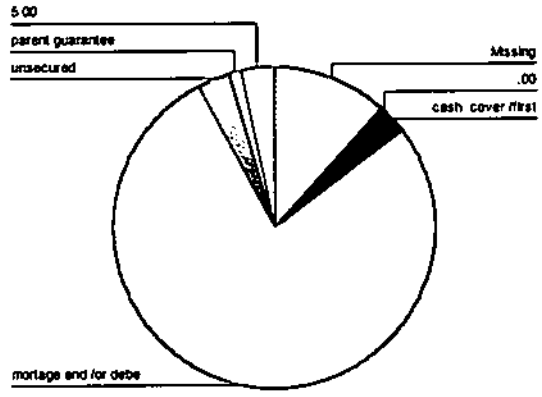


Figure 14: Facility Type

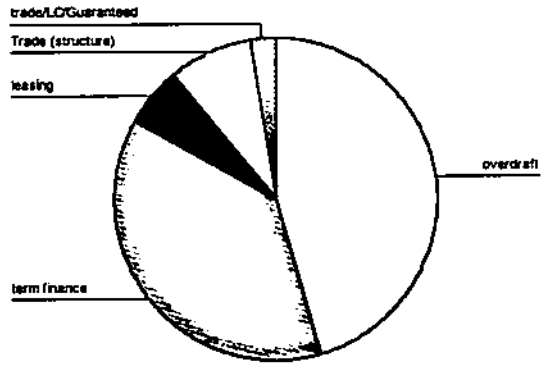


Figure 15: Loan Amount

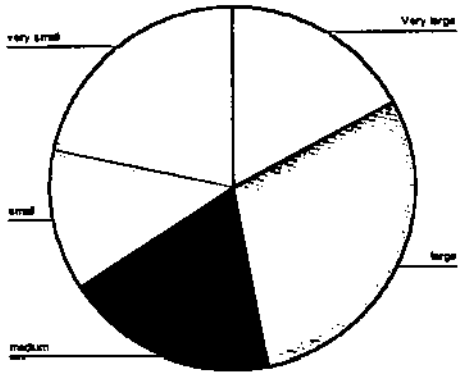
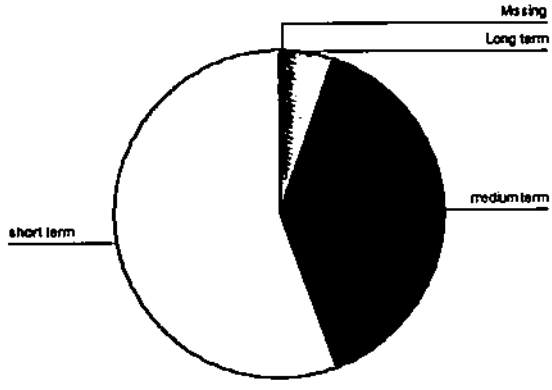


Figure 16: Loan Tenor

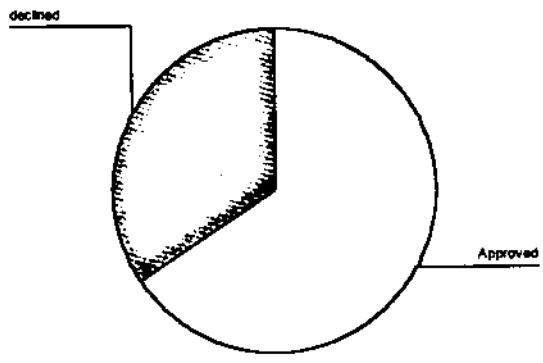


Most of the loans requested were for overdraft facilities and term loans, with majority tenors of short (up to one year) and medium tenors (up to 5 years). There was however a fair distribution of the loan size mix as depicted in figure 15. The most common security offered was a charge over tangible assets. This accounted for 78% of loans reviewed. An important point to note here is that the Central Bank of Tanzania financial Institution 1991 Act stipulates that all loans regardless as to where they are short term or long term, direct or contingent must be 125% secured by tangible assets. Financial institutions may only

lend unsecured up to 5% of their core capital (United Republic of Tanzania, Central Bank, 1991).

4.1.5 The Credit Decision:

Figure 17: The Credit Decision



66% of the loans from our data where approved and 34% were declined.

4.2 Descriptive Statistics & Analysis: Cross Tabulations

We ran cross tabulations on the dependent variable (Q17) with each explanatory variables using SSPA statistical tool so as to have a first feel/view of possible antecedents to factors that influence the availability and accessibility of external finance to SME in Tanzania. It must be noted here that in this section of the report, we do not prove or disproof any association of the explanatory variables on the depended variable (Q17: the credit decision), we will do so in the next section using inferential statistic. This section merely gives us an indication of the possible explanatory variables that might have an impact on our dependent variable Q17. Below are our results:

4.2.1 Bank Characteristics

Table 2: Q1 * Q17 Cross tabulation

		Q17 (credit decision)	
		Approved	declined
Q1 (Bank Size)	Large:	68	31
		44.70%	**38.80%**
	Medium:	61	35
		40.10%	**43.80%**
	Small:	23	14
		15.10%	**17.50%**
Total		152	80
		100.00%	100.00%

Table 3: Q2 * Q17 Cross tabulation

		Q17 (credit decision)	
		Approved	declined
Q2 (Bank ownership)	Foreign	76	40
		50.00%	50.00%
	Local African	48	26
		31.60%	**32.50%**
	Local Asian	19	9
		12.50%	**11.30%**
	State	9	5
		5.90%	**6.30%**
Total		152	80
		100.00%	100.00%

From the cross tables above, there appears not to be any specific trends/relationship between both Bank size and Bank ownership with credit decision.

4.2.2 Borrower Characteristics

Table 4: Q3.2 * Q17 Cross tabulation

		Q17 (the credit decision)	
		Approved	declined
Q3.2(firm size II)	Medium:	81	34
		53.30%	**42.50%**
	Small	71	46
		46.70%	**57.50%**
Total		152	80
		100.00%	100.00%

A greater number of credit were approved for medium firms that smaller firms, and a greater number of credits were declined for small firms than for medium sized firms. This could be an indication to suggest that the variable firm size does have an impact on the ability of firms to access external finance, which would be inline to our findings in the literature review.

Table 5; Q4 * Q17 Cross tabulation

		Q17(the credit decision)	
		Approved	declined
Q4 (firm ownership)	Foreign	32	5
		21.10%	**6.30%**
	Local African	67	38
		44.10%	**47.50%**
	Local Asian	36	26
		23.70%	**32.50%**
	Local Arab	11	10
		7.20%	**12.50%**
	State	6	1
		3.90%	**1.30%**
Total		152	80
		100.00%	100.00%

All entities had more credit approvals than declines, however, the proportion of approvals verses declined was greater for foreign entities (32 approved verses 5 declined) and state companies (6 approved vs. 1 declined). This would be in line with our literature findings that foreign firm have greater access to external finance because they can more easily access this from international financial institutions, as do state firms because they can access finance from state owned financial institutions.

Table 6: Q5 * Q17 Cross tabulation

		Q17	
		Approved	declined
Q5 (firm age)	Over 10 yrs	54	18
		35.50%	**22.50%**
	over 5 years but below 10 years	48	23
		31.60%	**28.80%**
	over 1 year but below 5 yrs	35	15
		23.00%	**18.80%**
	below 1 yr	15	24
		9.90%	**30.00%**
Total		152	80
		100.00%	100.00%

What we can read from the above is that it appears as though for firms younger than one year, there were more credit declines than approvals, whereas for firms older than a year there were more credit approvals than declines. This would be in line with findings in the literature review that older firm have greater access to external finance than younger firms.

Table 7: Q6 * Q17 Cross tabulation

		Q17(the credit decision)	
		Approved	declined
Q6 (existing debt)	Very high	41	17
		27.00%	**21.30%**
	High	16	12
		10.50%	**15.00%**
	Medium	17	4
		11.20%	**5.00%**
	Low	22	11
		14.50%	**13.80%**
	Very low	**56**	**36**
		36.80%	**45.00%**
Total		152	80
		100.00%	100.00%

From Table 7 above, looking at the very high debt scores and very low debt scores, one could assume that very high existing debt level improves a firm's chances of accessing further debt, and conversely, that at very low existing debt levels, a firm's chance of accessing additional debt is lower, further, out of the total decline credits, 45% constituted of credit applications made by firms with very low debt. This would be contrary to our findings in the literature reviews which suggest that higher existing debt is inversely related to a firm's access to external finance.

Table 8: Q7 * Q17 Cross tabulation

		Q17(the credit decision)	
		Approved	declined
Q7 (equity)	Very high	53	11
		34.90%	**13.80%**
	High	21	16
		13.80%	**20.00%**
	Medium	42	22
		27.60%	**27.50%**
	Low	35	30
		23.00%	**37.50%**
	Very low	1	1
		0.70%	**1.30%**
Total		152	80
		100.00%	100.00%

Table 8 above, indicates that the higher a firm's existing tangible equity the greater their access to external finance. This is in line with existing literature.

Table 9: Q8 * Q17 Cross tabulation

		Q17(the credit decision)	
		Approved	declined
Q8 (debt to equity ratio)	high	24	35
		15.80%	**43.80%**
	Medium	112	34
		73.70%	**42.50%**
	Low	16	11
		10.50%	**13.80%**
Total		152	80
		100.00%	100.00%

Table 9 above provides indicatives to suggest that high gearing levels, as measured by the debt to equity ratio, should result in lower access to credit and low gearing levels should result in a greater access to external credit, this would be in line with literature findings.

Table 10: Q9 * Q17 Cross tabulation

		Q17 (the credit decision)	
		Approved	declined
Q9 (turnover)	high	65	30
		42.80%	**37.50%**
	Medium	13	7
		8.60%	**8.80%**
	Low	74	43
		48.70%	**53.80%**
Total		152	80
		100.00%	100.00%

53.8% of all declined facilities were from credit applicants with low turnover as of 2006 financials. This would be in line with literature findings that lower profitability as measured by gross turnover should result in more difficulties accessing external finance. Our data does also show that majority of the credits approved were for applicants with relatively low turnovers (48.7%). This could be a reflection of the nature of our data, being made up of SME comprising also of relatively small firms who naturally therefore have low turnovers. It is another indication of the firm size. In addition, 42.8% of the credits approved were from applicants with relatively high turnovers, which is in line with literature findings.

Table 11: Q10 * Q17 Cross tabulation

		Q17 (credit decision)	
		Approved	declined
Q10 (Net Income)	high	39	9
		25.70%	**11.30%**
	Medium	15	3
		9.90%	**3.80%**
	Low	69	25
		45.40%	**31.30%**
	Negative	29	43
		19.10%	**53.80%**
Total		152	80
		100.00%	100.00%

53.8% of all declined facilities were from credit applicants with negative net income as of 2006 financials. This would in line with literature finds that a higher profitability as measured by net income or return on capital results in greater access to finance. However, our data does also show that 45.40% of all credits approved were for applicants with relatively low net profits. This could be partly the results of the nature of data collected, i.e. data for SME, relatively smaller firms, etc.

4.2.3 Relationship measures

Table 12: Q11 * Q17 Cross tabulation

		Q17(the credit decision) Approved	declined
Q11(bank relationship)	Over 5 yrs	59	16
		38.80%	**20.00%**
	over 1 year but below 5 yrs	43	32
		28.30%	**40.00%**
	up to 1 year	16	7
		10.50%	**8.80%**
	No relationship	34	25
		22.40%	**31.30%**
Total		152	80
		100.00%	100.00%

Over 38% of the facilities approved were for applicants who had long relationship with their bank, i.e. over 5 years, and over 67% were from applicants with over one year prior relationship with the bank. Similarly only 20% of all declined credit applications were from applicants who had over 5 years relationship with the bank, whilst over 40% were from applicants either had no prior relationship or relatively a short relationship with their bank, i.e. up to one year. This could suggest that this relationship variable does impact the credit decision, and that firms with relatively longer relationships with their banks had greater access to finance than firm with relatively shorter relationship, and would be in line with our literature findings.

Table 13: Q12 * Q17 Cross tabulation

		Q17 (credit decision)	
		Approved	declined
Q12 (nature of relationship)	Exclusive	56	33
		36.80%	**41.30%**
	non-exclusive	59	22
		38.80%	**27.50%**
	no relationship	37	25
		24.30%	**31.30%**
Total		152	80
		100.00%	100.00%

From the table above, there appears not to be great differences between the type of bank relationship and the credit decision.

4.2.4 Loan Characteristics

Table 14: Q13 * Q17 Cross tabulation

		Q17 (credit decision)	
		Approved	declined
Q13 (amount requested)	Very large	25	15
		16.40%	**18.80%**
	large	45	24
		29.60%	**30.00%**
	medium	30	14
		19.70%	**17.50%**
	small	18	11
		11.80%	**13.80%**
	very small	34	16
		22.40%	**20.00%**
Total		152	80
		100.00%	100.00%

It is difficult to interpret the above results because there appears not to be significant difference between the different sizes of the loans that were being evaluated. We will be in a better position to evaluate the relationship between a loan size and the credit decision from our results using inferential statistics in the proceeding section.

Table 15: Q14 * Q17 Cross tabulation

		Q17(the credit decision)	
		Approved	declined
Q14 (type of facility)	overdraft	74	32
		48.70%	**40.00%**
	term finance	43	44
		28.30%	**55.00%**
	leasing	13	1
		8.60%	**1.30%**
	Trade (structure)	16	3
		10.50%	**3.80%**
	trade/LC/Guaranteed	6	
		3.90%	
Total		152	80
		100.00%	100.00%

Over half of all declined applications were for term loans whilst the majority (48.7%) of loan approvals where for short term overdrafts, this could be an indication that highlights the general difficulty for SME to access longer term finance and would be in line with our literature findings. There appears to be limited use of leasing and trade facilities. Further research should be conducted to observe the lending infrastructure governing the above lending technologies so as to understand possible reasons behind their relatively limited utilisation.

Table 16: Q15 * Q17 Cross tabulation

		Q17(the credit decision)	
		Approved	declined
Q15 (loan tenor)	Long term	6	5
		4.00%	6.30%
	medium term	51	40
		33.80%	50.00%
	short term	94	35
		62.30%	43.80%
Total		151	80
		100.00%	100.00%

Majority of the facilities approved (over 60%) where for short term loans, whilst majority of the facilities decline were for medium term loans (up to 5 year tenors); however, a high percentage of short term loans where also declined comprising of around 44% of

total declined facilities. This could indicate that there are other variables besides tenor that influence the credit decision and would be in line with empirical findings.

Table 17: Q16 * Q17 Cross tabulation

	Q17 (credit decision)	Approved	declined
Q16 (type of security offered)	cash cover /first class bank guaranteed	7	
		5.50%	
	mortgage and /or debenture charge over fixed & floating asset	106	74
		83.50%	**94.90%**
	unsecured	5	3
		3.90%	**3.80%**
	parent guarantee	2	
		1.60%	
	Government guaranteed	7	1
		5.50%	**1.30%**
Total		127	78
		100.00%	100.00%

Majority of all approved facilities comprised of loans that would be secured by fixed and movable assets. However, majority of the loan declined equally also comprised of loan applications that would be secured by fixed and movable assets. Hence, one can assume that offering security in it self is not adequate or a guarantee for an approval. It also appears as through security is a prerequisite as only approximately 4% of approved and declined applications were with no security. This would be in line with literature findings of the use of collateral to reduce moral hazard and adverse selection.

4.2 Inferential Statistics: Probit Results, Analysis & Interpretations

The 16 explanatory variables thought to have a direct impact on a firm's ability to access external finance where tested in order to accept or reject our Null hypothesis and proposed model.

Q17 (the Credit Decision) is our dependent variable. This is a binary variable; hence, we invoke the Probit Model for our data analysis.

The Probit Model is an econometric model that uses the cumulative normal probability distribution to test the marginal effect of independent variables on the dependent variable.

4.2.1 Probit Results

Table 18 below illustrates the results generated by the Probit Model:

Table 18: Probit Results

Iteration 0: log likelihood = -136.182
Iteration 1: log likelihood = -93.376356
Iteration 2: log likelihood = -89.728116
Iteration 3: log likelihood = -89.586054
Iteration 4: log likelihood = -89.585684

Probit regression — Number of obs = 205
LR chi2(17) = 93.19
Prob > chi2 = 0.0000

Log likelihood = 89.585684 — Pseudo R2 = 0.3422

Marginal effects after probit
y = Pr(q17) (predict)
= .33400297

variable	dy/dx	Coef.	Std. Err.	z	P>z	[95%	C.I.]	X
q16	.090247	.2480079	.06005	-1.50	0.133	-.207937	.027443	2.13659
q15	-.2645956	-.7271356	.07841	-3.37	0.001	-.418273	-.110919	2.54146
q14	.082252	.2260369	.05555	-1.48	0.139	-.191127	.026623	1.73659
q13	-.1259345	-.3460809	.04784	-2.63	0.008	-.219699	-.03217	2.90244
q12	.0964234	.2649813	.08274	-1.17	0.244	-.258592	.065746	1.87805
q11	.1274589	.3502699	.06206	2.05	0.040	.005814	.249103	2.22927
q10	.1889034	.5191256	.0507	3.73	0.000	.089529	.288278	2.77073
q9	.3057395	.8402032	.11781	-2.60	0.009	-.536645	-.074834	2.03902
q8	-.1196448	-.3287959	.07265	-1.65	0.100	-.262042	.022752	1.86341
q7	.3004609	.8256969	.09959	3.02	0.003	.105274	.495648	2.52195
q6	-.1196134	-.3287097	.06087	-1.97	0.049	-.238917	-.00031	3.20976
q5	-.0779134	-.2141139	.05302	1.47	0.142	-.025996	.181823	2.18049
q4	-.0506075	-.1390746	.0475	1.07	0.287	-.042499	.143714	2.39024
q3_2	.4172953	1.14677	.2261	1.85	0.065	-.025855	.860445	1.48293
q3_1	.0424255	.1165896	.20244	-0.21	0.834	-.439201	.35435	1.52195
q2	.0347594	.0955224	.05317	-0.65	0.513	-.138965	.069446	1.70732
q1	.0300901	.0826907	.07753	-0.39	0.698	-.182038	.121858	1.76585
Cons		.9097162						

The model was run at a 95% confidence interval. Out of the 232 observations, 27 observations that did not have complete responses where dropped by the model, leaving a total of 205 observations.

Prior to comparing our dependent variable (Q17) with other variables, the likelihood of a credit being approved was 89.6%. The Chi-Square for our dependent variable was 93.19%, however, because our raw data was categorical in nature, this Chi-square results can not be used to test the fitness of the variable and must therefore be ignored.

4.2.2 Interpretation of Probit Results

The marginal effects of the probit model are as follows:

The variables **Q3.2 (FIRM SIZE II), Q6 (DEBT), Q7 (EQUITY), Q8 (GEARING), Q9 (TURNOVER), Q10 (NET INCOME), Q11 (LENGTH OF RELATIONSHIP), Q13 (LOAN AMOUNT), and Q15 (LOAN TENOR)** were found to be statistically significant at 10% while the remaining variables were found to be insignificant.

In our analysis we will interpret only the variables that are found to be significant.

From table 18 above, a one unit increase in Firm Size II (Q3.2) increases the probability of a credit approval by 42%. This is in line with the empirical research on the impact of firm size on a firm's access to external finance. Larger firms have greater access to external finance than smaller firms (Gertler and Gilchrist, 1994; Becks, *et al.*, 2003; Becks, *et al.*, 2004; Becks, *et al.*, 2004a; Boughean, *et al.*, 2005).

A unit increase in a firm's existing debt decreases the probability of a credit approval by 12%. Debt is inversely related to access to finance, i.e. the higher a firm's existing debt levels the smaller the likelihood of accessing further debt. Boughean, *et al.*, 2005 finds that high levels of accumulated debt might not be able to get access to external finance.

A unit increase in a firm's tangible equity increases the probability of a credit approval by 30%. This is in line with our literature findings that at very low equity levels, firms might not be able to get access to finance (Boughean, *et al.*, 2005).

A unit increase in a firm's debt to equity ratio decreases the probability of a credit approval by 12%. Gearing is therefore inversely related to access to finance, the higher the gearing the lower the chances of obtaining credit approvals and the lower the gearing the higher the chances of an approval. This is in line with literature findings associated with the use if balance sheet lending (Haynes, *et al.*, 1999; Townsen and Yaron, 2001).

A unit increase in a firm's financial performance in terms of turnover increases the probability of a credit approval by 31%. Higher turnover can also be considered to be a measure of a firm's size, as large firms generally would have higher turnovers than smaller firms. Hence, the arguments and findings on the impact of firm size on a firm's access to external finance would also apply here. Our findings confirm that larger firms have greater access to external finance than smaller firms.

A unit increase in a firm's net income increases the likelihood of a credit approval by 19%. This is in line with literature findings that the higher or better the financial performance of the firm the greater the likelihood of it obtaining external finance (Haynes, *et al.*, 1999; Boughean, *et al.*, 2005).

From our relationship measures, the results show that a unit increase in the number of years a firm has a relationship with a bank increases the likelihood of getting an approved credit by 13%. This confirms findings by Petersen and Rajan 1994; Sharpe, 1990; Fohlin, 1998; Boot, 2000; Berger, *et al.*, 2001; Cole, *et al.*, 2004; Elsa, 2005, on the impact of relationship lending on access to external finance.

Our results also indicate that a unit increase of the size of the loan being requested, decreases the probability of a credit approval by 13%, Boughean, *et al.*, 2005, has found that the larger a firm's project and hence loan amount being requested in relation to it's size, the least likely the possibility of it accessing external finance.

And, a unit increase the tenor of the loan being requested decreases the likelihood of a credit approval by 26%. This could be the results of the liquidity environment in Tanzania. Generally most commercial banks lend up to 5 years maximum, with the exception of a very few that lend up to 10 years. This is generally because most banks funding base is short term in nature, thereby creating a funding mismatch with longer dated debt instruments. Further research needs to be undertaken in this field.

However, because variables **Q1, Q2, Q3.1, Q4, Q5, Q12, Q14 & Q16** are insignificant, we must reject the null hypothesis that:

H0: SME Credit decision making in Tanzania is influenced by the bank's size and ownership; the firm's size, ownership, age, existing debt level, equity, debt to equity ratio, turnovers and net income; the length & nature of the bank relationship; and, the loan amount, type, tenor & security.

And accept the alternative hypothesis that:

H1: SME Credit decision making in Tanzania is not influenced by the bank's size and ownership; the firm's size, ownership, age, existing debt level, equity, debt to equity ratio, turnovers and net income; the length & nature of the bank relationship; and, the loan amount, type, tenor & security.

The proposed model I, that would predict SME credit decision making in the Tanzania commercial banks, therefore, does not hold for this sample.

Model I:

$$Q17= \beta_0 + \beta_1 Q1 + \beta_2 Q2 + \beta_3 Q3 + \beta_4 Q4 + \beta_5 Q5 + \beta_6 Q6 + \beta_7 Q7 + \beta_8 Q8 + \beta_9 Q9 + \beta_{10} Q10 + \beta_{11} Q11 + \beta_{12} Q12 + \beta_{13} Q13 + \beta_{14} Q14 + \beta_{15} Q15 + \beta_{16} Q16.$$

Based on our sample results, a new model II is proposed.

Model II:

$$Q17 = \beta_0 + \beta_3 Q3.2 + \beta_8 Q6 + \beta_7 Q7 + \beta_8 Q8 + \beta_9 Q9 + \beta_{10} Q10 + \beta_{11} Q11 + \beta_{13} Q13 + \beta_{15} Q15.$$

Where:

$$Q17 = 0.9 + 1.5Q3.2 - 0.3Q6 + 0.8Q7 - 0.3Q8 + 0.8Q9 + 0.5Q10 + 0.4Q11 - 0.3Q13 - 0.7Q15.$$

4.2.3 Limitations

In addition to the data limitation and distortions discussed in section 3.3.1.3, it is important to note here that there were a number of explanatory variables identified in the literature review, beyond the 16 variables discussed, that were unobserved. From the supply side, these were variables that would be derived from the impact of the lending infrastructure (i.e. bankruptcy laws & their enforcements; regulatory restrictions to lending & barriers to entry, property rights & their enforcement; accounting standards & rules for sharing information; and the tax environments that affect credit extension), on the availability of external finance to SME. On the demand side, these were variables that would be derived from the impact of country specific development variables (i.e. the business environment, the regulatory environment and level or extent of economic development). Information that is necessary to measure and test these variables were not available from the credit files reviewed. Our results and proposed new model of factors that influence the availability and accessibility of external finance to SME in Tanzania, therefore, does not take into consideration all possible explanatory variables. We therefore can not generalise our findings to the total population.

5. Chapter 5: Conclusion & Recommendations

The purpose of our research was to evaluate the availability and accessibility of external finance to SME in Tanzania. We have reviewed empirical literature on the subject and have found that the availability and accessibility of external finance depends on supply side and demand side variables.

We have found that supply side variables are those relating to the:

i) impact of financial institution structure on the availability of external finance to SME,
ii) impact of the lending infrastructure on the availability of external finance to SME,
iii) And, the impact of the lending technologies on the availability of external finance to SME.

Demand side variables are those relating to the:

i) impact of firm characteristics on the accessibility of external finance to SME,
ii) the impact of the loan characteristics on the accessibility of external finance to SME,
iii) And, the impact of country specific development variables (i.e. the business and regulatory environments) on the accessibility of external finance to SME.

From our review of the literature on the impact of financial institution structure on the availability of external fiancé to SME, we can conclude that a more developed banking structure with a combination of small, large, foreign, local & private banks should facilitate greater access to finance. This is because:

- small financial institutions have comparable advantage in relationship lending to information opaque smaller firms based on soft information (Berger and Udell, 2006),

- large financial institutions have comparable advantage in the deployment of transactional lending technologies (such as credit scoring) which enables them to lend even to information opaque SME,
- similarly foreign financial institutions have comparable advantage in transactional lending technologies to SME. The evidence from most studies in developing nations have found that foreign owned banks are associated with greater credit availability (Claessens, *et al.*, 2001; Clarke, *et al.*, 2005a; Beck, *et al.*, 2004a; Berger, *et al.*, 2004b).
- Local banks have comparable advantage in relationship lending to SME.
- A banking market with a greater presence of privately owned banks fosters greater availability of finance to SME, than that dominated by state banks unless these are operated independently as if they were private banks (Townsend and Yaron 2001).

Beck *et al.*, 2003, using WBES data finds that firms in countries with higher level of institutional development report significant lower financial obstacles than firms in countries with less developed institutions. Ayyagari, *et al.*, 2003 also finds that firms are larger in countries with better developed financial systems, i.e. firms are larger in countries with higher levels of private credit to GDP, a standard measure of financial intermediary development.

We conclude from the literature review that the lending infrastructure influences the availability of external finance to SME in that it influences the financial institution structure, and, the availability of lending technologies that may be effectively and profitability employed by lending institutions:

- The information environment impacts the use of financial statement lending and the use of credit scoring.
- The legal, judicial, and bankruptcy environment impacts the use of loan contracting and collateral based lending technologies.
- The empirical research have shown that firms in countries with greater financial development and stronger property rights have higher levels of external finance (Beck, *et al.*, 2004)

- The tax environment impacts the use of one lending technology over another if the two have different tax treatments.
- And, the bank regulatory environment impacts the financial institution structure.

We also conclude from our supply side variables that the presence of lending technologies does impact the availability of external finance to SME, for example, in the:

- use of financial statement lending to SME with strong audited financials,
- use of credit scoring to lend to information opaque SME
- use of asset-based lending
- use of leasing
- use of factoring
- use of group liability schemes
- And the use of relationship lending to information opaque SME.

However, we conclude that the deployment of the above technologies is dependent on the lending infrastructure (i.e. the information environment, the legal, judicial & bankruptcy environment, and , the tax and regulatory environment), as well as the structure of the financial institution market.

On the demand side variables that influence the accessibility of external finance to SME, we conclude from our literature review that:

- Firm size does impact a firm's accessibility to external finance in that larger firms are found to have greater access to finance than smaller firms (Beck, *et al.*, 2003; Gertler & Gilchrist, 1994; Becks, *et al.*, 2003; Becks, *et al.*, 2004a; Becks, *et al.*, 2004; Boughean, *et al.*, 2005).
- Older, more established firms have greater access to external finance than younger firms (Becks, *et al.*, 2003).
- Multinational or foreign firms have easier access to international sources of external finance than local firms (Becks, *et al.*, 2003).

- Indian firms in East Africa, Lebanese firms in West Africa, and European firms in South Africa have greater access to external finance black African ethic group (Biggs and Shah, 2006).
- State owned companies have greater access to external finance from state owned financial institutions (Laeven, 2003).
- And, that SME with stronger financial performance have greater access to external finance (i.e. firms with greater profitability as measured by Net Income after tax; lower gearing ratios, higher equity and higher free cash flow) have greater access to external finance (Boughean, *et al.*, 2005).

However, empirical research have shown that the business environment impacts directly firm characteristics (Schiffer and Weder, 2001; Becks, *et al.*, 2003; Ayyagari, *et al.*, 2003). Hence, a strong and conducive business environment should foster the creation and growth of SME and hence their access to finance.

On the other hand, the regulatory environment impacts loan characteristics (i.e. loan pricing, size, security, type and tenor). Monetary policy affects the cost of funds and hence interest rates that would be charged on debt (Gertler and Gilchrist, 1994). Bank regulation can impact the amount of financing each bank can lend out to an entity. It can impact the security that can be or must be obtain to secure loans.

Factors that impact the availability and accessibility of external finance to SME are not mutually exclusive.

Our micro level primary research on the Tanzanian SME market using a data base sample of 232 credit files obtained from eight financial institutions, to test the impact of sixteen explanatory variables found from our literature review, on their impact on our dependent variable (the credit decision), has revealed some interesting findings.

Nine out of the sixteen explanatory variables were found to be statistically significant at the 10% significant level, whilst seven were found to be statistically insignificant.

We therefore rejected our null hypothesis that:

H0: SME Credit decision making in Tanzania is influenced by the bank's size and ownership; the firm's size, ownership, age, existing debt level, equity, debt to equity ratio, turnovers and net income; the length & nature of the bank relationship; and, the loan amount, type, tenor & security.

Based on our sample results, we propose a new model for factors that influence the availability and accessibility of external finance to SME in Tanzania:

Model II:

$$Q17 = \beta_0 + \beta_3 Q3.2 + \beta_6 Q6 + \beta_7 Q7 + \beta_8 Q8 + \beta_9 Q9 + \beta_{10} Q10 + \beta_{11} Q11 + \beta_{13} Q13 + \beta_{15} Q15.$$

Where:

$$Q17 = 0.9 + 1.5Q3.2 - 0.3Q6 + 0.8Q7 - 0.3Q8 + 0.8Q9 + 0.5Q10 + 0.4Q11 - 0.3Q13 - 0.7Q15.$$

SME Credit decision making in Tanzania is therefore positively influenced by a firm's – size, equity, profitability, length of relationship with bank and negatively influenced to the firm's – levels of existing debt, gearing rations, loan amount & tenor. We qualify our results taking note of the research limitations discussed in sections 3.3.1.3 and 4.2.3 and recommend that a more through research is conducted that will look at a bigger, more representative sample with sufficient information to measure and test all the factors that have been seen to influence the availability and accessibility to external finance to SME from the empirical research.

Appendices 1

LIST OF REFERENCES.

1. <http://www.cia.org>
2. Ayyagari, M., Beck, T. & Demirguc-Kunt, A. 2003. 'Small and medium enterprise across the globe: A new database', *Small Business Economics.* Manuscript in press.
3. United Republic of Tanzania. Ministry of Industry and Trade, 2002. *Small and medium enterprise development policy.*
4. United Republic of Tanzania. Central Bank, 1991. *Financial Institutions Act.* Regulation 1991 Act)
5. Beck, T., Dermirguc-Kunt, A. & Levine, R. 2007. 'Small & medium enterprises, growth and poverty: cross country evidence', *World Bank Mimeo.*
6. Levine, R. and David R. 1992. 'A Sensitivity Analysis of Cross-Country Growth Regressions', *American Economic Review* 82: 942-963.
7. Beck, T., Dermirguc-Kunt, A. & Levine, R. 2005a. 'SMEs, growth and poverty: Cross-country evidence', *Journal of Economic Growth,* 10: 197-227.
8. Ayyagari, M., Demirguc-Kunt, A & Maksimovic, V. 2005. ' How important are financing constraints? The role of finance in the business environment', *World Bank Mimeo.*
9. Beck, T. and Dermirguc-Kunt, A. 2006. 'Small and medium-size enterprises: Access to finance as a growth constraint', *Journal of Banking and Finance,* 30: 2931-2943.
10. Berger, A and Udell, G. 1998. ' The economics of small business finance: The roles of private equity and debt markets in the financial growth cycle', *Journal of Banking and Finance,* 22: 613-673.
11. Galindo, A and Schiantarelli, F. 2003. 'Credit constraints and investment in Latin America', *Inter-America Development Bank,* Washington. DC.

12. Hannan, T. 1991. 'Bank commercial loam markets and the role of market structures: evidence from surveys of commercial lending, *Journal of Banking and Finance*, 15: 133-149.
13. Wright, R. 1999. 'Bank ownership and lending patterns in New York and Pennsylvania, 1781-1831, *Business History Review*, 73: 40-60.
14. Claessens, S., Demirguc-Kunt, A. & Huizinga, H. 2001. 'How does foreign entry affect the domestic banking market?', *Journal of Banking and Finance*, 25: 891-911.
15. Sapienza, P. 2004. 'The effect of government ownership on bank lending', *Journal of Financial Economics*, 74: 357-384.
16. Guiso, L., Sapienza, P. & Zingales, L. 2004. ' Does local financial development matter?', *Quarterly Journal of Economics*, 119: 929-969.
17. Clarke, G., Cull, R., Martinez Peria, M. & Sanchez, S. 2005a. 'Bank lending to small businesses in Latin America: Does bank origin matter? ', *Journal of Money, Credit, and Banking*, 37: 83-118.
18. International Finance Corporation. 1996. Leasing in emerging markets. *Lessons of Experience Series*, Washington, DC.
19. Hendel, I and Lizzeri, A. 2002. ' The role of leasing under adverse selection', *Journal of Political Economy*, 110: 113-142.
20. Frame, W., Padhi, M. & Woosley, L. 2004. 'Credit scoring and the availability of small business credit in low-and moderate-income areas', *Financial Review*, 39: 35-54.
21. Miller, M. and Rojas, D. 2004. 'Improving access to credit for SMEs: An empirical analysis of the viability of pooled data SME credit scoring models in Brazil, Colombia, and Mexico. *World Bank*, Working Paper.
22. Schiffer, M. and Weder, B. 2001. 'Firm size and the business environment: Worldwide survey results', *International Finance Corporation*, Discussion Paper No. 43, Washington, DC.
23. Robb, A. 2002. 'Small business financing: Differences between young and old firms', *Journal of Entrepreneurial Finance and Business Venture*, 7:45-65.

24. Berger, A. and Udell, G. 2006. ' A more conceptual framework for SME finance', *Journal of Banking and Finance*, 30: 1010-1016.
25. Beck, T., Demirguc-Kunt, A., Laeven, L. & Levine, L. 2004a. 'Finance, firm size, and growth. *World Bank mimeo.*
26. Voordecker, W. 2006. 'Business collateral and personal commitments in SME lending', *Manuscript in Press.*
27. Voordecker, W. and Steijvers, T. 2006 "Business collateral and personal commitments in SME lending', *Journal of Banking and Finance*, 30:3067-3086
28. Haynes, G., Ou, C. & Berney, R. 1999. ' Small business borrowing from large and small banks, *A Federal Reserves System Research Conference*, pp. 287-327.
29. Cole, R., Goldberg, L. & White, L. 2004. 'Cookie-cutter versus character: The micro structure of small business lending by large and small banks', *Journal of Financial and Quantitative Analysis*, 39: 227-251.
30. Berger, A., Miller, N., Petersen, M., Rajan, R. & Stein, J. 2005c. 'Does function follow organizational form? Evidence from the lending practices of large and small banks, *Journal of Financial Economics*, 76: 237-269.
31. Berger, A., Hasan, I. & Klapper, L. 2004b. 'Further evidence on the link between finance and growth: An international analysis of community banking and economic performance', *Journal of Financial Services Research*, 25: 169-202.
32. Stein, C. 2002. 'Information production and capital allocation: Decentralized vs. hierarchical firms', *Journal of Finance*,57: 1891-1921.
33. Berger, A., Klapper, L. & Udell, G. 2001. 'The ability of banks to lend to information opaque small businesses', *Journal of Banking and Finance*, 25: 2167-2172.
34. Townsend, R. and Yaron, J. 2001. 'The credit risk-contigency system of an Asian development bank', *Economic Perspectives*, Federal Reserve Bank of Chicago, pp. 31-48.

35. Kashyap, A. and Stein, J. 1994. 'Monetary policy and bank lending', *Chicago University Press*, Chicago, pp. 221-256.
36. Jappelli, T. and Pagano, M. 2002. 'Information sharing, lending and default: Cross-country evidence', *Journal of Banking and Finance*, 26: 2017-2045.
37. Bernanke, B. and Gertler, M. 1995. 'Inside the black box: The credit channel of monetary policy transmission', *Journal of Economic Perspectives*, 9: 27-48.
38. Bernanke, B., Gertler, M. & Gilchrist, S. 1999. *The financial accelerator in a quantitative business cycle framework*. In: Taylor, B., and Woodford, M. (Eds.), Handbook of Macroeconomics, vol. IC, Chapter 21. Elsevier, North-Holland, PP 1341-1393.
39. Freidman, B. and Kuttner, K. 1993. 'Economic activity and the short-term credit markets: An, analysis of prices and quantities', *Brookings papers on Economic Activity*, 2: 193-266.
40. Haber, S. 1997. Financial markets and industrial development: A comparative study of governmental regulation, financial innovation and industrial structure in Brazil and Mexico, 1840-1930. In: Haber, S. (Ed), How Latin America Fell behind: Essays on the Economic Histories of Brazil and Mexico, 1800-1914. *Stanford University Press*, Stanford, pp. 146-178.
41. Berger, A. 2006. 'Potential competitive effects of Basel II on banks in SME credit market in the United States', *Journal of Financial Services Research*, 29: 5-36.
42. Boughean, S., Mizen, P. & Yalcin, C. 2005. 'Access to external finance: Theory & evidence on the impact of monetary policy and firm specific characteristics,' *Journal of Banking and Finance*, 30: 199-227.
43. Klapper, L. 2006. 'The role of factoring for financing small and medium enterprises,' *Journal of Banking and Finance*, 30: 3111-3130.
44. Love, I. And Mylenko, N. 2003. 'Credit reporting and financing constraints', *World Bank*, Working paper.

45. Boot, A. 2000. 'Relationship banking: What do we know?', *Journal of Financial Intermediation*, 9: 7-25.
46. Sharpe, S. 1990. 'Asymmetric information, bank lending, and implicit contracts: A stylized model of customer relationship', *Journal of Finance*, 45: 1069-1087.
47. Elsa, R. 2005. 'Empirical determines of relationship lending', *Journal of Financial Intermediation*, 14: 32-57.
48. Fohlin, C. 1998. 'Relationship banking, liquidity, and investment in German industrialization', *Journal of Finance*, 53: 1737-1758.
49. Gertler, M. and Gilchrist, S. 1994 'Monetary policy, business cycles and the behaviour of small manufacturing firms', *Quarterly Journal of Economics*, 109: 309-340.
50. Beck, T., Demirguc-Kunt, A. & Maksimovic, V. 2004. 'Financing patterns around the world: Are small firms different?', *World Bank mimeo*.
51. Beck, T., Demirguc-Kunt, A., Laeven, L. & Maksimovic, V. 2003. 'The determines of financing obstacles', *Journal of International Money and Finance*, Manuscript in press.
52. Biggs, T. and Shah, M. 2006. 'African SME, networks and manufacturing performance', *Journal of Banking and finance*, 30: 3043-3066.
53. Laevan, L. 2003. 'Does financial liberalization reduce financing constraints?, *Financial Management*, 32 (1): 5-34.
54. Hubbard, G. 1998. 'Capital markets imperfections and investment', *Journal of economic Literature 36 (3): 193-225.*
55. *Hoshi, T.,Kashyap, A. & Scharfstein, D. 1991. 'Corporate structure, liquidity and investment: evidence from Japanese industrial groups'*, Quarterly Journal of Economics, *106 (1): 33-60.*
56. Cull, R. Davis, L. Lamoreaux, N. & Rosenthal, J. 2006. ' Historical financing of small-and medium-size enterprises', *Journal of banking and Finance*, 30: 3017-3042.

57. Wenner, L. 1995. 'Group credit: A means to improve information transfer and loan repayment performance', *Journal of Development Studies*, 32(2): 263-281.

58. Gine, X. and Karlan, D. 2007. 'Group versus individual liability: A field experiment in the Philippines', *Journal of Development studies*, In press.

59. Leedy, P.D. & Ormrod, J.E. (2001): *Practical Research: Planning and Design,* seventh edition, Upper Saddle River: Merrill Pretice Hall.

Appendices 2

Semi Structured Interview Questions

1. Do you have an SME department?

2. When making a credit extension decision on an application from an SME customer, what are the key priorities that you look at?

3. What are the other considerations you make in evaluating a credit application from an SME customer?

4. Would you lend to an entity with no security and if so, why?

5. What is the maximum tenor that you can extend on a facility?

6. What is the maximum loan amount that you can lend out to an entity?