A COMPARISON OF ALTERNATIVE FINANCING MODELS FOR SMALL AND MEDIUM SCALE ENTERPRISES (SME'S) IN DIFFERENT PHASES OF DEVELOPMENT

By

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DECLARATION

I, Chabota Haankuku, declare that the research study reported in this paper is my work, except where otherwise indicated and acknowledged. This paper has not, either in whole or part, been submitted at any other University or institution for degree purposes.

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Chabota Haankuku

Signed at ……..On the…….. Day of March 2016

ABSTRACT

Alternative funding models for small and medium sized enterprises (SMEs) are more often than not reviewed from the perspective of the entrepreneur, in line with the need for funding in each growth phase. This research addresses the problem of funding availability for SMEs by interrogating what funding models are viable from the supply side through the growth phases of a small business in South Africa. The variables employed are loan amount advanced to the small business sector, risk appetite structures and measures, such as size, product, lending rate and sector.

Using individual firm data in a cross section regression framework, the results of the study indicate a positive relationship between the size of the firm and the loan amount advanced. Evidence is presented that suggests that macroeconomic factors, such as the interest rate, do not have significant influence on lending. Further, and in confirmation of previous literature, this study indicates that there is a general lack of knowledge on how to fund small businesses in South Africa, and this research contributes to the existing literature by providing insights on the alternative models used by lenders to supply funding to SMEs.

DEDICATION

This paper is dedicated to my dear sister Choolwe, who has taught me to reach for my dreams no matter the circumstances. I also would like to thank the two special men in my life, Mr. J Simpande for being the pillar of my life, words cannot begin to express my gratitude and Mr. T Mash, for being “the shoulder” when I needed it most, you are an amazing man.
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INTRODUCTION AND BACKGROUND

1.1 Introduction

Small and medium sized enterprises (SMEs) make up the majority of business activity in growing economies, such as South Africa, and thus tend to form the engine of an economy. Cook and Nixson (2000) stressed the importance of entrepreneurship as a tool to any growing economy. One of the core challenges threatening SMEs is the expertise needed to raise capital or funding. Developing the expertise to raise capital is more than a necessary evil; it is a competitive weapon (see Bussgang, 2014). In the South African context, various funding models for SMEs exist from commercial banks to government agencies, yet little data exists on the supply side of financing to SMEs. The purpose of this research is to evaluate, and characterise the supply side of existing funding models through the development stages of a small business. This entails analysing the composition of the actual lending books of two South African SME financiers. Furthermore, this contributes to help break some of the information barriers that exist and constrain access to funding in the SME sector.

1.2 Context of study

Studies by Schiffer and Weder (2001), Beck, Demirgüç‐Kunt, and Maksimovic (2005); Beck, Demirgüç-Kunt, Laeven, and Maksimovic (2006) found that access to finance and the cost of credit are greater obstacles to the growth and development of small and medium sized enterprises (SMEs), as compared to the larger firms. This view is supported by firm level World Bank data which indicates that access to finance is perceived as one of the main obstacles to doing business.

Entrepreneurship has been identified as a key economic driving force to any thriving economy, whether developed or developing. It is an accepted standard that the broad objectives of entrepreneurship and any SME policy is to facilitate economic growth (Schiffer & Weder, 2001), in so doing, to reduce poverty by alleviating pressure on the unemployment index of an economy.

Furthermore, according to Abor and Quartey (2010), it has the benefit of addressing many associated social ills such as crime (for example. theft) and health (for example, HIV), as well as education and skills development.

The deployment of resources via the SME channel can help to tackle some of these economic problems and social ills along with the appropriate allocation of scarce resources. With entrepreneurship, an individual identifies a production opportunity, and seeks resources externally to exploit the opportunity which would typically be beyond his current resources (Ojah & Mokoaleli-Mokoteli, 2010). According to Acemoglu, Johnson, and Robinson (2005), societies which are most likely to prosper are those with economic institutions that facilitate and encourage factor accumulation, innovation and the efficient allocation of resources. Entrepreneurship via the SME channel forms that economic institution, (Ojah & Mokoaleli-Mokoteli, 2010). It is, therefore, not surprising that the SME sector in South Africa forms part of the nine strategic priorities for growth and development, as articulated in the national development plan.

According to a study conducted by Abor and Quartey (2010), it is estimated that 91% of formal business entities in South Africa are SMEs and that these SMEs contribute between 52 to 57% of GDP and are responsible for about 61% of employment. It is however surprising to read the article by Amorós and Bosma (2014) in the global entrepreneurship report that: South Africa, when compared to other sub-Saharan African countries, has the lowest youth entrepreneurial propensity of only 23.3% and an early-stage entrepreneurial activity (TEA- Total entrepreneur activity) that is very low at 10.6% for 2013, compared to a rate of nearly 27% in other sub-Saharan countries participating, respectively. Clearly if given the right attention, there is immense growth potential in the SME sector (Amorós & Bosma, 2014). With South Africa having one of the world's highest unemployment rates at 24.3% recorded in the last quarter of 2014 by Stats SA, small business sustainability has become more important than ever as an avenue to curb unfavourable unemployment rates and promote economic growth.

In a 2012 survey by Ernst & Young on entrepreneurship, Vogel (2012) found that access to finance is one of the biggest barriers to growth. 'Serial entrepreneurs' being those entrepreneurs that have

launched one or two other companies before achieving success, claim that access to credit for SMEs is one of the leading reasons for their failed attempts (Vogel, 2012). However, failure provides a platform for growth, in that mistakes are modified until a workable solution is achieved.

Nanda (2008) found that increased individual wealth almost always precludes entry into entrepreneurship. These findings confirm the presence of financing constraints which form the basis of the study. This research paper aims to help understand the institutions and markets that provide funds to SMEs in analysing the supply side of funding by evaluating alternative funding models through the development stages of a business. As stated by the President of the Republic of South Africa, Honourable Jacob Zuma, in his February 2015 state of the nation address, "small business is big business". The growth of the SME sector is an integral part of the government's economic policy. This paper dissects some of the factors that constrain small business in obtaining funding to grow their businesses.

1.3 Statement of the Problem

SMEs are intertwined with a myriad issues that hinder their growth: from lack of access to credit, to competition from large firms (Aryeetey, 1996). With South Africa having one of the continent's best financial systems, what then hinders the flow of finance from the financial system to the SME? Commercial banks have been identified as the focal lending channels to business and form the main line of external finance for SMEs. Ayyagari, Beck, and Demirguc-Kunt (2007) provide evidence that access to information is a crucial factor creating a major barrier to the lending process and thus is important both from the SME's perspective and the perspective of the providers of capital. Parker (2005) further asserts that information barriers or gaps exist between lenders and borrowers. Without the free flow of information, optimal agreements between the parties are unattainable. This study attempts to understand better the variables that influence a lender's appetite /willingness to lend and thus contribute to narrow the information gap. In so doing, this leads to increased trust between lenders and borrowers, allowing for a better flow of resources from lenders to borrowers.

It is evident from prior research done by Mahembe (2011), Falkena, Bamber, Llewellyn, and Store (2001), that a gap exists in South Africa between SME owners and suppliers of finance. This is despite the various public and private sector initiatives to facilitate access to financing. Mahembe (2011) quantifies the finance gap to be around 45-48% of all SMEs in South Africa. According to Bigsten et al. (2003), profit maximising lenders would wish to use complete information on firms to assess any loan application, such as the expected return on investment, the cost of outside funds (interest rate on loans) and collateral requirements affected by factors such as assets, outstanding debt, legal structure, industry sector, financial products.

This problem can fundamentally be defined as information asymmetry (a situation where there is imperfect knowledge, due to the cost involved in obtaining the information) and is prevalent in access/provision of funding. According to Ojah and Mokoaleli-Mokoteli (2010), this problem is more prevalent in the market for loans as borrowers have more information about the state of their affairs than lenders. Information received from the borrower may be under or over stated. Lenders verify borrowers' information to the best of their ability and still could get it wrong. Ultimately lenders would require higher and or more collateral to compensate them for the risk associated with assessing the repayment ability on distorted information (Bigsten et al., 2003).

Agency problems related to asymmetric information are described under two components. Firstly, adverse selection is described as a problem arising when one counterpart in the transaction is unable to distinguish the levels of risk in the other counterpart. The second problem is described as moral hazard where the risk taking party to a transaction knows more of its intentions than the party paying the consequences of the risk (Shapiro & Varian, 2013). The knowledge gap between lenders and borrowers is both an adverse selection due to the lender's unobserved risk of default and a moral hazard associated with the high transaction fees of information requirements. Loan success rates prevent the entrepreneur from pursuing suitable funding from investors who reject loan application request based on repayment ability of the borrower as calculated by perceived risk models. In addition, Ojah and Mokoaleli-Mokoteli (2010) further highlight that information is misaligned from the perspective of the lender. Therefore full information on the borrower is not

always available. With the prevalent information gap, this research identifies what relationship (if any) exists between variables that affect the willingness to lend by suppliers of capital.

The consequence of lenders withholding funds to SMEs is that lenders remain with unutilised funds. Even worse is the lender will charge higher pricing to compensate for the perceived risk (Bigsten et al., 2003). This gap in information also allows providers of capital to offer products to the borrower that meet the lenders margin requirement but may not necessarily be suitable for the entrepreneur's needs i.e. misallocation resources. Resources are misallocated, in that with the high cost of funding, the available resources are ear marked for wealthy individuals and an opportunity is missed to reach a wider range of individuals capable of having equally viable business ideas. Financial constraints in the business increase the risk of failure in the early stage of the business and hinder growth in the later stages of the business. Thus a common complaint by firms is that credit allocation is not done according to efficiency (Bigsten et al., 2003).

This problem highlights the importance of relationships built on trust between lenders and borrowers in that good and long term relationships will increase the flow of information between parties and thus establish a working trustworthy relationship where both parties gain. It is inevitable that the two sides (lenders and borrowers) need to work together and this begins by closing the information gap between the financial needs of the borrower and the financial offerings of the lenders in order for resources to be allocated optimally.

1.4 Objectives of the study

The main objective of this study is to investigate funding models of SMEs from the supply side. The study interrogates and tests the relationships between lending variables using firm level data within South Africa through the different stages of development of SMEs. The study contributes to closing the information gap between lenders and borrowers, by understanding the variables that influence lending and consequentially, enables a better flow of resources to promote economic growth.

The prevalence of the information gap and its consequences as described in the problem statement is sufficient evidence to support the need of studies that give clarification to this problem, specifically in light of the lenders' aversion to increase loan funding without an increase in security: which the SME owners are unable to provide, thereby leading to sluggishness of growth and inability to expand to reap the rewards of economies of scale and thus collapsing.

The specific objectives of this paper are therefore as listed below:

- To compare the levels of lending based on the age or phase of development of an SME.
- To establish the influence of economic factors, such as interest rates, on the willingness to lend by the providers of capital.
- To determine the effect of size of an SME on the amount of lending afforded.

This paper provides an assessment of the financing challenges in South Africa with reference to the role and responsibility of suppliers of funds alongside finding appropriate means of funding SMEs. The in-depth analysis of current funding models will benefit both the SME proprietor and the suppliers of funding.

1.5 Research questions

In order to achieve the above stated objectives, this paper seeks to provide answers to the following questions:

1. Is the size of the firm essential in determining the level of funds lent to an SME?
2. What effect does the prime interest rate have on the willingness to lend by the providers of capital?
3. Does the age of the firm or phase of development affect the level of lending afforded to an SME?

1.6 Significance of the study

In spite of the various financing avenues instituted, funding has been identified as a major factor contributing to the high failure rate of SMEs in their infancy stage. This provides justification for the study. The study attempts to augment the body of knowledge on the subject matter by cross-examining sought after variables or conditions by suppliers of funds as examined by Nichter and Goldmark (2005). Earlier studies in this area, (Cull, Davis, Lamoreaux, & Rosenthal, 2006), focused primarily on the demand side of funding and this is attributable to the Chinese walls in the financial sector (Klapper, 2006). The study serves as a vital catalyst for further research on a simpler innovative and creative funding methodology for all stakeholders. The analysis of funding models allows us to answer the question of whether these models need to be re-examined in order for them to be more effective.

By focusing mainly on the supply side of funding through an analysis of the models used by the providers of capital to fund SMEs, this paper manages to break through the Chinese walls (that create information barriers) by providing stakeholders with the relevant information to grow the SME sector. Regulators and policy makers such as the Ministry of Trade and Industry and the South African Venture Capital Association (SAVCA), would appreciate the findings/results to provide invaluable insights into the current funding landscape and provide more reliable guidance for monitoring the funding challenges of SMEs. This research will undoubtedly serve as a benchmark for performance evaluation of policy, objectives and the overall efficiency of the funding environment of SMEs.

This study sheds more light into the practicality of lending models. Looking at firm level lending variables, the study aims to ascertain the relationship between loan amount granted (willingness to lend by lenders) and risk associated variables. The research is pursued against the research objectives for the purpose of providing a deeper and thorough understanding of the matter from a South African perspective.

1.7 Research methodology

The study uses cross sectional data analysis through the development phases of an SME measured with firm level data from the period 2004 to 2014. The analysis uses the (cross section) ordinary least squares regression technique to investigate the relationships between loan amount afforded to the SME as the dependent variable and risk appetite structures or measures such as firm size, product offering, industry or sector that the entity operates in and macroeconomic factor represented by the prime lending rate. We use current available models from lenders using historical data and information.

Given that the paper focuses on the supply side of funding SME in the South African context, firm level data was obtained over a period of time for the total lending books of two funding suppliers i.e. one of the big four commercial banks and one of a government agency whose sole mandate is to support the funding of small business. Analysis was performed on the actual amount of funding provided and the stage of development as determined by either the length of time in operation or by market segment, based on turnover.

Pending analysis of the separate lending books, some comparison were done on the two books to establish if these funding sources were not in contradiction to each other and that both had the same goal, which is to support the sector and enhance the growth potential of the entrepreneur. Internal information and statistics available on funding for small businesses in their different stages of development were also used, and after analysis of the data, results were documented and conclusions drawn.

1.8 Limitations of the study

The study was limited to SME customers of one bank in South Africa and one Government agency's funding book in South Africa *(Disclosure of who the lending books belong to and the entity names has been withheld due to the sensitive nature of the information).* Data of this nature is sensitive and proprietors of this information guard it for competitive advantage. The chosen

funding books are solely due to the availability of the information, as well as the cost and time considerations for the study. The research has the following but not exhaustive limitations:

- Unwillingness on both sides, (the supply side, banks etc. and demand side, SME), to avail information that could have enriched the study along with ensuring reliability and validity
- Financial resource constraints and data constraints to embark on a full regional and national study
- Time constraints

1.9 Organisation of the Study

The research starts by introducing the SME landscape and defining the problem statement.

A comprehensive literature review in Chapter two outlines the definition of SMEs, and provides evidence of the role of SMEs in economic development. It progresses to a comparison of SMEs in developed and undeveloped countries for global context, and defines the phases of development of an SME. Additionally, the study outlines the available funding sources for SMEs and explores some of the constraints faced by the SME sector.

Chapter three outlines, in detail, the study methodology with particular attention to the data and research methodology used. Then, chapter four presents the descriptive statistics and the findings. Chapter five discusses the findings and concludes the thesis and makes recommendations for further research.

Chapter summary

This chapter provides the background to the study. It outlines and emphasises the research problem, research objectives and the significance of this study. The following chapter presents a review of literature.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Market failure occurs when there is inefficient allocation of resources. One of the causes of market failure is imperfect information. With imperfect information, suppliers are not able to adequately match the supply of the correct combination of products to satisfy consumer needs and demands (Bator, 1958). This information asymmetry has been identified as one of the barriers to adequate provision of debt and equity finance to SMEs in South Africa as evidenced by Falkena et al. (2002) and Mahembe (2011). With this as a starting point, this chapter aims to take a critical assessment of the literature, legislation and regulations available regarding SME financing in order to:

- Describe the different stages of the business lifecycle of a SME, as adopted for the purpose of this study, and identify the funding needs of an SME at these different stages;
- Identify the different funding sources available to SMEs; and,
- Identify the legal and regulatory requirements imposed on both the SME and providers of finance when accessing and granting finance respectively.

From the above analysis, hypotheses are drawn to assess the suitability of the South African funding models to the SME market segment. The testing of these hypotheses and the results thereof are explored in further chapters.

This chapter explores the limited literature on Small to Medium Enterprises funding at different stages of their development. We begin with the broad definition of SME's and then look at the SME background in South Africa. Thereafter we explore their importance and role to economic development and this leads us to a comparison of SMEs in developed nations against developing nations. We develop the literature by looking at various stages SME undergo and then addressing the funding available. Finally we conclude with the constraints.

2.2 Definition of Small and medium enterprises

Small to Medium Enterprises are very difficult to define (Abor & Biekpe, 2006). However a general consensus in their definition is primarily related to socio-economic environmental factors like country and region (Ayyagari et al., 2007), institutions and the size of human labour employed (Hommel & Schneider, 2003), sales and or assets.

- Accordingly, the World Bank defines any organisation employing up to 300 people with United States dollars of about 15 million in year to year revenue, and/or assets as an SME.
- On the other hand, the Inter-American Development Bank defines an SME as an organisation employing up to 100 employees and earning not more than United States dollars of about 3 million in year to year revenue (Farole & Akinci, 2011).
- Wagenvoort (2003) defined SMEs as any entrepreneurial venture that employs less than 250 people with a year to year turnover not exceeding 50 million euro.

The above are internationally defined measures of the term, however more precise to the location of the study, South Africa; there is a general consensus from the big banks in South Africa namely Standard Bank of South Africa, ABSA, First National Bank and Nedbank, describing SMEs as enterprises with a turnover of between R150, 000.00 and R600 000 000 per year (Mahembe, 2011).

On the other end of the pendulum, The National Small Business Act of 1996 defines SMEs under five broad categories namely:

- Survivalist enterprises as those with income below the minimum income standard or poverty line. Examples being hawkers and vendors.
- Micro enterprises as those with a turnover less than the VAT registration limit of R150, 000.00 per year. Examples are the spaza shops and minibus taxis operations.
- Very small enterprises are those employing fewer than 10 salaried employees, not including the mining, construction manufacturing and electricity sectors where the number becomes 20 salaried employees.
- Small enterprises are those with a ceiling of 50 salaried employees.

- Medium enterprises have an even higher salaried employee ceiling of 100 with the ceiling being 200 for the mining, construction manufacturing and electricity sectors.

Given that the study looks at the alternative funding methods of the SME at various developmental stages, the above definition and categorisation forms a crucial foundation and building block of this research. This paper adopts The National Small Business Act definition of small businesses since it is the main body regulating the activities and providing a framework of small businesses in the South Africa.

2.3 Background of SMEs in South Africa

SMEs are sustainable avenues to stimulate economic growth and development evidenced by the introduction of government policies (grant funding and soft loans, subsidised credits, tax incentives for partnering with SMEs, etc.) along with the formation of small business or SME support structures or policies (National Empowerment Fund Act No. 105 of 1998) within or by government agencies (National Empowerment Fund). SMEs in South Africa are viewed mainly as a social and political tool post-independence of 1994 to address or facilitate and support black economic equality and transformation (Mahembe, 2011).

In a survey by The World Bank entitled *Financing of SMEs in South Africa* in 2011, it was found that access to finance for SMEs worsened as a result of the economic downturn which saw credit standards tightening along with a decrease in successful loans. Banks remained cautious about lending to this sector as they are perceived as higher risk (Farole & Akinci, 2011).

Since the financial crisis of 2008, perceptions on the sustainability of the lending fraternity changed as the so called ‘Too big to fail’ (Stern & Feldman, 2004), came under pressure and had to be bailed out of their financial difficulty. The knock on effect of 2008 continues to linger in the financial services industry in developing countries with lower than expected levels of GDP growth. South Africa and the continent at large are no exceptions to the flu gripping the world after the American sneeze. Various legislations were enacted in an effort to prevent a similar occurrence.

In order to remain sustainable, lenders make it their objective to practice responsible lending in compliance with legislation.

The recent downgrade by Moody's to Baa2 (Stable) from Baa1 on the big five SA banks and on two development institutions i.e. Development Bank of Southern Africa (DBSA) and the Industrial Development Corporation of SA (IDC) is evidence of the sensitivity to economic pressures faced by the financial industry. Moody's indicated that the rating actions were driven primarily by the weakening of the SA government's credit profile, combined with the banks' sizable holdings of sovereign debt securities, which links their creditworthiness to that of the national government. South African financial institutions are at risk of further downgrades if operating conditions worsen and if the weakening capacity of the SA government to provide support to development institutions does not improve.

The regulation of the financial sector has three specific objectives and these are, securing systematic stability in the economy, ensuring institutional safety and soundness and promoting consumer protection. As these were noted in a study by Falkena et al. (2001). They further stated that regulation should also be both effective in that it achieves its objectives and efficient in that it is cost effective in the use of resources. It is with this background that the interest of the regulatory authorities and the regulated parties create and maintain effectiveness and efficiency in the regulatory system (Falkena et al., 2001). Restrictive regulation is that which shrinks the level of lending permitted while not adding any value to the quality of the lending book. Some of the regulation affecting the financial services industry in SA includes the Financial Intelligence Centre Act (FICA), the National Credit Act (NCA), Consumer Protection Act (CPA), and Basel I II and III. Generally, the law tends to favour consumers and the onus is placed on the lenders to prove that there was no negligence on their part in availing facilities. It is relevant to note that a highly regulated industry has the potential to threaten the sustainability and inflict damage on some financial institutions as it heightens the constraints to lending and impairs the working of the market.

Further to regulatory barriers, the sustainability of funding institutions is threatened by the various categories of risk that they face (Mahembe, 2011). These include credit risk, market risk, information technology risk, reputational risk as well as sustainability risk through the erosion of the capital base and not having sufficient capital to fund planned programmes and meet cash requirements. The information technology risk impacts on the ability of the lender to deliver innovative products and carries a significant part of the cost base of the lender.

2.4 Importance and role of SMEs in economic development in South Africa

South Africa's macroeconomic objectives include economic growth, full employment, price stability, and balance of payments stability, alongside the key political and economic objective of reducing inequality in the economy (Mohr & Fourie, 2004). Often considered the engines of an economy, small and medium enterprises form key drivers and building blocks to achieving these objectives in the following ways; Unemployment reduction (61% of SME contributed to the country's employment statistics in 2010), Rural development, Economic growth and ultimately better Utilisation of Local scarce resources, as reported in the South African Stats (2010). Previously, South Africa's over-dependence on mining activities, predominantly gold, exposed the economy to unprecedented macro-economic instability, resulting from the effects of external world demand shocks and gold prices (Nichter & Goldmark, 2005). Such external shocks could plunge the country into economic distress and pose a major challenge to the Government. SMEs in South Africa are well positioned to bolster employment rates, create wealth, reduce the prevalence of poverty and sustain economic growth and development.

Developing nations are plagued with rapidly increasing populations which translate equally to high unemployment, as stated by Ashamu (2014) who quoted Cherney, et al. (1974). In addition, a common phenomenon in developing nations is the inequality of wealth distribution, explained by McCormick (1988). Lastly, a study by Mohr and Fourie (2004), revealed that poverty was not only directly linked to unemployment but also to a majority of the labour being employed in a large variety of small-scale subsistence production. These characteristics have seen the rise of small, labour-intensive enterprises or industries that not only decrease the levels of unemployment,

(Parker, 1999) but also increase the living standards of the poor and contribute to new avenues of economic growth in developing nations (Schmitz, 1982). Therefore, developing nations have seen a transition from rurally oriented economies to semi-industrial transitioning economies (Johnston & Kilby, 1975).

From the SME's perspective, there is a massive drive to view sustainability from two aspects i.e. economic sustainability and social sustainability, which often seem to contradict each other and yet both are core to the survival of any business (Snyman, Kennon, Schutte, & von Leipzig, 2014). The main goal is economic sustainability, yet this is achievable through ecological and social sustainability which should be taken as an opportunity for innovation instead of it being considered as a mere cost driver. The ecological and social responsibility ties in with the suppliers of finance through the environmental act and a general need by lenders to be seen as contributors to the community. As summarised in the article on the paradigm shift for SMEs (Hörnlein, 2015), innovation and sustainability are two sides of the same coin, called profitable growth. While survival is the main focus for SMEs, other issues pertaining to regulation, society and environment need to be considered in order for the sector to remain healthy. In the SME survey 2014 (Abor & Quartey, 2010), conducted for the South Africa landscape, 91% of respondents agree with the view that environmental sustainability is important for their business and no doubt can be placed to the importance of prioritising sustainability for businesses across the continent and globe. Abor and Quartey (2010) attribute the high failure rate to a number of obstacles including finance, lack of managerial skills, equipment and technology, regulatory issues, and access to international markets.

South Africa is lagging behind when compared with peers given the high levels of failure in the SME sector, estimated by Xavier, Kew, Herrington, and Vorderwülbecke (2014) in the Global entrepreneurship monitor (GEM) South Africa 2013 report to be around 70% of new businesses that fail within the first three years of operations and a discontinuance rate estimated at 4.9%. As Farr (2014) emphasises, one of the major contributors to South Africa lagging behind in entrepreneurship potential is the education system that has not given individuals the capabilities to become entrepreneurs i.e. the quality of education is "choking" entrepreneurship. Initiatives such

as the global entrepreneurship week, promote an entrepreneurship culture, but in South Africa, for 2013 only 1800 people were involved, compared to 1.6 million people who participated in Brazil.

In a joint publication by Certified Internal Controls Auditor (CICA), American Institute of Certified Public Accountants (AICPA), Chartered Institute of Management Accountants (CIMA) in 2011, key elements to implementing sustainable practices in SMEs as per case studies held in the USA, UK and Canada included strategy and planning, execution and alignment, as well as performance and reporting. Africa, as a continent, can take some of these learnings and apply them in order to implement sustainable businesses

2.5 Comparative characteristics of SMEs in developed versus developing countries.

Developing countries display a number of characteristics under broad headings namely; labour, sectoral activity, gender ownership and capital constraints (Fischer & Reuber, 2003). Boettke and Coyne (2003) looked at the differences between developed and developing economies and found that the size of the informal sector (SMEs) amounted to averages of 16.7%, 29.2% and 44.8 of GDP. Kelley, Singer, and Herrington (2012) noted one of the major differentiating characteristics of developing and developed economies as the roles that government and the private sector play. They go on further arguing that with economic growth, most small and/or traditional style enterprises would be outmoded by large scale modem type production firms, commonly known as multinational corporations. Therefore, if the SMEs were to effectively develop and thrive, they required and deserved support, which mainly was or is provided by central governments. Thus, in developed nations SME development is private sector led while in developing nations, central governments initiate and deploy strategies to grow SMEs (Noormohamed, 1985).

Table 2.1 shows some of the major differences between developing and developed countries in respect to alternative financing available to SMEs. According to Cook and Nixson (2000), competition between lenders and the various stages of development of the SME alongside financial markets development, constitute a fundamental element explaining the differences between developed and developing countries funding of SMEs.

Table 2.1: Comparison between developed and developing countries in respect of finance for SMEs

SME in developed countries (UK)	SME in developing countries(Africa)
SMEs have a high reliance on short-term financing through the banking sector.	SMEs rely on formal and informal sectors for short-term finance (stokvels)
A low proportion of SMEs' assets are financed by shareholders; so debt-to-equity ratios are relatively high compared to larger firms.	Family and friends contribute a high proportion towards financing SMEs' assets
Fixed assets are relatively unimportant in the balance sheets of SMEs.	Not established.
Trade credit and trade debt are relatively important.	Not established.
More recently, leasing and hire purchase and venture capital have become more important.	Relatively less important.
SMEs have higher transactions costs than larger firms.	Confirmed
SMEs have higher/greater information imperfections than larger firms.	Confirmed
SMEs have poor business planning, lack of interfirm co-operation and higher transactions costs than larger firms.	More significant in developing countries, particularly with respect to financial accounting and management.
SMEs have poor relations with financial institutions.	Networks have been shown to be important, but little research has been done on relations with financial institutions.
Source: Cook, Op. cit., April 2000, p.22	

2.6 Defining the Developmental Stages of an SME

The life cycle of a business involves going through several stages: an initiation period, an aging period, a period of development, stagnation and a decline period. Throughout these periods, the business is vulnerable and subject to risks, such as deficiencies in managerial skills, financial inadequacy and failing to keep up with innovations within the industry.

Various researchers agree that the organisation passes through different stages of the life-cycle, however, the discussion of how many and what exactly the life-cycle stages are is unsettled. The number of organisational life-cycle stages varies from 3 to 10 (Falkena et al., 2002). For the purposes of this study, the stages of the business lifecycle have been condensed to three and are explained below. The stages of the life cycle of the business are adopted and modified from Thierry Janssen's white paper on the seven stages of the business life cycle. These have been summarized into the start-up phase, the growth phase, the expansion phase and finally the maturity phase.

Table 2.2: Summary of the funding requirements of SMEs in the development phases.

Type of SME	Start-up phase	Growth phase	Stable	Exit for external investor
Traditional, providing income for an individual, family or small group of employees	Family, friends, savings, equity in residential property	Asset-backed finance, factoring, bank debt, trade credit	Often none, but debt if required	n/a
High potential, with growth aspirations	'Angel' finance, team equity, some venture capital	Venture capital, private placement of equity, asset-backed finance, some bank debt	Venture capital; high-yield debt market, bank debt	Either exit via capital markets or direct access to competitive capital markets
Attractive, with high-tech information and life sciences IPR	'Angel' finance, venture capital, corporates	Venture capital, corporates, asset-backed finance	Corporates, bank debt	Exit typically via trade sale

Source: Falkena et al. (2002), *Development phase and funding cycle of SMEs*

Having broadly depicted the various stages the SMEs undergo, the study aims to look at the various funding options available to SMEs from a South African perspective, with the hope of shedding more light on this matter.

2.6.1 SMEs at Start-up Phase

The start-up phase of an enterprise is the most difficult phase, characterised by over-dependence on insider finance from owners, managers, family and friends. Financial returns are the least of the entrepreneur's concerns at this stage and entrepreneurial ambition and personal ties are more important. Vojnović and Riznić (2009) found that enterprises at this stage are most crippled by:

- A lack of professional experience;
- A lack of knowledge;
- Inadequate technology;
- A lack of financial sources for investment in production and development; and,
- Having access to credit sources and foreign capital.

In this phase of the business' lifecycle, the viability of the business is not yet established, thus making an investment in the business extremely risky and consequently requiring a very high rate of return (Mutanda, 2014). As a result, unless the business or the business owner has other high value assets to offer as collateral, the funding sources available to the business are limited (Vojnović & Riznić, 2009). The sources available at this phase are personal savings of the business or the business owner, suppliers, customers, government grants and from friendly sources in the form of family, friends and or business angels (Falkena et al., 2002).

2.6.2 SMEs at growth phase

In the growth phase, the business has increasing revenues, customers and opportunities to create strong profits. Competition starts to infiltrate the market and one of the biggest challenges a growth company faces is dealing with issues of bidding for more time and money.

Timmons and Spinelli (1994) drew a positive correlation between the duration a business is in existence and the level of financial risk associated with the business venture. In the early stages, this also impacts on the sources of finance available to the business and the cost of finance to the business. As the business grows and becomes more financially viable, the risk associated with the venture decreases and consequently, access to formal financial markets increases. This is confirmed in Vojnović and Riznić (2009)'s study which shows a positive relationship between the size and age of a business and its access to finance. This phase is usually financed through banks, profits, partnerships, grants and leasing options. Investors averse to risk may also show an interest in companies at this stage of the life cycle.

2.6.3 SMEs at Consolidation phase

The consolidation and stable phase, also known as the expansion phase of the life cycle, is characterised by a new period of growth which opens up new revenue streams and profit channels and is termed the expansion phase. Funding sources include joint ventures, banks, licencing, new investors and partners, banks and government (Timmons & Spinelli, 1994).

2.6.4 SMEs at exit phase

During the exit phase, also known as the maturity phase, the business is challenged by dropping sales figures and profits remain stable. It may opt to search for new business ventures or completely exit the market. The funding needs at this stage are evaluated in accordance to the direction that the business is taking (Timmons & Spinelli, 1994), for example, if innovative ways are injected to generate other revenue streams and return to the growth/ expansion phase, those may be financed as above but if the business is working its way out of the market, self-funding would be deemed more suitable.

2.7 Funding sources available for SMEs in South Africa

Funding institutions lend in accordance to the developmental stage of the business, to align with the funding needs of the entrepreneur or SME. The entrepreneur needs to consider available funding from the perspective of debt versus equity while also considering the prevailing economic conditions. It thus can be noted that the capital structure of the firm differs depending on the stage of growth at which the entity is in the development cycle. The product offering of the lender is tailored to the type of entity and thus to the use of funds for which the lending is required. As stated by Cull et al. (2006), SMEs need access to funding for various reasons including working capital, to withstand adverse business conditions and to take advantage of new technologies and growth opportunities. Below is a description and analysis of some of the various sources of finance available to an SME.

2.7.1 Equity Based Funding

SMEs often do not meet the criteria to obtain debt finance for long-term growth. They lack, among many variables, appropriate collateral, accurate and complete records management of performance along with excessive outstanding debts used to start up the venture. It is highly unlikely also for SMEs to secure unsecured loans solely based on expected future cash flows (Ou & Haynes, 2006). To build a track record of success, takes time. As a result of this, SME owners are left with the equity based funding alternatives at the earlier stages of their development. Equity based funding can either be internal or external. Internal equity is funds obtained from the current owner–manager(s), family, and friends or from the retained earnings within the firm. External equity, however, is capital acquired from external channels other than the existing partners and their relatives.

2.7.1.1 Internal Equity based Funding

2.7.1.1.1 Personal Savings

As the name suggests, this form of funding comes from within the business owner's sources of income that were not consumed. This is in the form of savings accounts or fixed term deposits held at banks or from money set aside from daily use for the purpose of starting the business venture.

2.7.1.1.2 Family and Friends

Similar to personal savings, but this comes from friends and family members with excess cash or funds to loan to the entrepreneur in order to start up their business.

2.7.1.2 External Equity based Funding

2.7.1.2.1 Business Angel funding

This refers to high net worth individuals, i.e. family or friends, who provide capital to start-ups along with some entrepreneurial expertise (Black & Gilson, 1998). These individuals provide capital from their personal funds to early stage businesses in exchange for an equity stake or convertible debt. The investment is generally done in entities with a great earning potential. According to an article by the South African Venture Capital Association, SAVCA, (2010), on alternative funding methods on SME, Angel investing in South Africa is generally viewed as a private club for wealthy individuals. However, there are a number of angel investors who support entrepreneurship such as FNB Private Clients and the Shaduka Black Umbrellas who focus on wholly black owed businesses. Barry (1994) purported that business angel investors are not active investors. Yet, another study by Harding and Cowling (2006) and Landström (1993) concluded otherwise.

There are three structures that make angel funding a suitable opportunity for SMEs. Firstly, angels are more active in the early stages of enterprises, minimising the so called 'equity gap' by forming a 'bridge' between internal funding methodology and external investors. Secondly, lower rates of rejection and an extra patient form of capital with stretched horizon periods, angel financiers tend to be more helpful to the needs of SME (Timmons & Spinelli, 1994). Finally, contrasting to venture

capitalists, angel investors have a preference to invest in their local economies where the majority of SMEs operate.

Two main advantages of using an angel investor are that the investors come with a wealth of knowledge off which the entrepreneur can leverage. Having provided the capital from personal funds, the investor is said to have enough skin in the game to want to see the entity come to fruition. The disadvantage however, is that, full control of the entity is lost as a stake is sold to the investor.

2.7.1.2.2 Venture Capital

Venture Capital is a form of funding where funds are raised from investors and redeployed by investing in high-risk enterprises, mostly start-ups (Landström, 1993). Venture capital is viewed as a sub-sector of the greater private equity line of work and is more often than not confused with angel investing. Black and Gilson (1998), alongside the CFA Institute, describe this type of financing to be suitable for various stages i.e. seed or start-up, early stage, or mezzanine financing. The investments are illiquid and investors need to be willing to commit the funds over a longer period of 3-10 years before exit. Venture capitalists participate in the strategic planning and decision making of the SME. With high levels of information asymmetry and the associated uncertainty with SMEs, the screening process involves a review of business plans of start-ups and a design of contracts that minimise agency costs (Gompers, 1995). Through convertible securities, control strategies are in place to control agency issues by leaving the owner with some control during the investment period (Bascha & Walz, 2001). They also provide strategic access to new suppliers and clients as well as strategic partners (Timmons & Spinelli, 1994). Snyman et al. (2014) discuss the difficulty or complications involved in the valuation process of an entity where its price is not defined by the market.

The investment risks involved is high, and hence it is an expensive form of funding because the company will have to issue shares at a relatively low valuation and not its true potential value. The South African budget of 2015 however outlined some relief in this sector with new rules for the venture capital (VC) tax incentive to come into effect from March 1 2015, while grants given to

small businesses will be tax-exempt. Organisations involved in supporting small firms will also get some tax relief through a dedicated tax provision.

2.7.1.2.3 Private Equity

This extends from venture capital as it is more suitable for funding the later stage of the business cycle i.e. late stage expansion. As with angel financing and venture capital, two main criteria are considered, i.e. the potential success of the business as contained in the business plan and the skills/ management ability of the entrepreneur, this assists in that SMEs tend to lack collateral to source funding. It can thus be argued that equity investment is more impactful as it provides a more holistic solution through the contribution of expertise from the investor. The South African private equity market compares fairly with other BRICs markets, for example, Private Equity Investment as a percentage of GDP is higher at 0.10% of GDP, for 2012, compared to China (0.08%) and Russia (0.06%), but behind Brazil (0.18%), India (0.14%). according to a survey conducted by KPMG and SAVCA (2014). Though argued by Falkena et al. (2002) that SME participation in venture capital and private equity is limited due to insufficiently developed exit options and weak Initial public offering markets, Snyman (2012) concludes that Private equity companies through long term investments, business acumen and networks address many of the issues being faced by SMEs promoting sustainability in this sector.

2.7.2 Banking Services Funding

Mostly sought after in the growth phase of a business into the expansion phase of the business, is current Account, Factoring, and Term Loans funding. This is mostly debt funding involving interest bearing instruments. However, this form of funding involves the dilution in ownership and control, thus in order to keep ownership and control they opt for debt funding (Snyman et al., 2014).

The lender evaluates the repayment ability of the loan requested by considering a variety of factors such as the financials, cash flows, and personal statements of assets and liabilities of the owner. Care should be taken by the entrepreneur not to over indebt the business to a point of bankruptcy. Current accounts are considered short term financing sources, i.e. have a maturity of less than one

year (Jun & Jen, 2003). The funding is provided for working capital requirements and is to be repaid from the results of sales and profits during the year as documented by Jun and Jen (2003). Factoring, also referred to as debtor finance, is one of the important financing products for SMEs as it provides liquidity as the credit provided by the lender is explicitly linked to the value of account receivables and thus the credit worthiness is placed on the quality of the debtors book (Jun & Jen, 2003). The debtors' book is considered "collateral" for the lending provided. Factoring is mostly done on a 'no recourse' basis, i.e. the factor assumes the credit risk for the buyer's ability to pay. According to Klapper (2006), factoring allows high-risk suppliers to transfer their credit risk to their high-quality buyers and it uses empirical tests to find that factoring is larger in countries with greater economic development and developed credit information bureaux.

Long term loans are typically used to finance long term assets that are in return held as collateral or long term projects where the value is realised after a 12 month period.

Other banking products such as Leasing where assets are sold and leased back are also useful to SMEs as they provide cash/liquidity in the business. Leasing allows for the entrepreneur to have cash as well as the availability of the capital assets in the business. Business credit cards are also frequently used by SMEs for the day-to-day expenditures to avoid the risks associated with holding cash.

According to Chironga (2012), who wrote a report for Mckinsey on SMEs in emerging markets, the size of opportunity for banks in the SMEs sector in the sub-Saharan region is rather significant as banking revenues for SMEs in emerging markets are expected to grow by 20% year-on-year to an estimated figure of $367 billion by 2015. The opportunity for banks is also evident in the SME survey by Nichter and Goldmark (2005), where banks provided funding to only 2% of responding companies while the owners own capital and business partners provided up 91% of funding sources. Observation has thus been made that the sector presents an obvious opportunity for the banks but the supply does not match it. Banks are however starting to recognise the profit earning potential of small business and thus coming up with innovative technologies and adjusting their traditional lending requirements to find innovative ways to help SMEs.

The problem here then is not a lack of debt finance through the banking system but inefficiencies in terms of products and services along with their accompanying costs provided to SMEs to support them in their endeavours. Limitations brought about by competitive pressures, barriers to entry that allow market participants to almost do as they please and dictate terms that are not enabling for the SMEs

2.7.3 Non-Banking financial services funding

In South Africa, access to non-banking funding comes in the form of retailers' credit terms and micro–lenders. Chironga (2012) also noted that this financing avenue increases the innovation, volume and range of enterprises being financed, characterised by low barriers to entry which directly feeds to effective healthy competition, lowering costs to SME. For example, the exemption of small loans from the provision of the Usury Act allowed a multitude of small lenders to innovatively grow (Nichter & Goldmark, 2005). Key in this segment is that the regulatory framework must be conducive to participants. Support services that are usually very expensive via advisory fees in the banking channel are offered free or at a minimal cost. These include mentoring and coaching; networking opportunities; financial planning and financial management; assistance with regulatory and legal compliance; and links to strategic partners.

2.7.3.1 Trade credit

Trade credit forms an integral part of SME funding. Berger and Udell (2006) estimated that one-third of the total debt of SMEs in the US in 1998 was represented by trade credit. Accordingly, García-Teruel and Martínez-Solano (2010) define trade credit as a deferment of payment for goods or services after delivery has occurred whereby agreements are set up between the supplier and the firm. In turn, this forms a key funding source for SMEs appearing on their balance sheet under current liabilities, whereas for the supplier it appears in current assets under the accounts receivable. Leitner and Stehrer (2015) concluded that this behaviour was either a transactional or funding reason. Under the transaction reason, it was found that it became easier for both parties (the seller and the buyer) to predict their cash needs in the short-term. Therefore cash and liquidity management transaction costs can be reduced. Under the funding initiative, it found that the SMEs

resort to trade credit when alternative sources of finance are unavailable or more expensive. Baños‐Caballero, García‐Teruel, and Martínez‐Solano (2010) went further to assert that trade credit funding is favored by new and young SMEs when the risk of default is high during the early years of operations. Fatoki and Odeyemi (2010) concluded that there are two ways through which trade credit can overcome capital market imperfections. Firstly, trade credit suppliers have more information on their partners' businesses, trade credit can mitigate the problem of information asymmetry enabling them to evaluate and control the credit risk of their buyers. Secondly, the use of trade credit allows SMEs to establish their credit-worthiness to banks and ultimately, banks will be more willing to lend to them on the basis of this signal. While this is a great form of funding, the risk is that delays in payment occur and the funding source can be very expensive (Leitner & Stehrer, 2015).

2.7.4 Public Sector Funding

SME promotion or fostering is predominantly the role of the Department of Trade and Industry in South Africa who have realised the important role SMEs play in economic development. As of 2001, the Government has taken a more visible approach by "creating clusters of ministers, where each department is now expected to bring input into the document in terms of what they are doing for small business and how they are providing support". This was documented in, *The Annual Conference of Southern African Entrepreneurship and Small Business Association,* Johannesburg, 14 August 2001. Pivotal to this source of funding is the Department of Trade and Industry via the Micro Finance Regulatory Council (MFRC) and the National Treasury through its Fiscal policy. Of course, this comes with support from the South African Reserve Bank and the Financial Services Board that ensures SME have reasonable access to finance. Many initiatives have been implemented by governments either alone or through donor funding (Mensah, 2004). Arguments have been put forward claiming that this form of funding has the capability to ease access of SMEs to additional credit (Boocock & Shariff, 2005). However Riding, Madill and Haines (2007) found that these forms of funding only exist under specific economic and well specified conditions, for example, governments are keen to fund and support SMEs involved in the exporting business of their products for their ability to generate much needed foreign currency.

2.8 Constraints of SMEs Development

A number of blockages affect the ability of SMEs to realise their full potential. These factors include but are not limited to finance, lack of managerial skills, equipment and technology, regulatory issues, and access to international markets as documented by Anheier and Seibel (1987). The lack of managerial know-how places significant constraints on SME development (Aryeetey, 1998). SMEs tend to attract motivated managers, they however cannot compete with larger firms.

A skills gap exists despite the various institutions in South Africa providing training and advisory services in the SME sector as a whole (Abor & Quartey, 2010). Also, the cost involved makes it unaffordable to most SMEs. SMEs often have difficulty in gaining access to appropriate technologies and information on available techniques (Aryeetey, 1998). Foreign licences are often sought because local patents are problematic to obtain. Regulatory constraints also pose serious challenges to SME development and although wide ranging structural reforms have led to some improvements, prospects for enterprise development remain to be addressed at the firm level. SMEs have extremely high start-up costs, including but not limited to licencing and registration requirements, imposing too much and unnecessary burdens on SMEs. The legislative and legal procedure in South Africa take too long to settle any claims and the longer any dispute take the more costly it is with regards to legal fees and court delays that may adversely affect SME operations.

With increased globalisation, SMEs face increased pressure from international competition and the need to expand market share. However, with limited international marketing exposure, poor quality control and product standardisation, along with little access to international partners; these issues present massive hurdles for SMEs expansion into international markets (Aryeetey, 1998). That, along with a lack of information about foreign markets, impedes their success internationally. SMEs often are faced with access to capital constraints (Beck et al., 2005). They lack the financial muscle and this constrains their development. A study by the World Bank noted that 90% of SMEs in Africa found credit to be the major obstacle to new investment (Parker, 1999). Schmitz (1982)

also noted similar results that there was limited access to financial resources available to smaller enterprises compared to larger organisations and this impacted directly their growth and development.

In the study conducted by Calice, Chando, and Sekioua (2012), banks are consistent with favouring long standing clients, with relationships that are initially established on a 'deposit first' policy before engaging in a lending relationship. This makes it difficult for SME owners without a credit history and without significant capital to access credit. Banks are thus challenged to further support SME development by creating better lending facilities aimed at lower income clients given the increasing importance of the sector. The study also highlights some of the obstacles to SME lending in Africa as perceived by banks to be, lack of quality information, family management, inability to standardise scoring models, lack of adequate guarantees (collateral). Macroeconomic factors are identified as the second worrisome impediment to the development of the SME financing market. Obstacles in the legal and contractual environment have also negatively impacted lending in the region.

The lending business models generally talk to:

- The organisational structure of the lender which varies from one lender to another, as opposed to best suit the client i.e. centralised or decentralised of loan approvals, risk management function and the non-performing loans recovery function.
- Products, which are generally standardised with little or no tailored offering to the sector
- Risk analysis, this can be achieved through scoring and rating models to influence and quicken the decision making process. A combination of input variables is used in the scoring model i.e. internal and external. Calice et al. (2012) find that scoring is mostly implemented by foreign banks in the region. An intuitive approach is also common where human intervention by analysis of relevant information and stress testing of scenarios enables a lending decision to be made.
- Collateral requirements; according to 56 percent of the sampled banks in the region by Calice et al. (2012), the informality of SMEs came out as the main reason why banks in

the region require SMEs to lodge security relative to corporate clients. Other reasons cited are that SMEs are more vulnerable to the economic and political shocks relative to corporate clients and the difficulty in obtaining reliable information (Information asymmetry problem).

- Monitoring and credit risk exposure analysis, internal monitoring allows identification of possible default loans before the event actually occurs and action can be taken to minimise the loss impact to the lender. Preventative triggers are put in place and monitored regularly by a full risk staff compliment. Examples of triggers include, excesses, breached conditions of approval
- Management of non-performing loans, the recovery process of non-performing loans differs from each lender.

Chapter summary

The chapter provides definitions and background for SMEs in South Africa, as well as description of the development phases of an SME. Funding options are articulated and the constraints of SME development summarised. The next chapter looks at how the research was conducted.

CHAPTER THREE:
DATA AND METHODOLOGY

3.1 Introduction

This chapter presents the data used in this research. The data sources and research design is presented to examine lending patterns through the different phases of growth of an SME. This study investigated the lending practices of a sample of SMEs distributed across provinces and industries within South Africa. South Africa has a variety of players on the supply side of the SME credit markets which include both public and private sector funding organisations. The financial sector in South Africa is well-developed and capitalised with finance being one of the biggest contributing sectors to GDP at a percentage of 10.5%, according to a South Africa 2014 report from Africa economic outlook (Kumo, Reilander, & Omilola, 2014). South Africa has four main commercial banks, namely ABSA, First National Bank, Standard Bank and Nedbank which dominate the sector. The big four banks account for 83.4% of the country's banking assets which total R 3 843 billion, according to the South African Reserve Bank (SARBs) in its annual reports on bank supervision for 2013. Various government agencies such as the Small Enterprise Finance agency (SEFA), Industrial Development Corporation (IDC), and National Empowerment Fund (NEF) also support SMEs in the form of providing finance.

The chapter is organised as follows: Section 3.2 presents data and data sources. Section 3.3 looks at the research design, while section 3.4 looks at the regression equation. Section 3.5 develops the hypothesis.

3.2 Research Data

The data obtained for the research is comprised of two lending books for the period from March 2004 to January 2015. One from Standard Bank, the largest bank in terms of assets, and market share of 25 per cent according to the South African Reserve Bank (SARBs) in its annual reports on bank supervision for 2013.The other from the National empowerment fund (NEF), a

government agency that is mandated by the Department of Trade and Industry to lend to SMEs. The two lending books are referred to as the commercial bank book and the government agency book in the rest of this paper.

The data is taken at a point in time as retrieved and formatted from the lenders in-house credit systems. The banking book is driven by volumes and thus consists of many small firms that equate to a large sum of lending while the government book is fairly small in terms of the number of firms, yet the size of loans afforded are significant. The combined book size is over 12 000 individual SME entities with borrowings totalling over R7 billion. For the purposes of this research, 75% of the data value represents the banking book while the government book takes the remaining 25% of the total book value.

Geographically, the areas of business operations of the SME are consistent between the commercial bank book and the government book. Funds are extended to all nine provinces with Gauteng dominating the population at 45%. This confirms that Gauteng is the economic hub of the country. KwaZulu Natal and Eastern Cape follow with significant portions of the population used at 20% and 15% respectively. The least lending is done in the North West capturing only 1% of the total sample size explored. It is relevant to note that 4% of the data collected is unclassified. This speaks to the quality of the data capturing.

In reality, lenders' segment entities are based on turnover and we used the number of years since open date to cluster entities in the various phases of growth in line with the theory. The study focused mainly on the three phases of the SME life cycle, as defined in Chapter 2, namely, start-up, growth and stable/mature phases. Less than one year is defined as the start phase, between two to five years is defined as the growth phase of the business and between six to ten years is defined as the mature phase of the business.

3.3 Research design

According to Brooks (2008), cross sectional data is defined as data on one or more variables collected at a single point in time. The cross sectional research study attempts to determine whether there is a relationship between the amount of lending afforded to the SME across the various stages of development (i.e. age of the SME) and the risk appetite measures represented through variables such as product, turnover, and prime rate over a 10 year time interval. Durguner (2011) found that lenders have more appetite to lend to firms that are in a mature stage of growth compared to those that are in the start phase. The study investigated this phenomenon and measured changes in lending to SMEs over the development phases as defined. According to Bland (2001), the benefits of using cross sectional data are that it allows for description of a population with respect to risk factors and is inexpensive and relatively quick to conduct. On the other hand, the drawbacks are that the study is carried out at one time point and gives no indication of the sequence of events; it is also difficult to make causal inferences.

Cross sectional data analysis is employed to assess the relationship between lending practices and the variables influencing SME access to financing over the development stages of an SME. The data is taken over the period from 2004 to 2015. The period allows for robust analytical inferences. Unavailability and incomplete data made it near impossible to track the same firm over the study period and therefore firms with characteristics at each stage of development were observed.

For the purpose of this study, the final sample of entities was reached solely due to data availability and disclosure constraints. Additional secondary data is sourced from the financial statements of various government lending agencies.

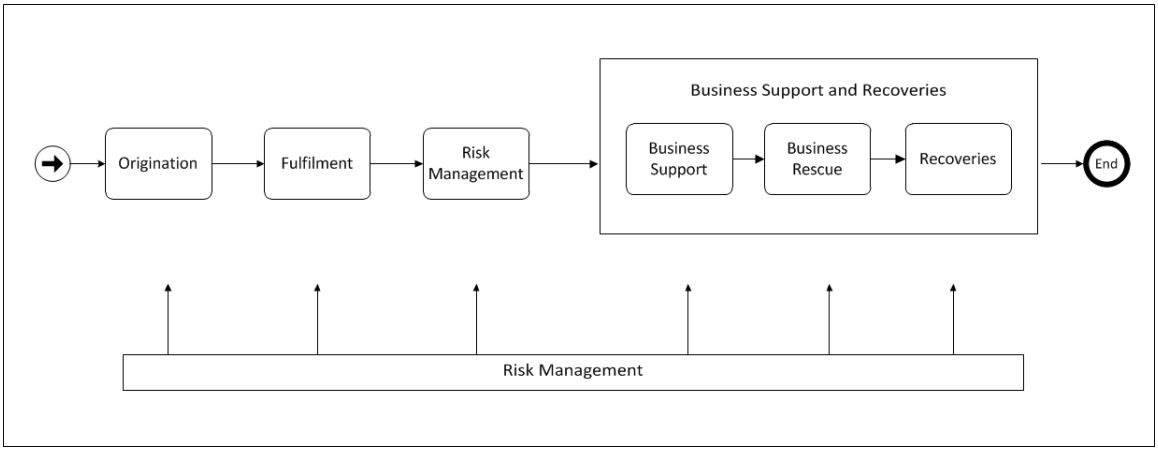
3.3.1 Dependent variables

The amount of borrowing afforded to the SME, known as the sanctioned limit, expresses the willingness to lend by the providers of capital. This amount expresses the levels of risk appetite that the lenders are willing to tolerate and is determined by set processes and procedures as described below. The processes might differ slightly between the two books of data but the aim of

the processes is the same and that is to establish risk appetite of the lender. The dependent variable has been taken as is, and is determined as described below.

The Bank views the SME sector as an important one and has a separate department to cater to the specific lending of this sector. Figure 3.1 illustrates the end to end process of the lending. The sale of financial products happens at Origination and this is decentralised to the branches. The credit evaluation/ fulfilment, risk management and loan recovery functions remain centralised. This confirms findings from previous studies done by Beck, Demirgüç-Kunt, and Martinez Peria (2008) and De la Torre, Pería, and Schmukler (2010).

Figure 3.1: End to end process flow



Source: Commercial bank internal documentation

The origination team is responsible for the sale of the financial product, which is presented to credit through an application. Credit makes the approve/decline decision having assessed the full information presented. On approval, the fulfilment team prepares the legal agreements and/or collateral as per credit approval specifications. Upon signing and validation of the documentation, the facilities are released. Risk management is responsible for the monitoring of the deal post approval date through daily reports and identifies early warning signs of distressed clients. The Business support and recoveries steps in to assist the customer if the company portray signs of default or are in default.

3.3.1.1 Lending criteria of banking book and requirements per product

The credit decision is made on the basis of provided information in the application. Scoring models are used as part of the input into the credit decision. As can be seen from Table 3.1, some of the information required is historical, but forward looking information, such as projected cash flows, is also taken into consideration if provided. In keeping with regulation, the Bank is also required to be compliant with regards to National Credit Act (NCA) regulation and is also required by law to have updated 'Know your customer' (KYC) documentation in place.

The value and extent of collateral taken is based on the risk assessment performed by credit and the reliance that can be placed on that collateral.

Table 3.1: Commercial bank lending criteria

Documents	BRCP	Corp Card	GBB Local/Foreign	MTL	BTL	Overdraft	LC & FEC
Annual Financial Statements	y	y	y	y	y	y	y
Management Accounts	y	y	y	y	y	y	y
Bank Statements	y	y	y	y	y	y	y
Solvency Proof (if no Financials)	y	y	y	y	y	y	y
Cash Flow	y			y	y	y	
Credit Bureau Clearance	y	y	y	y	y	y	y
Personal Statement(Assets & Liabilities)	y	y	y	y	y	y	y
Copy of Sale Agreement (If sale)	y	y		y	y	y	
Proof of Contribution (new business)	y	y		y	y	y	
Business Plan (new business)	y	y		y	y	y	
Curuculum Vitae (new business)	y			y	y	y	
Full General	y	y	y	y	y	y	y
KYC (Know your Client Docs)	y	y	y	y	y	y	y
NCA Requirements	y	y	y	y	y	y	y
Tangible Security	Assessment		y	y	y	Assessment	y

Source: Commercial bank internal documentation

3.3.1.2 Government agency lending book

The budget allocations of the government agencies are done through two main departments i.e. the Department of Trade and Industry and the Department of Economic Development that disburse funds pending allocation from the National Treasury. According to National Treasury SA, it can be noted that over six Medium Term Expenditure Framework (MTEF) periods from 2009 to 2014, funds made available for allocation to government institutions have gradually decreased as a proportion of the total budget, from 7.4 per cent in the 2009 Budget to 1.2 per cent in the 2014 Budget. This is due to the decreased quantum of additional funds, as a result of deteriorating macroeconomic conditions, made available in terms of the fiscal framework over the different Medium Term Expenditure Framework (MTEF) periods. Table 3.2 and 3.3 are evident of the deteriorating amounts allocated to the government agencies mandated to support SMEs in South Africa. In table 3.3, it is notable that South Africa has the least allocated budget to support SMEs and yet the second lowest GDP growth of the comparable countries. It is also relevant to note that South Africa has the largest percentage of estimated SME contribution to GDP within the comparable countries. In a nutshell, it can be said that South Africa offers the least support to a sector significant to GDP contribution, and thus neglects a source of potential growth within the economy. It is no wonder South Africa is lagging behind in entrepreneurship as confirmed by Xavier et al. (2014) in the Global Entrepreneurship Monitor 2013 report.

Some structural changes have been made to government with the formation of the new Ministry for Small Business Development to improve efficiency in this sector. Two of the government agencies that fell under the Department of Trade and Industry and the Department of Economic Development respectively i.e. Small Enterprise Development Agency (SEDA) and Small Enterprise Finance agency (SEFA) are now under the umbrella of the Department of Small Business Development. In the South Africa budget speech 2015, the new Ministry of Small Business Development was allocated R3.5 billion to support small business through various programmes.

Table 3.2: Allocation of government resources.

Government: Supply of Funding					
Department of Trade and Industry (Development Finance and Small Business Development Institutions)	Allocation of Funding	Department of economic development	Allocation of Funding	Department of Small Business development (NEW)	Allocation of Funding
Small Enterprise Development Agency (SEDA)	R 746 000 000.00	Industrial development corporation (IDC)	Self Funded	Small Enterprise Development Agency (SEDA)	R 746 000 000.00
National Empowerment Fund (NEF)	Self Funded	Small Enterprise Finance Agency (SEFA)	R 1 400 000 000.00	Small Enterprise Finance Agency (SEFA)	R 1 400 000 000.00
TOTAL	R 746 000 000.00	TOTAL	R 1 400 000 000.00	TOTAL	R 2 146 000 000.00

Source: Own compilation (Figures at Feb 2015)

Table 3.3: How South Africa compares with its peers

Comparison with other Emerging Economies				
Country Name	Annual GDP Growth %	SMEs Budget Allocation	%ge Increase/Decrease in Budget Allocation	Estimated SME Contribution to GDP
Brazil	2.50%	5 Billion Reals ($1.5 Billion)	21.00%	20%
Chile	4.10%	199.3 Billion Pesos ($311million)	37.50%	20%
India	5.00%	21.5 Billion Roubles ($640 Million)	19.00%	17%
Russia	1.30%	21.5 Billion Roubles ($640 Million)	10.00%	21%-22%
Malaysia	4.10%	11.4 Billion RM ($3.2 Billion)	37.50%	33%
South Africa	1.90%	3.5 Billion Rands($289milliion)	46.00%	27%-34%

Source: Own compilation

3.3.1.3 Lending Criteria and requirements of government book

Table 3.4 outlines the lending criteria to be met in order to obtain funding from a government agency. The lending criterion for government funding is more specific in comparison to that of the commercial bank lending. Collateral is taken only where available, that is, if the applicant can demonstrate repayment ability, unsecured lending may be offered. The focus is more with the applicant being compliant to all the relevant laws and regulations. The criteria are meant to enable lending that empowers entrepreneurs particularly those from previously disadvantaged backgrounds.

Table 3.4: Lending criteria for government funding

Documents	Debt	Equity
South African citizen or permanent resident	y	y
Registered entity	y	y
Required contractual capacity	y	y
Registered within South Africa	y	y
Compliant with corprate governmentpractises	y	y
Written proposal or business plan	y	y
Demonstrate repayment ability	y	y
Personal and/or credit references	y	y
Majority shareholder and owner manager	y	y
Collateral/ Security	Where available	Where available
Tax clearance certificate	y	y
Previously disadvantaged	Where applicable	Where applicable

Source: Internal document

3.3.2 Independent variables

The risk appetite structures or measures used are firm size (measured by turnover of the entity), product offering, industry or sector that the entity operates in and macroeconomic factor represented by the prime lending rate. These are measured through the time period 2004 to 2015.

3.3.3 Control variables

The control variables that influence the amount of loans granted to an SME are collateral position/ tangible collateral value of the firm, gender and the quality of information presented for assessment to the lender. None of the control variables have been included in the model purely due to the lack of information, some are difficult to measure, such as the quality of information presented while with the collateral values, accurate valuation figures could not be retrieved. Other control variables may have been omitted that could affect the balance of loans. Taylor, Miller, and Gray (2012) state that there will always be omitted variables with a causal

effect on the output desired or being tested and summed it up by going further to state that there is little that can be done.

3.4 Equation specification and modelling

The model employed in evaluating the relationship between the dependent variable and the independent variables is specified below:

$$Y_{it} = \beta_0 + \beta_1 X1_{it} + \beta_2 X2_{it} + \beta_3 X3_{it} + \beta_4 X4_{it} + \varepsilon_{it} \quad (1)$$

Where;

- Y_{it} *represents the loan amount (willingness to lend) for firm i at time t.*
- $X1_{it}$ represents size of the firm i measured by turnover at time t
- $X2_{it}$ represents macroeconomic factors measured by the prime interest rate for firm i at time t
- $X3_{it}$ represents Product offered for firm i at time t
- $X4_{it}$ represents Industry/sector for firm i at time t
- ε_{it} represents the error term

The choice of a cross sectional regression model such as equation (1) is not without problems, especially the cross sectional dependence inherent in the data. In order to overcome this, the model is estimated using a single equation on all the data so that the dependent variable (loan amount) is stacked up into a single column containing all the cross sectional and time elements in the observations. This then makes it possible to simply apply ordinary least squares (OLS) to equation (1).

3.5 Hypothesis tested

3.5.1 Size of the firm and Loan amount

For the purpose of this study, the size of the firm is determined by the turnover of the firm. Various measures apply to measure the firm size such as the number of human labourers, sales and/or assets (Hommel & Schneider, 2003). The decision to use sales/turnover is based on the information available.

Hypothesis 1: A statistically positive relationship exists between the size of the firm and the Loan amount

3.5.2 Prime rate and Loan amount

The prime rate has been used in the study to factor in the economic environment as captured by the reserve bank. It represents the conditions in the overall market and affects lending in that borrowing price is linked to the prime rate. The prime rate is set externally by the South African Reserve Bank and the historic rates have been sourced therefrom.

Hypothesis 2: A statistically negative relationship exists between the prime rate and the loan amount.

3.5.3 Product and Loan amount

For the product specification in the model, we have used a dummy variable represented by 0 and 1 as this is qualitative in nature. The product range for both books has been scrutinised and the most frequent represented by 1 while the rest are represented by 0. Though similar in nature, the products are differentiated by the tenor of the loan and whether an equity component exists or not.

The government book has more appetite to hold an equity position in the entities it lends than does the banking book which is more favourable towards short term lending.

Hypothesis 3: A statistically negative relationship exists between the product and the loan amount.

3.5.4 Sector and Loan amount:

The sector variable is also represented by a dummy variable due to its qualitative nature. The two books vary in that different sectors take priority to be supported. The government book supports more frequently broad based sectors such as agriculture, energy and services that are socially uplifting in the economy while the bank book supports sectors that are growing rapidly at that given point in time such as wholesale and retail trade, manufacturing and transport. The two books do both however support the construction industry. In allocating the dummy variables, 0 and 1 was used where 1 represents the top four most frequently lent to sectors and 0 representing the other sectors within each book respectively.

Hypothesis 4: A statistically positive relationship exists between the sector and the loan amount.

Chapter summary

The chapter focused on the data and research design. The study draws inferences based on data on risk appetite variables and loan amount variables. Detailed description and in depth explanations on the composition of the loan market based on the variables identified follows. Further, the following chapter addresses the relation that the variables identified have on the loan amount.

CHAPTER FOUR:
RESULTS AND ANALYSIS

4.1 Introduction

This chapter lays out the findings of the data analysis performed on both the commercial lending book and that of the government agency. The previous chapter details the research design and introduces the hypothesis tested. This chapter is organised as follows: Section 4.2 presents descriptive statistics; Section 4.3 presents the diagnostic process followed for the regression which is then followed by presentation of the regression results in section 4.4; the chapter is then concluded by the discussion of results in relation to hypothesis introduced in chapter 3.

4.2 **Descriptive statistics**

The summary statistics are presented in Table 4.1 and Table 4.2 for both the bank lending book and the government lending book respectively. The analysis in the table is for the independent and dependent variables for the entire period (2004 to 2014) and for the phases of development as characterised.

The descriptive statistics indicate the total lending afforded to be R6, 7 billion and R1, 3 billion for the commercial bank book and government book respectively. The maximum size is reflected to be within the definition of the SME practiced in industry at below R600 million. The minimum size is at zero for both books under review which reflects an inclusion of entities that are no longer in operation, i.e. considered bad debts. Looking through the development stages comparatively, the growth phase has the largest borrowing with the startup phase having the least borrowing, this is consistent for both books. We do however note that the average lending for both books is higher within the startup phase for both books and lowest in the growth phase. This is due to the number of entities in the growth phase being significantly greater than that in the startup phase.

What is interesting about the data as presented in table 4.1 and 4.2 is the mode at R200 000 for the commercial banking book and at R5 million for the government book. The commercial banking book though large in total disperses smaller loan amounts to numerous SMEs while the government book provides more substantial loan amounts but to fewer entities.

Graphical illustration of the data follows to provide more insight as to the composition of the data presented.

Table 4.1: Descriptive statistics for the bank lending book for the entire period and for the separate age groups

Bank Lending Book	*Rate*	*Bal*	*Size*	*Rate*	*Bal*	*Size*	*Rate*	*Bal*	*Size*	*Rate*	*Bal*	*Size*
Age	Full Sample			Start Up Phase (<1 Year)			Growth Phase (1 -5 years)			Mature (6-10 Years)		
Mean	10.24	760 624.75	6 585 218.67	9.13	1 000 916.28	6 196 825.28	9.20	718 329.41	6 468 531.45	12.32	774 269.11	6 885 426.98
Standard Error	0.02	13 680.22	144 296.50	0.00	45 511.64	403 468.32	0.01	15 121.73	201 505.76	0.03	29 090.19	230 184.82
Median	9.25	397 000.00	4 062 595.00	9.25	577 361.50	4 486 722.50	9.00	350 000.00	3 868 470.00	11.50	410 000.00	4 399 199.00
Mode	9.00	200 000.00	5 000 000.00	9.25	100 000.00	5 000 000.00	9.00	200 000.00	5 000 000.00	10.50	200 000.00	1.00
Standard Deviation	1.94	1 287 904.23	13 584 578.36	0.12	1 238 050.51	10 975 524.90	0.97	1 086 241.37	14 474 791.11	1.77	1 583 479.49	12 529 753.12
Kurtosis	0.80	432.30	342.23	-2.00	50.80	204.51	7.34	51.63	341.58	-1.09	540.90	326.38
Skewness	1.31	13.77	15.42	-0.08	4.89	12.20	2.44	5.12	15.83	0.64	18.69	14.25
Range	7.00	53 084 000.00	413 718 668.00	0.25	18 037 000.00	215 155 953.00	5.50	20 842 700.00	413 718 668.00	5.00	53 084 000.00	333 000 000.00
Minimum	8.50	10 000.00	-	9.00	10 000.00	-	8.50	10 000.00	-	10.50	10 000.00	-
Maximum	15.50	53 094 000.00	413 718 668.00	9.25	18 047 000.00	215 155 953.00	14.00	20 852 700.00	413 718 668.00	15.50	53 094 000.00	333 000 000.00
Sum	90 752.75	6 741 417 200.90	58 364 793 107.00	6 756.25	740 678 044.41	4 585 650 710.00	47 490.50	3 706 579 774.48	33 377 622 263.00	36 506.00	2 294 159 382.01	20 401 520 134.00

Table 4.2: Descriptive statistics for the government lending book for the entire period and for the separate age groups

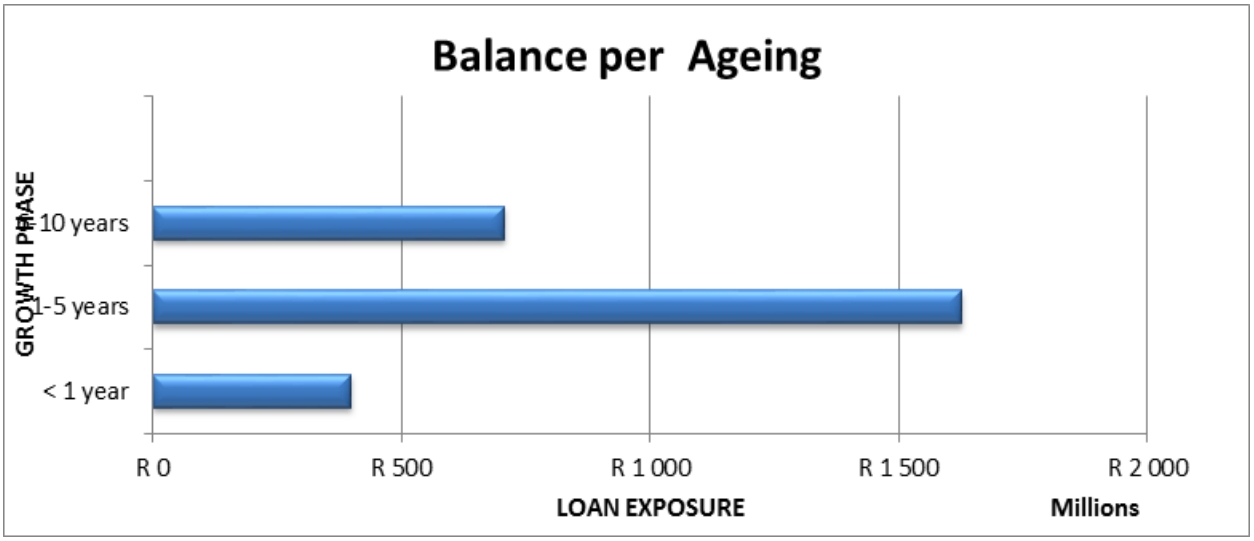
Gov Lending Book	*Rate*	*Bal*	*Size*	*Rate*	*Bal*	*Size*	*Rate*	*Bal*	*Size*	*Rate*	*Bal*	*Size*
Age	Full Sample			Start Up Phase (<1 Year)			Growth Phase (1 -5 years)			Mature (6-10 Years)		
Mean	9.60	8 133 726.25	56 430 303.03	8.73	14 935 086.36	54 818 181.82	9.26	7 269 750.45	57 398 496.24	12.19	10 042 955.76	51 142 857.14
Standard Error	0.09	916 024.47	7 513 767.72	0.10	5 657 736.53	31 699 962.20	0.03	920 596.79	8 500 780.26	0.32	2 936 477.21	18 758 272.55
Median	9.50	4 213 000.00	13 000 000.00	8.50	6 320 604.70	18 000 000.00	9.00	4 084 927.88	13 000 000.00	11.00	5 419 981.85	15 000 000.00
Mode	9.00	5 000 000.00	8 000 000.00	8.50	50 000 000.00	-	9.00	5 000 000.00	8 000 000.00	11.00	#N/A	10 000 000.00
Standard Deviation	1.16	11 766 547.37	96 516 093.96	0.34	18 764 589.25	105 136 880.48	0.32	10 616 840.13	98 035 780.41	1.47	13 456 629.10	85 961 203.87
Kurtosis	7.64	9.95	9.11	0.98	0.58	8.92	6.59	15.81	9.79	-1.92	4.71	6.03
Skewness	2.77	2.95	2.96	1.32	1.36	2.90	1.73	3.54	3.04	0.47	2.17	2.61
Range	5.50	74 999 970.00	500 000 000.00	1.00	49 999 437.57	360 000 000.00	2.00	74 999 970.00	500 000 000.00	3.00	51 799 911.00	298 000 000.00
Minimum	8.50	30.00	-	8.50	562.43	-	9.00	30.00	-	11.00	40.00	2 000 000.00
Maximum	14.00	75 000 000.00	500 000 000.00	9.50	50 000 000.00	360 000 000.00	11.00	75 000 000.00	500 000 000.00	14.00	51 799 951.00	300 000 000.00
Sum	1 583.50	1 342 064 830.89	9 311 000 000.00	96.00	164 285 950.00	603 000 000.00	1 231.50	966 876 809.89	7 634 000 000.00	256.00	210 902 071.00	1 074 000 000.00

4.2.1 Data Analysis of commercial lending book:

4.2.1.1 Lending per growth phase

The ageing mimics the growth phase of the entity as defined in our brief literature review in chapter two. The majority of the banking exposure is found in the 1-5 year bracket which is the growth phase of the entity in line with the business cycle stages. Literature labels this to be a significant stage in the development of the entity, which begs the question if funding is available at this stage, what are the other reasons that need to be cited for high failure rates of SMEs in the growth phase of the business? Various authors, such as Abor and Quartey (2010), Ropega (2011) have cited the prominent factors affecting SME growth to include a lack of managerial skills, regulatory issues as well as equipment and technology constraints.

Figure 4.1: Commercial bank exposure per growth phase



Source: Own compilation

4.2.1.2 Lending per sector

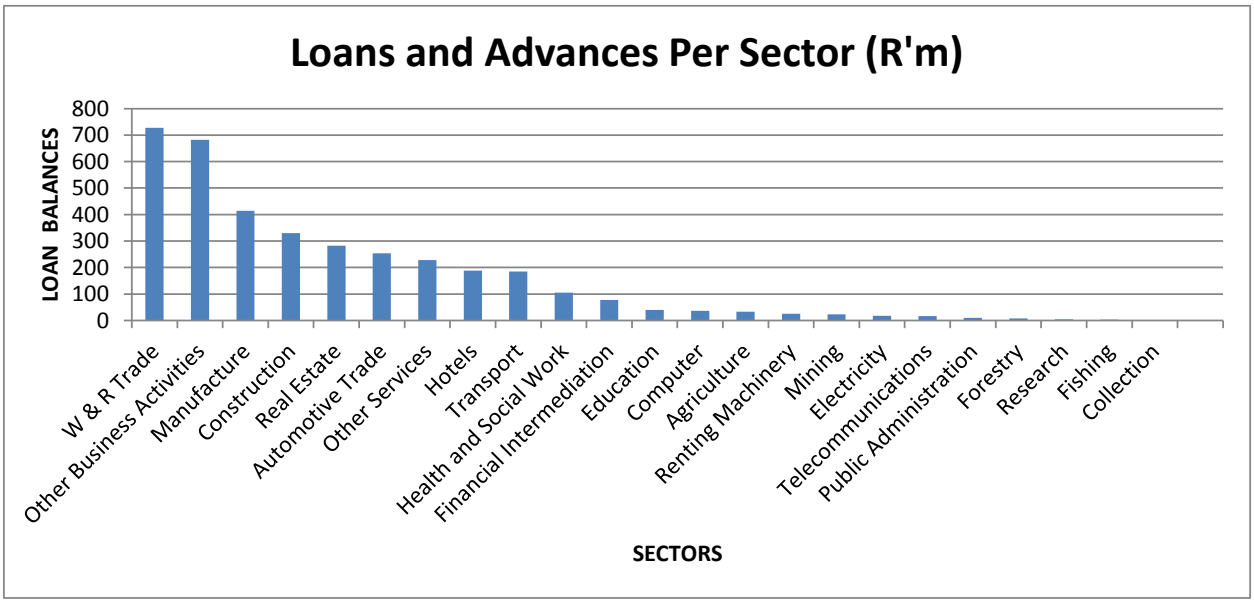
The sectors cover a range of activities as shown in figure 4.2, within the economy and each sector has unique characteristics and risk profile. The commercial bank has the highest exposure to the wholesale and retail trade sector. This is not surprising in the SME sector as buying and selling

requires relatively lower skill sets and is less capital/labour intensive, compared to mining, as an example. Manufacturing as the 3rd highest exposure provides comfort that lending is being availed to support the creation of goods.

Exposure to each sector may vary according to the industry challenges experienced by each sector. According to banking policy, certain sectors are perceived to carry huge reputational risk such as religious organisations and thus commercial banks have low risk appetite for these sectors.

The low levels of exposure to sectors that are fundamental to human needs, such as agriculture and education, are concerning given that high exposure to sectors that are relatively less fundamental to human needs, such as automotive trade, receive funding, but this may well be a developing country problem and not just the lenders' preference.

Figure 4.2: Commercial bank loans advanced per sector

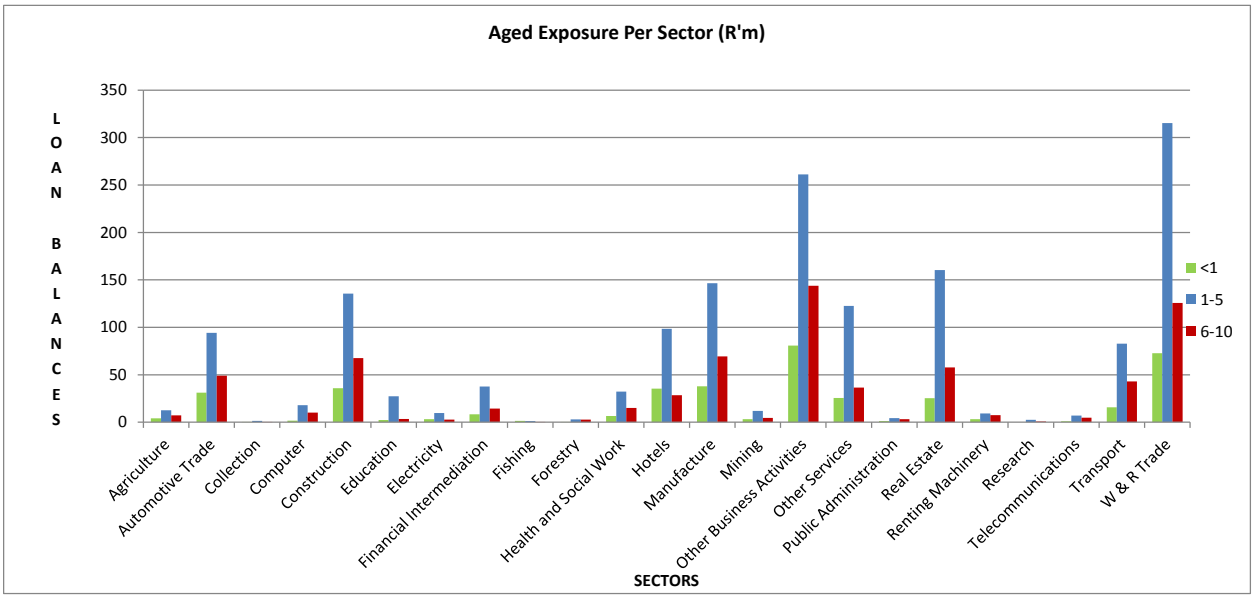


Source: Own compilation

4.2.1.3 Aged exposure per sector

The aged exposure per sector emphases the previous result, as can be seen in figure 4.3, the largest exposure is within the 1-5 year aging for the W&R trade sector.

Figure 4.3: Commercial bank aged exposure per sector



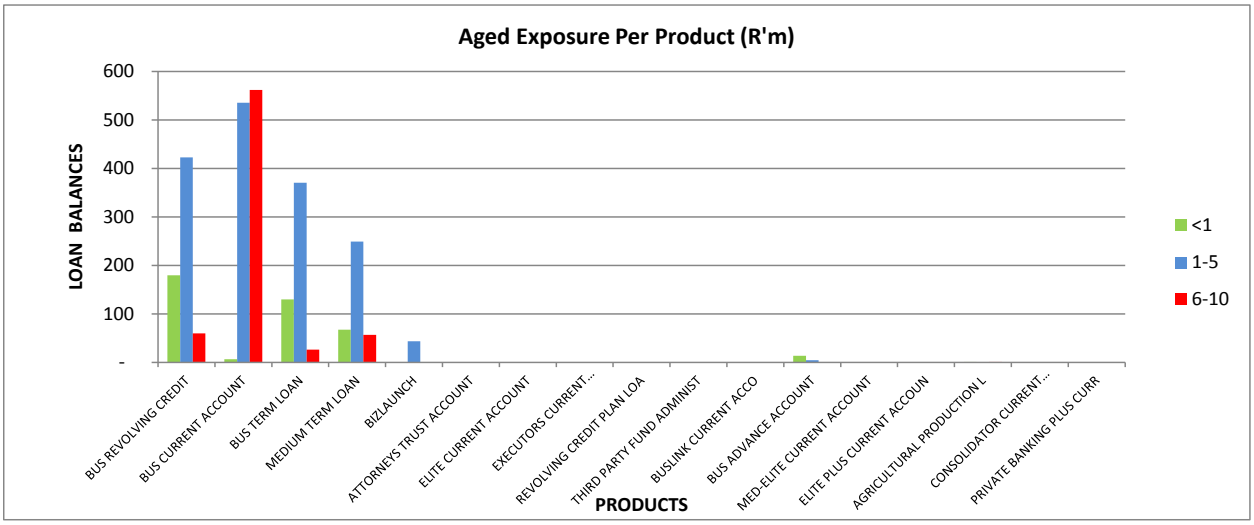
Source: Own compilation

4.2.1.4 Exposure per product

The most popular product offered by commercial banks is the Business Current account which is a transactional account that provides cash flow for the day to day running operations of the business. This accounts for 56% of the lending book and is highest for clients over 6 years in age i.e. mature stage of business cycle. It is however interesting to note that the current account is highest for over 6 year ageing while the overall biggest exposure is within the 1-5 year aging band. The transactional account is popular within the mature phase of the entity as at this stage of the business, profits are stable.

What is notable in figure 4.4 is the concentration in the product offered. 98% of the book is concentrated in the four products, i.e. Current account, Revolving credit and the Term loans. This could be an indication of innovations that fail to take off within the product offering space of the banking lending sector.

Figure 4.4: Commercial bank aged exposure per product



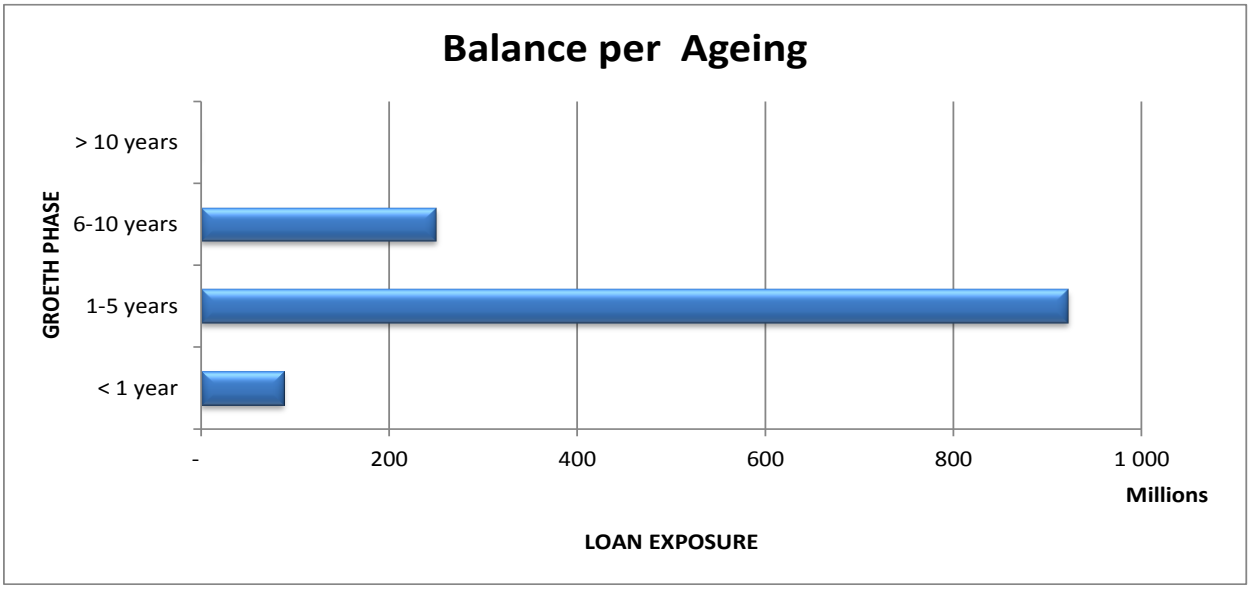
Source: Own compilation

4.2.2 Data analysis for Government agency lending book

4.2.2.1 Lending per growth phase

Figure 4.5 reflects that the majority of lending by government agencies is within the 1-5 year period, which is the growth phase of the business cycle. The consistency of the two books in lending significantly to the growth phase of SMEs provides comfort that perhaps other factors are attributable to the high failure rate within this phase. The least phase to afford lending is in the less than one year phase, which is surprising as part of the government agency mandate is to support start-ups. The lower lending in this phase could however be attributable to the high failure rate in lending to start ups.

Figure 4.5: Government agency exposure per growth phase

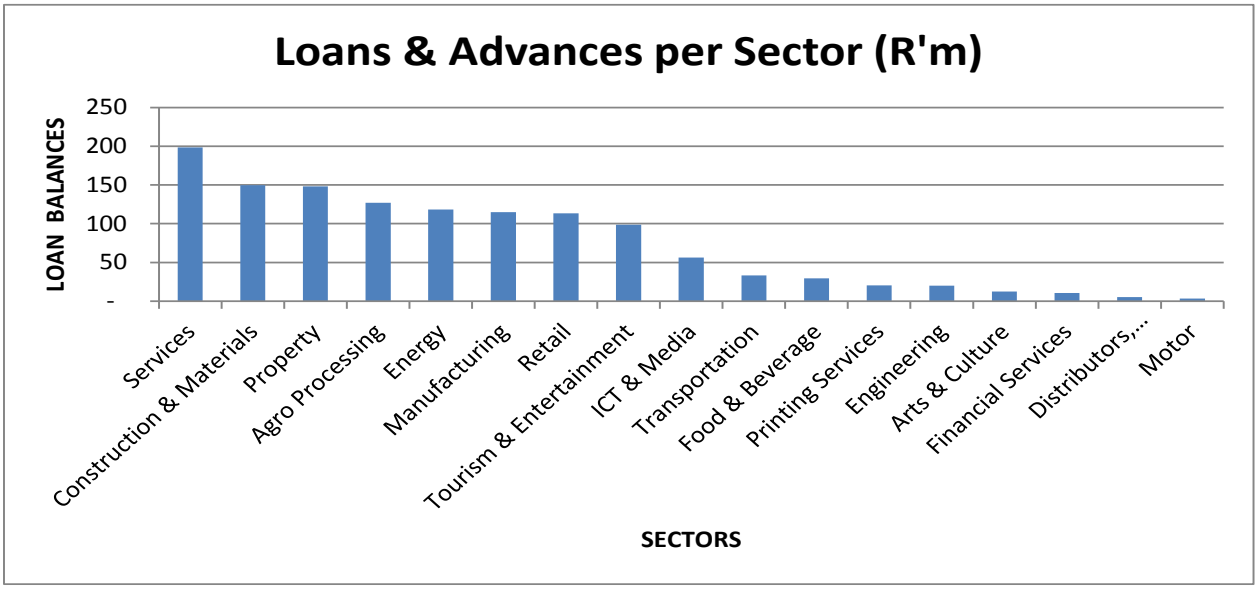


Source: Own compilation

4.2.2.2 Lending per sector

Sectors in the government agency book are well-articulated in comparison to the commercial book in that fewer gaps exist in the data. We also observe that the government book tends to allocate more funds to sectors fundamental to human needs such as Agriculture and Energy, which is in line with government policies as noted in figure 4.6.

Figure 4.6: Government agency loans per sector

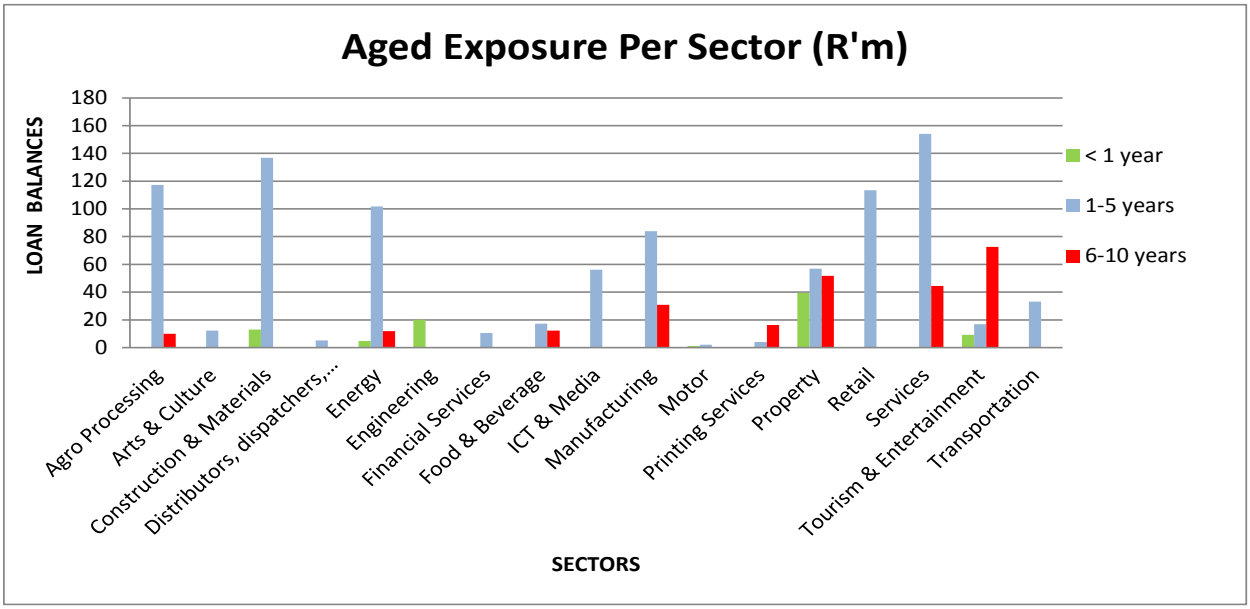


Source: Own compilation

4.2.2.3 Aged exposure per sector

The aged exposure per sector of the government book emphases the lending within the growth phase in the agriculture, construction, energy, retail and services industries. This is in line with government policies to provide decent living conditions with access to food, infrastructure and sanitation. Figure 4.7 emphases prior results of lending to these sectors within the 1-5 year period of the business cycle. Some sectors such as transport, financial services and media do not have lending in the less than 1 year growth phase. This could be due to the high barriers to entry within those sectors, making them high risk industries to lend to.

Figure 4.7: Government agency aged exposure per sector

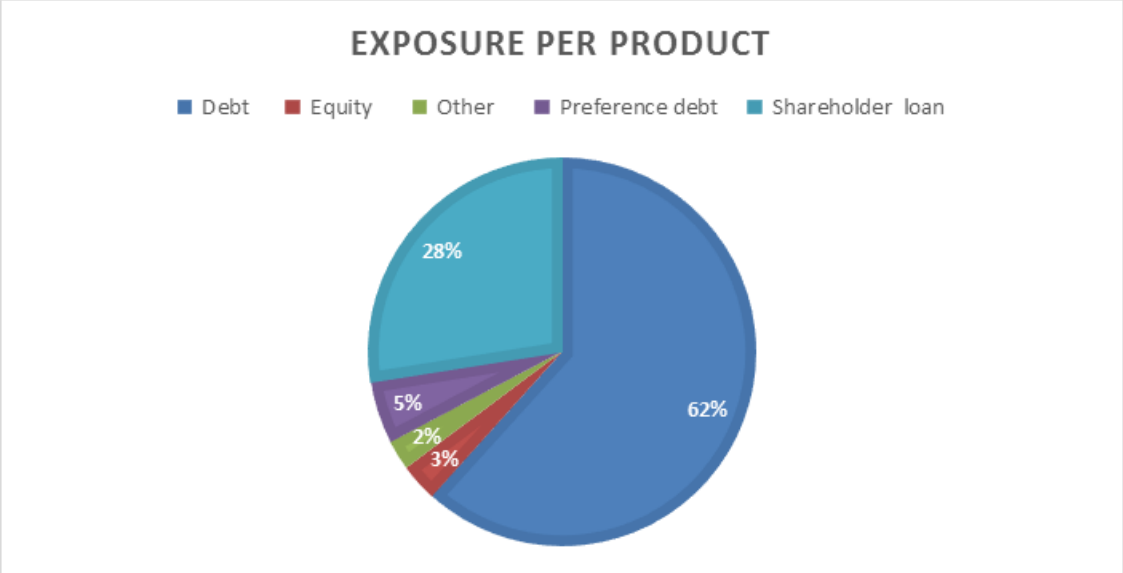


Source: Own compilation

4.2.2.4 Government agency exposure per product

The government agency product range is much smaller than that of the commercial banking book comprising mainly debt at 62% as per figure 4.8 of the book followed by various equity products as shown in the chart below. This is in line with government policy to support small business. With the government agency as one of the shareholders, the bigger organisations are more comfortable with doing business with the small entities.

Figure 4.8: Exposure per product

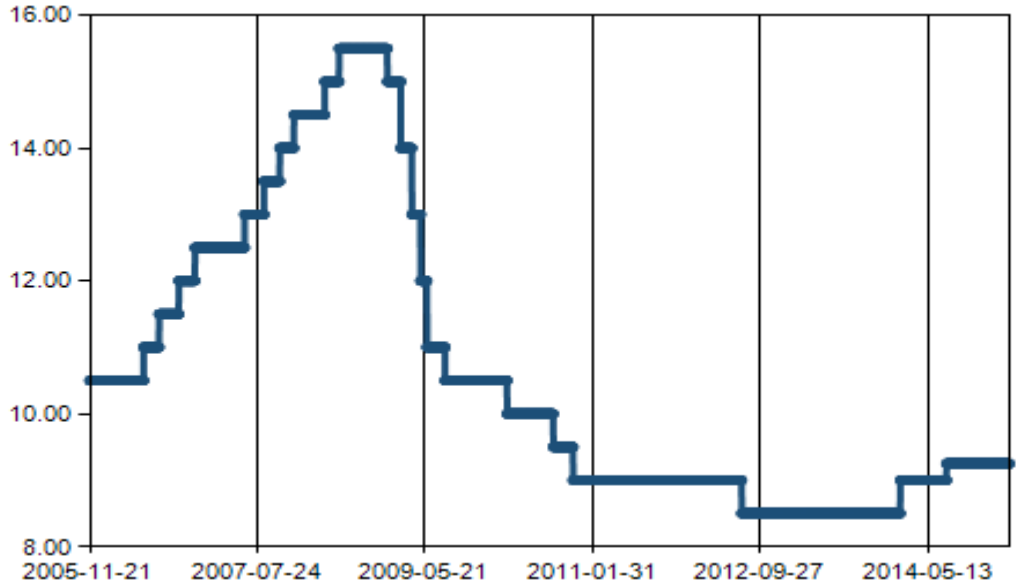


Source: Own compilation

4.2.3 Prime lending rates

The prime lending rate is determined externally by the South African reserve bank and applies to all lenders as a benchmark for pricing. Figure 4.9 illustrates the movement in the prime lending rate over the 10 year period under review.

Figure 4.9: Prime lending rate 2004-2014



Source: South African Reserve Bank

4.3 Regression analysis and diagnostic checking

The method used to analyse the relationships between variables in this study is the least squares regression. In order to run any least squares regression analysis, a few assumptions had to be met and corrected for in the data. The assumptions for least squares are linearity, normality, multicollinearity and heteroscedasticity. However, given that our data set is cross sectional, our main concern was multicollinearity and heteroscedasticity. A series of tests were conducted and the data corrected for the least squares assumption before running the final regression and presenting the findings. The residuals were then tested for normality and found to be in line and thus confirmed the model used is suitable.

Firstly, the cross sectional data was scrutinised and cleaned by eliminating the presence of negative values and/or extreme deviations/outliers and gaps in the data. The two book samples are then

streamlined for consistency, however the books had to be run separately as the number of observations was very different with the commercial book sample more volume driven than the government book sample. The individual variables are then tested for multicollinearity and heteroscedasticity. We observed that no multicollinearity was evident between the independent variables with the off diagonal values less than 0.6 at 0.014 and 0.037 for the commercial and government book respectively. The test for collinearity was not done on the dummy variables but took note of the dummy problem and was comfortable that we only used two dummy variables in the model, in accordance with Brooks (2008). Further to the above, we used the white test to detect heteroscedasticity and the "p" values came out to be in excess of 0.05 indicating no evidence for the presence of heteroscedasticity as this was corrected for by logging the data. Logging the data also corrected for linearity in the variables. Normality was achieved in the residuals after running the least squares regression with the jarque bera statistic of 3.57 and kurtosis of 3.07 for the banking book. The government book residuals reflect a slightly higher jarque bera statistic of 62.29 and kurtosis of 6.04. We now proceeded to run the least squares regression model.

In order for us to successfully make inferences of the results, the regressions needed to meet certain features for a good regression model, as described above. As can be noted in table 4.4 and 4.5, the regression line being fitted to the data represented by an R squared value of 6 percent on average for the commercial lending book and 20 percent on average for the government book. The low R squared value could be an effect of the omitted control variables specified in chapter 3 which could not be included due to data restrictions. That being said, we could still proceed to make inferences on the variables in the sample.

Another consideration is that the independent variables should be individually significant to explain the dependent variable observed in the t test. This was tested for prior to running the regression. The independent variables should also be jointly significant to explain the dependent variables and this is observed in the f test. The residuals must not be autocorrected, a feature already corrected for in the preliminary tests above, using the multicollinearity test. Lastly, the variances of the residuals are not heteroscedastic. This is confirmed using the heteroscedasticity white test. With all these features observed, the regression is a good model where the independent

variables can explain the dependent variables to the regression model. The results are presented and discussed below.

4.4 Impact on loan balances through the development phases

Table 4.4 and 4.5 below shows the explanatory value of the independent variables to the dependent variable through the different phases of development. Four separate regressions have been run for each sample book and the variations in results presented in the tables. The full sample is run and then the data divided into the various age groups are run as indicated. The results reflect an R squared value of 6 percent on average for the commercial lending book and 20 percent on average for the government book. This in essence means that the dependent variable, i.e. loan amount is explained 6.0% and 19.18% (bank book and government book respectively) accurately by the independent variables in the model.

4.4.1 Bank Book Sample results

The results for the bank book sample are presented in table 4.3 and table 4.4. Table 4.3 shows us that the size of the firm has a statistically positive relationship to the loan amount afforded to the entity. This relationship is consistent throughout the development phases. Table 4.4 shows the results of the p-value for the full sample and the various development phases as being statistically significant at the 1% level. We therefore do not reject the null hypothesis that there exists a statistically positive relationship between the size of the firm and the loan amount afforded to the entity. Based on this finding, we can conclude that banks have more appetite to lend to entities with sizable turnovers. This answers the research question as to whether the size of the firm is essential in determining the level of funds lent to an SME. The positive relationship between the size of the firm and the loan amount confirms that size is crucial in the determining the loan amount.

Hypothesis two tests whether a statically negative relationship exists between the prime lending rate and the loan amount. For the bank book, the full sample results and those of the various stages of development reflect a positive relationship, as can be seen in table 4.3. However, despite being significant at a 1% level in the full sample and the growth phase, it is insignificant in the early phase and the mature phase. This is reflective of the variation in the need of funding as entities have an inelastic response to the movement in the prime lending rate at the stages when growth is crucial. The null is however rejected as the relationship result is positive.

Table 4.3 reflects a negative relationship between the product (Productdumy) and the loan amount consistently across all four regressions, despite the statistically significant p-value, the relationship is negative; we therefore fail to accept the hypothesis that there is a statistically positive relationship. Based on the findings, banks are not tailoring there products to suit SMEs, however the SMEs have to align their business to suit bank products, similar to the findings by De la Torre et al. (2010).

The hypothesis stating that the sector (sectordumy) in which the entity operates has a positive relationship to the loan amount is rejected as table 8 indicates negative co-efficient for the four regressions. The relationship is not in agreement with the hypothesis, the results are however statistically significant for three of the four regressions as shown by the p-values in table 4.4. We therefore fail to accept the hypothesis that a statistically positive relationship exists between the sector and the loan amount.

4.4.2 Government book sample results

This section looks at the results for the government book in line with the hypothesis. The results are articulated in table 4.3 and 4.5. As per the results of the bank book, the size of the firm is positively related to the loan amount. Table 4.3 reflects the positive relationship in the full sample and across the development stages. The “p” value statistic is significant for all except the mature

phase. We therefore accept the hypothesis that the size of the firm is positively related to the loan amount.

The prime lending rate has a statistically negative relationship to the loan amount. Table 4.3 shows agreement in the relationship across the four regressions run. However, the "p" value statistic is insignificant for all four regressions and thus we reject the hypothesis across the full sample and the three development stages. This is consistent with the bank book, though we reject for different reasons. Based on the above, we can therefore conclude that from the lenders' perspective, the prime rate does not have much influence on the loan amount. A potential explanation for this is that pricing is driven by other factors, such as tangible collateral.

The results for the product (Productdumy) and its relationship to loan amount is positive and statistically significant as shown by a p-value less than 1% for the full sample, the growth phase and the mature phase. The start-up phase reflect an insignificant "p" value statistic and thus fails to accept the hypothesis. The growth and mature statistics however reflect significance and accept the hypothesis. This is evidence of the product range not being tailor made for small entities. As seen in the data, the government agency holds a significant amount of equity in financing SMEs.

The sector hypothesis for the government book is rejected across three of the four regressions; the full sample, growth phase and mature phase. The start-up phase agrees with the hypothesis in terms of the relationship and is further supported by the "p" value statistic of 0.0345 which is significant at a 5% level. We therefore fail to reject this hypothesis for the growth and mature phase of development. However, due to the incorrect capture of the relationship and the insignificant "p" values for the growth and mature phase, we reject the hypothesis for the periods respectively.

Chapter summary

This chapter presents the descriptive statistics and discusses the variables under review in relation to the dependant variable. It then is followed with a look at the hypothesis test results. The next chapter discusses these findings in relation to theory.

Table 4.3: Summary of the hypothesis tests results

Banking Book		Full Sample			Start Up Phase (<1 Year)			Growth Phase (1 -5 years)			Mature (6-10 Years)		
	Hypothesis sign	Regression result	Statistical significance of results	Hypothesis decision	Regression result	Statistical significance of results	Hypothesis decision	Regression result	Statistical significance of results	Hypothesis decision	Regression result	Statistical significance of results	Hypothesis decision
LSIZE	+	+	SIG	Accept	+	SIG	Accept	+	SIG	Accept	+	SIG	Accept
LRATE	-	+	SIG	Reject	+	INSIG	Reject	+	SIG	Reject	+	INSIG	Reject
PRODUCTDUMY	+	-	SIG	Reject	-	SIG	Reject	-	SIG	Reject	-	SIG	Reject
SECTORDUMY	+	-	SIG	Reject	-	SIG	Reject	-	SIG	Reject	-	INSIG	Reject

Government Book		Full Sample			Start Up Phase (<1 Year)			Growth Phase (1 -5 years)			Mature (6-10 Years)		
	Hypothesis sign	Regression result	Statistical significance of results	Hypothesis decision	Regression result	Statistical significance of results	Hypothesis decision	Regression result	Statistical significance of results	Hypothesis decision	Regression result	Statistical significance of results	Hypothesis decision
LSIZE	+	+	SIG	Accept	+	SIG	Accept	+	SIG	Accept	+	INSIG	Reject
LRATE	-	-	INSIG	Reject	-	INSIG	Reject	-	INSIG	Reject	-	INSIG	Reject
PRODUCTDUMY	+	+	SIG	Accept	+	INSIG	Reject	+	SIG	Accept	+	SIG	Accept
SECTORDUMY	+	-	INSIG	Reject	+	SIG	Accept	-	SIG	Reject	-	INSIG	Reject

*INSIG = Insignificant

**SIG = Significant at either 1%, 5% or 10%

Hypothesis 1: A statistically positive relationship exists between the size of the firm and the Loan amount
Hypothesis 2: A statistically negative relationship exists between the prime rate and the loan amount.
Hypothesis 3: A statistically negative relationship exists between the product and the loan amount.
Hypothesis 4: A statistically positive relationship exists between the sector and the loan amount.

Table 4.4: Regression statistics bank book

Dependent Variable: LBAL												
Method: Least Squares												
Bank Book	Full sample			Start Up Phase (<1 Year)			Growth Phase (1 -5 years)			Mature (6-10 Years)		
Variable	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.
C	11.0434	56.24038	0.0000	9.192998	1.418208	0.1566	10.03548	23.85105	0	11.68706	26.86189	0.0000
LSIZE	0.253909	3.471688	**0.0005*** **	0.060424	2.989682	**0.0029*** **	0.114166	13.6739	**0*** **	0.097612	10.02537	**0*** **
LRATE	0.105106	17.03229	**0*** **	1.71754	0.587817	0.5568	0.580956	3.220734	**0.0013*** **	0.124038	0.799819	0.4239
PRODUCTDUMY	-0.313291	-6.01689	**0*** **	-0.587225	-4.754408	**0*** **	-0.204239	-3.227225	**0.0013*** **	-0.566463	-5.090569	**0*** **
SECTORDUMY	-0.09366	-3.632573	**0.0003*** **	-0.17866	-2.246148	**0.025** **	-0.103232	-3.020392	**0.0025*** **	-0.048095	-1.088791	0.2763
R-squared	0.060223			0.055725			0.067328			0.057347		
Adjusted R-squared	0.059794			0.050558			0.066595			0.056059		
S.E. of regression	1.200746			1.076499			1.215514			1.178109		
Sum squared resid	12630.08			847.1199			7521.817			4063.89		
Log likelihood	-14037.99			-1096.084			-8222.979			-4639.994		
F-statistic	140.3396			10.78465			91.87794			44.53174		
Prob(F-statistic)	0			0			0			0		
Durbin-Watson stat	0.237915			0.665449			0.136907			0.347823		

***significant at 1%

**significant at 5%

*significant at 10%

Table 4.5: Regression statistics Government book

Dependent Variable: LBAL												
Method: Least Squares												
Government Book	Full sample			Start Up Phase (<1 Year)			Growth Phase (1 -5 years)			Mature (6-10 Years)		
Variable	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.
C	13.20484	2.095107	0.0378	-11.18978	-7.526976	**0.0841***	17.17642	1.440218	0.1523	13.92866	0.409424	0.6877
LSIZE	0.372944	2.980618	**0.0033*****	14.10009	6.978682	**0.0906***	0.358885	2.276295	**0.0245****	0.548298	0.757318	0.4599
LRATE	-2.648192	-0.938973	0.3492	-123.6407	-2.102196	0.2827	-4.236425	-0.804933	0.4224	-4.333722	-0.428919	0.6737
PRODUCTDUMY	2.20668	3.836211	**0.0002*****	3.756571	0.661872	0.6278	2.032098	3.297849	**0.0013*****	3.294022	1.815079	**0.0883***
SECTORDUMY	-0.717768	-1.635147	0.104	5.931743	0.780801	0.578	-0.857865	-2.137448	**0.0345****	-0.210485	-0.101812	0.9202
R-squared	0.191808			0.962264			0.200961			0.180687		
Adjusted R-squared	0.170952			0.811321			0.175186			-0.024142		
S.E. of regression	2.770445			2.781712			2.450339			4.597827		
Sum squared resid	1189.681			7.737919			744.5162			338.2402		
Log likelihood	-387.5315			-9.276751			-296.1065			-58.97967		
F-statistic	9.196557			6.375014			7.796617			0.882136		
Prob(F-statistic)	0.000001			0.28772			0.000012			0.496555		
Durbin-Watson stat	1.888127			0.621916			2.067051			3.013557		

***significant at 1%

**significant at 5%

*significant at 10%

CHAPTER FIVE

CONCLUSION

5.1 Introduction

This chapter is organised as follows: section 5.2 discusses the results in relation to existing literature; Section 5.3 concludes and highlights some recommendations that can be explored for future studies.

5.2 Discussion

The purpose of this study is to evaluate existing funding models of SMEs from the supply side. The Paper analysed the supply side of financing to SMES by evaluating two lending books (commercial bank and government agency) financing SMEs, and traced the funding through the development stages of the entities. The most available literature on SMEs is biased towards the demand side of the problem, and thus underlines the significance of this paper. A fundamental question in funding for SMEs would be whether or not the current funding models are structured to support the unique small business funding needs in the economy.

In analysing both the banking book and the government agency book, the null hypothesis that there is a statistically positive relationship between the size of the firm and the loan amount was accepted. Based on this finding, we conclude that banks have more appetite to lend to entities with sizable turnovers. In both the commercial and government book, it is evident that the growth phase (1-5 years) attracts the most significant value of the book size. According to Herrington and Kew (2014) in the Global Economic Monitor South Africa 2013 report it is known that around 70% of new businesses fail within the first three years of operations. This contributes to the literature that proposes that financial constraints are only one of many other contributors to failure of SMEs. This is in line with the findings of Vogel (2012) that access to finance determines growth and Amorós and Bosma (2014) who address the growth potential in relation to funding. Nanda (2008) further supports this view in his findings that wealth creates growth. However, Bigsten et al. (2003) throws some light on how this can be a problem in that by funding being a determinant of growth,

misallocation of resources is prevalent. Consequentially, credit allocation is not done according to efficiency.

The bank book and the government agency book are also in agreement with the rejection of the hypothesis that there is a statistically negative relationship between the prime lending rate and the loan amount. This result is consistent through the development phases of development. Though the reason for rejection differs in the separate books, we conclude that the prime lending rate is not significant in determining the loan allocation. This is in contradiction to Bigsten et al. (2003) who provide evidence on profit maximising lenders using complete information to assess loan application including interest rate on loans. Further to this, studies by Schiffer and Weder (2001), Beck et al. (2005); Beck et al. (2006) found that the cost of credit is a significant obstacle to funding. This may however, be explained that interest rates are only one of the components of pricing of loans. Other factors, such as tangible collateral, may be more significant and this is a limitation of this study as the collateral values were not available.

Specific to the banking book, we note evidence of high product offering concentration. We fail to accept the hypothesis that there is a statistically positive relationship between the product (Productdumy) and the loan amount. This is consistent within all the stages of development. Only four products are used across the various sectors and through the aging of the SME clients. This suggests that these products are the easiest to market by the lenders even though the products do not necessarily suit the customer. This is supported by Parker (2005), which asserts the lack of free flow in information and its consequence of unattainable optimal agreements. A lack of knowledge on the side of the entrepreneur forces him/her to take what is offered. This may be viewed as a need for innovative product offerings by the lender to create suitable and sustainable products aligned to the specific needs of this sector. De la Torre et al. (2010) state that banks are continuously developing new business models, technologies and risk management systems to improve their efficiency and service to their customers. This can be seen through the number of new products on the market that are advertised, but analysis of the lending book shows little or no take up for these products. Although no flexibility is observed in product offering for both commercial banking and the government agency, that is, a blanket product offering is applied across the board, it is however noted that products such as the business current account is more utilised in the mature phase in line with literature presented in chapter two.

The sector null hypothesis that there is a statistically positive relationship between the sector and the loan amount is rejected for all development stages of the banking book. Interesting to note however, is that the start-up phase of the government book accepts the hypothesis, while the growth and mature phase of the government book reject the hypothesis. We can thus conclude that different sectors are prevalent at the different development phases of the SMEs. From this finding, we can explain that government policy encourages initiatives that support sectors that address economic activity, but it is concerning that this is not so as the firms grow through the development phases. The sectors supported by government in comparison to those by the commercial banks also provide evidence in this paper of the support structures to SME lending that are more prevalent in the government lending book than are in a commercial bank.

5.3 Conclusion and recommendations

This paper makes a significant contribution by addressing the rare aspect of funding from a supplier perspective. However, time and data availability limited the depth of the study; As a result, the regression model had only four fundamental funding factors, yet the funding spectrum has several other factors that could be explored.

The study adds value to the existing literature in finding funding factors that support significant loan advances to the SME sector. Evidence is provided in this paper on the relationships between loan amounts and the risk structures through the development phases of growth.

Future studies can be undertaken to find the effects of some of the variables we controlled for, such as collateral and gender effect, on loan amount to SME. A similar study would also be beneficial with information from more lenders and a comparison undertaken between developed and developing economies.

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