Cape Peninsula
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THE EFFECTIVENESS OF RISK MANAGEMENT PRACTICES OF SMALL, MEDIUM AND MICRO ENTERPRISES (SMMEs) WHICH PROVIDE MICROFINANCE IN THE CAPE METROPOLE, SOUTH AFRICA.

by

OSCAR CHAKABVA

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Supervisor: Prof T Thurner

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DECLARATION

I, Oscar Chakabva, declare that the contents of this dissertation represent my own unaided work, and that the dissertation has not previously been submitted for academic examination towards any qualification. Furthermore, it presents my own opinions and not necessarily those of the Cape Peninsula University of Technology.

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Signed **Date**

ABSTRACT

Approximately 57% of the total population in South Africa lives under the poverty line. In this regard, Small, Medium and Micro Enterprises (SMMEs) which provide microfinance play a vital role to provide access for poor households to banking-related financial services. This service can only be delivered sustainably through means of deploying effective management practices, especially in terms of risk management.

The purpose of this research is to identify risks faced by microfinance SMMEs and to establish the effectiveness of the current risk management practices deployed by them. This study aims at increasing the knowledge base and understanding of risk management practices by conducting a comprehensive literature review and field research.

In order to establish a theoretical basis, a comprehensive literature review was performed and prior studies on various aspects relating to microfinance risk management were investigated. This was followed by a field research which studied the risk management of microfinance providers in the Cape Metropole; large financial service providers like commercials banks were excluded.

Data were collected by means of a questionnaire from microfinance providers in the Cape Metropole. These microfinance providers were drawn from a list of credit providers that was obtained from the National Credit Regulator (NCR) public domain. A purposive sampling method was used to select the participants for this study. The information provided by participants is kept strictly confidential and anonymity of all respondents was guaranteed.

This research noted that collaterals are absent in microfinance and instead, a close connection between microfinance SMMEs and their clients come into place. Risk management frameworks which provide an all-inclusive approach to risk management are largely absent in microfinance SMMEs. Much fewer microfinance SMMEs actively identify risks, categorise, prioritise and document them appropriately. The research further showed that the views on risk management depend on whether the respondent is an owner or a manager of the enterprise.

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DEDICATION

I dedicate this research to my newborn baby Atidaishe Jayden Chakabva.

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GLOSSARY

Acronyms	Explanation
CGAP	Consultative Group to Assist the Poor
CIMA	Chartered Institute of Management Accountants
COSO	Committee of Sponsoring Organisations
ERM	Enterprise Risk Management
GDP	Gross Domestic Product
IMF	International Monetary Fund
MFRC	Micro Finance Regulatory Council
NCR	National Credit Regulator
SEF	Small Enterprise Foundation
SMMEs	Small, Medium and Micro Enterprises

CHAPTER ONE

OVERVIEW OF THE RESEARCH

1.1 BACKGROUND OF THE RESEARCH

Problems with inadequate risk management practices of microfinance providers in East and Southern Africa have been voiced earlier (Musona & Coetzee, 2001:1). Lascelles (2012:2) regards microfinance as a risky business since the bulk of its clients are poor households and lack collateral security. Risks such as credit and liquidity risks faced by microfinance providers have increased in intensity (Fernando, 2008:3). Therefore, it is necessary to introduce all-inclusive frameworks of risk management within the microfinance industry to ensure the sustainability of the role players (Marulanda *et al.,* 2010:43).

This research seeks to identify the risks faced by Small, Medium and Micro Enterprises (SMMEs) which provide microfinance and to establish the effectiveness of the practices put in place to manage them. The study attempts to foster a better understanding of whether the current risk management practices, within the microfinance SMMEs, are sufficient or whether they are in need of transformation from an internal audit perspective.

The National Small Business Act No 102 of 1996, hereafter termed "The Act", defines SMMEs based on industrial sector, size of class, number of employees, annual turnover or by means of their total gross asset value (South Africa, 1996:8). The Act's definition of SMMEs is collaborated in Table 1.1

Table 1:1 Definition of SMME according to Finance and Business Services Sector (**Source**: South Africa, 1996:16)

Size	**Total employees** *Less than:*	**Total turnover for 12 months** *Less than:*	**Gross asset value** *Less than**:***
Medium	100	ZAR 20.00 million	ZAR4.00 million
Small	50	ZAR10.00 million	ZAR2.00 million
Very small	10	ZAR2.00 million	ZAR0.40 million
Micro	5	ZAR0.15 million	ZAR0.10 million

This definition covers more than 80% of all businesses in South Africa (Tshabalala & Rankhumise, 2011:108). These SMMEs play an important role in stimulating employment and economic growth in South Africa as they contribute between 52 percent and 57 percent to

Gross Domestic Product (GDP) and cater for approximately 61 percent of all employment opportunities (Abor & Quartey, 2010:218). Their importance was the main reason for various governmental initiatives like subsidised credit programs and loan guarantees.

Despite such government support, previous research has shown that the sustainability of SMMEs is problematic. The failure rate of South African SMMEs is estimated to be between 70% and 80% (Adeniran & Johnston, 2011). This is further supported by Neneh and Van Zyle (2012:124) when stating that only one in every 10 new businesses survives for a period exceeding 10 years.

One often-discussed issue influencing the performance of SMMEs is skills shortages, particularly with regard to managerial skills (Christian, 2008). Managerial skills also cover knowledge of risks like the basic elements of risk management namely identification, evaluation and monitoring of risks.

The term risk has been defined differently depending on the field under discussion (Talet *et al.,* 2014:2). Manu (2005) defines risks as the likelihood of an outcome happening that will have negative effects on the accomplishment of business objectives. Aven (2009:59) views risk as uncertainty of results, action and events. Pidgeon, Kasperson and Slovic (2003:56) define risk as an event where humans or businesses are at stake and the outcome as being unpredictable. Therefore, from an internal audit point of view, the definition of risk includes two key aspects, namely uncertainty and loss.

The types of risks that exist for SMMEs include, but are not limited to: financial risks, strategic risks, business risks and market risks. Risk management defines the approach used by management to identify and keep aforementioned risks at acceptable levels (Talet *et al.,* 2014:2). The concept of risk management is defined differently by researchers depending on the field of study. A generic definition of risk management is the process that involves the decision to accept known risks and/or the execution of measures to reduce the impact or possibility of occurrence (Aven, 2009:57). In essence, risk management involves risk identification, risk assessment and risk monitoring (Berg, 2010:80). Most importantly, risk management is more about mitigating risks up to a tolerable level for the business (Abrams *et al*., 2007:222). Risk tolerance refers to the level of acceptable risk in a business (Smit 2012:266).

Often risks are not adequately dealt with within the SMME sector. In fact, the worldwide economic downturn has exposed poor risk management practices of several businesses and

this is more pronounced in the SMME sector (Baker, 2011). Hence, SMMEs should properly execute risk management practices in order to enhance business performance.

This research addresses the risk management within microfinance SMMEs. They provide microfinance services to poor households, including the provision of banking-related financial services (e.g. small loans) to poor households who are excluded from the mainstream of the financial system because they lack collateral security (Wang, 2007:1). They also provide financial amenities like micro-savings and micro-insurance, which can be made accessible to the poor (Dokulilova, Janda & Zetek, 2009:5). However, lending to poor households is highly volatile since these clients lack collateral security and therefore, if the microfinance providers do not practice proper control of risks, this might result in liquidity problems (Ledgerwood & White, 2006:49).

Consequently, the National Bank of Ethiopia (2010:3) suggests that proactive risk management is an indispensable tool for the long-term viability of microfinance providers. The National Bank of Ethiopia (2010:3) also mentions that effective risk management enables microfinance providers to exploit on new opportunities and to reduce the threats to their financial sustainability.

With such knowledge of SMMEs, microfinance risk profile and the importance of risk management, it is imperative to evaluate the effectiveness of microfinance SMMEs risk management practices and investigate whether such practices are adequate or in need of a change.

1.2 STATEMENT OF RESEARCH PROBLEM

Sustaining microfinance is challenging due to high costs and the risks associated with serving the poor (Basu & Srivastava, 2005:7). Gutierrez-Nieto, Serrano-Cinca and Mar Molinero (2007:132) define sustainability as a situation whereby the business generates sufficient income to at least pay-off total costs. The risks that can affect the sustainability of microfinance providers are multiple and include, among others, credit risk, interest rate risk, fraud and liquidity risk. However, they are more vulnerable to the risk of default since a large proportion of their loans are unsecured.

Although a number of microfinance risk management approaches have been established and employed worldwide, the sustainability of entities within the microfinance industry in South

Africa has proved to be problematic due to mainly lack of effective risk management practices. In this regard, Van Zyl, Botha and Skerritt (2006:116) state that “in South Africa, the micro-lending industry has a reputation for poor governance, unsound credit risk management”. As such, South Africa needs to recognise the importance of embedding risk management processes adapted to South Africa’s economic climate within the microfinance industry.

Therefore, the research problem can be briefly stated as follows: “The sustainability of microfinance SMMEs is adversely influenced due to the utilisation of ineffective risk management practices”.

1.3 RESEARCH QUESTIONS AND OBJECTIVES

The primary objective of this research is to assess the effectiveness of risk management practices of microfinance SMMEs by investigating the presence of basic elements of effective risk management according to literature. In order to achieve this objective, a main research question that was formulated and was stated as: “How effectively are the risks evident in microfinance SMMEs managed?”

Furthermore, the following secondary research objectives were stated to support the primary objective:

- To establish the types of risks microfinance SMMEs face through literature review and field research.
- To ascertain how risks are managed by microfinance SMME leaders through literature review and field research.

The following sub-questions were formulated to ensure the abovementioned secondary research objectives are met:

- What types of risks are evident in microfinance SMMEs?
- What risk management practices are in place in microfinance SMMEs?

1.4 RESEARCH DESIGN AND METHODOLOGY

Quantitative research design was adopted in this research in an attempt to address the research questions. McMillan and Schumacher (2001:205) state that quantitative research is one of the research designs which depends largely on ‘numbers’ when reporting results. The

purpose of using a quantitative research design for this study was to obtain numerical data from microfinance SMMEs regarding their risk management. The numerical data gathered was then used to describe and analyse the risk management practises used by these entities to manage risks and offer some insight into their effectiveness. The researcher expands the quantitative research design in more detail in Chapter Three.

The research method adopted in this research is that of survey research. Visser, Krosnick, Lavrakas, Reis and Judd (2000:223) define survey research as a field of study that involves the gathering of data from a sample of individuals extracted from a pre-determined population by using a questionnaire. Thus, data in this research was collected by means of a questionnaire from microfinance SMMEs in the Cape Metropole. The unit of analysis is owners or managers that are actively involved in the risk management within microfinance SMMEs.

Apart from data gathered through survey research, this research also made use of secondary data. Secondary data is used to provide a theoretical background of the research and to support data from survey research (Ghauri & Gronhaug, 2005:91). Secondary data is presented in Chapter Two and was collected through extensive analysis of relevant textbooks, accredited journals and published reports.

1.5 CONTRIBUTION OF THE RESEARCH

A written report will be produced at the end of this research. The report will contribute the following to the scientific community and research subjects:

- Add value to the existing body of knowledge regarding risk management practices.
- Give some insight into the fundamental factors that may facilitate the effectiveness of risk management within the microfinance field, as a result enhancing the sustainability of the role players.
- Improve the understanding of risk management and how it should be approached within the microfinance industry.
- Help existing microfinance providers and those to come to appreciate the significance of risk management and how it contributes to the overall achievement of business objectives.

1.6 DISSERTATION OUTLAY

This research consists of five chapters which are described as follows:

Chapter One: Provides an overview of the research. A research problem is formulated followed by the main research question, sub-questions, research methods and objectives which are stated and summarised in paragraph 1.3 of this chapter. The research contribution, research design and methodology are briefly explained. Furthermore, the chapters which form the main body of this research are presented at the end of this chapter.

Chapter Two: Provides a comprehensive literature review of various topics on microfinance, risks and risk management. This is used as a way of getting a theoretical background of the research. This chapter also explains how the risk management should be approached in a microfinance business environment. This chapter ended by providing a brief discussion of the microfinance risk management in South Africa.

Chapter Three: Provides an in-depth explanation of the research design and methodology. In this case, the research design clarifies how the research is conducted. Furthermore, the population, sampling method and sample size are explained to give a clear picture of how and why the research participants were chosen. Lastly, ethical factors considered in this research are outlined**.**

Chapter Four: Provides an analysis of the research findings based on the data collected through survey research. It also covers the interpretation of the survey findings and reports on the results.

Chapter Five: In this chapter, the research problem, main research question, sub-questions, research methods and objectives are revisited and final conclusions are drawn to complete the research. Research conclusions and recommendations are given based on literature review in Chapter Two and data analysis in Chapter Four in order to solve the research problem and to answer the research questions. It also includes the areas suggested by the researcher for further research.

1.7 CHAPTER SUMMARY

This chapter provided an overview of the research which covers the background of the research and the following key aspects:

- Problem statement
- Research questions and objectives
- Research design and methodology
- Contribution of the research
- Dissertation outlay

The next chapter provides an extensive literature review that was conducted in order to give a theoretical understanding of the area of study.

CHAPTER TWO

LITERATURE REVIEW: MICROFINANCE AND RISK MANAGEMENT

2.1 INTRODUCTION

In this chapter an extensive literature review was conducted, providing a theoretical understanding of the area of study. The theory includes an overview of microfinance, definition of basic terms like risk and risk management and how the risk management in microfinance setting should be conducted. A brief discussion of the microfinance risk management in South Africa is presented at the end of this chapter

2.2 AN OVERVIEW OF MICROFINANCE

Microfinance includes the provision of small-loan amounts, micro-insurance, micro-savings and transfer services to the low-income clients (Egyir, 2010:6). According to Nghiem, Coelli and Rao (2006:1) the term low-income that is used to define microfinance is a "relative concept"; it differs from country to country and/or from one area to another within a country. Microcredit or small amounts of loans form the critical part of microfinance (Egyir, 2010:6). In South Africa, the Micro Finance Regulatory Council (MFRC) (2013) defines microfinance as a programme that aims at assisting the poor to generate income through the provision of small loans.

Microfinance providers have distinctive characteristics as compared to commercial banks (Jansson & Wenner, 1997:8). Commercial banks serve the role of financial intermediaries who accept deposits and grant loans to individuals, businesses and the government (Oosthuizen & Van Der Vyver, 2002:85-88). The difference between microfinance providers and commercial banks are classified into three categories, namely, lending methodology, composition of loan portfolio and business characteristics (Jansson & Wenner, 1997:8). These differences are summarised in Table 2.1:

Table 2.1: The difference between microfinance providers and commercial banks (**Source**: Jansson & Wenner, 1997:9)

Category	Commercial banks	Microfinance providers
Lending methodology	1) Based on collateral 2) More documentation 3) Less labour intensive	1) Based on character 2) Less documentation 3) More labour intensive
Composition of loan portfolio	1) Fewer loans 2) Loans are larger in size 3) Collateralised	1) More loans 2) Loans are smaller in size 3) Uncollateralised

	4) Longer maturity 5) Delinquency is more stable	4) Shorter maturity 5) Delinquency is more volatile
Business characteristics	1) Centralised organisation with branches located in areas with well-established infrastructure	1) Decentralised set of small units in remote areas

2.3 MICROFINANCE EVOLUTION

Over a decade ago microfinance grew from a simple microfinance credit to a more extensive concept of microfinance comprising a wide range of financial services such as savings, money transfers and insurance (Dokulilova *et al.,* 2009:6). According to Brebbia and Zubir (2012:647) microfinance financial revolution was pioneered by the Grameen Bank in Bangladesh with the main objective of extending financial services to low-income earners. Grameen Bank of Bangladesh was formed by an economics professor Muhammad Yunus in 1976 (Hermes & Lensink, 2007:1). Professor Muhammad Yunus initiated the revolution of microfinance by issuing a loan of 27 US Dollars to a small group of traders and crafts people of which the majority were women living in a village nearby Chittagong University (Chan, 2008:8).

Before 1992, South African micro borrowers were relying on informal and unregulated lenders such as township lenders, stokvels and pawnbrokers (Mashigo, 2012:34). Therefore, in South Africa the microfinance industry was established as a plan to prevent the proliferation of stokvels, informal money lenders and loan sharks from taking advantage of the poor people in need of emergency cash (MFRC, 2013). Swart (2004:351) is of the same opinion that microfinance in South Africa owes its existence to a need to extend credit facilities to millions of South Africans who did not have access to loans from commercial banks.

Meagher (2005:48) avers that the South African microfinance industry began its rapid growth when the government established the Usury Act Exemption Notice of 1992, which allowed small loans under R6000 to be issued without any restrictions on the interest rate. However, a more significant growth of the microfinance industry was witnessed in 1999 as a result of an increase in the exemption ceiling from R6000 to R10000 and the formation of the MFRC (Coetzee, 2000:5). The formation of MFRC as a formal regulatory body resulted in the formalisation of the microfinance industry in South Africa (Mashigo, 2012:34). A large number of South Africans now have access to loans through the microfinance industry and this industry supplies loans facilities to about five million South Africans (Swart, 2004:351).

2.4 TYPES OF MICROFINANCE PROVIDERS IN SOUTH AFRICA

Microfinance providers in the South African microfinance industry are described in Table 2.2 below:

Table 2.2: The different types of microfinance providers in South Africa (**Source**: MFRC, 2013)

Type of microfinance provider	Characteristics
Savings & Credit Cooperatives	These are members-based groups common in workplace where funds are collected and financial aid is provided to members.
Small Enterprise Foundation (SEF)	SEF grants an average loan amount of R 1500 to poor people in order to promote job creation and income generating projects.
Rural Housing Loan Fund	This consists of lenders who grant housing loans mainly to people who earn on average R 2600 per month.
Village Finance Service Cooperative	These are small rural banks that accept deposit on behalf of commercial banks.
Micro lenders	These micro-lenders target mainly poor people who have debt problems or who wish to apply for a loan for the first time.
Gateway Home Loans	These lenders target low- to middle-income families without access to commercial banks as they are perceived to be of high risk profile.

2.5 MICROFINANCE REGULATION AND SUPERVISION IN SOUTH AFRICA

Christen, Lyman and Rosenberg (2003:2) define regulation as the subset of rules of conduct approved by an executive body such as the South African Reserve Bank and Department of Trade and Industry. Supervision refers to an external oversight with the main objective of imposing compliance with regulation (Christen *et al.,* 2003:2). The primary objective of financial regulation and supervision is to promote and preserve the safety and soundness of the provision of financial services to the public by financial services providers (Jansson & Wenner, 1997:5).

The principles of regulation of microfinance providers are different from those of commercial banks. The majority of the entities providing microfinance services are semi-formal and are not subject to the same regulation of commercial banks (Van Greuning, Gallardo & Randhawa,

1998:1). The different forms of legislation applicable to commercial banks and microfinance providers are shown in Table 2.3 below:

Table 2.3: The different forms of legislation applicable to commercial banks and microfinance providers (**Source**: South African Institute of Chartered Accountants (SAICA) 2008; Calvin & Coetzee, 2009/2010:7).

Legislation	Microfinance providers	Commercial banks
National Credit Act, No. 34 of 2005	Applicable	Applicable
Cooperative Banks Act, No. 40 of 2007	Applicable	Not applicable
Mutual Bank Act, No. 124 of 1993	Not applicable	Applicable
Bank Act, No. 94 of 1990	Not applicable	Applicable

The table 2.3 shows that the provision of South African microfinance services are regulated by two major pieces of legislation namely, the National Credit Act (NCA), No. 34 of 2005, and the Cooperative Banks Act (CBA), No. 40 of 2007.

2.6 ROLE OF MICROFINANCE IN POVERTY ALLEVIATION

Poverty is defined as a situation when individual or households fails to afford a standard of living that is above the lowest level of income that is considered adequate (McCulloch, Winters & Cirera, 2001:49). Maes and Foose (2006:2) state that the World Bank in 2003 estimated that, roughly, 1.2 billion people were living under the poverty line that is approximately 23.3 percent of the population of all low- and middle-income countries. Studies in Poverty and Inequality Institute (2013) indicate that about 40% of the South Africa population is living under a poverty threshold of R283 per month. Human Sciences Research Council (2004:1) discovers that poverty did not change significantly between 1996 and 2001, with approximately 57% of the population of South Africa living below the poverty threshold. The lack of access to financial service is the main reason why a significant proportion of population in developing countries remains poor (Hermes & Lensink, 2007:1). Therefore, micro-financing plays an important role in the economy by addressing the issue of poverty through provision of financial

services to the poor (Chua, Mosley, Wright & Zaman, 2000:19). Thus, microfinance service providers seek to alleviate poverty by:

- Providing working capital loans to small businesses,
- Granting loans for buying necessities like food, shelter and education (Bi & Pandey, 2011:110).
- Assisting women in generating income through funding their projects (Chua, Mosley, Wright & Zaman, 2000:14).
- Funding small businesses to help them grow,
- Generating employment through financing small businesses (Roman, 2004).

The role of the micro-financing in the economy is depicted in Figure 2.1 beneath:

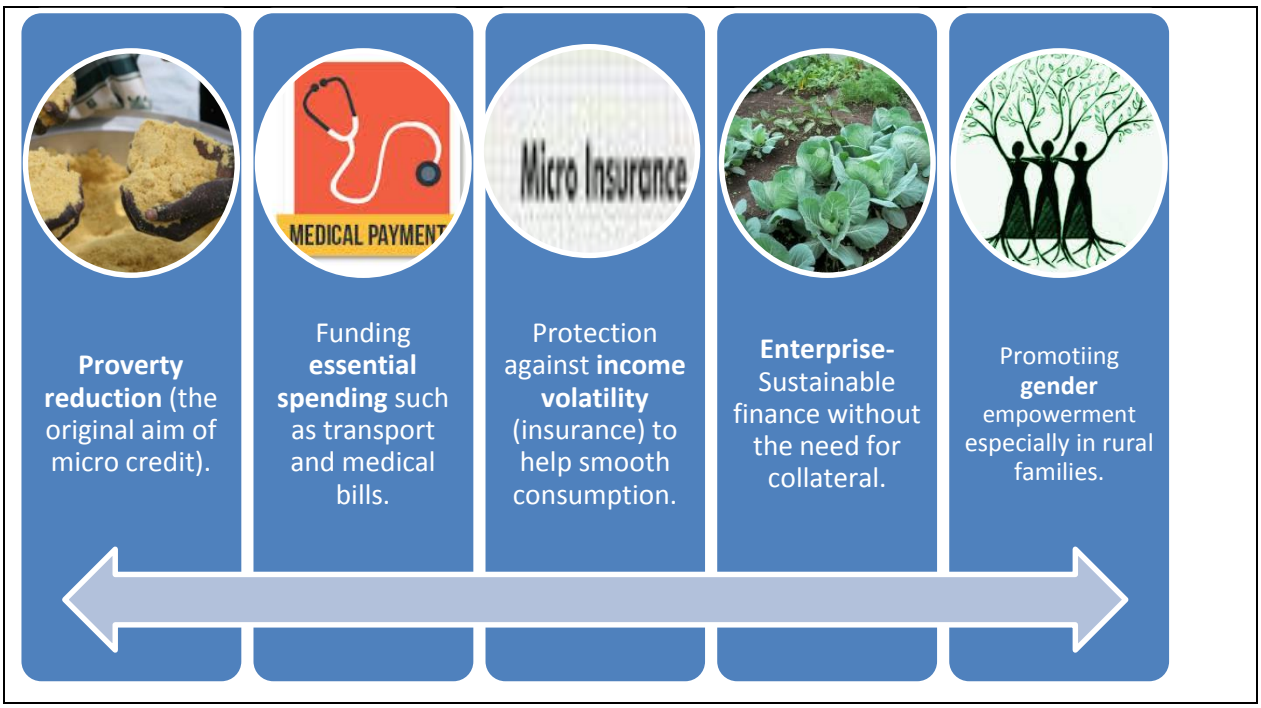

Figure 2.1: The role of micro-financing in the economy (**Source:** Riley, 2012)

Despite the importance of microfinance, critical views like over-indebtedness have been voiced earlier. D'Alessio and Iezzi (2012:4) define over-indebtedness as a situation whereby a household's existing and expected income is insufficient to meet its financial obligations. According to D'Alessio and Iezzi (2012:3) the condition of over-indebtedness arises from poverty which forces individuals who are not able to meet their expenses to ask for a further loan that has little chance of being repaid: in this case, lenders cause over-indebtedness by giving loans to unworthy clients as a result of poor client selection. Over-indebtedness is a significant risk to loan portfolio quality of microfinance providers and all possible efforts should

be undertaken to prevent it (Kappel, Krauss & Lontzek, 2011:3). Ledgerwood, Earne and Nelson (2013:89) state that microfinance providers can prevent over-indebtedness through:

- **Proper client selection:** Lenders should take adequate care to select clients that have the ability to repay without being over-indebted.
- **Internal systems:** Put into practice and continuously check internal systems that sustain over-indebtedness prevention and enhance efforts to elevate credit risk management at market level like sharing credit information.

2.7 MICROFINANCE CLIENTS

The banking sector in most developing countries serves less than 20% of the population leaving the majority with little or no access to credit facilities (Van Greuning *et al.,* 1998:1). Therefore, the target market of microfinance industry comprises the poorest of the poor, the poorer (Schreiner, 2002:591), and women who are granted micro-loans to boost their cash-flows (Mayoux, 2006:6). The Basel Committee on Banking Supervision (2010:10) shares this opinion that microloan lenders serve largely the low-income market.

Apart from the poor households, the microfinance industry also caters for small businesses which struggle to get financial services from the commercial banks (Aghion & Morduch, 2000:402). Table 2.4 depicts characteristics of the type of clients served by one of the microfinance role players in Cape Town.

Table 2.4: Characteristics of the type of clients served by microfinance providers (**Source**: Mills, 2007:466)

Client breakdown		
Category	**Criteria**	**Percentage of clients**
Gender	Women Men	75% 25%
Age	Under 40 years old Between 40 and 60 years old Over 60 years old	21% 61% 18%
Income	South African Rand (ZAR) ZAR 0–1,000 ZAR 1,001–1,500 ZAR 1,501–2,500 ZAR 2,501–3,500 More than ZAR 3,500	 25% 24% 35% 10% 6%

Employment status	Formal Informal Pensioner Self-employed	37% 30% 14% 19%
Credit bureau status	Normal Listed None	64% 16% 20%

Table 2.4 above shows that a significant proportion of the type of clients served by microfinance providers constitutes women. This is in line with the discovery that was made by Sinclair and Korten (2012:5) when they mention that most men send their spouses to apply for a loan with providers of microfinance services because they know it will be approved. According to Mills (2007:466) the reason why the majority of microfinance providers target mostly women is that, women are perceived to present a lower risk by responding quickly to repayment pressures.

2.8 MICROFINANCE PRODUCTS

Microfinance providers offer a range of financial amenities that are tailored to suit the low-income market segment (Maes & Foose, 2006:5). Some of the products provided by these lenders to break the poverty cycle are encapsulated in Figure 2.2 below:

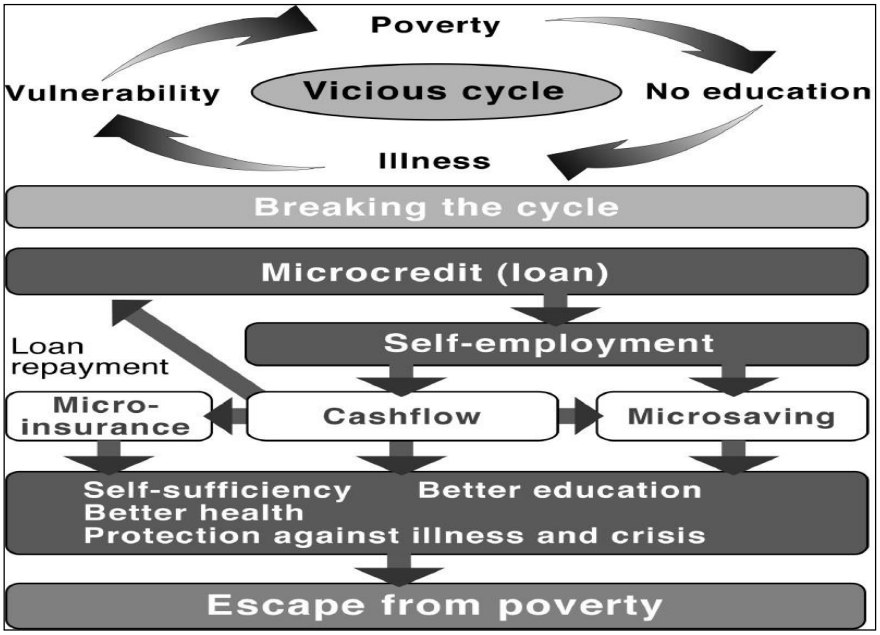

Figure 2.2: Microfinance products: Breaking the poverty cycle (**Source:** Adapted from Khan, 2012:3)

As depicted in the figure above, microfinance role players provide a varied range of products designed to alleviate poverty. These products include but are not limited to: micro-loans, micro-enterprise credit and micro-savings.

2.8.1 Micro-loans

Micro-loan refers to a small credit provided to the poor, mainly unemployed people, with either insufficient or without collateral security, with the main objective of enhancing their standard of living (Latifee, 2003:2). These small credits help the poor to meet their basic needs like buying basic food and accommodation, paying for studies, repaying their debts or even starting a new business (Wrenn, 2005:3). According to Calvin and Coetzee (2009/2010:31) the majority of salary-based micro lenders grant three major types of small loans which are as follows:

- R50 to R3 500 repayable in 30 days, to meet food, medical and other expenses. The average loan size being approximately R600.
- R500 to R10 000 repayable in 2 to 12 months, to meet expenses like rental deposits, funeral expenses and school fees. The average loan size being approximately R3 500.
- R3 000 to R60 000 repayable in 12 to 60 months, to meet expenses like housing improvements and purchase of property. The average loan size is approximately R8 000.

In South Africa micro-loans are taken to pay for housing, education, basic food and emergencies like illness (Mashigo, 2006). A majority of beneficiaries of micro-loans are the poor households without collateral security and as such, microfinance lenders charge very high monthly interest rates on micro-loans that can be 10% to 25% of the total credit granted to cover the risk of default (Consultative Group to Assist the Poor (CGAP), 2002:3).

2.8.2 Micro-enterprise credit

Micro-enterprise credit refers to lending to small business (Brux, 2005:3). The MFRC (2013) states that beneficiaries of micro-enterprise credit among others include women whom are targeted to provide them with an opportunity to start their own income generating projects instead of borrowing cash “year in and year out”. In their studies, Calvin and Coetzee (2009/2010:25) noted that a large number of beneficiaries of micro-enterprise credits have received loans of between R500 and R10 000 per group member and very few loan amounts of this type get up to R15 000. Lending to micro-enterprises is a high risk, because of the uncertainty and irregularity of their income (Labie, 2006). Therefore, the interest rate levied on micro-enterprise credit is higher than normal bank loans of commercial banks in order to cover the high probability of non-payment (Brau & Woller, 2004:9).

2.8.3 Micro-savings

Microfinance providers made it possible for the financially excluded people to have access to deposit services in order for them to be able to deal with unpredictable future expenses like old age, education and marriage ceremonies (Dokulilova *et al.,* 2009:8). Calvin and Coetzee (2009/2010:28) state that microfinance role players provide various savings accounts such as basic savings, special purpose and contractual savings accounts to cater for expenses like educational expenses and religious expenses e.g. Christmas expenses. Micro-savings is one of the important products offered by microfinance role players, as it makes it possible for the poor as well as other people who do not have access to the financial mainstream, to mobilise cash resources that can be used in future (Berg, 2010:76).

2.9 RISK MANAGEMENT

The widespread awareness of losses and financial entities' failure has elevated the importance of risk management worldwide (Campion, 2000:1). Risk management involves taking an extensive assessment on identifying the risks that could cause an entity not to meet its objectives (Shenkir & Walker, 2007:1). Businesses of today operate in an ever-changing environment; therefore, risk management is an indispensable tool in managing a business (Hetamsaria, 2005).

Large organisations mostly regard risk management as part of business planning; however, it is a new discipline within the microfinance industry (Goldberg & Palladini, 2010:3). Fernado (2008:37) points to the fact that a number of microfinance providers seek growth and do not appear to be paying attention to effective risk management, hence, the need to emphasise the importance of effective risk management within the industry.

2.9.1 Risk management objectives and importance

Andersen (2006:31) states that the objectives of risk management differ among business since businesses vary in size and level of complexity. Risk management aims to add value to all the business activities and increases the chances of business success (Institute of Risk Management, 2002:2). However, in order for the objectives of risk management to be met, risk management has to be effectively implemented and embedded. Thus, according to the Likhang (2009:3) embedding risk management entails making risk management an integral part of running the business.

Like in any other business, microfinance providers that implement and embed effective risk management plans are likely to remain sustainable (Goldberg & Palladin, 2010:3). MicroFinance Network (2000:4) regards risk management as an integral part of financial intermediation and proper application of risk management practices may bring several benefits to the microfinance providers which may include the following:

- **Early warning system for potential problems**: A good system of assessing and measuring risk should be able to identify problems early, before they cause severe harm to the business. This saves more time and resources.
- **Efficient allocation of resources**: A good approach to risk management contributes to efficient allocation of cash and capital resources. Thus, cash will be disbursed to clients who are creditworthy which generates more interest revenue to the business and reduces bad debts.
- **Improved information on both positive and negative results**: A good risk management framework enables loan officers to identify delinquent loans and implement follow up procedures in good time. At the same time, it enables loan offers to identify good performing loans so that the business can investment more on such loans.

2.9.2 Basic elements of effective risk management

Certain elements must be present in order for the objectives of risk management to be achieved and according to Campion (2000:10) the basic elements that should be present within the microfinance business to supplement the risk management practices are as follows:

- **Conducive environment**: Management should create a conducive atmosphere that encourage employee participation in the risk management process, emphasising the benefits of managing risks and stressing on finding solutions to problems instead of placing blame on their subordinates.
- **Transparency**: The operations of the business should be transparent to promote effective risk management. Thus, information should be clearly, accurately and timeously made available to decision makers so that they can quickly identify and manage risks before they cause a significant threat to the business.
- **Simplicity**: Policies and procedures should be clear, simple and made accessible to all staff members. Clearly written operations manuals can minimise confusion at branch level by maintaining uniform policies and procedures.
- **Security**: Microfinance providers should take security measures to ensure the safe custody of cash and data. This can be achieved by storing cash in safes and by creating back up files on a regular basis.

2.9.3 Risk assessment

Before the management can manage risks, risks have to be identified and assessed as the risk management strategy will depend on the impact of the risk on the business (Smit, 2012:281). This can be achieved by means of a risk ranking matrix. Figure 2.3 shows an example of a risk ranking matrix.

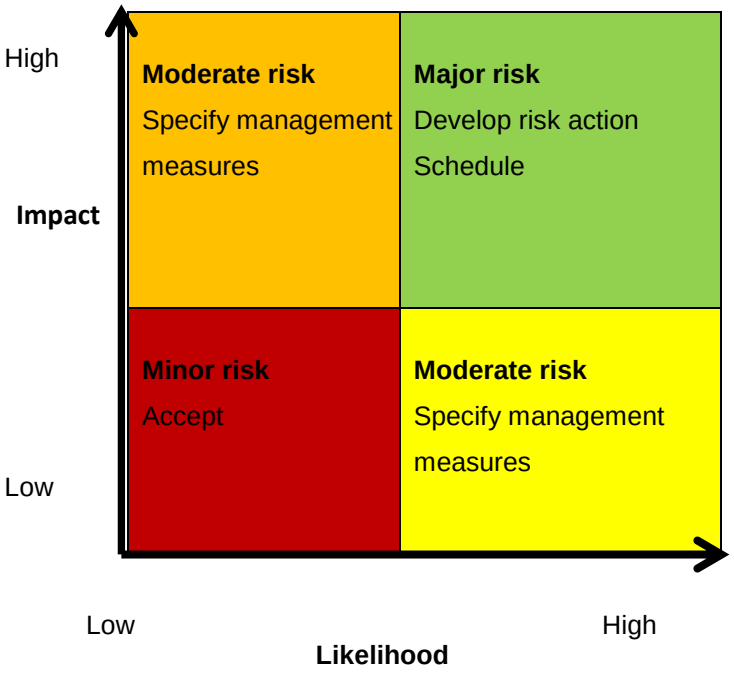

Figure 2.3: Risk ranking matrix (**Source:** Adapted from New South Wales (NSW) Treasury, 2004:13)

As shown in Figure 2.3, risks are assessed in terms of their probability of happening (likelihood) and their potential impact on the business. Thus, risks are assessed and ranked as follows:

- **Minor risk**: Very small potential damage (low probability; low impact).
- **Moderate risk**: Small potential damage (high probability; low impact).
  : Medium potential damage (low probability; high impact).
- **Major risk**: Large potential damage (high probability; high impact).

After risks have been identified and assessed, the management will then manage those risks using a preferred risk management framework.

2.10 RISK MANAGEMENT FRAMEWORKS

Risk management framework refers to a set of components that give guidance on drafting, executing, monitoring, evaluating and improving risk management throughout the business (Fraser & Simkins, 2009:97). With reference to microfinance industry, based on a study conducted by MicroFinance Network (2000:6), a risk management framework is a guide for the management to draw up an all-inclusive system of risk management that addresses significant risks cost-effectively. According to the International Monetary Fund (2010:57) a sound risk management framework should be comprehensive to accommodate all the significant risks and should include the following basic elements:

- Active top management oversight.
- Sufficient policies and procedures.
- Adequate risk measurement, monitoring and management information systems.
- Proper internal controls.

2.10.1 Integrated framework

Mismanagement and fraudulent activities as were witnessed in Enron, Adecco and WorldCom, increased the demand from corporate governance bodies like Committee of Sponsoring Organizations (COSO), for enterprises to take greater concern to adopt an enterprise-wide risk management approach (Schrøder, 2006:65). There are various definitions of the term enterprise risk management (ERM) but a widely used definition is by COSO ERM framework which state that ERM "is a process, effected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives" (COSO, 2004). Enterprise risk management framework is designed to achieve an organisation's objectives, set out into four categories, namely (COSO, 2004):

- **Strategic:** High-level goals sustaining the mission of the business;
- **Operations:** Efficient allocation of business resources;
- **Reporting:** Reliable reporting of risk events;
- **Compliance:** Adherence to relevant laws and regulations.

According to COSO (2004), ERM comprise the following eight interrelated components:

1. **Internal Environment:** This defines the risk management philosophy, risk appetite and risk culture of an entity.

2. **Objective Setting:**
   - **Strategic:** High-level goals sustaining the mission and vision of the business.
   - **Operations:** Effective, efficient and economical allocation of business's resources.
   - **Reporting:** Reliable reporting of financial and non-financial risk events.
   - **Compliance:** Obeying relevant laws and regulations.
3. **Event Identification:** Identify and differentiate between risk events and opportunities.
4. **Risk Assessment:** Chances of risk occurrence and the risk impact on objectives.
5. **Risk response:** Avoidance, acceptance, transferring and reduction of risk.
6. **Control Activities:** Measures put in place to guarantee proper execution of risk response.
7. **Information and communication:** Communication and awareness of risk.
8. **Monitoring:** Continuous activities of risk evaluation.

Ballou and Heitger (2005:6) suggest a practical approach to implement COSO ERM framework which is summarised in Table 2.5 below:

Table 2.5: Components of a practical ERM framework (**Source**: Ballou & Heitger, 2005:6, COSO, 2004)

1. INTERNAL ENVIRONMENT ➢ Create a risk management philosophy: • Take measures to recognise the risk appetites of key stakeholders of the business • Take measures to align the risk appetites of all stakeholders of the business ➢ Develop a risk management culture: • Emphasise on integrity and ethical issues • Take steps to increase employee commitment by giving them incentives ➢ Design human resources policies to support a risk culture	5 RISK RESPONSE ➢ Identify and choose a response action for each risk: • Risk acceptance • Risk avoidance • Risk sharing • Risk reduction ➢ Amend risks plotted graphically during risk assessment stage: • Accepted risks (estimated risk cost is plotted) • Avoided risks (remove plots from graph) • Transferred and reduced risks (revise plots based on control activities)
2. OBJECTIVE SETTING ➢ Set clear, strategic objectives and strategies: • Put in place objectives that support the organisation's mission and are consistence with the risk appetite	6 CONTROL ACTIVITIES ➢ Transferred risks: • Evaluate costs of premiums for insured risks ➢ Reduced Risks: • Identify and select measures needed to mitigate risk • Evaluate total costs related to control measures
3 EVENT IDENTIFICATION ➢ Identify risk events and opportunities:	7 INFORMATION AND COMMUNICATION ➢ Make sure that information systems can

• Identify factors influencing objectives and strategies differentiating risks and opportunities • Redirect opportunities to management's strategy or objective-setting processes	measure and report risk on the following: • Actual cost of risk occurrence • Actual costs of risk transfer measures like insurance premiums and control measures • Opportunity cost of avoiding risks
4 RISK ASSESSMENT ➢ Select assessment techniques like the following: • Loss ranges • Best or worst-case scenarios ➢ Evaluate the cost impact of risk activities by for example, multiplying losses per unit of output by output until contained	8 MONITORING ➢ Perform separate risk evaluations: • Match actual risk occurrences with residual probability estimates ➢ Re-evaluate risk assessments: • Include adjustments to the objectives, risk appetite etc • Detect any risks that were not previously identified

A risk and business consulting firm, Protiviti (2006), states that the implementation of ERM helps to elevate risk management to a strategic level through:

- **Reducing improper performance variability:** ERM supports management with elevating the reliability of operating performance by putting more emphasis on: (1) avoiding earnings-related surprises, (2) making earnings less volatile and (3) managing key performance-indicator shortfalls.
- **Aligning and integrating different views of risk management:** Departments within a business such as treasury and IT have a different point of view on managing risks, hence, ERM provide a common framework for multiple departments managing multiple risks.
- **Building confidence of investment community and stakeholders:** ERM provide a comprehensive approach to risk management which assists the management to improve their capabilities to manage critical risks. Hence, organisations that adopt ERM build confidence of investors, regulators and rating agencies on the operating performance of the business.
- **Enhancing corporate governance:** ERM strengthens good corporate governance through; reinforcing board oversight, clarifying risk management roles and responsibilities, and setting risk management authorities and boundaries.
- **Positively responding to a changing business environment:** As the business environment changes, new risks arise and increase in a timely manner for action. ERM therefore provides a framework that assists management to identify, prioritise and plan for risks as the environment changes.
- **Aligning business strategy and culture:** ERM helps management to create awareness of risk events and a positive culture regarding risk and risk management.

Miccolis *et al*., 2001:xxviii state that ERM can serve as a useful management tool regardless of the business type. As such, SMME leaders should be motivated to utilise ERM as it ensures that all significant risks are identified and addressed (Eslyn, 2007). Apart from minimising significant risks, ERM is also a useful tool which can help SMMEs to exploit new business opportunities; eventually enhancing its sustainability (Yilmaz and Flouris, 2010).

2.11 MICROFINANCE RISK AND MANAGEMENT GUIDELINES

Businesses of today are facing several risks that could threaten the business' success and eventually cause deterioration in stakeholder value (Shenkir & Walker, 2011:4). Spekman and Davis (2004:216) define risk as "the probability of variance in an expected outcome". However, in the finance industry, risk refers mainly to bad debts or operating difficulties such as fraud, systems failure and defective security (Lascelles, 2012:3). International Finance Corporation (IFC) (2009:5), Goldberg and Palladini (2010:3) pointed out that risks faced by microfinance role players can be classified into three risk categories which are as follows:

- Operational Risks
- Strategic Risks
- Financial Risks

The three major risk categories common to microfinance role players are exemplified in Table 2.6 below:

Table 2.6: Categories of Microfinance Risks (**Source**: Goldberg & Palladini, 2010:3)

Operational risks	**Strategic risks**	**Financial risks**
Transaction risk Human resources risk Information and Technology risk Fraud risk	Governance risk Reputation risk External business risks	Transaction risk Liquidity risk Interest rate risk Credit risk

2.11.1 Operational risks

Basel Committee on Banking Supervision (2001:2) expresses the view that operational risk is linked to internal controls, employees' trust, information systems and operating activities. Hence, operating risk is defined as the risk of loss emanating from people, poor and/or failed internal controls (Basel Committee on Banking Supervision, 2011:3). In the context of microfinance, effective risk management helps microfinance role players to reduce operational risk through ensuring that workers follow policies and procedures and that internal controls are

sound (CGAP, 2009:47). Table 2.9 shows examples of operational risks which include transaction risk, fraud risk, human resources risk and, Information and Technology risk.

2.11.1.1 Transaction risk

Transaction risks arise from the provision of goods and services to clients by an entity (PricewaterhouseCoopers, 2001:24). As such, this type of risk is more profound in microfinance providers with large volumes of daily microloan transactions. According to Basel Committee on Banking Supervision (2011:3) an increasing number of traditional banks adopt sound operating risk management practices like independent review which can mitigate transaction risks. However, such practices are not viable to microfinance providers since their daily transactions include mainly small and short-term loans. This creates an opportunity for risks like fraud and theft to be high. MicroFinance Network (2000:11) suggests that microfinance role players can possibly reduce transaction risk through:

- Proper client screening practices,
- Underwriting criteria,
- Well-designed policies and procedures for provision of loans, debt monitoring and debt collection.

2.11.1.2 Fraud risk

According to the Chartered Institute of Management Accountants (CIMA) (2008:7) fraud is an intentional deception to achieve personal gain for oneself thereby creating a loss for another. Fraud is very high within the microfinance industry especially when an entity has poor segregation of duties and do not clearly define its policies and procedures (Churchill & Coster, 2001:8). Mago, Hofisi, and Mago (2013:165) suggest that theft of cash by loan officers and other employees is the most fraudulent activity threatening microfinance providers. A simple way to uncover fraud is for an independent person who has not been involved in the client screening and loan approval to go and verify the loan balance with the client.

2.11.1.3 Human resources risks

According to Borodovsky and Lore (2000:380) human resources risk refers to risks related to employees. Human resources risks may include the risk of losing key staff, low morale, low employees' productivity, theft and corruption by employees (Ogbor, 2009:235). Therefore, proper human resources risk management should address staff welfare, health and safety issues at workplaces (Mathis & Jackson, 2010:468). Maintaining a healthy and safe work

environment keeps workplace costs associated with sickness and injury low and enhances employees' productivity (Vink, Koningsveld & Dhondt, 1998:539). Microfinance providers may mitigate human resources risks by giving staff incentives which may include rewarding loan creditors with high loan portfolio quality.

2.11.1.4 Information and Technology risk

Rainer and Cegielski (2010:10) define information as the data that has been processed in such a way that it can provide a meaning and value to the user. Martin (2005:568) defines technology as tools and practices that are used to enhance the accomplishment of a certain task. When the words information and technology are combined, they mean the "hardware and software products and services that people use to manage, assess, communicate and share information" (Shelly, Cashman & Rosenblatt, 2010:4). Effective management information systems should be put in place in order to enhance the reliability of the accounting information that is used to prepare the financial statements (Ledgerwood & White, 2006:50). Sound management information systems may include controls over access to the business's computer network through the use of logical controls like user ID's, user profile and passwords (Langer, 2007:306).

2.11.2 Strategic risks

Strategic risks are risks arising from the business which include internal risks resulting from unclear objectives of the business, failure to identify threats and opportunities, failure to strategically position the firm in the global market, poor leadership and poor decision making (United Nations Educational, Scientific and Cultural Organization (UNESCO), 2010:14). Table 2.9 shows examples of strategic risks which include governance risk, reputation risk and external risk.

2.11.2.1 Governance risk

Governance refers to the relationship between various parties which defines the direction and performance of the business (Prasad, 2006:1). Therefore, governance risk refers to risks resulting from misdirected and unclear instructions from the management, incomplete and inaccurate information reaching the decision makers and unclear policies and procedures of an entity (Van Greuning & Iqba, 2008:179). Norton (2004:300) state that governance risk occurs when owners and directors of microfinance businesses lack the ability to provide sufficient management oversight. Campion and Frankiewicz (1999:1) mention that providers of

microfinance operate in an unstable environment which demands transparency and effectiveness in disseminating information, hence effective governance is required within this trade in order to achieve the desired level of accountability. Therefore, microfinance role players should have lines of authority, policies and procedures which are clear, well written and made available to all members of the business so that they can perform their duties diligently, thus promoting effective risk management and governance.

2.11.2.2 Reputation risk

"A reputation is a way by which the general public describes, remembers and relates to a certain company," (Van Rid & Fombrun, 2007:44). In the microfinance industry, reputation risk includes the loss of revenue by the role players as a result of a negative public opinion on mostly loan collection practices and customer care (Ekka, Chaudhary & Sinha, 1998:4). It is therefore of great significance for providers of microfinance to build goodwill with their stakeholders to sustain survival and growth. (Ekka *et al.,* 1998:4) state that effective reputation risk-management includes the following:

- Creating clear channels for client complaints with effective response mechanisms
- Appropriate collections practices
- Ethical staff behaviour
- Mechanisms for solving client complaints
- Privacy of client data.

2.11.2.3 External business risk

According to Joseph (2013:43) external risks refer to losses caused by non-industry and non-entity factors which may include natural disasters, political and technological factors. Tapiero (2013:28) states that external risks are derived from events that an entity does not have control and such events may include competition, demographic change, regulation and natural disasters. However, it is crucial for microfinance role players to take measures to mitigate external risks instead of taking lack of control as an excuse for mal-performance (Churchill & Coster, 2001:7). Therefore, businesses can minimise external risks by keeping pace with technological change, reacting quickly to changes in the market to exploit opportunities and by maintaining a good reputation with their clients and other external parties.

2.11.3 Financial risks

Coyle (2004:10) states that financial risk arises from factors that are financial in nature. Therefore, in the microfinance industry such risks may include uncertainty of return and possible financial loss mainly due to non-payment of loans by clients. Horcher (2011) mentions that examples of financial risks include, among other things, liquidity risk, interest rate risk and credit risk.

2.11.3.1 Liquidity risk

Liquidity risk refers to the risk that a business is unable to settle its financial obligations timeously (Drehmann & Nikolaou, 2009:10). In that sense, liquidity risk is the risk that a microfinance provider cannot meet its financial obligations promptly and cost-effectively. Therefore, it is of paramount importance for providers of microfinance services to implement effective liquidity risk-management by holding adequate cash reserves to meet unexpected cash shortages and put excess cash to good use by investing in market investment. According to Van Greuning and Bratanovic (2009:192) some of the principles of good liquidity risk management include:

- Liquidity requirements should be planned on the basis of worst-case scenarios to prevent liquidity problems.
- Develop policies and strategies to manage liquidity like setting minimum and maximum cash levels.
- Cash requirements should be projected.
- Develop framework for systematically forecasting cash flows arising from assets and liabilities.
- A liquidity risk tolerance should be set that is relevant to the business strategy.

2.11.3.2 Interest rate risk

Interest rate risk refers to the vulnerability of the revenue of a financial business due to unpredictable shifts in interest rates (Sharma, 2008:100). Interest rate risk arises when the interest earnings from loan disbursement are mismatched with interest payment on borrowed funds, hence, expenses exceed income leading to a depletion of the profit margin (CGAP, 2009:47). Therefore, Subramani (2011:258) indicates that it is important for lenders to employ effective interest-rate risk management tools like sensitivity analysis. For example assessing the impact on interest earnings when interest rate on borrowed capital increase by 10 percent, this calculation can be done on an excel spreadsheet.

2.11.3.3 Credit risk

Credit risk, a component of financial risks, refers to the uncertain event whereby the borrower fails to discharge his/her obligations as stated in the credit agreement resulting in a loss by the credit grantor (Morris & Shin, 2009:2). Popular researches shared the same opinion that credit risk is inevitable in financial intermediation and therefore, the most significant risk threatening the existence of microfinance providers (Steel & Andah, 2003; Sarwar, Nazir & Abdullah, 2011:439; Hishigsuren & Husseini, 2007:1; Churchill & Coster, 2001:4). Ledgerwood and White (2006:49) regard credit risk as an inherently high risk in microfinance industry, because lending to poor households is highly volatile and loan portfolio constitutes their core asset. Therefore, if a financial business does not practice proper control of risks, mainly credit risk, this might result in liquidity problems (Hishigsuren & Husseini, 2007:9), can lead to default on loans and high delinquency management costs (Churchill & Coster, 2001:4). Hence, the need to adequately employ credit risk management practices to ensure survival and sustain growth of the microfinance industry.

In order to address and alleviate the hazards caused by credit risk, the Microfinance Network (2000:11) made a proposal of the following guidelines:

- Proper client selection methods.
- Close debt monitoring and clear collection procedures.
- Avoid rapid spread of delinquency by understanding and addressing it promptly.
- Reliable portfolio reporting that accurately and timeously reflects the status and monthly trends of payments that are behind.
- A recurring process for comparing credit risk with the adequacy of loan-loss reserves and detect patterns.

2.12 RISK MANAGEMENT MECHANISMS

Risk management mechanisms can be categorised into lending mechanism, pre-loan approval and post-loan approval mechanisms.

2.12.1 Lending mechanism

The lending mechanisms which are common to microfinance entities are individual lending methodology and group lending methodology.

2.12.1.1 Individual lending methodology

Cull, Demiguc-Kunt and Morduch (2007:113) define individual lending as a mutual lending agreement between a lender and one borrower. Ghatak (1999:36) regards this method as "lending with individual liability". Thus, the obligation to repay the loan rests with a single person, however, in some instances; another person may serve as a loan guarantor (Cull *et al.,* 2007:113). The individual lending methodology is illustrated in Figure 2.4 below:

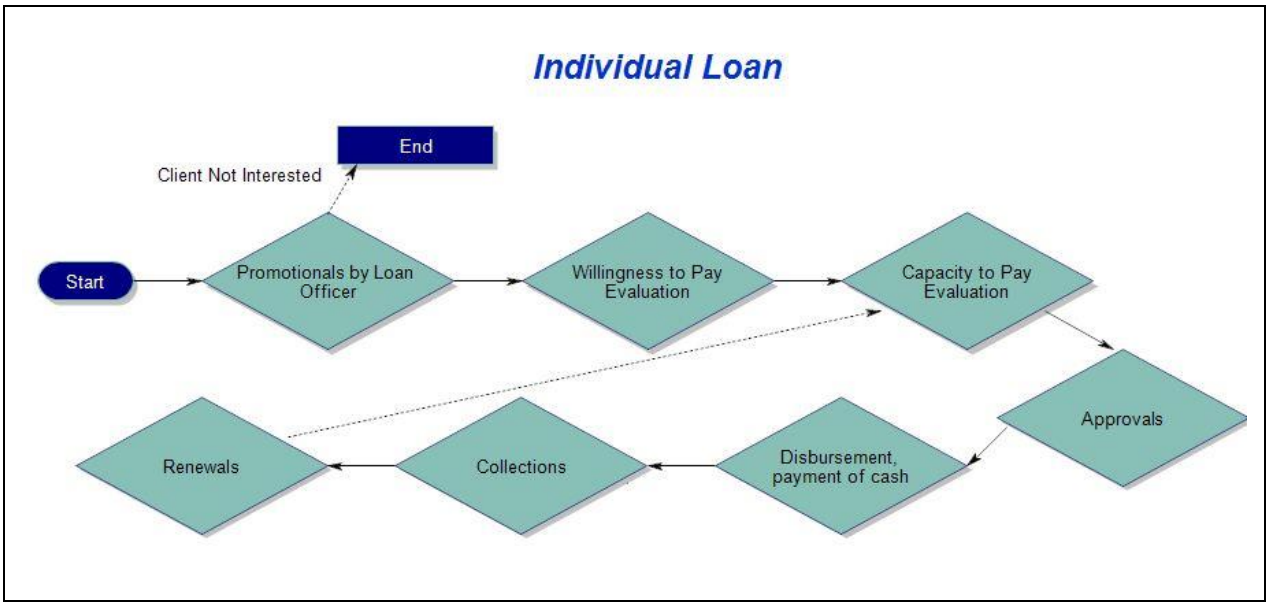

Figure 2.4: Individual lending methodology (**Source**: Credit Suisse Microfinance, 2011)

As depicted by the diagram above, individual-based schemes involve gathering of information to evaluate the willingness and capacity to pay before an individual loan application is approved. Gathering information under the individual-based scheme greatly depends on staff visits at homes or business premises rather than obtaining information solely from documents supplied by the potential borrower (Aghion & Morduch, 2000:407-408). Dieckmann (2007:4) discovered that some microfinance entities chose to manage the risk of non-payment by lending to individual clients that is lending without shared liability aspect. This is mainly because under individual lending, only a single borrower will be at risk if he or she defaults whereas under group lending some bad clients might take advantage of the joint liability.

2.12.1.2 Group lending methodology

According to Aghion and Morduch (2000:402) group lending refers to a situation whereby microfinance providers provide loans to individuals in a small group usually consisting of 3 to 7 members. The principles of group lending are shown in Figure 2.5 below:

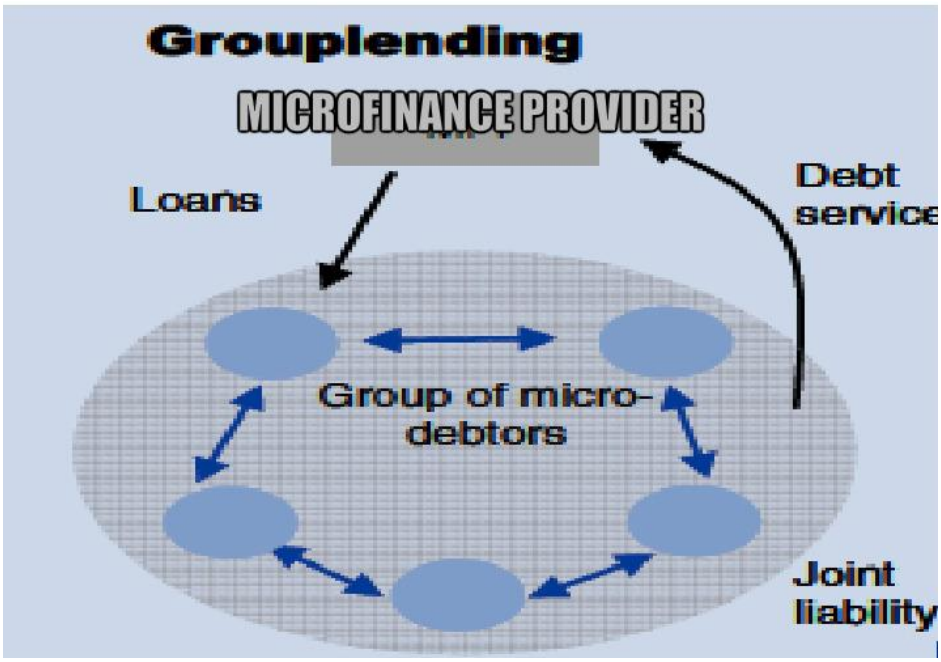

Figure 2.5: Group lending methodology (**Source**: Dieckmann, 2007:4)

As shown in the above diagram, under the group lending methodology, borrowers form a group and then loan amounts are issued to the individual members in that group. The group as a whole is jointly liable when any of the members defaults. Crabb and Keller (2006:29) state that group lending methodology act as a mechanism to manage risks in that, it provides:

- **Dynamic incentives**: If a group member defaults, the entire group will be denied access to loans in future. This creates an incentive for group members to monitor each other and ensure repayment in order to have access to loans in future.
- **Collateral substitute**: If one member defaults, the whole group will be jointly liable, hence, this acts as an assurance to the lender that the repayment is secured.

2.12.2 Pre-loan approval mechanisms

Before a loan is approved, the lender should adopt ways to prevent risk or mitigate its impact should it occur. This may include the use of credit bureau information, credit score and collateral security.

2.12.2.1 Credit Bureau information

Jurinski (2003:60) defines a credit bureau as a private firm that gathers information for both individuals and business relevant to assess their creditworthiness. The credit bureaus do not make decisions on loan applications, but rather act as a clearing house that supplies credit information to lenders and all other interested parties (Scott, 2005:68). The credit bureau files and credit bureau scores are widely accessible to lenders and help to predict the ability of the client to repay the loan (Mays, 2001:4). Lenders in South Africa including microfinance providers perform credit bureau checks on loan applications before a loan is granted, in order to ascertain if the client has a clean record or has defaulted on a loan in the past (Mills, 2007:464).

2.12.2.2 Credit score

Schreiner (2000:3) defines a credit-scoring as a method of using numerical expression to describe the characteristics of a borrower, lender and loan, for example below 200 very poor, 201 to 400 poor, 401 to 600 average etc. According to Koh, Tan and Goh (2006:101-102) credit-scoring involves the process of selecting previous clients and classify them as "good" or "bad", based on their repayment performance over a certain period followed by compiling data from loan applications and credit bureau reports. A credit rating is assigned for each client based on the credit-scoring approach used by a lender (Lam, 2003:160). This credit rating is used to predict the chances that the loan applicant will default or become delinquent (Mehrnaz & Ali, 2013:1414).

According to Van Gool, Baesens, Sercu and Verbeke (2012) there are three credit-scoring approaches namely; judgemental, statistical and non-statistical and non-judgmental. These types of scoring approaches are summarised in Table 2.7 below:

Table 2.7: Type of scoring approaches (**Source**: Van Gool *et al.,* 2009:3)

Type of scoring approaches	
Judgmental	Risk assessment by loan officers is based on: • experience • opinion
Statistical	Based on historical data and include: • discriminant analysis • logistic regression

Non-statistical and non- judgmental	Include a variety of: • operational research methods, • neural networks • genetic logarithm

Karlan and Goldberg (2007:10) discovered that credit-scoring is now a common tool for promoting efficiency and speed of the loan granting process within the microfinance industry. In this regard, Berger, Goldmark and Miller-Sanabria (2006:103) state that the benefit of credit-scoring is that, it helps to conserve time and resources of lenders by not visiting the places of clients falling within acceptable credit risk level, therefore, the client selection process becomes cost-effective. Another benefit of credit scores is that it helps lenders to quantify the risks associated with lending to a certain applicant in a shorter time (Koh, Tan & Goh, 2006:99).

2.12.2.3 Collateral security

Collateral is an assurance that could be in the form of an asset given to the lender by the borrower as a guarantee of loan repayment (Balkenhol & Schutte, 2001:11). Collateral acts as a security for the loan provider for taking a risk that the borrower may default (Mashigo, 2012:336). Mashigo (2012:336) emphasise that when a borrower becomes insolvent and defaults on the loan, the loan provider will becomes the owner of the collateral. At the same time, Hishigsuren and Husseini (2007:9) mention that the lender has an exclusive right to sell the collateral when the borrower defaults on the loan.

However, microfinance providers target mainly the poor who are perceived not to have assets to pledge for a loan which renders the use of collateral impossible (Ledgerwood, Earne & Nelson, 2013:217). Ledgerwood *et al.,* (2013:217) suggest that microfinance providers can use non-traditional collaterals such as future harvest, personal sureties, household assets and collateral substitutes (i.e. character-based lending and frequent client visits). Mosin (2009:27) suggests another collateral substitute which involves starting with smaller amounts for first time borrowers and then grow the loan size as the business builds a credit history with the borrower.

2.12.3 Post-approval mechanisms

Once the loan has been approved and the client has been orientated, it is important that microfinance providers adopt proper mechanisms to mitigate risks. These mechanisms include delinquency management and age analysis.

2.12.3.1 Delinquency management

Norell (2001:116) defined delinquent loans as loans for which payment is overdue and could be possibly irrevocable. Since the majority of microloans are not backed by collateral security, if the management is lax in managing portfolios, loan delinquency increases. Therefore, delinquency management is crucial for the establishment of a sustainable microfinance business and a healthy system of providing financial services to the poor (Office of International Information Programs, 2004:19). Ledgerwood (1999:243) mentions that effective delinquency management include the following basic elements:

- **Delinquency requires effective follow up procedures**: When a delinquent borrower has been identified, a message should be sent to the client that delinquency is unacceptable. It is crucial that clients understand the consequences of delinquency so that they do not continue to miss payments. Follow up procedures include make a follow up call to the client, calling upon community leaders to put pressure on the client and penalties.
- **The consequences of the loan default must be sufficiently unappealing to the client**: The consequences may include legal action taken against the client, public announcement, bad credit history and penalties.
- **Clients must be carefully screened**: The client screening process should be effective to identify all the clients without the loan repayment ability.
- **Both staff and client must understand that late payment is unacceptable**: The client must understand that when he/she has accepted the loan, repayments should be made as outlined in the loan agreement failure of which will result in hefty penalties.
- **Microfinance leaders have to accurately and timely management information**: The microfinance leaders should employ an effective and efficient information system that monitors and reports on loan repayments on daily basis. This enables the management to accurately and timeously identify payments which are due and late, and allow follow up procedures to be implemented in good time.

2.12.3.2 Age analysis

Johnson and Rogaly (1997:59) defined age analysis as a standard method of banking practice which involves grouping loans according to the duration of time that the loan amount is overdue. According to Ledgerwood (1999:190) age analysis allows delinquent loans to be classified into groups such as 1 to 30 days, 31 to 90 days, 91 to 120 days and over 120 days, however, the selection of the age group will depend on the loan terms and the occurrence of payments. Norell (2001:117) suggested that age analysis should be conducted on a monthly basis to assess the portfolio's health.

The main objective of age analysis is to ascertain the portfolio at risk and the loan loss reserve required to cover it (Ledgerwood, 1999:190). Thus the larger the number of days a loan is overdue the greater the possibility that the client may default, hence the need to have a loan loss reserve. Norell (2001:117) indicates that if age analysis is regularly and properly done delinquent loans can be identified quickly and allow a follow up procedure to be implemented timeously.

2.13 INTERNAL CONTROLS

COSO (2011) defined internal control as process implemented by management with the main objective of providing reasonable assurance regarding the reliability of financial reporting, compliance with relevant laws and regulations and effectiveness and efficiency of operations. Campion (2000:18) mentions that providers of microfinance services should integrate internal controls into risk management to reduce the risk before it occurs and such controls may include:

- **Segregation of duties**: For example, the credit officer should conduct the client screening while the responsibility to approve rests with the credit manager.
- **Credit policy**: It should specify the people who have the power to approve loans and amounts that require two signatories for approval.
- **Regular operational checks**: This can be achieved through the use of mechanisms like age analysis and delinquency management in order to maintain a healthy portfolio.

According to Tabourot and Damelincourt (2012:8) the purpose of integrating internal controls into risk management is to provide a more exhaustive coverage of risks. In this regard, the National Bank of Ethiopia (2010:29) recommends that internal audits should be performed by independent employees of microfinance providers on a regular basis to give an assurance that:

- Loans have been issued in accordance with stipulated credit policies and procedures.
- Periodic reports on various risk events are made available to senior management.
- Risk management weaknesses are identified and timeously reported to superiors.
- Senior management are informed of exceptions to stipulated policies and procedures.

2.13.1 COSO Internal Control Framework

This internal control framework was established by the COSO in 1992. According to COSO (2013) internal control framework consists of five components that operate collectively to reduce risks to an acceptable level and ultimately enhancing the achievement of the business overall objective. The five inter-related components of this control framework include control environment, risk assessment, control activities, information and communication and monitoring (COSO, 2010). A visual representation of COSO's internal control framework (i.e., the updated COSO Cube) is shown in Figure 2.6 below:

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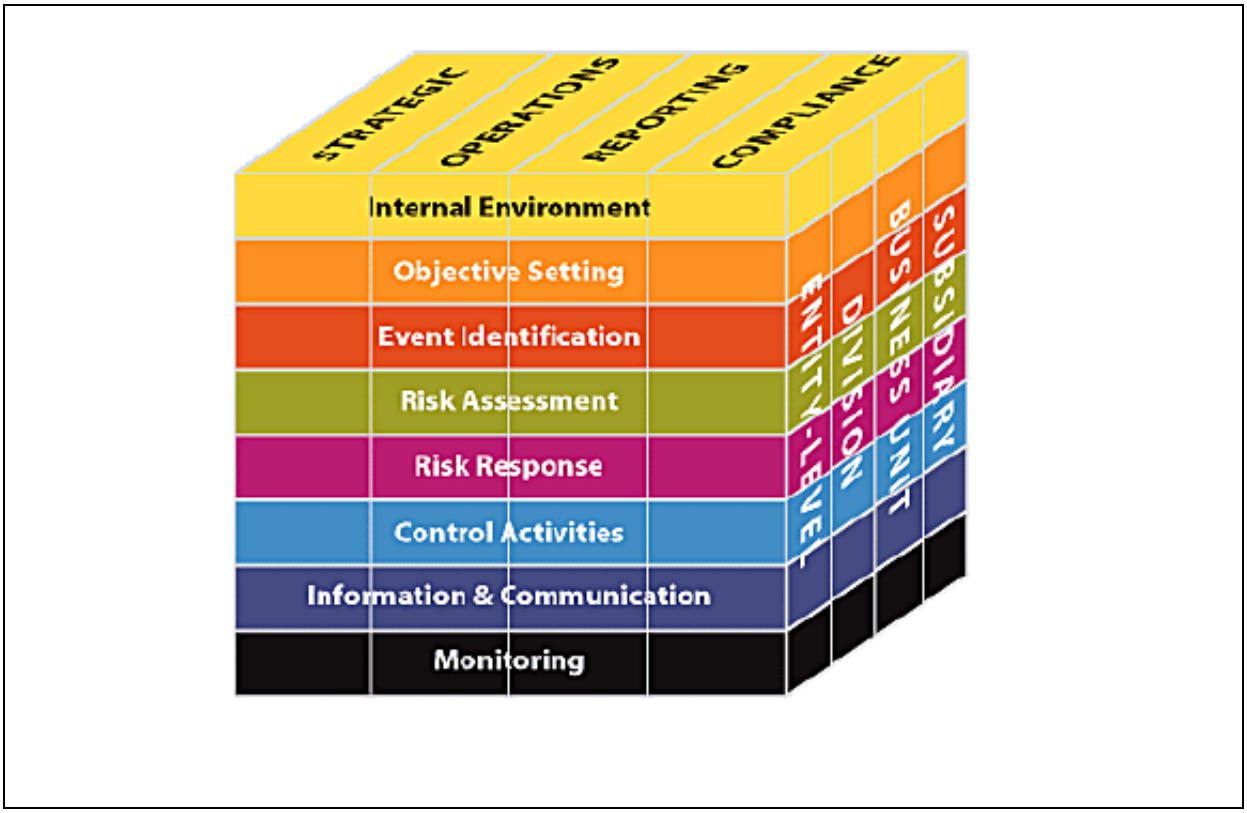

Figure 2.6: The updated COSO Cube (**Source:** COSO, 2013).

According to COSO (2013) the updated framework in Figure 2.6 sets out seventeen principles and these principles describe points of focus to assist the management in designing, implementing, and maintaining internal control and in assessing whether these seventeen

principles are present and functioning. Table 2.8 represents seventeen fundamental principles supporting components of the internal control framework.

Table 2.8: Seventeen principles supporting components of the internal control framework (**Source:** COSO, 2013)

Control Environment
1. The organisation demonstrates a commitment to integrity and ethical values. 2. The board of directors demonstrates independence from management and exercises oversight of the development and performance of internal control. 3. Management establishes, with board oversight, structures, reporting lines, and appropriate authorities and responsibilities in the pursuit of objectives. 4. The organisation demonstrates a commitment to attract, develop, and retain competent individuals in alignment with objectives. 5. The organisation holds individuals accountable for their internal control responsibilities in the pursuit of objectives.
Risk Assessment
6. The organisation specifies objectives with sufficient clarity to enable the identification and assessment of risks relating to objectives. 7. The organisation identifies risks to the achievement of its objectives across the entity and analyzes risks as a basis for determining how the risks should be managed. 8. The organisation considers the potential for fraud in assessing risks to the achievement of objectives. 9. The organisation identifies and assesses changes that could significantly impact the system of internal control.
Control Activities
10. The organisation selects and develops control activities that contribute to the mitigation of risks to the achievement of objectives to acceptable levels. 11. The organisation selects and develops general control activities over technology to support the achievement of objectives. 12. The organisation deploys control activities through policies that establish what is expected and procedures that put policies into action.
Information and Communication
13. The organisation obtains or generates and uses relevant, quality information to support the functioning of internal control.

14. The organisation internally communicates information, including objectives and responsibilities for internal control, necessary to support the functioning of internal control. 15. The organisation communicates with external parties regarding matters affecting the functioning of internal control.
Monitoring Activities
16. The organisation selects, develops, and performs ongoing and/or separate evaluations to ascertain whether the components of internal control are present and functioning. 17. The organisation evaluates and communicates internal control deficiencies in a timely manner to those parties responsible for taking corrective action, including senior management and the board of directors, as appropriate.

Ratcliffe and Landes (2010:7) are of the opinion that the five components of the internal control framework apply to all businesses, the only difference is that in some businesses it can be less formal and less structured than in others, depending on the size of the business. As such, SMME owners should be motivated to utilise COSO internal control framework as it provides a basis for developing a good control structure.

2.14 MICROFINANCE RISK MANAGEMENT IN SOUTH AFRICA

According to Mills (2007:457) about 68 percent of the low-income population in South Africa does not have access to financial services from traditional banks. As such, KPMG (2013) recognises the microfinance industry in South Africa as a growing sector that aims at making financial services accessible to the poor and unemployed population. KPMG (2013) further mentions that the South African microfinance industry is estimated to be at R50 billion and 6% of this amount is lent to small businesses whereas 72% is lent to individuals mainly to supplement their income to buy basics like food and to service loans. Because of the economic benefits that the microfinance industry offers to the South African economy, it is vital for entities in this industry to achieve sustainability. According to the National Youth Development Agency (2012:39) sustainability within the microfinance industry is achieved through the use of practices like tight credit control procedures and follow-up on defaulting clients, that is employing effective risk management practices.

Copestake (2007:1728) discovered that microfinance providers in South Africa like Small Enterprise Foundation (SEF) use the group-lending approach to provide sustainable financial services to the low-income market. Hietalahti and Linden (2006:204) found out that the SEF

also uses interest rate strategy. Thus, new clients are perceived to be in the high risk category; hence, effective interest rate is higher on new clients' repayments than clients on subsequent cycles in order to cover the high probability of non-payment associated with new clients. In her studies, Mills (2007:464) discovered that Kuyasa Fund, a South African microfinance provider and other microfinance providers adopt the following strategies to ensure a sustainable financial and social performance:

- **Credit bureaus**: This involves credit checks by loan officers to ascertain the credit history of the borrower and to determine the capacity to repay.
- **Repeated clients visits**: When a loan officer makes a follow-up on a defaulting client by visiting him/her at home, the client's neighbours may notice the loan officer's frequent visits. This creates a strong sense of shame on the defaulting client as he/she may feel uncomfortable when the neighbours know that he/she is behind in loan repayments and this is likely to force the client to catch up on late payments.
- **Technology**: The usage of personal digital assistants, mobile printers creates a live linkage to the business's database and this reduces the chances for risks like fraud as repayments will be captured immediately.
- **Gender**: Most microfinance providers target women since women are perceived to present a lower risk mainly because they can respond positively to repayment pressures.

Hietalahti and Linden (2006:208) discovered that SEF is tackling the risk of non-payments and loss of clients (drop-out) by establishing strict rules for group formation under group lending methodology. While women are given assistance through a learning process which is divided into the following three sections:

- motivation,
- business planning and
- continuous support.

Despite the importance of the concept of risk management within the microfinance industry, in South Africa there is little literature that has addressed the issue of risk management within this industry. Many previous researchers have focused more on areas among other, the impact on poverty alleviation, regulation and supervision of the microfinance industry leaving the risk management within this industry under-researched. This raises the importance of this study.

2.17 CHAPTER SUMMARY

This chapter provided an overview of the microfinance industry and the economic benefits it offers. The chapter outlined the basic elements of effective risk management and how it should be approached within the microfinance industry. The literature revealed in this chapter showed that microfinance providers do have risk management practices in place, however, the problems with inadequate use of these practices was voiced. Furthermore, the chapter provided a brief discussion of the South African microfinance risk management and it has been found out that credit bureaus, repeated clients visits and group lending methodology are commonly used strategies to ensure a sustainable financial and social performance within the microfinance industry in South Africa. The next chapter elaborates on the research methodology and data collection tools applied in this research study.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 AIM OF THIS CHAPTER

Research can be conducted in different fields and with different research methodologies and instruments (De Vaus, 2002:59). As such, the objective of this chapter is to describe how the research study was designed and also to provide insight as to the research methodologies adopted. The sampling method, chosen population and data collection process are also discussed in order to give a clear picture of how and why the research participants were chosen. Lastly, ethical issues that were considered in this research are briefly explained.

3.2 RESEARCH DESIGN

A research design can be regarded as a 'plan of action' as to how a researcher intends to conduct research (Mouton, 2001:160).The researcher adopted a quantitative research design since this research depends largely on the acquisition of quantitative data. Under quantitative research, data is collected, analysed and interpreted by mostly making use of questionnaires (Neill, 2007). Therefore, the data collection tool that was used in this research study was that of a questionnaire-tool; comprising of mostly pre-populated questions.

Deductive reasoning was adopted as the main logical reasoning. Thus, a thorough literature review was conducted from where the researcher formulated a perception, which translated into a problem statement (i.e."The sustainability of microfinance SMMEs is adversely influenced due to the utilisation of ineffective risk management practices"). In turn, this perception was tested through means of empirical research; encompassing the collection of quantitative data to assist in solving the afore-mentioned research problem.

3.3 DELINEATION OF THE RESEARCH

Literature review in Chapter Two revealed that microfinance comprises a wide range of banking-related financial services such as micro-savings, micro-insurance and micro-loans. However, the data collection of this research was limited to micro-loans as this is perceived to be the most critical part of microfinance because of its original aim of poverty reduction. Furthermore, this research study placed emphasis on other delineation criteria which had to be

fulfilled upon collecting data from respondents. In essence, all delineation criteria should have been successfully adhered to before any respondents' response was taken into consideration:

- All respondents should not have owned/managed businesses that were regarded as large financial services providers (e.g. commercial banks) since they can afford risk experts and are also perceived to regard risk management as part of business planning.
- All respondents should have owned/managed businesses that provided microfinance in the form of small loan amounts (micro-loans) to natural persons and small businesses.
- All respondents should have owned/managed businesses that were based in the Cape Metropole as this area is close to the researcher's residence and as such, reduces the research costs.
- All respondents should have owned/managed businesses that are registered as credit providers in terms of the National Credit Act of South Africa.
- All respondents should have owned/managed businesses that had to be in operation for at least 3 years.
- All respondents should have owned/managed businesses that should have been in charge of their respective business' risk management.
- All respondents should have owned/managed businesses that employed a minimum of 1 person and a maximum of 100 people (according to South African Small Business Act No. 102 of 1996).
- All respondents should have been owners/managers of their respective businesses.
- All respondents should have been actively involved in their respective businesses for at least 2 years.

3.4 SAMPLING FRAMEWORK

Zikmund (1997:417) defines a targeted population as the total group of specific population elements that is relevant to a particular research study. Similarly, the population of this research study was that of the list of credit providers in the Cape Metropole which was obtained from the NCR public domain.

3.5 SAMPLING METHOD AND SAMPLE SIZE

A complete list of credit providers was obtained from the NRC which included among others retailers, micro-finance providers and pawn brokers. In a first step the researcher excluded credit providers like retailers and pawn brokers, so that only the suitable micro-finance providers remained. In a second step the researcher introduced size-depending criteria and focused on small, medium and micro companies according to the South African SMME

definition. This is especially important as large financial service providers (like commercials banks) do offer micro-finance services, but since they have large internal audit departments their approach to risk management is very different. After these steps, a total of 69 micro-loan providers (credit providers) with knowledge and experience relevant to the research questions were identified.

Furthermore, the researcher was left with a total of 46 participants at the end because of the following constrains:

- Eight entities could not be reached due to distance barrier.
- One entity had closed its business by the time of data collection.
- Four entities could not be located using the addresses obtained.
- Seven entities could not want to share their information with an outsider.
- Three entities were not giving loans by the time of data collection and were reluctant to complete the questions.

3.6 DATA COLLECTION

The research method adopted in this research study was that of survey research. Visser *et al.,* (2000:223) define survey research as a field of study that involves gathering of data from a sample of individuals extracted from a pre-determined population by using a questionnaire. Thus, data in this research was collected by means of a questionnaire from a sample of micro-loan providers and the researcher used the sample information to make some inference about the entire population (microfinance providers in South Africa).

3.7 SURVEY INSTRUMENT

The data collection instrument that was used in this research is a questionnaire. A questionnaire is a list of coherent questions seeking answers to the problem under study (Pathak, 2008:110). Questionnaire design is a method of scheming a survey instrument to gather data in a study (Celsi, Money, Samouel & Page, 2011:455). The questionnaire used in this research comprised pre- and post-populated questions. Respondents answered pre-populated questions by ticking one box representing their views. Most of the pre-populated questions used are in point likert type scale form. Likert scale is a technique that encompasses a series of numerically ordered alternatives on a scale ranging from “strongly agree” to “strongly disagree” (Monette, Sullivan & DeJong, 2010:354). A big number of researchers use this method because it is comparatively easy for respondents to apply, and results from such a scale are expected to be reliable (Lam & Kolic, 2008:246). The questions that were used to design the questionnaire were organised into the following sections:

SECTION A: General information

The purpose of this section was to ensure that participants meet the delineation criteria. Any part of this section which does not meet the delineation criteria renders the whole questionnaire invalid.

SECTION B: Risk types

The purpose of this section was to establish the types of risks microfinance SMMEs face.

SECTION C: Risk management practices

The purpose of this section was to ascertain how risks are managed by microfinance SMME leaders.

SECTION D: Basic elements of effective risk management

This section comprised dichotomous questions to the basic elements gathered through literature review that should be present in order for risk management to be effective. This helped the researcher to assess the effectiveness of current risk management practices that are used by microfinance SMMEs.

3.7.1 Reliability and validity of the survey instrument

Kimberlin and Winterstein (2008:2276) mention that the basic pointers of the excellence of a survey instrument are its reliability and validity. Reliability of a survey instrument refers to the degree to which that instrument obtains the equivalent outcomes on repeated events and it includes consistency and accuracy (LoBiondo-Wood & Haber, 2013:298). Validity is defined as the degree to which scholars are capable of reporting accurate data that denotes the field under study (Martella, Nelson, Morgan & Marchand-Martella, 2013:309). In this research, the researcher requested a recognised microfinance expert to assess the questionnaire to ensure content validity and reliability. In her opinion, the microfinance expert was satisfied that the questionnaire covers all areas and provides an accurate representation of risk management in the South African microfinance industry.

Furthermore, a Cronbach Alpha test was also performed on the measuring instrument (statements) to determine whether the scale was reliable. Thus, reliability tests in the form of

Cronbach's Alpha Coefficient were performed on statements (C06_a to C06_i (Credit risk); C07_a to C07_e (Loan repayment overdue risk); C08_a to C08_f (Fraud risk); C09_a to C09_d (Human error risk); C10_a to C10_c (IT-risk); C11_a to C11_b (Exchange rate risk); C12_a to C12_b (Interest rate risk); C13_a to C13_b (Reputation risk), C14a to C14_b (Governance risk); C15_a (Legal compliance risk); C16_a to C16_d (Liquidity risk) and D18_a to D18_k (Basic elements of effective risk management existence in business) of the questionnaire as these are the items related to the measuring instrument. The internal consistency of the scale is proved when the Cronbach Alpha Coefficient is more than 0.7 according to Nunnally (1978*:* 245).

The outcomes of the Cronbach Alpha tests for the scales above are presented in Annexure D.1.1 to D.1.11 while computer printouts are attached in Annexure D.2. In the tables presented in Annexure D.1.1 to D.1.11, the correlation between a particular item and the aggregate score (when a particular item is excluded) and the coefficient alpha if a particular item would be deleted, are shown. Alpha value increases when items (indicators) are deleted one by one each time, for the statement with the highest Cronbach Alpha value. In the two right-most columns of the table presented in Annexure D.1.1, it is evident that the reliability of the scale could be larger if some of these statements are deleted. For instance in the table shown in Annexure D.1.1, if the statement A06_f is deleted from this measuring scale then the overall Cronbach Alpha Coefficient will increase from 0.6045 to 0.8358 for the raw variables and from 0.7543 to 0.8709 for the standardised variables. In the table shown in Annexure D.1.1.1, this was done and thus this measuring instrument without item C06_f proves to be reliable (see overall Cronbach Alpha Coefficient).

3.8 DATA ANALYSIS

Data collected from field survey were analysed by using Statistical Analysis System (SAS) software. The distribution of the responses is shown by means of frequency distribution tables. Charts and graphs are drawn to create a visual representation of regress and make data easy to understand, analyse and compare.

3.9 ETHICAL CONSIDERATION

Debnath, Prasad and Bisen (2010:112) define ethical issues as principles of morality. Based on the works of Leedy and Ormrod (2010:101), when carrying out this particular research study, the following ethical issues were considered:

- **Confidentiality:** Participants were guaranteed that all information collected will not be made accessible to people who are not directly involved in this research as a whole.
- **Informed consent:** The participants had to provide their consent (written) to participate in this study.
- **Provision of informed information:** Key terms and brief explanation of the study was made to the participants and participants were given the opportunity to ask questions before and after completing the data collection tool and have them answered by the researcher.
- **Anonymity:** Participants were guaranteed that they would remain unidentified during the course of this research study to generate a stronger guarantee of privacy.
- **Voluntary participation:** The participant's permission to take part in this research was voluntary, free of any intimidation and promises of benefits unlikely to result from their participation.
- **Ethical clearance:** Before questionnaires were distributed, the researcher obtained ethical clearance from the ethics committee at the Cape Peninsula University of Technology.

3.10 LIMITATIONS OF THIS RESEARCH

A total of 69 micro-lenders were drawn from the list of various credit providers in the Cape Metropole registered with NCR. While every effort to provide a meaningful and practical total number of micro-loan providers in the Cape Metropole was made, no representation is made as to the accuracy and completeness of this total number drawn by the researcher. Hence, this total number of micro-loan providers in the Cape Metropole can only be used as an indication and for the purpose of this research only.

3.11 CHAPTER SUMMERY

This chapter covered an analysis of the research methodology and design appropriateness under the following headings: research questions and objectives; delineation of the research; sampling framework; sampling method; data collection; survey instrument; limitations of the research and ethical issues. A brief explanation of data analysis was made and a detailed analysis will be presented in Chapter four.

CHAPTER FOUR
ANALYSIS AND FINDINGS

4.1 INTRODUCTION

This chapter discusses the results for the data analysis of the survey conducted in the Cape Metropole of SMMEs that provide microfinance. The purpose of this research study is to identify risks faced by microfinance SMMEs and to establish the effectiveness of the current risk management practices put in place by these entities.

The data extracted from the questionnaires completed by respondents was presented and analysed by the use of several analyses which include uni-variate, bi-variate and multivariate. At this point it should be noted that data analysis is "the process of bringing order, structure and meaning to the mass of collected data" (De Vos 2002:339). The data analysis in popular research comprises three main steps done in the following chronological sequence:

- Data preparation: This step involves cleaning and organising the data that was collected.
- Descriptive statistics: This involves describing the data that was collected.
- Inferential statistics: This involves testing the assumptions derived from theory and modeling.

SAS software was used to analyse data in this research. The data was cleaned, formatted and organised and this information is then described in paragraph 4.3. Descriptive statistics such as frequency tables are shown in Annexure E.1 which displays the variations of the statement responses.

4.2 ANALYSIS METHOD

4.2.1 Validation survey results

Validity pertains to whether; what one is measuring is what one actually anticipates to measure (Rose & Sullivan, 1996:19). In this research, content and construct validity are the only types of validity covered. Content validity pertains to the adequacy of the content of a measuring tool (De Vos & Fouche, 2001:84). Construct validity refers to the degree to which a measuring tool can measure a certain theoretical construct.

The construct validation is achieved when a questionnaire measures what it has to measure. Therefore, construct validation must be dealt with during the planning stages of the research

and when a questionnaire is being drawn up. Reliability is addressed in the analysis phase of the data (information).

A descriptive analysis of the research findings obtained from the research participants through a questionnaire is shown below. The responses on the research questionnaires are shown in table format for ease of reference. All items were tested to fall within the boundaries.

4.2.2 Data format

The questionnaires that were received from the respondents were captured twice in an Excel spreadsheet by the researcher. The questionnaires and the Excel spreadsheet were sent to a statistician who then verified to see whether there were any capturing mistakes. This data file was then imported into SAS format. The information which was verified by a statistician to ensure accuracy was then analysed by the researcher.

4.2.3 Preliminary analysis

The reliability of the items in the questionnaires was tested by making use of the Cronbach Alpha tests (See paragraph 3.7.1). The following descriptive statistics were performed on every variable:

- Displaying means
- Standard deviations
- Frequencies, percentages
- Cumulative frequencies
- Cumulative percentages

The above descriptive statistics are covered in paragraphs 4.3.1 and 4.3.2. Tables and computer printouts are also shown in Annexure D and E.

4.2.4 Inferential statistics

Inferential statistics were performed on the data as follows:

- Chi-square tests were used for determining association between biographical variables. Cross-tabulation and Chi-square-based measures of association, a method used to compare two or more classification variables. These tables, constructed for statistical testing are referred to as contingency tables. The test establishes if the classification variables are dependent. Percentages are used for two purposes; firstly to simplify by

decreasing every number to a range of 0 to 100 and secondly to convert the data into standard form, with a base of 100, for relative comparisons. The Chi-square tests are popularly used nonparametric tests of significance and are important for tests including nominal data. However, it can also be utilised for higher scales, for example, when objects are classified in two or more nominal groups like 'yes-no' or A, B, C or D.

- Cronbach Alpha test: This refers to an index of reliability related to the variation taken into account by the correct score of the "underlying construct". In fact, construct is the hypothetical variable being measured (Cooper & Schindler, 2003:216-217). Cronbach's alpha can also be defined as a method used to measure how well a set of variables measures a single uni-dimensional latent construct.

4.2.5 Technical report with graphical displays

A report describing of all variables and their results was compiled. A cross-analysis of variables was performed as it comes necessary and the statistical probabilities are attached to show the size of differences or associations of variables.

Inferential statistics are all covered in paragraph 4.4.

4.2.6 Assistance to researcher

The final report compiled by the researcher was validated and checked by the statistician to exclude all misleading explanations.

4.3 ANALYSIS

All the forty-six distributed questionnaires were returned, but one questionnaire was not fully completed and four did not satisfy the criteria set for the survey sample (the questionnaire showed that four respondents had meanwhile more than 100 employees) and therefore forty-one questionnaires were deemed valid to analyse.

The table in Annexure C is an indication of the naming convention of the variables used in this analysis for referral purposes.

4.3.1 Descriptive statistics

Table 4.1 and Annexure E.1 indicate the descriptive statistics for all the variables in the survey measuring the respondent's perception with respect to the statements posted to

them. Annexure E.1 indicates the frequencies in each category and the percentage of the total number of questionnaires completed. Table 4.1 indicates the means, standard deviation, median, minimum, maximum and range of the continuous variables. The continuous variables are also categorised and presented in Annexure E.1. The descriptive statistics for the categorical data are based on the total population and the descriptive statistics for the continuous data are based on the number of actual responses. If in some cases there were no answers given, it will be shown as unknown in the descriptive statistics of the categorical variables (statements). A computer printout for these descriptive statistics is attached as Annexure E.2

Table 4.1: Descriptive statistics for the continuous variables

Variables	N	Mean	Std Dev	Median	Min	Max	Range
1. How long has your business been operating?	41	10.12	5.0606	10.00	3.00	21.00	18.00
2. How many employees does your business have?	41	12.66	10.3238	9.00	2.00	50.00	48.00
4. How long have you been in this position?	41	6.68	3.5878	6.00	2.00	17.00	15.00

The average time for which these entities operate is 10.1 years, the average number of employees of these companies is 13 and the average time for these employees to be in their current position is 6.7 years.

4.3.2 Uni-variate graphs

4.3.2.1 General information

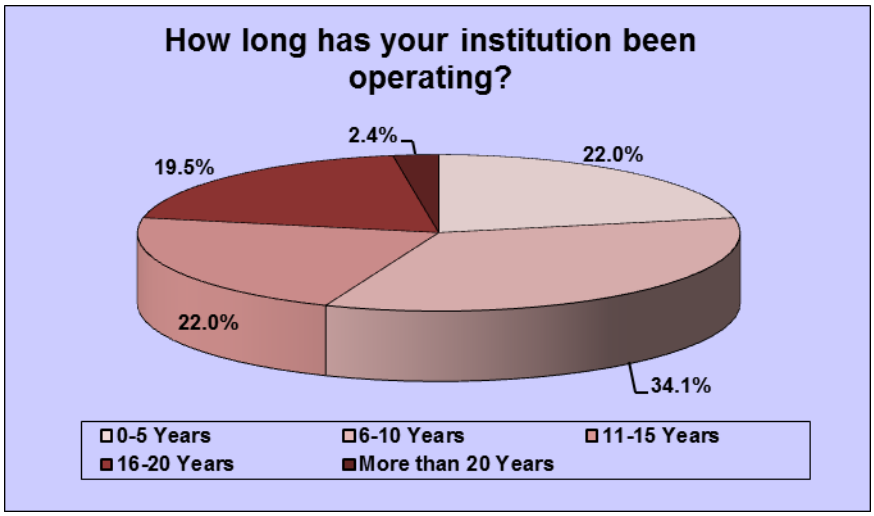

FIGURE 4.1: Years in operation

The respondents in this survey indicated that more than half of the entities were operating for less and equal 10 years, 22% indicated that the entities were operating for 11-15 years, 19.5% indicated that the entities were operating for 16-20 years and 2.4% indicated that the entities were operating for more than 20 years.

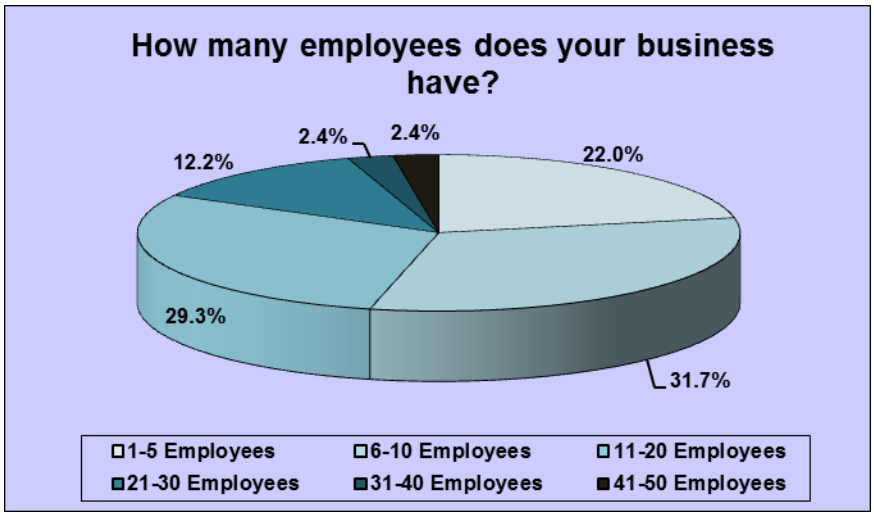

Figure 4.2: Number of employees

More than halve of the entities taken up in this survey have 1-10 employees, 29.3% have 11-20 employees, 12.2% have 21-30 employees and 2.4% have 31-40 and 41-50 employees, respectively.

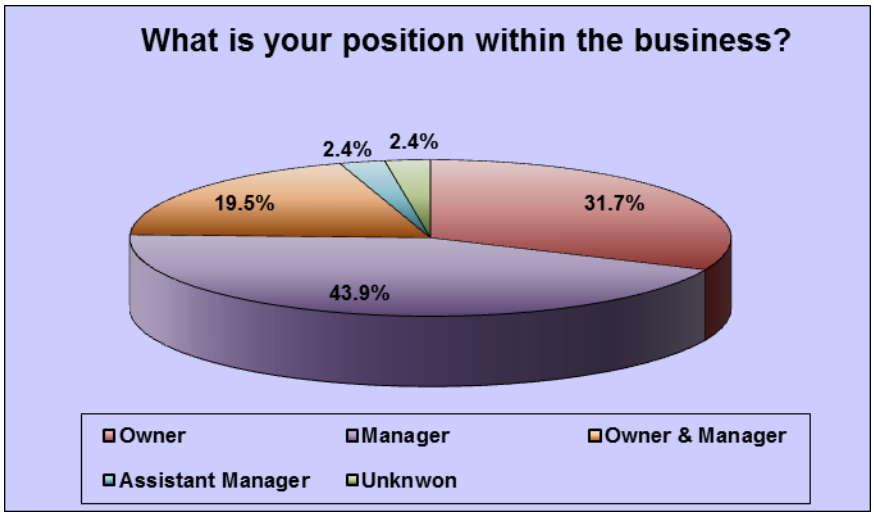

Figure 4.3: Position

31.7% of the respondents are owners of the microfinance entities taken up in this survey, 43.9% of the respondents are managers, 19.5% of the respondents are owner and manager

of these entities, 2.4% indicated that they are an assistant manager and 2.4% didn't indicate what position they have within the business.

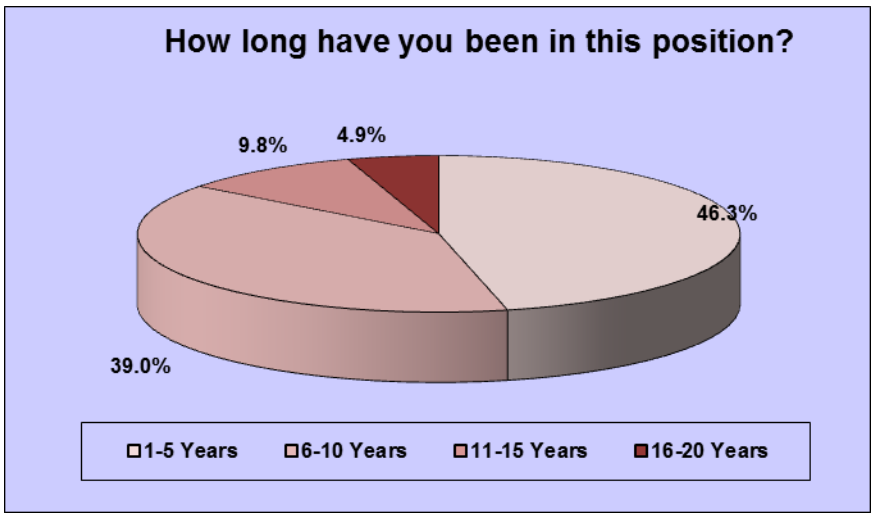

Figure 4.4: Years in operation

46.3% of the respondents in this survey indicated that they were in the abovementioned position for 1-5 years, 39% indicated that they have been in their position for 6-10 years, 9.8% indicated that they were in the position for 11-15 years and 4.9% indicated that they have been in the position for more than 15 years.

4.3.2.2 Risk management practices

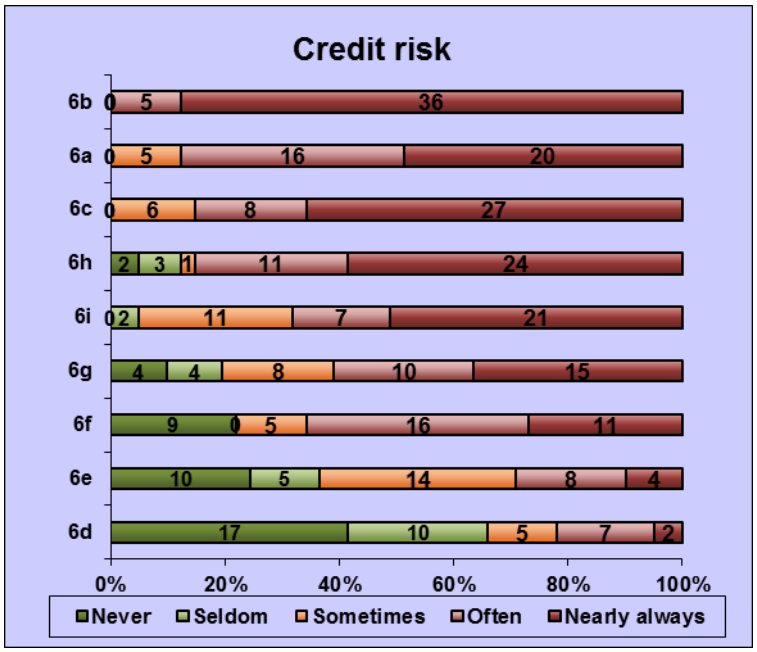

Figure 4.5: Credit risk

After sorting the outcomes from the smallest to the largest the following practices are used to manage credit risk:

- Use customer affordability (12.2% of the respondents indicated often and 87.8% indicated nearly always).
- Use credit scoring (12.2% of the respondents indicated sometimes, 39.0% indicated often and 48.8% indicated nearly always).
- Use credit bureau information (14.6% of the respondents indicated sometimes, 19.5% indicated often and 65.9% indicated nearly always).
- Use customer orientation (4.9% of the respondents indicated never, 7.3% indicate seldom, 2.4% indicated sometimes, 26.8% indicated often and 58.5% indicated nearly always).
- Start with smaller amounts for first time borrowers and grow the loan size (4.9% of the respondents indicated seldom, 26.8% indicated sometimes, 17.1% indicated often and 51.2% indicated nearly always).
- Use character based lending methodology (9.8% of the respondents indicated never, 8.8% indicate seldom, 19.5% indicated sometimes, 24.4% indicated often and 36.6% indicated nearly always).
- Use peer monitoring through group lending methodology (22.0% of the respondents indicated never, 12.2% indicated sometimes, 39.0% indicated often and 26.8% indicated nearly always).
- Use suretyships (24.4% of the respondents indicated never, 12.2% indicate seldom, 34.2% indicated sometimes, 19.5% indicated often and 9.8% indicated nearly always).
- Use Collateralisation (24.4% of the respondents indicated seldom, 12.2% indicated sometimes, 17.1% indicated often and 4.9% indicated nearly always).

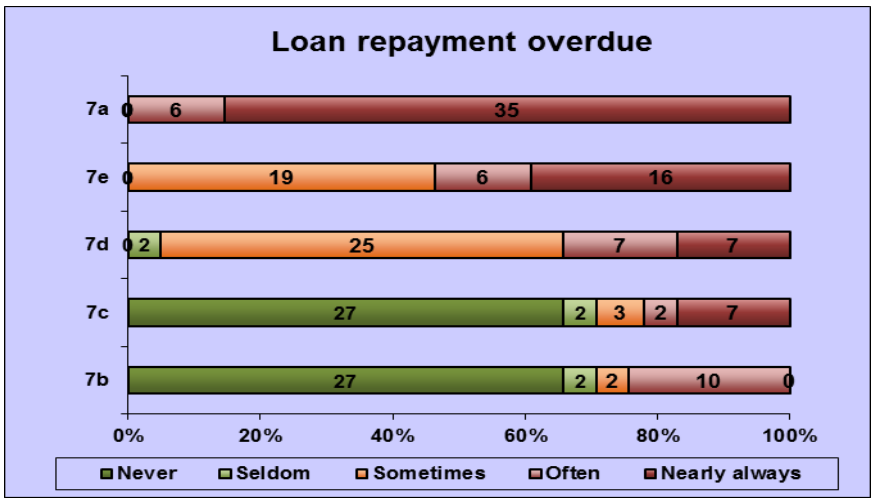

Figure 4.6: Loan repayment overdue

After sorting the outcomes from the smallest to the largest the following practices are used to manage loan repayment overdue:

- Make a follow up call to the client (14.6% of the respondents indicated often and 85.4% indicated nearly always).
- Use penalties (46.3% of the respondents indicated sometimes, 14.6% indicated often and 39.0% indicated nearly always).
- Take legal action against the client (4.9% of the respondents indicated seldom, 61% indicated sometimes, 17.1% indicated often and 17.1% indicated nearly always).
- Make a public announcement through national media like newspapers (65.8% of the respondents indicated never, 4.9% indicate seldom, 7.3% indicated sometimes, 4.9% indicated often and 17.1% indicated nearly always).
- Calling upon community leaders to put pressure on the client (65.8% of the respondents indicated never, 4.9% indicated seldom, 4.9% indicated sometimes and 24.4% indicated often).

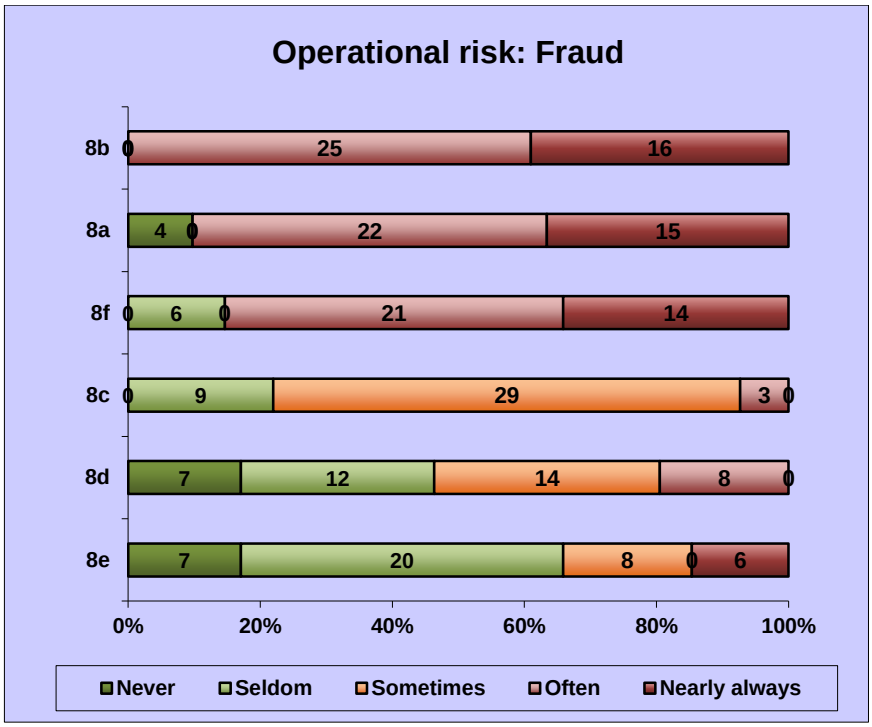

Figure 4.7: Operational risk: Fraud

After sorting the outcomes from the smallest to the largest the following practices are used to manage fraud:

- Maintain a record of fraudulent staff and use it to enhance recruitment (61.0% of the respondents indicated often and 39.0% indicated nearly always).

- Immediately fire staff involved in fraud (9.8% of the respondents indicated sometimes, 53.7% indicated often and 36.6% indicated nearly always).
- Avoiding staff to make decisions outside the regulations by standardising policies and procedures (14.6% of the respondents indicated seldom, 51.2% indicated often and 34.2% indicated nearly always).
- Regularly rotate staff (22.0% of the respondents indicated seldom, 70.7% indicated sometimes and 7.3% indicated nearly always).
- Segregation of duties (17.1% of the respondents indicated never, 29.3% indicated seldom, 34.2% indicated sometimes and 19.5% indicated often).
- Client visits by an independent person to verify loan balances (17.1% of the respondents indicated never, 48.8% indicated seldom, 19.5% indicated sometimes and 14.6% indicated nearly always).

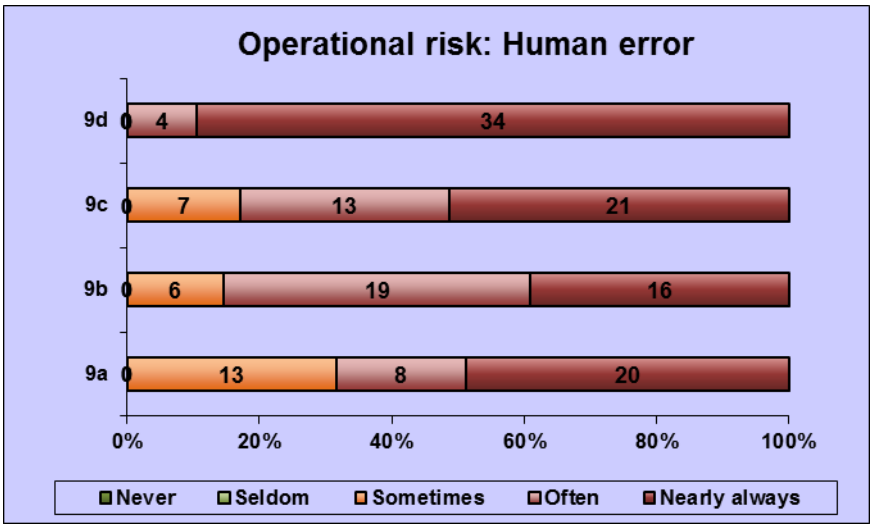

Figure 4.8: Operational risk: Human error

After sorting the outcomes from the smallest to the largest the following practices are used to manage human error:

- Provide the employees with the necessary equipment (17.1% of the respondents indicated often and 82.9% indicated nearly always).
- Recruiting competent staff (17.1% of the respondents indicated sometimes, 31.7% indicated often and 51.2% indicated nearly always).
- Continuous staff training (14.6% indicated sometimes, 46.3% indicated often and 39.0% indicated nearly always).
- Using computer systems and minimise manual entries (31.7% indicated sometimes, 19.5% indicated often and 48.8% indicated nearly always).

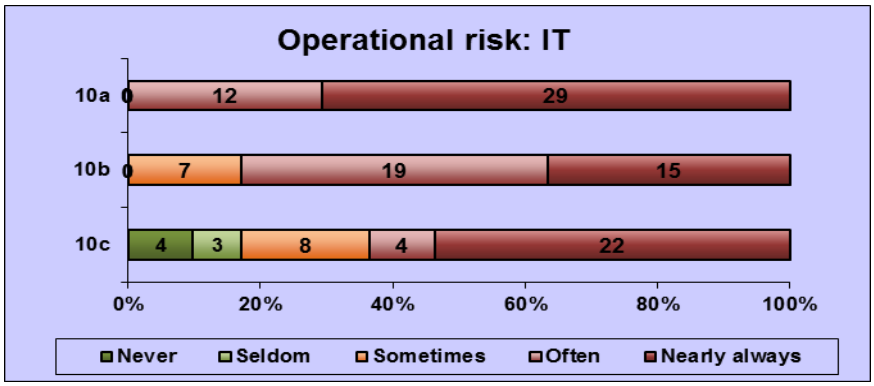

Figure 4.9: Operational risk: Information and Technology (IT)

After sorting the outcomes from the smallest to the largest the following practices are used to manage Information and Technology (IT) risk:

- Use of access controls like using ID's, user profile and passwords (29.3% of the respondents indicated often and 70.7% indicated nearly always).
- Use of firewalls (17.1% of the respondents indicated sometimes, 46.3% indicated often and 36.6% indicated nearly always).
- Use of intrusion detection software (9.8% of the respondents indicated never, 7.3% indicated seldom, 19.5% indicated sometimes, 9.8% indicated often and 59.7% indicated nearly always).

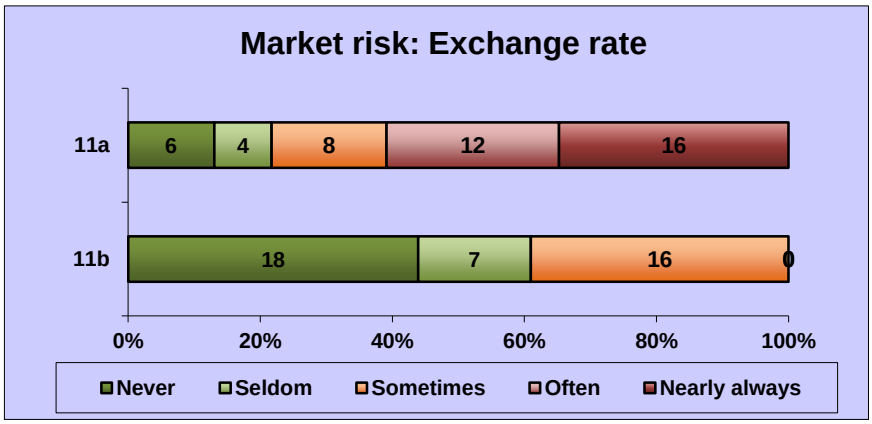

Figure 4.10: Market risk: Exchange rate

After sorting the outcomes from the smallest to the largest the following practices are used to manage exchange rate risk:

- Avoid funding the loan portfolio with foreign currency (14.6% of the respondents indicate never, 9.8% indicated seldom, 19.5% indicated sometimes, 29.3% of the respondents indicated often and 26.8% indicated nearly always).

- Use interest-rates swaps or future contracts (43.9% of the respondents indicate never, 17.1% indicated seldom and 39.0% indicated sometimes).

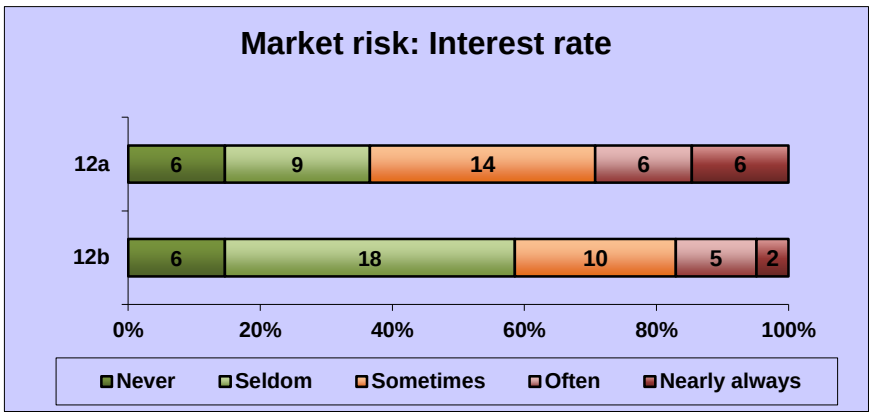

Figure 4.11: Market risk: Interest rate

After sorting the outcomes from the smallest to the largest the following practices are used to manage interest rate risk:

- Use the financial model to test the business's sensitivity to an increase or decrease in interest (14.6% of the respondents indicate never, 22.0% indicated seldom, 34.2% indicated sometimes, 14.6% of the respondents indicated often and 14.6% indicated nearly always).
- Have a treasury department to manage risks associated with interest rate changes (14.6% of the respondents indicate never, 43.9% indicated seldom, 24.4% indicated sometimes, 12.2% of the respondents indicated often and 4.9% indicated nearly always).

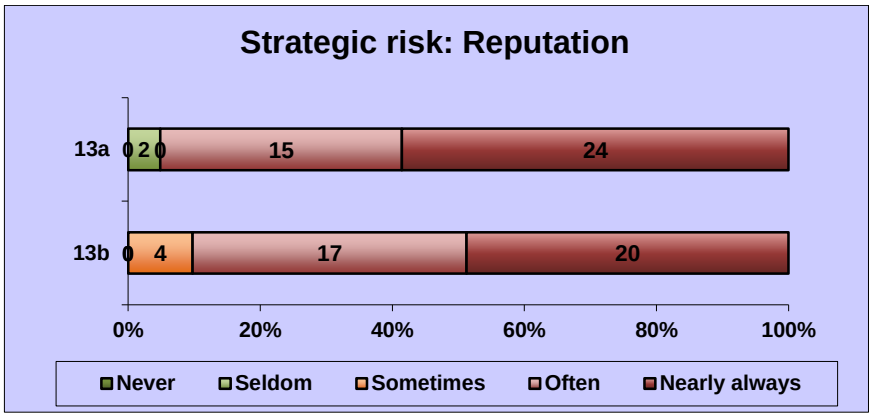

Figure 4.12: Strategic risk: Reputation

After sorting the outcomes from the smallest to the largest the following practices are used to manage reputation risk:

- Creating clear channels for customer complaints (4.9% of the respondents indicated seldom, 36.6% of the respondents indicated often and 58.5% indicated nearly always).
- Have reputation policies that create a framework for managing reputation risk on a continuous basis (9.8% of the respondents indicate sometimes, 41.5% of the respondents indicated often and 48.8% indicated nearly always).

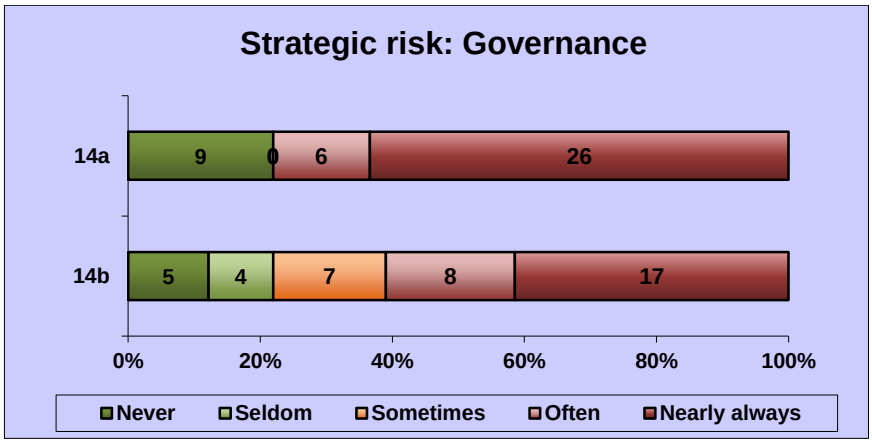

Figure 4.13: Strategic risk: Governance

After sorting the outcomes from the smallest to the largest the following practices are used to manage governance risk:

- Clearly communicate performance expectations (22.0% of the respondents indicate never, 14.6% of the respondents indicated often and 63.4% indicated nearly always).
- Clearly define lines of accountability (12.2% of the respondents indicate never, 9.8% indicated seldom, 17.1% indicated sometimes, 19.5% of the respondents indicated often and 41.5% indicated nearly always).

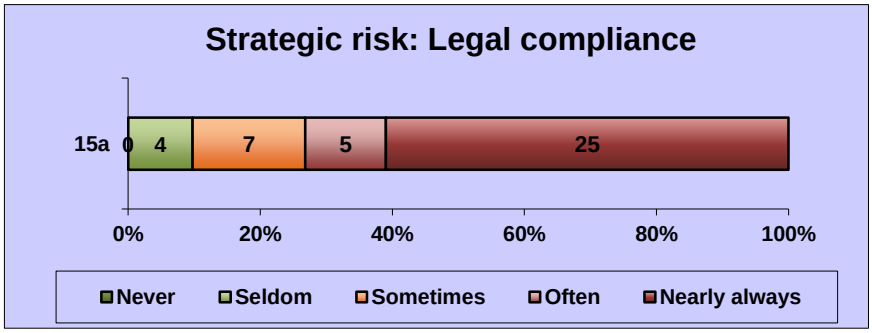

Figure 4.14: Strategic risk: Legal compliance

The following practice is adopted to manage legal compliance risk:

- Communicate regularly with regulators to provide an opportunity to resolve any potential problems (9.8% of the respondents indicated seldom, 17.1% indicated sometimes, 12.2% indicated often and 61.0% indicated nearly always).

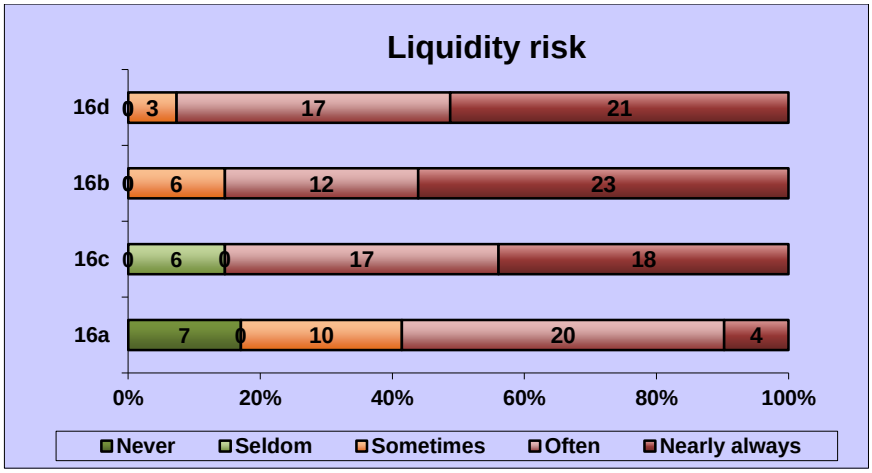

Figure 4.15: Liquidity risk

After sorting the outcomes from the smallest to the largest the following practices are used to manage liquidity risk:

- Policies are set for minimum and maximum cash levels (7.3% of the respondents indicate sometimes, 41.5% of the respondents indicated often and 51.2% indicated nearly always).
- Cash budgets are continuously updated (14.6% of the respondents indicate sometimes, 29.3% of the respondents indicated often and 56.1% indicated nearly always).
- Cash needs are forecasted (14.6% of the respondents indicate seldom, 41.5% of the respondents indicated often and 43.9% indicated nearly always).
- Surplus funds are invested or disbursed as loans (17.1% of the respondents indicate never, 24.4% indicated sometimes, 48.8% of the respondents indicated often and 9.8% indicated nearly always).

The only other risks that were indicated by one of the respondents were:

- Crime
- Change in technology

He/she also indicated that for crime the management practices were:

- Always be aware and alert

- Hire necessary security
- Insurance

For change in technology the management practices were:

- Update regularly
- Stay up to date with changes

4.3.2.3 Basic elements of effective risk management

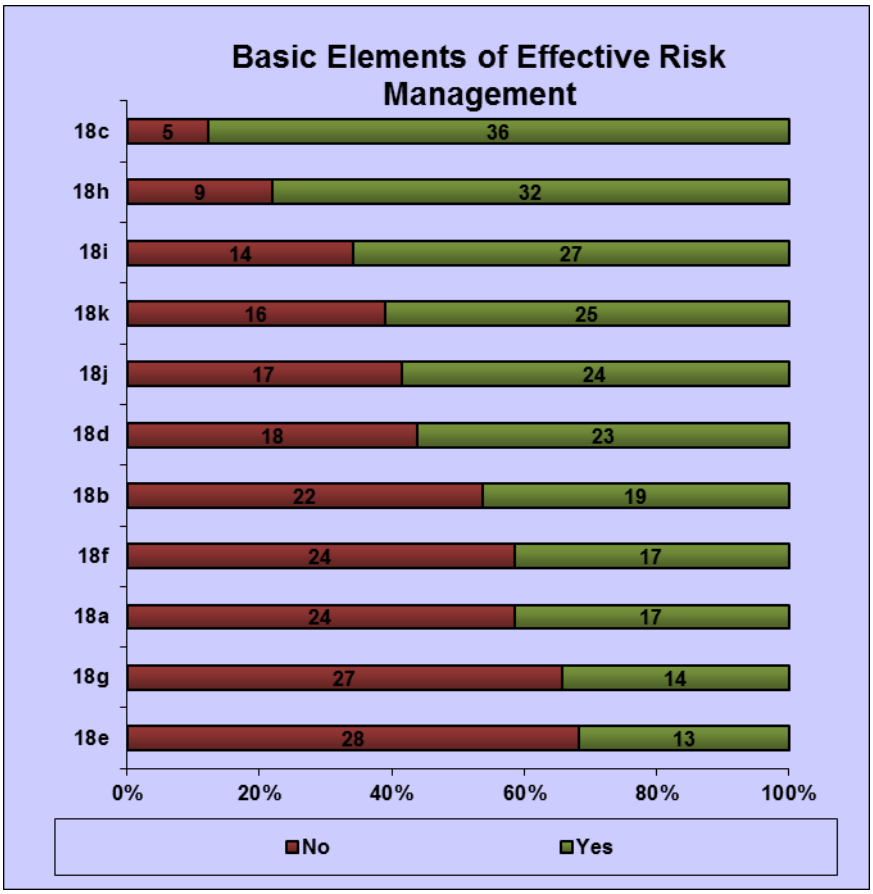

Figure 4.16: Basic elements of effective risk management

After sorting the outcomes from the smallest to the largest the following practices are used to manage risks:

- A risk-management plan exists (87.8% indicated yes.)
- Effective mechanisms of internal controls are developed (78.0% indicated yes).
- Risk management is incorporated into operating process and systems design (65.9% indicated yes).

- Risks are actively identified, categorised, prioritised and documented before being assessed (61.0% indicated yes).
- The risk management process is regularly monitored, reported and kept up to date (58.5% indicated yes).
- Address the most significant risks first (56.1% indicated yes).
- Written risk policies exist (46.3% indicated yes).
- All staff levels are involved in risk management (41.5% indicated yes).
- A risk appetite is set (41.5% indicated yes).
- A risk management framework is developed or adopted (34.2% indicated yes).
- A risk strategy is developed and implemented (31.7% indicated yes).

4.4 INFERENTIAL STATISTICS

This section includes all the inferential statistics that were done in order to answer the research questions. Before the statistics were done the following information forms the background against which testing is accepted or rejected.

SAS calculates a Probability value (P-value) that measure statistical significance which is obtained from the test values such as ANOVA (F-value), chi-square and t-value. The results were considered to be significant when the p-values were less than 0.05, since this value presents an acceptable level on a 95% confidence interval (p or equal to 0.05). The p-value denotes possibility of observing a sample value as extreme as, or more extreme than, the value actually observed, provided that the null hypothesis is correct. According to Cooper and Schindler (2003:509) this area denotes the possibility of a Type 1 error that must be expected if the null hypothesis is rejected.

A difference has a statistical significance when it is pertinent that the difference does not merely represent random sampling fluctuations. The results were deemed significant if the p-values were less than 0.05, since this value is regarded as the cut-off point in most behavioural science research.

4.4.1 Testing for equal proportions

The following tables and graphs indicate whether the responses are equally distributed. In other words whether the proportion of respondents who answered for instance “Never” / “Seldom” “Sometimes” / “Often” / “Nearly always” are equal. The null hypothesis is as follows:

- P1=P2=P3=P4=P5

Where:

P1= Proportion of respondents who indicated “Never”

P2= Proportion of respondents who indicated “Seldom”

P3= Proportion of respondents who indicated “Sometimes”

P4= Proportion of respondents who indicated “Often”

P5= Proportion of respondents who indicated “Nearly always”

If the null hypothesis is rejected (in other words the p-value is less than or equal 0.05) on the 95% confidence level then it means that the proportions are not equal.

Although only the statistically significant tests are mentioned in this paragraph, note must also be taken where the tests are not statistically significant and thus all the chi-square tests are attached in Annexure F.

Table 4.2: Chi-square test for equal proportions

Question / Statement	**Sample Size**	**Chi-square**	**Degrees of Freedom (DF)**	**Exact P-Value**
Usage of credit risk				
Credit risk – Credit scoring	41	8.8293	2	0.0121*
Credit risk – Customer affordability calculation	41	23.4390	1	<0.0001***
Credit risk – Credit Bureau information	41	19.6585	2	<0.0001***
Credit risk – Collateralisation	41	15.9512	4	0.0031**
Credit risk – Character-based lending methodology	41	10.3415	4	0.0351*
Credit risk – Customer orientation	41	45.7073	4	<0.0001***
Credit risk – Start with smaller amounts for first time borrowers and then grow the loan size as the business builds a credit history with the borrower	41	19.0000	3	0.0003***
Loan repayment overdue				
Loan repayment overdue – Make a follow up call to the client	41	20.5122	1	<0.0001***
Loan repayment overdue – Calling upon community leaders to put pressure on the	41	40.6585	3	<0.0001***

client				
Loan repayment overdue – Make a public announcement through national media like newspapers	41	55.9512	4	<0.0001***
Loan repayment overdue – Take legal action against the client	41	29.9268	3	<0.0001***
Loan repayment overdue – Penalties	41	6.7805	2	0.0337*
Fraud risk				
Fraud risk – Immediately fire staff involved in fraud	41	12.0488	2	0.0024**
Fraud risk – Regularly rotate staff	41	27.1220	2	<0.0001***
Fraud risk – Client visits by an independent to verify loan balances	41	12.5610	3	0.0057**
Fraud risk – Avoiding staff to make decisions outside the regulations by standardising all loan policies and procedures	41	8.2439	2	0.0162*
Human error risk				
Human error risk – Continuous staff training	41	6.7805	2	0.0337*
Human error risk – Recruiting competent staff	41	7.2195	2	0.0271*
Human error risk – Provide the employees with the necessary equipment e.g. calculators	41	17.7805	1	<0.0001***
IT risks				
IT risks – Use of access controls like using ID's, user profile and passwords	41	7.0488	1	0.0078**
IT risks – Use of intrusion detection software	41	30.8293	4	<0.0001***
Interest rate risk				
Interest rate risk – Have a treasury department to manage risks associated with interest rate changes	41	18.6341	4	0.0009***
Reputation risk				
Reputation risk – Creating clear channels for customer complaints	41	17.9024	2	0.0001***
Reputation risk – Have reputation policies that create a framework for managing reputation risk on a continuous basis	41	10.5854	2	0.0050**
Governance risk				
Governance risk – Clearly communicate performance expectations	41	17.0244	2	0.0002***

Governance risk – Clearly define lines of accountability	41	13.0244	4	0.0112*
Legal compliance risk				
Legal compliance risk – Communicate regularly with regulators to provide an opportunity to resolve any potential problems	41	28.7561	3	<0.0001***
Liquidity risk				
Liquidity risk – Surplus funds are invested or disbursed as loans	41	14.1220	3	0.0027**
Liquidity risk – Cash budgets are continuously updated	41	10.8780	2	0.0043**
Liquidity risk – Cash needs are forecast	41	6.4878	2	0.0390*
Liquidity risk – Policies are set for minimum and maximum cash levels	41	13.0732	2	0.0014**
Basic elements of effective risk management				
Basic elements of effective risk management: A risk management plan exists	41	23.4390	1	<0.0001***
Basic elements of effective risk management: A risk strategy is developed and implemented	41	5.4878	1	0.0191*
Basic elements of effective risk management: A risk management framework is developed or adopted	41	4.1220	1	0.0423*
Basic elements of effective risk management: Effective mechanisms of internal controls are developed	41	12.9024	1	0.0003***
Basic elements of effective risk management: Risk management is incorporated into operating process and systems design	41	4.1220	1	0.0423*

The detail with respect to the statistical significant differences for credit risk in the survey is as follows:

- Statistically significant more respondents indicated that they use credit scoring often and nearly always than those who indicated that they use it sometimes.
- Statistically significant more respondents indicated they use customer affordability calculation nearly always than those who indicated that they use it often.
- Statistically significant more respondents indicated they use credit bureau information nearly always than those who indicated that they use it often or sometimes.
- Statistically significant more respondents indicated they use collateralisation never or seldom than those who indicated that they use it sometimes, often or nearly always.

- Statistically significant more respondents indicated they use character based lending often or nearly always than those who indicated that they use it sometimes, seldom or never.
- Statistically significant more respondents indicated they use customer orientation often or nearly always than those who indicated that they use it sometimes, seldom or never.
- Statistically significant more respondents indicated they start with smaller amounts for first time borrowers and then grow the loan size as the business builds a credit history with the borrower sometimes or nearly always than those who indicated that they use it often or seldom.

The detail with respect to the statistical significant differences for loan repayment overdue in the survey is as follows:

- Statistically significant more respondents indicated that they make a follow up call to the client nearly always than those who indicated often.
- Statistically significant more respondents indicated that calling upon community leaders to put pressure on the client is never used, than those who indicated seldom, sometimes or often.
- Statistically significant more respondents indicated that making a public announcement through national media like newspapers is never used, than those who indicated seldom, sometimes, often or nearly always.
- Statistically significant more respondents indicated that they sometimes take a legal action against the client than those who indicated seldom, often or nearly always.
- Statistically significant more respondents indicated that they use sometimes or nearly always penalties than those who indicated often.

The detail with respect to the statistical significant differences for fraud risk in the survey is as follows:

- Statistically significant more respondents indicated that they often or nearly always immediately fire staff involved in fraud than those who indicated never.
- Statistically significant more respondents indicated that they sometimes regularly rotate staff than those who indicated nearly always or seldom.
- Statistically significant more respondents indicated that they seldom let an independent visit, clients to verify loan balances than those who indicated never, sometimes or nearly always.

- Statistically significant more respondents indicated that they often or nearly always avoiding staff to make decisions outside the regulations by standardising all loan policies and procedures than those who indicated seldom.

The detail with respect to the statistical significant differences for human error in the survey is as follows:

- Statistically significant more respondents indicated that they often or nearly always use continuous staff training than who indicated sometimes.
- Statistically significant more respondents indicated that they nearly always recruiting competent staff than those who indicated often or sometimes.
- Statistically significant more respondents indicated that they nearly always provide the employees with the necessary equipment e.g. calculators than those who indicated often.

The detail with respect to the statistical significant differences for IT risk in the survey is as follows:

- Statistically significant more respondents indicated that they nearly always make use of access controls like using IDs, user profile and passwords than those who indicated often.
- Statistically significant more respondents indicated that they nearly always make use of intrusion detection software than those who indicated never, seldom, sometimes or often.

The detail with respect to the statistical significant differences for interest rate risk in the survey is as follows:

- Statistically significant more respondents indicated that they seldom or sometimes have a treasury department to manage risks associated with interest rate changes than those who indicated never, often or nearly always.

The detail with respect to the statistical significant differences for reputation risk in the survey is as follows:

- Statistically significant more respondents indicated that they often and nearly always creating clear channels for customer complaints than those who indicated seldom.
- Statistically significant more respondents indicated that they often and nearly always have reputation policies that create a framework for managing reputation risk on a continuous basis than those who indicated sometimes.

The detail with respect to the statistical significant differences for governance risk in the survey is as follows:

- Statistically significant more respondents indicated that they nearly always clearly communicate performance expectations than those who indicated often or never.
- Statistically significant more respondents indicated that they nearly always clearly define lines of accountability than those who indicated never, seldom, sometimes or often.

The detail with respect to the statistical significant differences for legal compliance risk in the survey is as follows:

- Statistically significant more respondents indicated that they nearly always communicate regularly with regulators to provide an opportunity to resolve any potential problems than those who indicated seldom, sometimes or often.

The detail with respect to the statistical significant differences for liquidity risk in the survey is as follows:

- Statistically significant more respondents indicated that often surplus funds are invested or disbursed as loans than those who indicated never, sometimes or nearly always.
- Statistically significant more respondents indicated that they use nearly always cash budgets that are continuously updated than respondents who indicated sometime or often.
- Statistically significant more respondents indicated that often or nearly always cash needs are forecasted than those who indicated seldom.
- Statistically significant more respondents indicated that often or nearly always policies are set for minimum and maximum cash levels than those who indicated sometimes.

The detail with respect to the statistical significant differences for the basic elements of effective risk management in the survey is as follows:

- Statistically significant more respondents indicated that a risk management plan exists than those who indicated that it does not.
- Statistically significant more respondents indicated that a risk strategy is not developed and implemented than those who indicated that it is.
- Statistically significant more respondents indicated that a risk management framework is not developed or adopted than those who indicated that it is.
- Statistically significant more respondents indicated that effective mechanisms of internal controls are developed than those who indicated that there are not.

- Statistically significant more respondents indicated that risk management is incorporated into operating process and systems design than those who indicated that it is not.

4.4.2 Cross tabulations

By cross tabulate the general information section variables with the measuring instrument variables it was determined whether there are differences:

- Between the respondents from entities which are operating between 1 and 10 years and respondents from entities which have been operating more than ten years, with respect to their perceptions of the risk management practices being used and existing risk management elements in the entities.
- Between the respondents from entities which have 1 to 10 employees and respondents from entities which have more than ten employees, with respect to their perceptions of the risk management practices being used and existing risk management elements in the entities.
- Between the respondents with different positions in these entities, with respect to their perceptions of the risk management practices being used and existing risk management elements in the entities.
- Between the respondents who have been in these positions for 1 to 5 years and respondents who have been in these positions for more than 5 years, with respect to their perceptions of the risk management practices being used and existing risk management elements in the entities.

Although only the statistically significant tests are mentioned in this paragraph note must also be taken where the tests are not statistically significant and thus all the chi-square tests are attached in Annexure F.

Note should be taken that although the categories for the general information variables are aggregated in order to meet the requirements of sufficient expected frequencies (these expected frequencies should all be greater than one and in no more than 20% of the cells should they be less than 5), there are still cells with expected counts of less than 5 in most cases.

4.4.2.1 Business operating period

Table 4.3: Contingency table of business operating period versus character-based lending methodology

Frequency / Cell Percentage / Row Percentage / Column Percentage /	Never	Seldom	Sometimes	Often	Nearly always	TOTAL
1-10 Years	0 0.0% 0.0% 0.0%	3 7.3% 13.0% 75.0%	2 4.9% 8.7% 25.0%	6 14.6% 26.1% 60.0%	12 29.3% 52.2% 80.0%	23 56.1%
More than 10 Years	4 9.8% 22.2% 100.0%	1 2.4% 5.6% 25.0%	6 14.6% 33.3% 75.0%	4 9.8% 22.2% 100.0%	3 7.3% 16.7% 20.0%	18 43.9%
TOTAL	4 9.7%	4 9.7%	8 19.5%	10 24.4%	15 36.6%	41 100.0%

Table 4.4: Chi-square test for comparison of business operating period and character-based lending methodology

Question / Statement	Sample Size	Chi-Square	DF	P-Value
Character-based lending methodology	41	12.3743	4	0.0148*

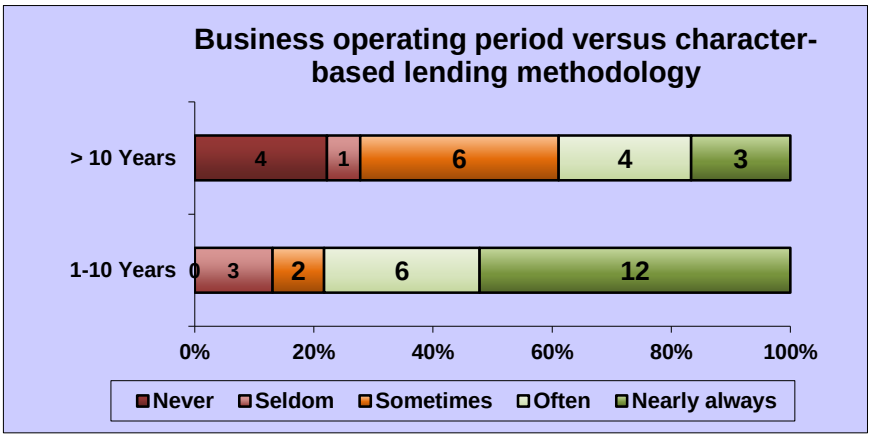

Figure 4.17: Business operating period versus character-based lending methodology

Above-mentioned chi-square test shows that statistically significant more respondents whose businesses' operating time is less and equal to 10 years indicated that, they nearly always use the character-based lending methodology than those whose operating time is more than 10 years.

Table 4.5: Contingency table of business operating period versus continuous staff training

Frequency / Cell Percentage / Row Percentage / Column Percentage /	Sometimes	Often	Nearly always	TOTAL
1-10 Years	1 2.4% 4.4% 16.7%	14 34.2% 60.9% 73.7%	8 19.5% 34.8% 50.0%	23 56.1%
More than 10 Years	5 12.2% 27.8% 83.3%	5 12.2% 27.8% 26.3%	8 19.5% 44.4% 50.0%	18 43.9%
TOTAL	6 14.6%	19 46.3%	16 39.0%	41 100.0%

Table 4.6: Chi-square test for comparison of business operating period and continuous staff training

Question / Statement	Sample Size	Chi-Square	DF	P-Value
Continuous staff training	41	6.4155	2	0.0404*

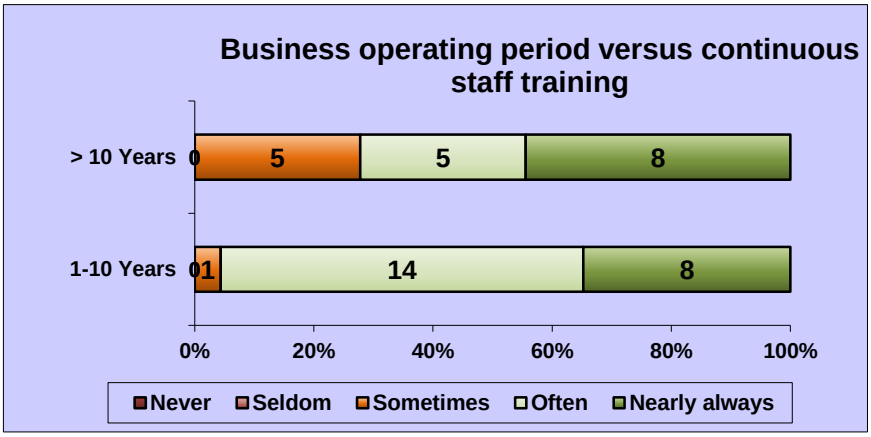

Figure 4.18: Business operating period versus continuous staff training

Above-mentioned chi-square test shows that statistically significant more respondents whose businesses' operating time is less and equal to 10 years indicated that, they often use continuous staff training than those whose operating time is more than 10 years.

4.4.2.2 Number of employees

Table 4.7: Contingency table of number of employees versus clearly communicate performance expectations

Frequency / Cell Percentage / Row Percentage / Column Percentage /	Never	Often	Nearly always	TOTAL
1-10 employees	3 7.3% 13.6% 33.3%	6 14.6% 27.3% 100.0%	13 31.7% 59.1% 50.0%	22 53.7%
More than 10 employees	6 14.6% 31.6% 66.7%	0 0.0% 0.0% 0.0%	13 31.7% 68.4% 50.0%	19 46.3%
TOTAL	9 22.0%	6 14.6%	26 63.4%	41 100.0%

Table 4.8: Chi-square test for comparison of number of employees and clearly communicate performance expectations

Question / Statement	Sample Size	Chi-Square	DF	P-Value
Clearly communicate performance expectations	41	6.8170	2	0.0331*

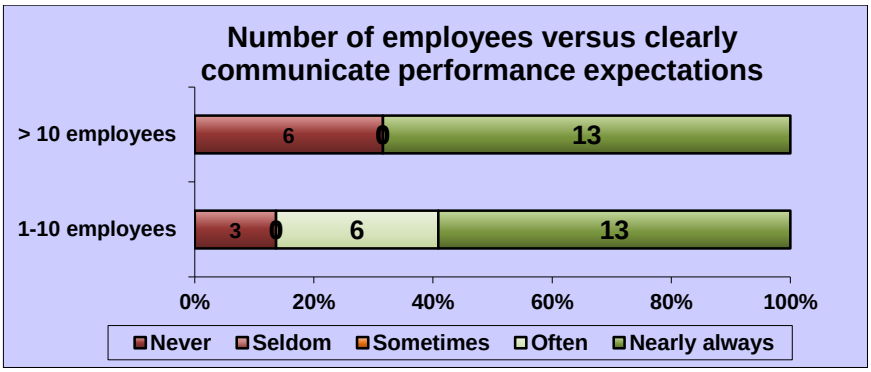

Figure 4.19: Number of employees versus clearly communicate performance expectations

Above-mentioned chi-square test shows that statistically significant more respondents whose businesses have 1-10 employees indicated that, they often clearly communicate performance expectations than those whose businesses have more than 10 employees.

4.4.2.3 Employee position

Table 4.9: Contingency table of employee position versus clearly defined lines of accountability

Frequency / Cell Percentage / Row Percentage / Column Percentage /	Never	Seldom	Sometimes	Often	Nearly always	TOTAL
Owner	0 0.0% 0.0% 0.0%	1 2.5% 7.7% 25.0%	4 10.0% 30.8% 66.7%	2 5.0% 15.4% 25.0%	6 15.0% 46.2% 35.3%	13 32.5%
Manager	5 12.5% 26.3% 100.0%	3 7.5% 15.8% 75.0%	0 0.0% 0.0% 0.0%	6 15.0% 31.6% 75.0%	5 12.5% 26.3% 29.4%	19 47.5%
Owner and manager	0 0.0% 0.0% 0.0%	0 0.0% 0.0% 0.0%	2 5.0% 25.0% 33.3%	0 0.0% 0.0% 0.0%	6 15.0% 75.0% 35.3%	8 20.0%
TOTAL	5 12.5%	4 10.0%	6 15.0%	8 20.0%	17 42.5%	40 100.0%

Table 4.10: Chi-square test for comparison of employee position and clearly defined lines of accountability

Question / Statement	Sample Size	Chi-Square	DF	P-Value
Clearly defined lines of accountability	40	18.7830	8	0.0161*

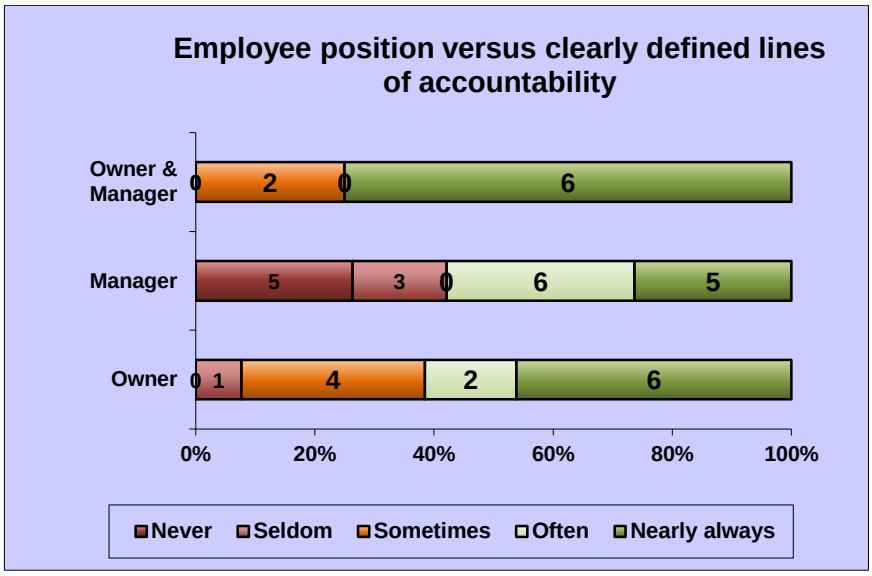

Figure 4.20: Employee position versus clearly defined lines of accountability

Above-mentioned chi-square test shows that statistically significant more respondents who are the owner and manager of the business indicated that, the business clearly define lines of accountability, than those who are owners alone or managers alone.

Table 4.11: Contingency table of employee position versus a risk appetite is set

Frequency / Cell Percentage / Row Percentage / Column Percentage /	**No**	**Yes**	**TOTAL**
Owner	10 25.0% 76.9% 43.5%	3 7.5% 23.1% 17.6%	13 32.5%
Manager	7 17.5% 36.8% 30.4%	12 30.0% 63.2% 70.6%	19 47.5%
Owner and manager	6 15.0% 75.0% 26.1%	2 5.0% 25.0% 11.8%	8 20.0%
TOTAL	23 57.5%	17 42.5%	40 100.0%

Table 4.12: Chi-square test for comparison of employee position and a risk appetite is set

Question / Statement	Sample Size	Chi-Square	DF	P-Value
A risk appetite is set	40	6.3274	2	0.0423*

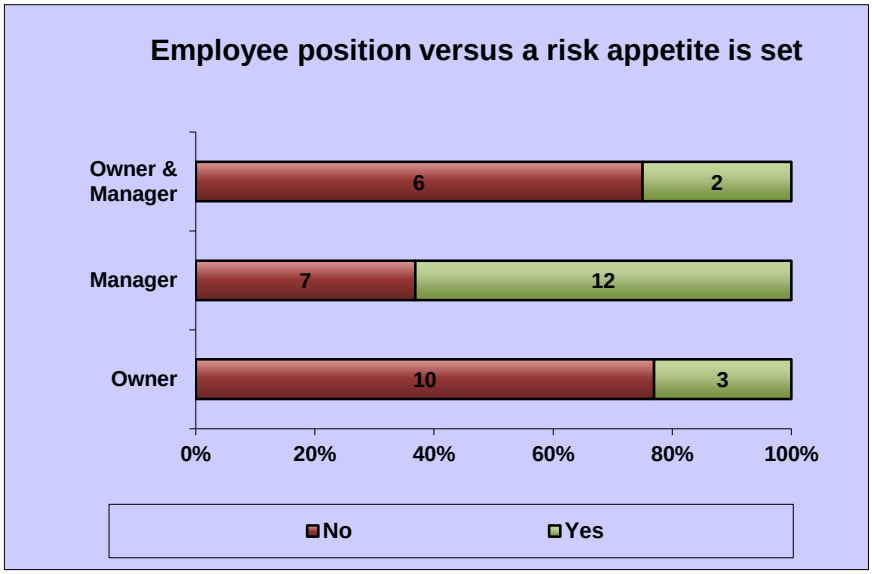

Figure 4.21: Employee position versus a risk appetite is set

Above-mentioned chi-square test shows that statistically significant more respondents who are the manager of the business indicated that, a risk appetite is set in their business than those who are owners or are owners as well as being the manager.

Table 4.13: Contingency table of employee position versus a risk management plan exists

Frequency / Cell Percentage / Row Percentage / Column Percentage /	No	Yes	TOTAL
Owner	4 10.0% 30.8% 80.0%	9 22.5% 69.2% 25.7%	13 32.5%
Manager	1 2.5% 5.3% 20.0%	18 45.0% 94.7% 51.4%	19 47.5%

Owner and manager	0 0.0% 0.0% 0.0%	8 20.0% 100.0% 22.9%	8 20.0%
TOTAL	5 12.5%	35 87.5%	40 100.0%

Table 4.14: Chi-square test for comparison of employee position and a risk management plan exists

Question / Statement	Sample Size	Chi-Square	DF	P-Value
A risk management plan exists	40	6.3274	2	0.0423*

Figure 4.22: Employee position versus a risk management plan exists

Above-mentioned chi-square test shows that statistically significant more respondents who are owners of the business indicated that, a risk management plan does not exist in their business than those who are managers or are owners as well as being the manager.

Table 4.15: Contingency table of employee position versus the risk management process is regularly monitored, reported and kept up to date

Frequency / Cell Percentage / Row Percentage / Column Percentage /	No	Yes	TOTAL
Owner	7 17.5% 53.8% 41.2%	6 15.0% 46.2% 26.1%	13 32.5%
Manager	4 10.0% 21.0% 23.5%	15 37.5% 79.0% 65.2%	19 47.5%
Owner and manager	6 15.0% 75.0% 35.3%	2 5.0% 25.0% 8.7%	8 20.0%
TOTAL	17 42.5%	23 57.5%	40 100.0%

Table 4.16 Chi-square test for comparison of employee position and the risk management process is regularly monitored, reported and kept up to date

Question / Statement	Sample Size	Chi-Square	DF	P-Value
The risk management process is regularly monitored, reported and kept up to date	40	7.7190	2	0.0211*

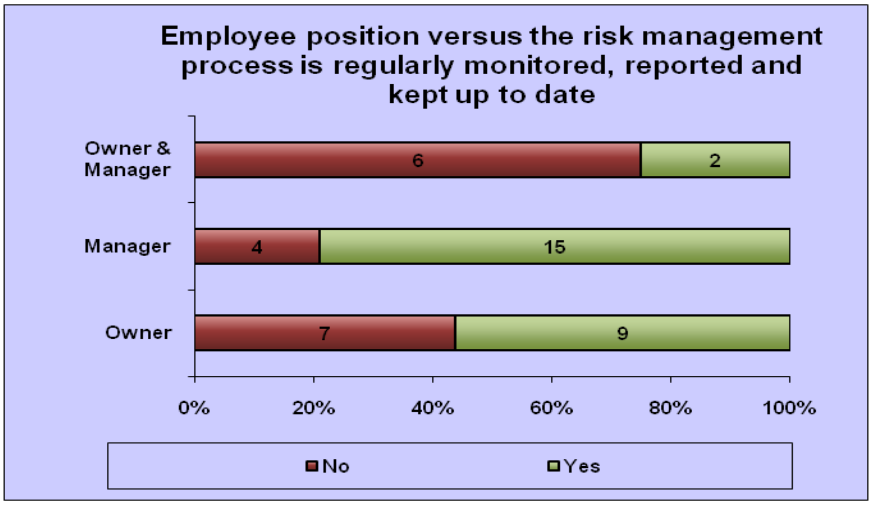

Figure 4.23: Employee position versus the risk management process is regularly monitored, reported and kept up to date

Above-mentioned chi-square test shows that statistically significant more respondents who are the manager of the business indicated that the risk management process is regularly monitored, reported and kept up to date in their business than those who are owners or are owners as well as being the manager.

4.4.2.4 Period in position

Table 4.17: Contingency table of period in position versus customer affordability calculation

Frequency / Cell Percentage / Row Percentage / Column Percentage /	Often	Nearly always	TOTAL
1-5 Years	0 0.0% 0.0% 0.0%	19 46.3% 100.0% 52.8%	19 46.3%
More than 5 Years	5 12.2% 22.7% 100.0%	17 41.5% 77.3% 47.2%	18 53.7%
TOTAL	5 12.2%	36 87.8%	41 100.0%

Table 4.18: Chi-square test for comparison of period in position and customer affordability calculation

Question / Statement	Sample Size	Chi-Square	DF	P-Value
Customer affordability calculation	41	4.9179	1	0.0266*

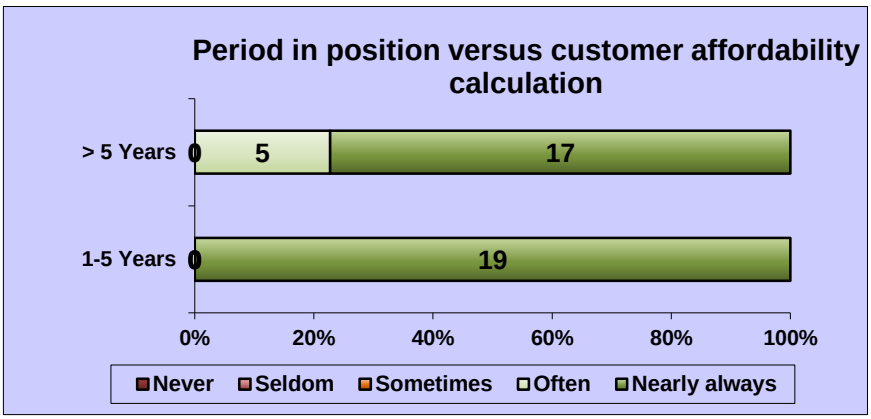

Figure 4.24: Period in position versus customer affordability calculation

Above-mentioned chi-square test shows that statistically significant more respondents who are in their position for more than 5 years, their businesses use customer affordability calculation often than those who are in their position for 1-5 years. Take note that all the respondents who are in their position for 1-5 years indicated that they use the customer affordability calculation nearly always.

Table 4.19: Contingency table of period in position versus suretyships

Frequency / Cell Percentage / Row Percentage / Column Percentage /	Never	Seldom	Sometimes	Often	Nearly always	TOTAL
1-5 Years	1 2.4% 5.3% 10.0%	3 7.3% 15.8% 60.0%	6 14.6% 31.6% 42.9%	7 17.1% 36.8% 87.5%	2 4.9% 10.5% 50.0%	19 46.3%
More than 5 Years	9 22.0% 40.9% 90.0%	2 4.9% 9.1% 40.0%	8 19.5% 36.4% 57.1%	1 2.4% 4.6% 12.5%	2 4.9% 9.1% 40.0%	22 53.7%
TOTAL	10 24.4%	5 12.2%	14 34.2%	8 19.5%	4 9.8%	41 100.0%

Table 4.20: Chi-square test for comparison of period in position and surety-ships

Question / Statement	Sample Size	Chi-Square	DF	P-Value
Surety-ships	41	11.2263	4	0.0241*

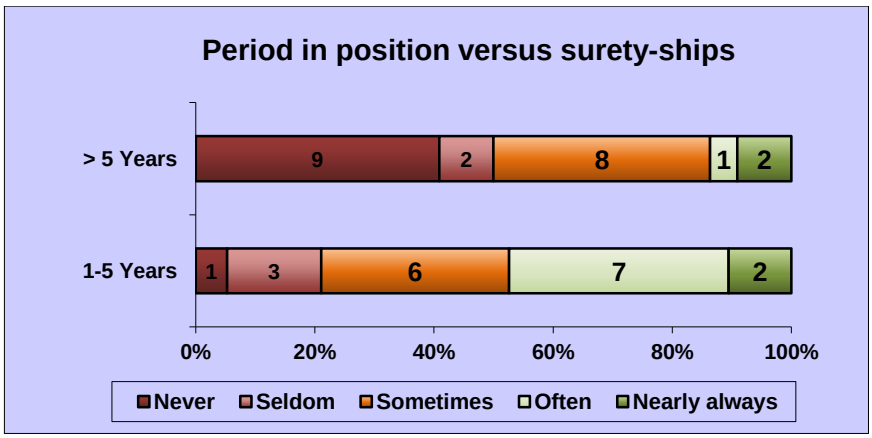

Figure 4.25: Period in position versus surety-ships

Above-mentioned chi-square test shows that statistically significant more respondents who are in their position for more than 5 years, their businesses never use surety-ships than those who are in their position for 1-5 years.

Table 4.21: Contingency table of period in position versus surplus funds are invested or disbursed as loans

Frequency / Cell Percentage / Row Percentage / Column Percentage /	Never	Sometimes	Often	Nearly always	TOTAL
1-5 Years	0 0.0% 0.0% 0.0%	6 14.6% 31.6% 60.0%	12 29.3% 63.2% 60.0%	1 2.4% 5.3% 25.0%	19 46.3%
More than 5 Years	7 17.1% 31.8% 100.0%	4 9.8% 18.2% 40.0%	8 19.5% 36.4% 40.0%	3 7.3% 13.6% 75.0%	22 53.7%
TOTAL	7 17.1%	10 24.4%	20 48.8%	4 9.8%	41 100.0%

Table 4.22: Chi-square test for comparison of period in position and surplus funds are invested or disbursed as loans

Question / Statement	Sample Size	Chi-Square	DF	P-Value
Surplus funds are invested or disbursed as loans	41	9.0288	3	0.0289*

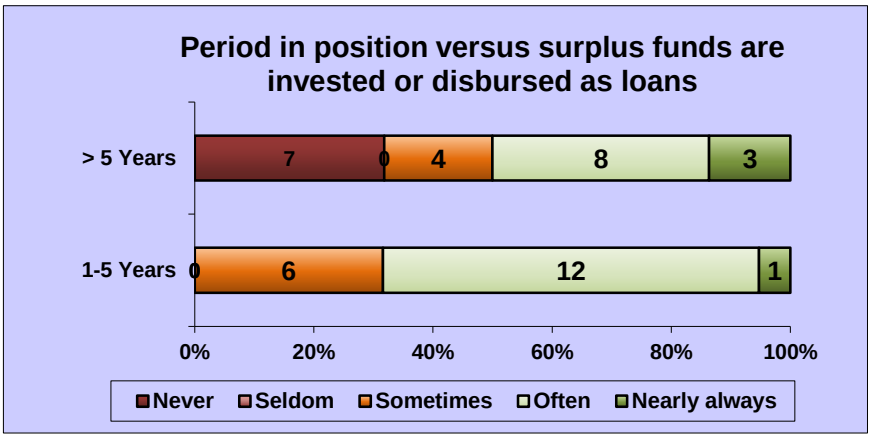

Figure 4.26: Period in position versus surplus funds are invested or disbursed as loans

Above-mentioned chi-square test shows that statistically significant more respondents who are in their position for more than 5 years, their businesses never invest or disburse surplus funds as loans compared to those who are in their position for 1-5 years.

Table 4.23: Contingency table of period in position versus cash needs are forecasted

Frequency / Cell Percentage / Row Percentage / Column Percentage /	Seldom	Often	Nearly always	TOTAL
1-5 Years	2 4.9% 10.5% 33.3%	12 29.3% 63.2% 70.6%	5 12.2% 26.3% 27.8%	19 46.3%
More than 5 Years	4 9.8% 18.2% 60.7%	5 12.2% 22.7% 29.4%	13 31.7% 59.1% 72.2%	22 53.7%
TOTAL	6 14.6%	17 41.5%	18 43.9%	41 100.0%

Table 4.24: Chi-square test for comparison of period in position and cash needs are forecasted

Question / Statement	Sample Size	Chi-Square	DF	P-Value
Cash needs are forecast	41	6.9221	2	0.0314*

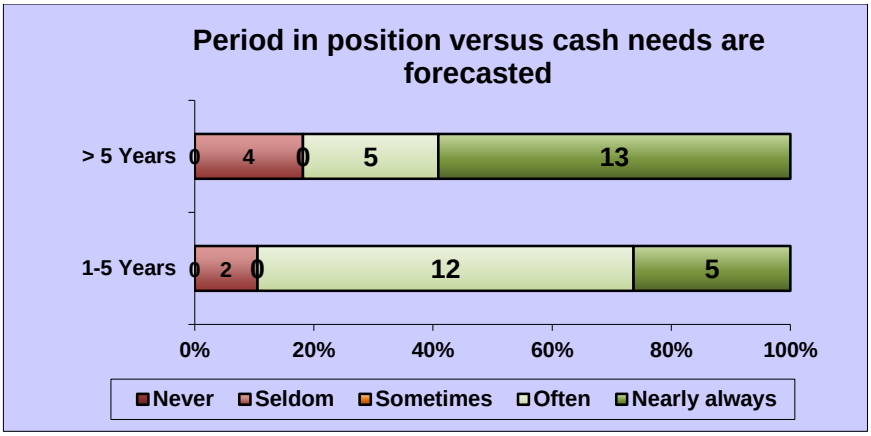

Figure 4.27: Period in position versus cash needs are forecasted

Above-mentioned chi-square test shows that statistically significant more respondents who are in their position for more than 5 years, their businesses nearly always forecast cash needs as compared to those who are in their position for 1-5 years.

4.5 CHAPTER SUMMERY

Data collected were analysed and interpreted in this chapter. The analysis and interpretation looked at how the information gathered relates to the objectives of the study. The next chapter will highlight the extent to which the research questions have been answered from the survey findings as well as conclusions drawn from the information gathered.

CHAPTER FIVE

DISCUSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

In this chapter, the problem statement and research questions are revisited. Furthermore, conclusions and recommendations based on the facts gathered by the researcher are provided at the end of this chapter.

5.2 STATEMENT OF THE RESEARCH PROBLEM REVISITED

The research problem reads as follows: “The sustainability of microfinance SMMEs is adversely influenced due to the utilisation of ineffective risk management practices”. In Chapter Two, the literature review showed that risk management is a new discipline within the microfinance industry and most of the role players seek growth and do not seem to follow a structured approach to risk management. Failure to follow proper risk management practices leads to most of the microfinance providers not to provide their services in a sustainable manner. However, this research found that providers of microfinance services have put in place risk management practices but the big issue so far that remains is whether these practices are effectively deployed to enhance sustainability. Therefore, the research findings are discussed and final conclusions are drawn.

5.3 DISCUSSIONS

The research findings which have emerged from the previous chapter are discussed under different sections according to the research questions and objectives as follows:

5.3.1 Types of risks

A question on the types of risks was formulated as a sub-question to the main research question. This sub-question reads as follows: What types of risks are evident in microfinance SMMEs? This was asked in order to fulfil the research objective of establishing the types of risks microfinance SMMEs face. As such, the types of risks which affect microfinance providers that were identified by respondents are presented in Annexure E.1 under Section B. From this Annexure, it can be seen that bad debts and fraud have the greatest frequencies of

26 and 20 respectively. Therefore, based on these results, it is fair to say that bad debts and fraud are the main risks faced by microfinance SMMEs.

5.3.2 Risk management practices

A question on the risk management practices that are put in place by microfinance SMMEs was formulated as the second sub-question to the main research question. This sub-question reads as follows: “What risk management practices are in place in microfinance SMMEs?” and this was to achieve a secondary objective of ascertaining how risks are managed by microfinance SMME leaders. As such, the following analogies regarding management practices per each category of risk can be drawn from this survey:

5.3.2.1 Credit risk

Most microfinance SMMEs rely on the analysis of customer affordability and traditional credit scoring. Many also request the service of credit bureaus. Half of the providers prefer to build up trust through lending smaller amounts for first time borrowers and upon successful completion, new loans can grow in size. Fewer of these lenders engage in group lending, while very few base their decision on collaterisation.

5.3.2.2 Loan repayment overdue

Most microfinance SMMEs make follow-up calls to their clients and threaten them with penalties. These lenders rarely take legal action, as the cost might well exceed the benefit. Very much in line with African realities, a quarter of the microfinance SMMEs contacts community leaders to put pressure on the client.

5.3.2.3 Operational risks

Fraud risk

Most microfinance SMMEs keep a record of fraudulent staff and use it to enhance recruitment. Many also maintain honest employees by immediately firing staff involved in fraud. Fewer of these lenders engage in job rotation which might make them difficult to combat fraud.

Human error

Most microfinance SMMEs provides employees with the necessary equipment like calculators in order to minimise mistakes. Many also recruit competent staff and continuously train them in order to improve their skills and competencies. A large number of these lenders have also invested in computer systems in order to minimise manual entries.

IT risk

Most microfinance SMMEs use access controls like IDs, user profile and passwords to avoid unauthorised people from using their systems. Many also use firewalls to protect their computers and network from malicious mischief. Fewer lenders with an operating period of less than 5 years use intrusion detection softwares as the cost might well exceed the benefit.

5.3.2.4 Market risks

Exchange rate risk

Most microfinance SMMEs avoid portfolio with foreign currency since their target market consist of local clients only. Interest rates swaps or future contracts are not used by microfinance SMMEs since they are not engaged in foreign currency transactions.

Interest rate risk

Most microfinance SMMEs do not use the financial model to test the business's sensitivity to an increase or decrease in interest rates since they cannot afford to employ people with the right skills to perform this activity. Many also do not have treasury department to manage risks associated with interest rates as they are small in size and also lack the skills to manage such a department.

5.3.2.5 Strategic risks

Reputation risk

Communication channels are open between most microfinance SMMEs and their clients to ensure that all customer queries and complaints are addressed and as a result, maintain a good reputation. Most of these lenders also have reputation policies that create a framework for managing reputation risk on a continuous basis.

Governance risk

Many microfinance SMMEs with managers have lines of accountability in place and they communicate performance expectations to employees in order to prevent governance risk.

Legal compliance risk

Most microfinance SMMEs communicate regularly with regulators to provide an opportunity to resolve any potential problems.

5.3.2.6 Liquidity risk

Most microfinance SMMEs have set policies for minimum and maximum cash levels while cash budgets are being continuously updated. Many also engage in investing surplus funds or disbursing surplus funds as loans. Many respondents in their positions for more than 5 years also forecast the cash needs of their businesses to avoid future cash shortages.

5.3.2.7 Other risks

Crime and change in technology were added as other risks relevant to microfinance SMMEs and for the crime risk, the management practices implemented are:

- Always be aware and alert
- Hire necessary security
- Insurance

For change in technology, the management practices implemented are:

- Update regularly
- Stay up to date with changes

5.3.3 Basic elements of effective risk management

The main research question reads as follows: “How effectively are the risks evident in microfinance SMMEs managed?” This was asked in order to fulfil the primary research objective of assessing the effectiveness of risk management practices of microfinance SMMEs, by investigating the presence of basic elements of effective risk management

according to literature. With respect to the basic elements of effective risk management identified in the microfinance SMMEs, the following analogies can be drawn from this survey:

- A risk management plan exists. It was mainly owners of the entities that didn't indicate that a risk management plan exists in their business.
- Effective mechanisms of internal controls are developed.
- Risk management is incorporated into operating process and systems design
- A risk management framework is not developed or adopted.
- A risk strategy is not developed and implemented.
- Respondents whose position is the manager of the business indicates more than the other two groups that a risk appetite is set in their business.
- Mainly the respondents who are in the position of being the manager of a microfinance SMME indicated that risk management process is regularly monitored, reported and kept up to date in their business.
- Respondents who are in their position for more than 5 years are mainly the ones that indicated that they never use surety-ships.

5.4 RECOMMENDATIONS

The weaknesses (taken from paragraph 5.3.3 of Chapter Five) identified by this research are summarised below in order to ascertain the solutions to the research problem:

- A risk management plan exists; however, the majority of respondents who were owners of the microfinance SMMEs (owner-managed) indicated that a risk management plan does not exist in their business.
- A risk management framework is not developed or adopted.
- A risk strategy is not developed and implemented.
- Risk management process is regularly monitored, reported and kept up to date in microfinance SMMEs that employ independent managers while in owner-managed is not.

5.4.1 Recommendation on a risk management plan

This research concludes that most of microfinance SMMEs that do not employ managers (owner-managed) do not have a risk plan. Therefore, these lenders are recommended to prepare and document a risk plan that contains the risk identification process, risk quantification process and the risk response strategy. Figure 5.1 can serve as a guideline for developing a risk management plan.

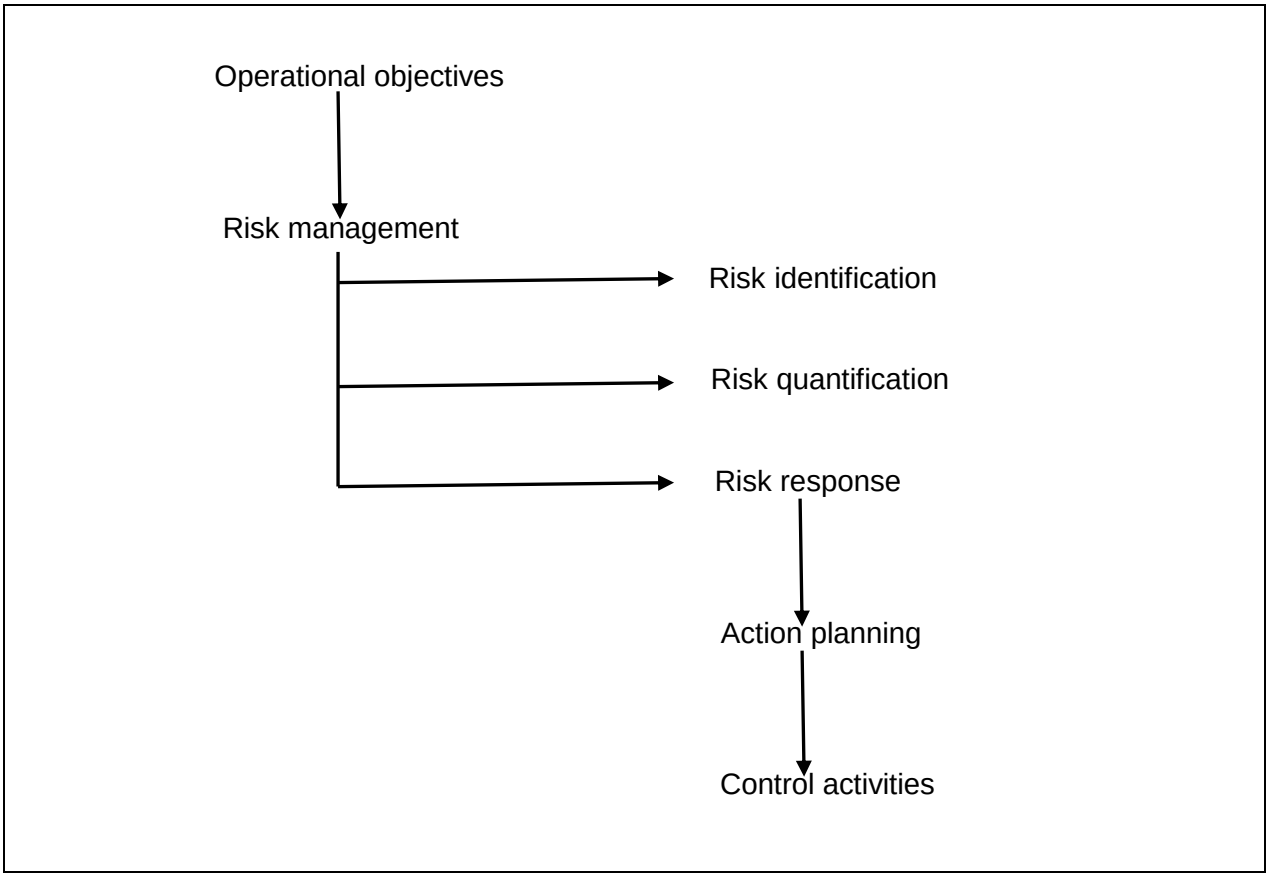

Figure 5.1: A guideline for developing a risk management plan.

Operational objectives: The business objectives and the risk management should be aligned to the business's vision and mission, and formulated by the management

Risk identification: Management should identify internal and external events resulting from the business actions and decisions that have a potential impact on the achievement of the business's objectives, and the execution of the strategies. In this regard, microfinance SMMEs can gather information from a potential borrower like sources of income, any legal action taken against the client before and the need for that loan. Such information may help to identify risk that may be imposed to the business by serving certain clients. The techniques that can be used to gather information for identifying risks may include having an interview with the borrower, sending a questionnaire to the borrower and gathering information about the borrower through credit bureau.

Risk quantification: This involves determining the potential impact of the risk factors. Thus, identified risks should be ranked according to their impact on the business in order to determine risks that can be discarded and the risks that require management attention.

Figure 2.3 in Chapter Two under paragraph 2.9.3 shows an example of a risk assessment matrix that can be used to quantify risks.

Risk response: Based on the risk quantification process, events should be prioritised along with the determination of risk responses such as risk elimination, risk mitigation, risk transfer or risk acceptance.

Action planning: Action plans must be formulated and implemented in line with each risk response. Responsibility must also be enforced through the appointment of risk owners.

Control activities: Control actions must be developed and implemented for the sound functioning of risk management. Such controls may include segregation of duties, setting limits on cash signature requirements and physical controls.

5.4.2 Recommendation on a risk management framework

Miccolis *et al*., 2001:xxviii express the view that ERM can serve as a useful management tool regardless of the business type though in small businesses it might be less structured. As such, the researcher recommends microfinance SMMEs leaders to adopt widely recognised frameworks like the COSO ERM. This framework was explained in detail in paragraph 2.10.1 of Chapter Two. Since most of the microfinance SMMEs leaders lack managerial skills and knowledge, the researcher further recommends them to employ the services of external experts when implementing such risk management frameworks.

5.4.3 Recommendation on development and implementation of a risk strategy

Microfinance SMMEs are recommended to formally articulate a strategy to manage risks i.e. to prevent the risk from occurring or minimise the effect should the risk occurs. In other words, the risk strategy answers the question that “how will identified risks be treated”. Principle management strategies addressing risks may include acceptance, avoidance, mitigation and transfer. The strategy chosen has to be economical, suitable and feasible. The risk strategy should cover the following:

- A plan of action to improve the business’s risk management process.
- Commitment to prevention of fraud and corruption.
- Users’ guidelines.
- The business’s risk management reporting lines.

5.4.4 Recommendation on risk management process to be regularly monitored reported and kept up to date

This research noted that a majority of microfinance SMMEs that do not employ managers (owner-managed) do not regularly monitor, report and keep up to date the risk management process. Therefore, these entities are recommended to frequently check the risk management plan to see if it is achieving intended results that is ensuring effective risk management. This may involve testing and evaluating risk management policies and procedures through internal audits. The internal audit activity should evaluate operations and helps assess whether procedures and controls are effective in mitigating risk. The audit findings may make recommendations on how to reinforce effective risk management. This allows necessary adjustments to be made to operational workflows, policies and procedures to reduce the potential for risks.

5.5 AREAS FOR FURTHER RESEARCH

Further research needs to be carried out so as to find ways of developing a customised risk management framework that is adapted to the South African economic climate for use by microfinance role players. This framework should provide a roadmap on how risk management should be approached within the microfinance industry as this can assist the role players to attain financial sustainability and continue to serve their purpose.

5.6 KEY SURVEY FINDINGS

The following analogies can be drawn from this research based on Chapter Four:

- Collaterals are absent in microfinance and instead, a close connection between microfinance SMMEs and their clients comes into place.
- The classical way to the court is not really an option within microfinance SMMEs. Instead, community leaders function as middlemen between the provider and the customer.
- Most microfinance SMMEs have a risk management plan in place, which is a central starting part for a functioning risk management. However, further analysis of the results revealed that mangers confirmed that risk management plan exist in their businesses, while respondents who were owners indicated that it doesn't.
- Risk management frameworks which provide a holistic approach to risk management like Enterprise Risk Management (ERM) etc. are largely absent in microfinance SMMEs.

- Most of the owner-managers of microfinance SMMEs did not indicate the presence of a risk appetite and regular checks on the risk management process which supports the assumption of lack of skills among SMME entrepreneurs.

5.7 CONCLUSION

The purpose of this research was to identify risks faced by microfinance SMMEs and to establish the effectiveness of the current risk management practices put in place by them. In Chapter One, an initial understanding reflected that sustainability of microfinance SMMEs is adversely influenced due to the utilisation of ineffective risk management practices. Literature review in Chapter Two revealed that microfinance SMMEs do have risk management practices in place, however, the problems with inadequate use of these practices was voiced. Also, based on the survey findings in Chapter Four, it is evident that microfinance SMMEs have risk management practices in place though not adequately applied as evidenced by the weaknesses summarised in paragraph 5.5 of this chapter.

From the literature review and the survey findings, a final conclusion was drawn by the researcher that microfinance SMMEs risk management practises are quite ineffective with possible consequences of jeopardising their financial sustainability. Based on this research, it is the researcher's opinion that proper application of risk management practices may help to protect the financial well-being and long-term survival of microfinance SMMEs, thus promoting the economy of South Africa at large through poverty alleviation.

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Cape Peninsula University of Technology

Annexure A: Business ethics letters

Keizersgracht and Tennant Street
P. O. Box 652
Zonnebloem, Cape Town
Tel: (+27) 21 460 3911

13 February 2013

Dear Participant

I am currently pursuing a course of studies under the supervision of Dr. Yolande Smit, leading to a Master's Degree in Internal Auditing from the Cape Peninsula University of Technology. This research study is based on the effectiveness of risk-management practices of Small Micro Medium Enterprises (SMMEs) which provide microfinance in the Cape Metropole. I would like to invite you to be a part of this study. Below is some information to assist you make an informed decision.

Purpose and Procedure: This research seeks to uncover the risks faced by microfinance SMMEs and the practices put in place to manage them. The study will foster a better understanding of whether the current approaches to risk management within the microfinance sector are sufficient or are in need of transformation.

Approximately 57% of the total population in South Africa is perceived to be living under the poverty line. The lack of access to financial service is the main reason why a significant proportion of population remains poor. In this regard, SMMEs which provide microfinance are committed to help poor household and small businesses to have access to banking-related financial services in order to alleviate poverty. Therefore, microfinance entities are important and it is important that they attain sustainability through means of deploying effective management practices, especially in terms of risk management. As such, your participation and contributions to this study will help to improve the risk management excellence and add value to microfinance industry.

In order to give your opinion and contribution to this study, you are requested to complete a questionnaire with questions based on general information, types of risks, risk management practices and basic elements of effective risk management. The questionnaire comprises closed- and open-ended questions. Closed-ended questions have possible answers provided and you will respond by selecting the most appropriate answer. Open-ended questions do not have possible answers given and you will complete such questions by writing your opinions in the space provided.

When you have read and understood and signs the Consent Form, you will be given a questionnaire to complete. The completion of the questionnaire is estimated to take approximately less than 20minutes.

Confidentiality: The data collected from this survey is intended for purely academic purpose. Please note that, gathered information will not be made accessible to anyone who is not directly involved in this study. Your name will remain unidentified to generate a stronger guarantee of privacy.

Right to Withdraw: Please not that your permission to take part in this research is entirely voluntary. You have the right to withdraw from this study at any time without having to give a reason and without any penalty.

Please do not hesitate to contact the researchers if you have any further questions and/ or if you would like further information. You can contact the researchers using the following contact details:

Student Researcher: Oscar Chakabva
Telephone: 0746801873
Email:208178406@mycput.ac.za

Supervisor: Dr.Y Smit
Telephone: 021 864 5264
Email: smity@cput.ac.za

LETTER OF CONSENT

I confirm that I have read and understood the information about this study being conducted by Oscar Chakabva, a Masters student under the supervision of Dr. Yolande Smit at Cape Peninsula University of Technology in the Department of Internal Auditing. I was free to ask questions before making my decision on whether or not to participate and all questions were answered to my satisfaction. If I have any further questions about the study, I can contact Dr. Yolande Smit, by calling Department of Internal Auditing on 021 864 5264 or write to them at the Department of Internal Auditing, Cape Peninsula University of Technology, PO Box 652, Cape Town, 8000. I am aware that my participation in this study is entirely voluntary and I can discontinue participation with no penalty.

I agree to the use of data collected from this survey in the thesis writing.

My signature below will indicate that I have agreed to participate in this study and that I have read and understood the information provided above:

Name of Participant	Date	Signature

Researcher information

I, Oscar Chakabva, have explained the research to the participant before requesting the signature above. A copy of this form has been given to the participant.

Name of Researcher	Date	Signature

Annexure B: Survey questionnaire

RESEARCH TITLE
The effectiveness of risk management practices of Small, Medium and Micro Enterprises (SMMEs) which provide microfinance in the Cape Metropole, South Africa.
PRIMARY OBJECTIVE OF THE SURVEY
The primary objective of this research to ascertain the effectiveness of current risk management practices that are used by microfinance SMMEs.
CONFIDENTIALITY AND ANONYMITY
Please note that, information provided is intended for purely academic purposes only and will be kept strictly confidential. The anonymity of all respondents is guaranteed.

RESEARCHER DETAILS	
Name:	Oscar
Surname:	Chakabva
E-mail:	chakabvao@gmail.com
Contact number:	0746801873

SECTION A: GENERAL INFORMATION
1. How long has your business been operating?
…….years
2. How many employees does your business have?
……employees
3. What is your position within the business?
Owner ☐ Manager ☐ Owner and manager ☐ Other ☐
3.1 If other, please specify below:
…….
4.How long have you been in this position
……years

SECTION B: TYPES OF RISKS
5. What types of **risks** does your microfinance business face? **(*Please name any serious ones in terms frequency and/or severity below*)**
(1)……. (2)……. (3)……. (4)……. (6)……. (7)……. (8)…….

SECTION C: RISK MANAGEMENT TECHNIQUES

Kindly rate the usage of the following **technique**by your business to manage the **stated risks**. (***Please** insert an X in the appropriate box for each technique. Never = 1, Seldom= 2, Sometimes= 3, Often= 4, Nearly always = 5)*						
		Never	***Seldom***	***Sometimes***	***Often***	***Nearly always***
6.	**Credit risk**					
6a	Credit scoring.	1	2	3	4	5
6b	Customer affordability calculation.	1	2	3	4	5
6c	Credit Bureau information.	1	2	3	4	5
6d	Collateralisation.	1	2	3	4	5
6e	Surety-ships.	1	2	3	4	5
6f	Peer monitoring through group lending methodology.	1	2	3	4	5
6g	Character based lending methodology	1	2	3	4	5
6h	Customer orientation (communicating loan terms to clients and catering for low levels of literacy among clients).	1	2	3	4	5
6i	Start with smaller amounts for first time borrowers and then grow the loan size as the business builds a credit history with the borrower.	1	2	3	4	5
6j	**Other**: *(please specify below)* …… ……					
7.	**Loan repayment overdue**.					
7a	Make a follow up call to the client.	1	2	3	4	5
7b	Calling upon community leaders to put pressure on the client.	1	2	3	4	5
7c	Make a public announcement through national media like newspapers.	1	2	3	4	5
7d	Take a legal action against the client.	1	2	3	4	5
7e	Penalties.	1	2	3	4	5
7f	**Other**: *(please specify below)* …… ……					
	OPERATIONAL RISK					
8.	**Fraud risk**					
8a	Immediately fire staff involved in fraud	1	2	3	4	5
8b	Maintain a record of fraudulent staff and use it to enhance recruitment.	1	2	3	4	5
8c	Regularly rotate staff.	1	2	3	4	5
8d	Segregation of duties.	1	2	3	4	5
8e	Client visits by an independent to verify loan balances.	1	2	3	4	5
8f	Avoiding staff to make decisions outside the regulations by standardising all loan policies and procedures.	1	2	3	4	5
8g	**Other**: *(please specify below)* …… ……					
9.	**Human error risk**					
9a	Using computer systems and minimise manual entries.	1	2	3	4	5
9b	Continuous staff training.	1	2	3	4	5
9c	Recruiting competent staff.	1	2	3	4	5
9d	Provide employees with the necessary equipment e.g. calculators.	1	2	3	4	5
9e	Other: (please specify below)					

	……					
10.	**IT Risk**					
10a	Use of access controls like user IDs, user profile and passwords.	1	2	3	4	5
10b	Use of firewalls.	1	2	3	4	5
10c	Use of intrusion detection software.	1	2	3	4	5
10d	**Other**: *(please specify below)* …… ……					
	MARKET RISK					
11.	**Exchange rate risk**					
11a	Avoid funding the loan portfolio with foreign currency.	1	2	3	4	5
11b	Use interest rates swaps or futures contracts.	1	2	3	4	5
	Other: (please specify below) …… ……					
12.	**Interest rate risk**					
12a	Use the financial model to test the business's sensitivity to an increase or decrease in interest rates.	1	2	3	4	5
12b	Have a treasury department to manage risks associated with interest rate changes.	1	2	3	4	5
12c	**Other**: *(please specify below)* …… ……					
	STRATEGIC RISKS					

13.	**Reputation risk.**					
13a	Creating clear channels for customer complaints.	1	2	3	4	5
13b	Have reputation policies that create a framework for managing reputation risk on a continuous basis.	1	2	3	4	5
13c	**Other**: *(please specify below)* …… ……					
14.	**Governance risk.**					
14a	Clearly communicate performance expectations.	1	2	3	4	5
14b	Clearly define lines of accountability.	1	2	3	4	5
14c	**Other**: *(please specify below)* …… ……					
15.	**Legal compliance risk**					
15a	Communicate regularly with regulators to provide an opportunity to resolve any potential problems.	1	2	3	4	5
15b	**Other**: *(please specify below)* …… ……					
16.	**Liquidity risk**					
16a	Surplus funds are invested or disbursed as loans.	1	2	3	4	5
16b	Cash budgets are continuously updated.	1	2	3	4	5

16c	Cash needs are forecast.	1	2	3	4	5
16d	Policies are set for minimum and maximum cash levels.	1	2	3	4	5
	Other: *(please specify below)* …… ……					

OTHER RISKS	
17.	Are there any other **risks** which were not **mentioned** above which are **significant** to your business?(***Tick in the appropriate box***) **yes** **no** ☐ ☐ If your **response** is "**yes**" **name** the **risk/s** (**maximum=2**) and **management strategies** below.
17.1	**Risk 1 (*write the name here*):**
	Management strategies (***indicate below***)
17.1a	
17.1b	
17.1c	
17.1d	
17.1e	
17.2	**Risk 2 (*write the name here*):**
	Management strategies (***indicate below***)
17.2a	
17.2b	
17.2c	
17.2d	
17.2e	

SECTION D: RISK MANAGEMENT ELEMENTS		
18.	Do the following elements of risk management **exist** in your business? ***(Please write "YES" or "NO" inside the box)***	**YES/NO**
18a	A risk appetite is set.	
18b	Written risk policies exist.	
18c	A risk management plan exists.	
18d	Address the most significant risks first.	
18e	A risk strategy is developed and implemented.	
18f	All staff levels are involved in risk management.	
18g	A risk management framework is developed or adopted.	
18h	Effective mechanisms of internal controls are developed.	
18i	Risk management is incorporated into operating process and systems design.	
18j	The risk management process is regularly monitored, reported and kept up to date.	
18k	Risks are actively identified, categorised, prioritised and documented before being assessed.	

SECTION I: THANK YOU		
	Thank you for your participation and if you wish to receive **feedback** from this study write your **email** below: **Email**……	

Annexure C: Naming Conventions

Variable naming convention for the questionnaire

RESEARCH QUESTIONAIRE		
Section	**Variables**	**Names**
Respondent No		ID
Section A: General Information	How long has your business been operating?	A01
	How many employees does your business have	A02
	What is your position within the business?	A03
	If Other, please specify	A03_1
	How long have you been in this position	A04
Section B: Types of risks	What type of risks does your microfinance business face? – 1	B05_01
	What type of risks does your microfinance business face? – 2	B05_02
	What type of risks does your microfinance business face? – 3	B05_03
	What type of risks does your microfinance business face? – 4	B05_04
	What type of risks does your microfinance business face? – 5	B05_05
	What type of risks does your microfinance business face? – 6	B05_06
	What type of risks does your microfinance business face? – 7	B05_07
	What type of risks does your microfinance business face? – 8	B05_08
Section C: Risk management techniques	Credit risk – Credit scoring	C06_a
	Credit risk – Customer affordability calculation	C06_b
	Credit risk – Credit Bureau information	C06_c
	Credit risk – Collateralisation	C06_d
	Credit risk – Surety-ships	C06_e
	Credit risk – Peer monitoring through group lending methodology	C06_f
	Credit risk – Character based lending methodology	C06_g
	Credit risk – Customer orientation	C06_h
	Credit risk – Start with smaller amounts for first time borrowers and then grow the loan size as the business builds a credit history with the borrower	C06_i
	Credit risk – Other	C06_j
	Loan repayment overdue – Make a follow up call to the client	C07_a
	Loan repayment overdue – Calling upon community leaders to put pressure on the client	C07_b
	Loan repayment overdue – Make a public announcement through national media like newspapers	C07_c

RESEARCH QUESTIONAIRE		
Section	**Variables**	**Names**
	Loan repayment overdue – Take a legal action against the client	C07_d
	Loan repayment overdue – Penalties	C07_e
	Loan repayment overdue – Other	C07_f
	Fraud risk – Immediately fire staff involved in fraud	C08_a
	Fraud risk – Maintain a record of fraudulent staff and use it to enhance recruitment	C08_b
	Fraud risk – Regularly rotate staff	C08_c
	Fraud risk – Segregation of duties	C08_d
	Fraud risk – Client visits by an independent to verify loan balances	C08_e
	Fraud risk – Avoiding staff to make decisions outside the regulations by standardising all loan policies and procedures	C08_f
	Fraud risk – Other	C08_g
	Human error risk – Using computer systems and minimising manual entries	C09_a
	Human error risk – Continuous staff training	C09_b
	Human error risk – Recruiting competent staff	C09_c
	Human error risk – Provide the employees with the necessary equipment e.g. calculators	C09_d
	Human error risk – Other	C09_e
	IT risks – Use of access controls like using IDs, user profile and passwords	C10_a
	IT risks – Use of firewalls	C10_b
	IT risks – Use of intrusion detection software	C10_c
	IT risks – Other	C10_d
	Exchange rate risk – Avoid funding the loan portfolio with foreign currency	C11_a
	Exchange rate risk – Use interest rates swaps or futures contracts	C11_b
	Exchange rate risk – Other	C11_c
	Interest rate risk – Use the financial model to test the business's sensitivity to an increase or decrease in interest rates	C12_a
	Interest rate risk – Have a treasury department to manage risks associated with interest rate changes	C12_b
	Interest rate risk – Other	C12_c
	Reputation risk – Creating clear channels for customer complaints	C13_a

RESEARCH QUESTIONAIRE		
Section	**Variables**	**Names**
	Reputation risk – Have reputation policies that create a framework for managing reputation risk on a continuous basis	C13_b
	Reputation risk – Other	C13_c
	Governance risk – Clearly communicate performance expectations	C14_a
	Governance risk – Clearly define lines of accountability	C14_b
	Governance risk – Other	C14_c
	Legal compliance risk – Communicate regularly with regulators to provide an opportunity to resolve any potential problems	C15_a
	Legal compliance risk – Other	C15_b
	Liquidity risk – Surplus funds are invested or disbursed as loans	C16_a
	Liquidity risk – Cash budgets are continuously updated	C16_b
	Liquidity risk – Cash needs are forecast	C16_c
	Liquidity risk – Policies are set for minimum and maximum cash levels	C16_d
	Liquidity risk – Other	C16_e
	Are there any other risks which were not mentioned above, which are significant to your business?	C17
	Risk 1	C17_1
	Management strategy 1 on risk 1	C17_1a
	Management strategy 2 on risk 1	C17_1b
	Management strategy 3 on risk 1	C17_1c
	Management strategy 4 on risk 1	C17_1d
	Management strategy 5 on risk 1	C17_1e
	Risk 2	C17_2
	Management strategy 1 on risk 2	C17_2a
	Management strategy 2 on risk 2	C17_2b
	Management strategy 3 on risk 2	C17_2c
	Management strategy 4 on risk 2	C17_2d
	Management strategy 5 on risk 2	C17_2e
Section D: Basic elements of effective risk management	Basic elements of effective risk management: A risk appetite is set	D18_a
	Basic elements of effective risk management: Written risk policies exist	D18_b
	Basic elements of effective risk management: A risk management plan exists	D18_c

RESEARCH QUESTIONAIRE		
Section	**Variables**	**Names**
	Basic elements of effective risk management: Address the most significant risks first	D18_d
	Basic elements of effective risk management: A risk strategy is developed and implemented	D18_e
	Basic elements of effective risk management: All staff levels are involved in risk management	D18_f
	Basic elements of effective risk management: A risk management framework is developed or adopted	D18_g
	Basic elements of effective risk management: Effective mechanisms of internal controls are developed	D18_h
	Basic elements of effective risk management: Risk management is incorporated into operating process and systems design	D18_i
	Basic elements of effective risk management: The risk management process is regularly monitored, reported and kept up to date	D18_j
	Basic elements of effective risk management: Risks are actively identified, categorised, prioritised and documented before being assessed	D18_k
Section E: Thank you	E-mail	E19

Annexure D: Reliability testing

D.1 Cronbach Alpha tests

D.1.1 Cronbach's Alpha Coefficient for measuring scale for credit risk

Test all variables without current one's input	Variable nr.	Correlation with total	Cronbach's Alpha Coefficient – Raw variables	Cronbach's Alpha Coefficient – Standardised variables
1. Credit risk – Credit scoring	C06_a	0.6609	0.5171	0.6836
2. Credit risk – Customer affordability calculation	C06_b	0.6446	0.5681	0.6958
3. Credit risk – Credit Bureau information	C06_c	0.5975	0.5234	0.7073
4. Credit risk – Collateralisation	C06_d	0.2710	0.5834	0.7448
5. Credit risk – Suretyships	C06_e	0.6242	0.4625	0.6932
6. Credit risk – Peer monitoring through group lending methodology	C06_f	-0.6540	0.8358	0.8709
7. Credit risk – Character-based lending methodology	C06_g	0.6291	0.4577	0.6935
8. Credit risk – Customer orientation	C06_h	0.3950	0.5462	0.7346
9. Credit risk – Start with smaller amounts for first time borrowers and then grow the loan size as the business builds a credit history with the borrower	C06_i	0.8000	0.4418	0.6669
Overall Cronbach's Coefficient Alpha			**0.6045**	**0.7543**

D.1.1.1 Cronbach's Alpha Coefficient for measuring scale for credit risk without item C06_f

Test all variables without current one's input	Variable nr.	Correlation with total	Cronbach's Alpha Coefficient – Raw variables	Cronbach's Alpha Coefficient – Standardised variables
1. Credit risk – Credit scoring	C06_a	0.7059	0.8088	0.8421
2. Credit risk – Customer affordability calculation	C06_b	0.6224	0.8326	0.8547
3. Credit risk – Credit Bureau information	C06_c	0.6283	0.8141	0.8574
4. Credit risk – Collateralisation	C06_d	0.3570	0.8517	0.8791
5. Credit risk – Suretyships	C06_e	0.6836	0.8000	0.8475
6. Credit risk – Character-based lending methodology	C06_g	0.7121	0.7955	0.8461
7. Credit risk – Customer orientation	C06_h	0.3954	0.8406	0.8774
8. Credit risk – Start with smaller amounts for first time borrowers and then grow the loan size as the business builds a credit history with the borrower	C06_i	0.8649	0.7775	0.8297
Overall Cronbach's Coefficient Alpha			**0.8358**	**0.8709**

The acceptable level for a measuring instrument (credit risk) to be reliable, according to Nunnally (1978: 245) is 0.7 or higher; thus this measuring instrument is reliable.

D.1.2 Cronbach's Alpha Coefficient for measuring scale for loan repayment overdue

Test all variables without current one's input	Variable nr.	Correlation with total	Cronbach's Alpha Coefficient – Raw variables	Cronbach's Alpha Coefficient – Standardised variables
1. Loan repayment overdue – Make a follow-up call to the client	C07_a	0.1891	0.3903	0.3311
2. Loan repayment overdue – Calling upon community leaders to put pressure on the client	C07_b	0.7823	-0.3738	-0.3798
3. Loan repayment overdue – Make a public announcement through national media like newspapers	C07_c	0.3058	0.2526	0.1758

4. Loan repayment overdue – Take a legal action against the client	C07_d	0.6653	0.0468	-0.1687
5. Loan repayment overdue – Penalties	C07_e	-0.5045	0.7178	0.7521
Overall Cronbach's Coefficient Alpha			**0.3998**	**0.3472**

D.1.2.1 Cronbach's Alpha Coefficient for measuring scale for loan repayment overdue without item C07_e

Test all variables without current one's input	**Variable nr.**	**Correlation with total**	**Cronbach's Alpha Coefficient – Raw variables**	**Cronbach's Alpha Coefficient – Standardised variables**
1. Loan repayment overdue – Make a follow-up call to the client	C07_a	0.3115	0.7692	0.8191
2. Loan repayment overdue – Calling upon community leaders to put pressure on the client	C07_b	0.7844	0.4466	0.5497
3. Loan repayment overdue – Make a public announcement through national media like newspapers	C07_c	0.5027	0.7234	0.7263
4. Loan repayment overdue – Take a legal action against the client	C07_d	0.6845	0.5898	0.6329
Overall Cronbach's Coefficient Alpha			**0.7178**	**0.7521**

The acceptable level for a measuring instrument (loan repayment overdue without item C07e) to be reliable, according to Nunnally (1978: 245) is 0.7 or higher; thus this measuring instrument is reliable.

D.1.3 Cronbach's Alpha Coefficient for measuring scale for fraud risk

Test all variables without current one's input	**Variable nr.**	**Correlation with total**	**Cronbach's Alpha Coefficient – Raw variables**	**Cronbach's Alpha Coefficient – Standardised variables**
1. Fraud risk – Immediately fire staff involved in fraud	C08_a	0.4751	0.4180	0.2942
2. Fraud risk – Maintain a record of fraudulent staff and use it to enhance recruitment	C08_b	-0.3874	0.6724	0.6417

3. Fraud risk – Regularly rotate staff	C08_c	0.0396	0.6035	0.4287
4. Fraud risk – Segregation of duties	C08_d	0.7367	0.2766	0.0216
5. Fraud risk – Client visits by an independent to verify loan balances	C08_en	0.4778	0.4119	0.2290
6. Fraud risk – Avoiding staff to make decisions outside the regulations by standardising all loan policies and procedures	C08_fn	0.3051	0.5135	0.2581
Overall Cronbach's Coefficient Alpha			**0.5608**	**0.3985**

D.1.3.1 Cronbach's Alpha Coefficient for measuring scale for fraud risk without item C08_b

Test all variables without current one's input	**Variable nr.**	**Correlation with total**	**Cronbach's Alpha Coefficient – Raw variables**	**Cronbach's Alpha Coefficient – Standardised variables**
1. Fraud risk – Immediately fire staff involved in fraud	C08_a	0.5739	0.5453	0.5309
2. Fraud risk – Regularly rotate staff	C08_c	0.0251	0.7452	0.7450
3. Fraud risk – Segregation of duties	C08_d	0.7644	0.4574	0.3932
4. Fraud risk – Client visits by an independent to verify loan balances	C08_en	0.5034	0.5843	0.5569
5. Fraud risk – Avoiding staff to make decisions outside the regulations by standardising all loan policies and procedures	C08_fn	0.2884	0.6779	0.6287
Overall Cronbach's Coefficient Alpha			**0.6724**	**0.6417**

D.1.3.2 Cronbach's Alpha Coefficient for measuring scale for fraud risk without item C08_b & C08_c

Test all variables without current one's input	**Variable nr.**	**Correlation with total**	**Cronbach's Alpha Coefficient – Raw variables**	**Cronbach's Alpha Coefficient – Standardised variables**
1. Fraud risk – Immediately fire staff involved in fraud	C08_a	0.6355	0.6287	0.6455

2. Fraud risk – Segregation of duties	C08_d	0.7552	0.5699	0.5465
3. Fraud risk – Client visits by an independent to verify loan balances	C08_en	0.5441	0.6882	005827
4. Fraud risk – Avoiding staff to make decisions outside the regulations by standardising all loan policies and procedures	C08_fn	0.2714	0.8129	0.8144
Overall Cronbach's Coefficient Alpha			**0.7452**	**0.7450**

The acceptable level for a measuring instrument (fraud risk without items C08_b and C08_c) to be reliable, according to Nunnally (1978: 245) is 0.7 or higher; thus this measuring instrument is reliable.

D.1.4 Cronbach's Alpha Coefficient for measuring scale for human error risk

Test all variables without current one's input	**Variable nr.**	**Correlation with total**	**Cronbach's Alpha Coefficient – Raw variables**	**Cronbach's Alpha Coefficient – Standardised variables**
1. Human error risk – Using computer systems and minimise manual entries	C09_a	0.1309	0.3604	0.3679
2. Human error risk – Continuous staff training	C09_b	0.3392	0.0743	0.1216
3. Human error risk – Recruiting competent staff	C09_c	0.1832	0.2680	0.2123
4. Human error risk – Provide the employees with the necessary equipment e.g. calculators	C09_d	0.0798	0.3578	0.3741
Overall Cronbach's Coefficient Alpha			**0.3368**	**0.3393**

The acceptable level for a measuring instrument (human error risk) to be reliable, according to Nunnally (1978: 245) is 0.7 or higher; thus this measuring instrument proves not to be reliable.

D.1.5 Cronbach's Alpha Coefficient for measuring scale for Information and Technology (IT) risk

Test all variables without current one's input	Variable nr.	Correlation with total	Cronbach's Alpha Coefficient – Raw variables	Cronbach's Alpha Coefficient – Standardised variables
1. IT risks – Use of access controls like using IDs, user profile and passwords	C10_a	-0.0242	0.5750	0.6637
2. IT risks – Use of firewalls	C10_b	0.3454	0.1634	0.2596
3. IT risks – Use of intrusion detection software	C10_c	0.6052	-0.9502	-1.0944
Overall Cronbach's Coefficient Alpha			**0.3936**	**0.2445**

The acceptable level for a measuring instrument (IT risk) to be reliable, according to Nunnally (1978: 245) is 0.7 or higher; thus this measuring instrument proves not to be reliable.

D.1.6 Cronbach's Alpha Coefficient for measuring scale for exchange rate risk

Test all variables without current one's input	Variable nr.	Correlation with total	Cronbach's Alpha Coefficient – Raw variables	Cronbach's Alpha Coefficient – Standardised variables
1. Exchange rate risk – Avoid funding the loan portfolio with foreign currency	C11_a	0.2732		
2. Exchange rate risk – Use interest-rates swaps or futures contracts	C11_b	0.2732		
Overall Cronbach's Coefficient Alpha			**0.4030**	**0.4292**

The acceptable level for a measuring instrument (exchange rate risk) to be reliable, according to Nunnally (1978: 245) is 0.7 or higher; thus this measuring instrument proves not to be reliable.

D.1.7 Cronbach's Alpha Coefficient for measuring scale for interest rate risk

Test all variables without current one's input	Variable nr.	Correlation with total	Cronbach's Alpha Coefficient – Raw variables	Cronbach's Alpha Coefficient – Standardised variables
1. Interest rate risk – Use the financial model to test the business's sensitivity to an increase or decrease in interest rates	C12_a	0.4452		
2. Interest rate risk – Have a treasury department to manage risks associated with interest-rate changes	C12_b	0.4452		
Overall Cronbach's Coefficient Alpha			**0.6096**	**0.6161**

The acceptable level for a measuring instrument (Interest rate risk) to be reliable, according to Nunnally (1978: 245) is 0.7 or higher; thus this measuring instrument proves not to be reliable.

D.1.8 Cronbach's Alpha Coefficient for measuring scale for reputation risk

Test all variables without current one's input	Variable nr.	Correlation with total	Cronbach's Alpha Coefficient – Raw variables	Cronbach's Alpha Coefficient – Standardised variables
1. Reputation risk – Creating clear channels for customer complaints	C13_a	0.2418		
2. Reputation risk – Have reputation policies that create a framework for managing reputation risk on a continuous basis	C13_b	0.2418		
Overall Cronbach's Coefficient Alpha			**0.3874**	**0.3894**

The acceptable level for a measuring instrument (reputation risk) to be reliable, according to Nunnally (1978: 245) is 0.7 or higher; thus this measuring instrument proves not to be reliable.

D.1.9 Cronbach's Alpha Coefficient for measuring scale for governance risk

Test all variables without current one's input	Variable nr.	Correlation with total	Cronbach's Alpha Coefficient – Raw variables	Cronbach's Alpha Coefficient – Standardised variables
1. Governance risk – Clearly communicate performance expectations	C14_a	0.0503		
2. Governance risk – Clearly define lines of accountability	C14_b	0.0503		
Overall Cronbach's Coefficient Alpha			**0.0950**	**0.0959**

The acceptable level for a measuring instrument (governance risk) to be reliable, according to Nunnally (1978*:* 245) is 0.7 or higher; thus this measuring instrument proves not to be reliable.

D.1.10 Cronbach's Alpha Coefficient for measuring scale for liquidity risk

Test all variables without current one's input	Variable nr.	Correlation with total	Cronbach's Alpha Coefficient – Raw variables	Cronbach's Alpha Coefficient – Standardised variables
3. Liquidity risk – Surplus funds are invested or disbursed as loans	C16_a	0.2087	0.3182	0.3349
4. Liquidity risk – Cash budgets are continuously updated	C16_b	0.2355	0.2830	0.3127
5. Liquidity risk – Cash needs are forecast	C16_cn	0.1997	0.3084	0.3323
6. Liquidity risk – Policies are set for minimum and maximum cash levels	C16_d	0.2002	0.3223	0.3391
Overall Cronbach's Coefficient Alpha			**0.3718**	**0.3962**

The acceptable level for a measuring instrument (liquidity risk) to be reliable, according to Nunnally (1978: 245) is 0.7 or higher; thus this measuring instrument proves not to be reliable.

D.1.11 Cronbach's Alpha Coefficient for measuring scale for basic elements of effective risk management

Test all variables without current one's input	Variable nr.	Correlation with total	Cronbach's Alpha Coefficient – Raw variables	Cronbach's Alpha Coefficient – Standardised variables
1. Basic elements of effective risk management: A risk appetite is set	D18_a	0.3130	0.7639	0.7598
2. Basic elements of effective risk management: Written risk policies exist	D18_b	0.5720	0.7304	0.7296
3. Basic elements of effective risk management: A risk management plan exists	D18_c	0.2952	0.7634	0.7632
4. Basic elements of effective risk management: Address the most significant risks first	D18_d	0.4469	0.7402	0.7424
5. Basic elements of effective risk management: A risk strategy is developed and implemented	D18_e	0.6929	0.7161	0.7151
6. Basic elements of effective risk management: All staff levels are involved in risk management	D18_f	0.4985	0.7403	0.7398
7. Basic elements of effective risk management: A risk management framework is developed or adopted	D18_g	0.3834	0.7549	0.7518
8. Basic elements of effective risk management: Effective mechanisms of internal controls are developed	D18_h	0.3369	0.7596	0.7588
9. Basic elements of effective risk management: Risk management is incorporated into operating process and systems design	D18_i	0.2330	0.7726	0.7706
10. Basic elements of effective risk management: The risk management process is regularly monitored, reported and kept up to date	D18_j	0.4317	0.7490	0.7439
11. Basic elements of effective risk management: Risks are actively identified, categorised, prioritised and documented before being assessed	D18_k	0.3977	0.7532	0.7486
Overall Cronbach's Coefficient Alpha			**0.7682**	**0.7658**

The acceptable level for a measuring instrument (elements of risk management) to be reliable, according to Nunnally (1978: 245) is 0.7 or higher; thus this measuring instrument (basic elements of effective risk management) is reliable.

D.2 Cronbach Alpha test

D.2.1 Credit risk

The CORR Procedure

9 Variables:	C06_a C06_b C06_c C06_d C06_e C06_f C06_g C06_h C06_i

Simple Statistics							
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
C06_a	41	4.36585	0.69843	179.00000	3.00000	5.00000	C06_a
C06_b	41	4.87805	0.33129	200.00000	4.00000	5.00000	C06_b
C06_c	41	4.51220	0.74572	185.00000	3.00000	5.00000	C06_c
C06_d	41	2.19512	1.28879	90.00000	1.00000	5.00000	C06_d
C06_e	41	2.78049	1.29445	114.00000	1.00000	5.00000	C06_e
C06_f	41	3.48780	1.46837	143.00000	1.00000	5.00000	C06_f
C06_g	41	3.68293	1.33115	151.00000	1.00000	5.00000	C06_g
C06_h	41	4.26829	1.14071	175.00000	1.00000	5.00000	C06_h
C06_i	41	4.14634	0.98896	170.00000	2.00000	5.00000	C06_i

Cronbach Coefficient Alpha	
Variables	Alpha
Raw	0.604509
Standardized	0.754344

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	Raw Variables		Standardized Variables		Label
	Correlation with Total	Alpha	Correlation with Total	Alpha	
C06_a	0.660902	0.517130	0.718430	0.683550	C06_a
C06_b	0.644624	0.568085	0.648724	0.695758	C06_b
C06_c	0.597526	0.523422	0.581293	0.707277	C06_c
C06_d	0.271002	0.583395	0.349106	0.744824	C06_d
C06_e	0.624251	0.462495	0.663722	0.693157	C06_e
C06_f	-.653965	0.835839	-.629453	0.870873	C06_f
C06_g	0.629084	0.457686	0.661688	0.693510	C06_g
C06_h	0.395013	0.546183	0.414176	0.734626	C06_h
C06_i	0.800016	0.441820	0.810677	0.666918	C06_i

Pearson Correlation Coefficients, N = 41 Prob > |r| under H0: Rho=0									
	C06_a	**C06_b**	**C06_c**	**C06_d**	**C06_e**	**C06_f**	**C06_g**	**C06_h**	**C06_i**
C06_a	1.00000	0.73786	0.49522	0.22422	0.67175	-0.51965	0.61191	0.37578	0.60824
C06_a		<.0001	0.0010	0.1587	<.0001	0.0005	<.0001	0.0155	<.0001
C06_b	0.73786	1.00000	0.25915	0.34989	0.51898	-0.28579	0.42033	0.41951	0.51365
C06_b	<.0001		0.1018	0.0249	0.0005	0.0701	0.0062	0.0063	0.0006
C06_c	0.49522	0.25915	1.00000	0.51771	0.43017	-0.43936	0.46991	0.18709	0.74329
C06_c	0.0010	0.1018		0.0005	0.0050	0.0041	0.0019	0.2415	<.0001
C06_d	0.22422	0.34989	0.51771	1.00000	0.40095	-0.43466	0.09525	-0.10452	0.62432
C06_d	0.1587	0.0249	0.0005		0.0094	0.0045	0.5536	0.5155	<.0001
C06_e	0.67175	0.51898	0.43017	0.40095	1.00000	-0.52098	0.61149	0.21019	0.67017
C06_e	<.0001	0.0005	0.0050	0.0094		0.0005	<.0001	0.1872	<.0001
C06_f	-0.51965	-0.28579	-0.43936	-0.43466	-0.52098	1.00000	-0.58399	-0.22934	-0.63572
C06_f	0.0005	0.0701	0.0041	0.0045	0.0005		<.0001	0.1492	<.0001
C06_g	0.61191	0.42033	0.46991	0.09525	0.61149	-0.58399	1.00000	0.71599	0.64382
C06_g	<.0001	0.0062	0.0019	0.5536	<.0001	<.0001		<.0001	<.0001
C06_h	0.37578	0.41951	0.18709	-0.10452	0.21019	-0.22934	0.71599	1.00000	0.38538
C06_h	0.0155	0.0063	0.2415	0.5155	0.1872	0.1492	<.0001		0.0128
C06_i	0.60824	0.51365	0.74329	0.62432	0.67017	-0.63572	0.64382	0.38538	1.00000
C06_i	<.0001	0.0006	<.0001	<.0001	<.0001	<.0001	<.0001	0.0128	

The CORR Procedure

8 Variables:	C06_a C06_b C06_c C06_d C06_e C06_g C06_h C06_i

Simple Statistics							
Variable	**N**	**Mean**	**Std Dev**	**Sum**	**Minimum**	**Maximum**	**Label**
C06_a	41	4.36585	0.69843	179.00000	3.00000	5.00000	C06_a
C06_b	41	4.87805	0.33129	200.00000	4.00000	5.00000	C06_b
C06_c	41	4.51220	0.74572	185.00000	3.00000	5.00000	C06_c
C06_d	41	2.19512	1.28879	90.00000	1.00000	5.00000	C06_d
C06_e	41	2.78049	1.29445	114.00000	1.00000	5.00000	C06_e
C06_g	41	3.68293	1.33115	151.00000	1.00000	5.00000	C06_g
C06_h	41	4.26829	1.14071	175.00000	1.00000	5.00000	C06_h
C06_i	41	4.14634	0.98896	170.00000	2.00000	5.00000	C06_i

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.835839
Standardized	0.870873

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	Raw Variables		Standardized Variables		Label
	Correlation with Total	Alpha	Correlation with Total	Alpha	
C06_a	0.705900	0.808793	0.742544	0.842148	C06_a
C06_b	0.622377	0.832616	0.629236	0.854684	C06_b
C06_c	0.628341	0.814071	0.603715	0.857444	C06_c
C06_d	0.357053	0.851722	0.395528	0.879106	C06_d
C06_e	0.683581	0.800028	0.694617	0.847507	C06_e
C06_g	0.712105	0.795497	0.707013	0.846129	C06_g
C06_h	0.395435	0.840560	0.412025	0.877444	C06_h
C06_i	0.864854	0.777464	0.850846	0.829726	C06_i

Pearson Correlation Coefficients, N = 41 Prob > |r| under H0: Rho=0								
	C06_a	**C06_b**	**C06_c**	**C06_d**	**C06_e**	**C06_g**	**C06_h**	**C06_i**
C06_a C06_a	1.00000	0.73786 <.0001	0.49522 0.0010	0.22422 0.1587	0.67175 <.0001	0.61191 <.0001	0.37578 0.0155	0.60824 <.0001
C06_b C06_b	0.73786 <.0001	1.00000	0.25915 0.1018	0.34989 0.0249	0.51898 0.0005	0.42033 0.0062	0.41951 0.0063	0.51365 0.0006
C06_c C06_c	0.49522 0.0010	0.25915 0.1018	1.00000	0.51771 0.0005	0.43017 0.0050	0.46991 0.0019	0.18709 0.2415	0.74329 <.0001
C06_d C06_d	0.22422 0.1587	0.34989 0.0249	0.51771 0.0005	1.00000	0.40095 0.0094	0.09525 0.5536	-0.10452 0.5155	0.62432 <.0001
C06_e C06_e	0.67175 <.0001	0.51898 0.0005	0.43017 0.0050	0.40095 0.0094	1.00000	0.61149 <.0001	0.21019 0.1872	0.67017 <.0001
C06_g C06_g	0.61191 <.0001	0.42033 0.0062	0.46991 0.0019	0.09525 0.5536	0.61149 <.0001	1.00000	0.71599 <.0001	0.64382 <.0001
C06_h C06_h	0.37578 0.0155	0.41951 0.0063	0.18709 0.2415	-0.10452 0.5155	0.21019 0.1872	0.71599 <.0001	1.00000	0.38538 0.0128
C06_i C06_i	0.60824 <.0001	0.51365 0.0006	0.74329 <.0001	0.62432 <.0001	0.67017 <.0001	0.64382 <.0001	0.38538 0.0128	1.00000

D.2.2 Loan repayment overdue

The CORR Procedure

5 Variables:	C07_a C07_b C07_c C07_d C07_e

Simple Statistics							
Variable	**N**	**Mean**	**Std Dev**	**Sum**	**Minimum**	**Maximum**	**Label**
C07_a	41	4.85366	0.35784	199.00000	4.00000	5.00000	C07_a

Simple Statistics							
Variable	**N**	**Mean**	**Std Dev**	**Sum**	**Minimum**	**Maximum**	**Label**
C07_b	41	1.87805	1.30758	77.00000	1.00000	4.00000	C07_b
C07_c	41	2.02439	1.58883	83.00000	1.00000	5.00000	C07_c
C07_d	41	3.46341	0.83957	142.00000	2.00000	5.00000	C07_d
C07_e	41	3.92683	0.93248	161.00000	3.00000	5.00000	C07_e

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.399783
Standardized	0.347181

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	**Raw Variables**		**Standardized Variables**		**Label**
	Correlation with Total	**Alpha**	**Correlation with Total**	**Alpha**	
C07_a	0.189089	0.390258	0.130351	0.331085	C07_a
C07_b	0.782288	-.373846	0.796154	-.379783	C07_b
C07_c	0.305821	0.252607	0.306315	0.175854	C07_c
C07_d	0.665292	0.046784	0.629401	-.168698	C07_d
C07_e	-.504504	0.717778	-.536875	0.752057	C07_e

Pearson Correlation Coefficients, N = 41 Prob > |r| under H0: Rho=0					
	C07_a	**C07_b**	**C07_c**	**C07_d**	**C07_e**
C07_a	1.00000	0.28148	0.27027	0.23137	-0.48243
C07_a		0.0746	0.0875	0.1455	0.0014
C07_b	0.28148	1.00000	0.54298	0.89536	-0.31506
C07_b	0.0746		0.0002	<.0001	0.0448
C07_c	0.27027	0.54298	1.00000	0.36615	-0.52187
C07_c	0.0875	0.0002		0.0186	0.0005
C07_d	0.23137	0.89536	0.36615	1.00000	-0.30687
C07_d	0.1455	<.0001	0.0186		0.0510
C07_e	-0.48243	-0.31506	-0.52187	-0.30687	1.00000
C07_e	0.0014	0.0448	0.0005	0.0510	

The CORR Procedure

4 Variables:	C07_a C07_b C07_c C07_d

Simple Statistics							
Variable	**N**	**Mean**	**Std Dev**	**Sum**	**Minimum**	**Maximum**	**Label**
C07_a	41	4.85366	0.35784	199.00000	4.00000	5.00000	C07_a
C07_b	41	1.87805	1.30758	77.00000	1.00000	4.00000	C07_b

Simple Statistics							
Variable	**N**	**Mean**	**Std Dev**	**Sum**	**Minimum**	**Maximum**	**Label**
C07_c	41	2.02439	1.58883	83.00000	1.00000	5.00000	C07_c
C07_d	41	3.46341	0.83957	142.00000	2.00000	5.00000	C07_d

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.717778
Standardized	0.752057

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	**Raw Variables**		**Standardized Variables**		**Label**
	Correlation with Total	**Alpha**	**Correlation with Total**	**Alpha**	
C07_a	0.311472	0.769217	0.304624	0.819107	C07_a
C07_b	0.784449	0.446556	0.790310	0.549745	C07_b
C07_c	0.502737	0.723367	0.489022	0.726331	C07_c
C07_d	0.684494	0.589822	0.655335	0.632857	C07_d

Pearson Correlation Coefficients, N = 41 Prob > |r| under H0: Rho=0				
	C07_a	**C07_b**	**C07_c**	**C07_d**
C07_a C07_a	1.00000	0.28148 0.0746	0.27027 0.0875	0.23137 0.1455
C07_b C07_b	0.28148 0.0746	1.00000	0.54298 0.0002	0.89536 <.0001
C07_c C07_c	0.27027 0.0875	0.54298 0.0002	1.00000	0.36615 0.0186
C07_d C07_d	0.23137 0.1455	0.89536 <.0001	0.36615 0.0186	1.00000

D.2.3 Operational risk: Fraud

The CORR Procedure

6 Variables:	C08_a C08_b C08_c C08_d C08_en C08_fn

Simple Statistics							
Variable	**N**	**Mean**	**Std Dev**	**Sum**	**Minimum**	**Maximum**	**Label**
C08_a	41	4.07317	1.12673	167.00000	1.00000	5.00000	C08_a
C08_b	41	4.39024	0.49386	180.00000	4.00000	5.00000	C08_b
C08_c	41	2.92683	0.72077	120.00000	2.00000	5.00000	C08_c
C08_d	41	2.56098	1.00122	105.00000	1.00000	4.00000	C08_d
C08_en	41	3.53659	1.22673	145.00000	1.00000	5.00000	

Simple Statistics							
Variable	**N**	**Mean**	**Std Dev**	**Sum**	**Minimum**	**Maximum**	**Label**
C08_fn	41	1.95122	0.97343	80.00000	1.00000	4.00000	

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.560795
Standardized	0.398529

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	**Raw Variables**		**Standardized Variables**		**Label**
	Correlation with Total	**Alpha**	**Correlation with Total**	**Alpha**	
C08_a	0.475073	0.418030	0.282455	0.294186	C08_a
C08_b	-.387411	0.672354	-.357326	0.641679	C08_b
C08_c	0.039578	0.603498	0.067637	0.428745	C08_c
C08_d	0.736669	0.276572	0.641883	0.021570	C08_d
C08_en	0.477832	0.411876	0.376243	0.229038	
C08_fn	0.305079	0.513531	0.335123	0.258099	

Pearson Correlation Coefficients, N = 41 Prob > |r| under H0: Rho=0						
	C08_a	**C08_b**	**C08_c**	**C08_d**	**C08_en**	**C08_fn**
C08_a C08_a	1.00000	-0.59173 <.0001	-0.08559 0.5947	0.58322 <.0001	0.67628 <.0001	0.14010 0.3823
C08_b C08_b	-0.59173 <.0001	1.00000	0.08222 0.6093	-0.35268 0.0237	-0.27174 0.0857	-0.01142 0.9435
C08_c C08_c	-0.08559 0.5947	0.08222 0.6093	1.00000	0.12759 0.4266	-0.03931 0.8072	0.10168 0.5270
C08_d C08_d	0.58322 <.0001	-0.35268 0.0237	0.12759 0.4266	1.00000	0.52227 0.0005	0.56745 0.0001
C08_en	0.67628 <.0001	-0.27174 0.0857	-0.03931 0.8072	0.52227 0.0005	1.00000	0.04340 0.7876
C08_fn	0.14010 0.3823	-0.01142 0.9435	0.10168 0.5270	0.56745 0.0001	0.04340 0.7876	1.00000

The CORR Procedure

5 Variables:	C08_a C08_c C08_d C08_en C08_fn

Simple Statistics							
Variable	**N**	**Mean**	**Std Dev**	**Sum**	**Minimum**	**Maximum**	**Label**
C08_a	41	4.07317	1.12673	167.00000	1.00000	5.00000	C08_a
C08_c	41	2.92683	0.72077	120.00000	2.00000	5.00000	C08_c
C08_d	41	2.56098	1.00122	105.00000	1.00000	4.00000	C08_d

Simple Statistics							
Variable	**N**	**Mean**	**Std Dev**	**Sum**	**Minimum**	**Maximum**	**Label**
C08_en	41	3.53659	1.22673	145.00000	1.00000	5.00000	
C08_fn	41	1.95122	0.97343	80.00000	1.00000	4.00000	

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.672354
Standardized	0.641679

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	**Raw Variables**		**Standardized Variables**		**Label**
	Correlation with Total	**Alpha**	**Correlation with Total**	**Alpha**	
C08_a	0.573910	0.545279	0.509696	0.530866	C08_a
C08_c	0.025075	0.745161	0.034663	0.745019	C08_c
C08_d	0.764358	0.457373	0.755941	0.393229	C08_d
C08_en	0.503425	0.584341	0.458875	0.556885	
C08_fn	0.288369	0.677922	0.309919	0.628696	

Pearson Correlation Coefficients, N = 41 Prob > |r| under H0: Rho=0					
	C08_a	**C08_c**	**C08_d**	**C08_en**	**C08_fn**
C08_a C08_a	1.00000	-0.08559 0.5947	0.58322 <.0001	0.67628 <.0001	0.14010 0.3823
C08_c C08_c	-0.08559 0.5947	1.00000	0.12759 0.4266	-0.03931 0.8072	0.10168 0.5270
C08_d C08_d	0.58322 <.0001	0.12759 0.4266	1.00000	0.52227 0.0005	0.56745 0.0001
C08_en	0.67628 <.0001	-0.03931 0.8072	0.52227 0.0005	1.00000	0.04340 0.7876
C08_fn	0.14010 0.3823	0.10168 0.5270	0.56745 0.0001	0.04340 0.7876	1.00000

The CORR Procedure

4 Variables:	C08_a C08_d C08_en C08_fn

Simple Statistics							
Variable	**N**	**Mean**	**Std Dev**	**Sum**	**Minimum**	**Maximum**	**Label**
C08_a	41	4.07317	1.12673	167.00000	1.00000	5.00000	C08_a
C08_d	41	2.56098	1.00122	105.00000	1.00000	4.00000	C08_d
C08_en	41	3.53659	1.22673	145.00000	1.00000	5.00000	
C08_fn	41	1.95122	0.97343	80.00000	1.00000	4.00000	

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.745161
Standardized	0.745019

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	**Raw Variables**		**Standardized Variables**		**Label**
	Correlation with Total	**Alpha**	**Correlation with Total**	**Alpha**	
C08_a	0.635538	0.628665	0.609893	0.645502	C08_a
C08_d	0.755181	0.569890	0.770067	0.546524	C08_d
C08_en	0.544130	0.688192	0.525688	0.693771	
C08_fn	0.271378	0.812898	0.293120	0.814394	

Pearson Correlation Coefficients, N = 41 Prob > |r| under H0: Rho=0				
	C08_a	**C08_d**	**C08_en**	**C08_fn**
C08_a C08_a	1.00000	0.58322 <.0001	0.67628 <.0001	0.14010 0.3823
C08_d C08_d	0.58322 <.0001	1.00000	0.52227 0.0005	0.56745 0.0001
C08_en	0.67628 <.0001	0.52227 0.0005	1.00000	0.04340 0.7876
C08_fn	0.14010 0.3823	0.56745 0.0001	0.04340 0.7876	1.00000

The CORR Procedure

3 Variables:	C08_a C08_d C08_en

Simple Statistics							
Variable	**N**	**Mean**	**Std Dev**	**Sum**	**Minimum**	**Maximum**	**Label**
C08_a	41	4.07317	1.12673	167.00000	1.00000	5.00000	C08_a
C08_d	41	2.56098	1.00122	105.00000	1.00000	4.00000	C08_d
C08_en	41	3.53659	1.22673	145.00000	1.00000	5.00000	

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.812898
Standardized	0.814394

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	**Raw Variables**		**Standardized Variables**		**Label**
	Correlation with Total	**Alpha**	**Correlation with Total**	**Alpha**	
C08_a	0.726068	0.676963	0.721835	0.686170	C08_a

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	Raw Variables		Standardized Variables		Label
	Correlation with Total	Alpha	Correlation with Total	Alpha	
C08_d	0.602239	0.805147	0.603759	0.806885	C08_d
C08_en	0.678347	0.733515	0.673552	0.736749	

Pearson Correlation Coefficients, N = 41 Prob > |r| under H0: Rho=0			
	C08_a	**C08_d**	**C08_en**
C08_a C08_a	1.00000	0.58322 <.0001	0.67628 <.0001
C08_d C08_d	0.58322 <.0001	1.00000	0.52227 0.0005
C08_en	0.67628 <.0001	0.52227 0.0005	1.00000

D.2.4 Operational risk: Human error

The CORR Procedure

4 Variables:	C09_a C09_bn C09_cn C09_dn

Simple Statistics							
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
C09_a	41	4.17073	0.89170	171.00000	3.00000	5.00000	C09_a
C09_bn	41	1.75610	0.69930	72.00000	1.00000	3.00000	
C09_cn	41	1.65854	0.76190	68.00000	1.00000	3.00000	
C09_dn	41	1.17073	0.38095	48.00000	1.00000	2.00000	

Cronbach Coefficient Alpha	
Variables	Alpha
Raw	0.336810
Standardized	0.339321

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	Raw Variables		Standardized Variables		Label
	Correlation with Total	Alpha	Correlation with Total	Alpha	
C09_a	0.130876	0.360412	0.097965	0.367876	C09_a
C09_bn	0.339153	0.074314	0.304649	0.121565	
C09_cn	0.183215	0.268045	0.232908	0.212322	
C09_dn	0.079783	0.357819	0.092188	0.374114	

Pearson Correlation Coefficients, N = 41 Prob > |r| under H0: Rho=0				
	C09_a	**C09_bn**	**C09_cn**	**C09_dn**
C09_a C09_a	1.00000	0.26891 0.0891	0.01436 0.9290	-0.08796 0.5845
C09_bn	0.26891 0.0891	1.00000	0.21516 0.1767	0.06638 0.6801
C09_cn	0.01436 0.9290	0.21516 0.1767	1.00000	0.20588 0.1966
C09_dn	-0.08796 0.5845	0.06638 0.6801	0.20588 0.1966	1.00000

D.2.5 Operational risk: IT

The CORR Procedure

3 Variables:	C10_a C10_b C10_c

Simple Statistics							
Variable	**N**	**Mean**	**Std Dev**	**Sum**	**Minimum**	**Maximum**	**Label**
C10_a	41	4.70732	0.46065	193.00000	4.00000	5.00000	C10_a
C10_b	41	4.19512	0.71483	172.00000	3.00000	5.00000	C10_b
C10_c	41	3.90244	1.39293	160.00000	1.00000	5.00000	C10_c

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.393617
Standardized	0.244529

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	**Raw Variables**		**Standardized Variables**		**Label**
	Correlation with Total	**Alpha**	**Correlation with Total**	**Alpha**	
C10_a	-.024265	0.574973	-.118196	0.663681	C10_a
C10_b	0.345444	0.163371	0.094297	0.259654	C10_b
C10_c	0.605198	-.950249	0.568058	-1.09449	C10_c

Pearson Correlation Coefficients, N = 41 Prob > |r| under H0: Rho=0

	C10_a	C10_b	C10_c
C10_a	1.00000	-0.35369	0.14920
C10_a		0.0233	0.3518
C10_b	-0.35369	1.00000	0.49665
C10_b	0.0233		0.0010
C10_c	0.14920	0.49665	1.00000
C10_c	0.3518	0.0010	

D.2.6 Market risk: Exchange rate

The CORR Procedure

2 Variables:	C11_a C11_b

Simple Statistics							
Variable	**N**	**Mean**	**Std Dev**	**Sum**	**Minimum**	**Maximum**	**Label**
C11_a	41	3.43902	1.37929	141.00000	1.00000	5.00000	C11_a
C11_b	41	1.95122	0.92063	80.00000	1.00000	3.00000	C11_b

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.402975
Standardized	0.429191

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	**Raw Variables**		**Standardized Variables**		**Label**
	Correlation with Total	**Alpha**	**Correlation with Total**	**Alpha**	
C11_a	0.273229	.	0.273229	.	C11_a
C11_b	0.273229	.	0.273229	.	C11_b

Pearson Correlation Coefficients, N = 41 Prob > |r| under H0: Rho=0		
	C11_a	**C11_b**
C11_a	1.00000	0.27323
C11_a		0.0839
C11_b	0.27323	1.00000
C11_b	0.0839	

D.2.7 Market risk: Interest rate

The CORR Procedure

2 Variables:	C12_a C12_b

Simple Statistics							
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
C12_a	41	2.92683	1.25280	120.00000	1.00000	5.00000	C12_a
C12_b	41	2.48780	1.05171	102.00000	1.00000	5.00000	C12_b

Cronbach Coefficient Alpha	
Variables	Alpha
Raw	0.609632
Standardized	0.616106

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	Raw Variables		Standardized Variables		Label
	Correlation with Total	Alpha	Correlation with Total	Alpha	
C12_a	0.445197	.	0.445197	.	C12_a
C12_b	0.445197	.	0.445197	.	C12_b

Pearson Correlation Coefficients, N = 41 Prob > |r| under H0: Rho=0		
	C12_a	C12_b
C12_a C12_a	1.00000	0.44520 0.0035
C12_b C12_b	0.44520 0.0035	1.00000

D.2.8 Strategic risk: Reputation

The CORR Procedure

2 Variables:	C13_a C13_b

Simple Statistics							
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
C13_a	41	4.48780	0.74572	184.00000	2.00000	5.00000	C13_a
C13_b	41	4.39024	0.66626	180.00000	3.00000	5.00000	C13_b

Cronbach Coefficient Alpha	
Variables	Alpha
Raw	-.632424
Standardized	-.637723

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	Raw Variables		Standardized Variables		Label
	Correlation with Total	Alpha	Correlation with Total	Alpha	
C13_a	-.241770	.	-.241770	.	C13_a
C13_b	-.241770	.	-.241770	.	C13_b

Pearson Correlation Coefficients, N = 41 Prob > |r| under H0: Rho=0		
	C13_a	**C13_b**
C13_a C13_a	1.00000	-0.24177 0.1278
C13_b C13_b	-0.24177 0.1278	1.00000

The CORR Procedure

2 Variables:	C13_an C13_b

Simple Statistics							
Variable	**N**	**Mean**	**Std Dev**	**Sum**	**Minimum**	**Maximum**	**Label**
C13_an	41	1.51220	0.74572	62.00000	1.00000	4.00000	
C13_b	41	4.39024	0.66626	180.00000	3.00000	5.00000	C13_b

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.387414
Standardized	0.389396

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	Raw Variables		Standardized Variables		Label
	Correlation with Total	Alpha	Correlation with Total	Alpha	
C13_an	0.241770	.	0.241770	.	
C13_b	0.241770	.	0.241770	.	C13_b

Pearson Correlation Coefficients, N = 41 Prob > |r| under H0: Rho=0		
	C13_an	**C13_b**
C13_an	1.00000	0.24177 0.1278
C13_b C13_b	0.24177 0.1278	1.00000

D.2.9 Strategic risk: Governance

The CORR Procedure

2 Variables:	C14_a C14_b

Simple Statistics							
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
C14_a	41	3.97561	1.63536	163.00000	1.00000	5.00000	C14_a
C14_b	41	3.68293	1.42195	151.00000	1.00000	5.00000	C14_b

Cronbach Coefficient Alpha	
Variables	Alpha
Raw	0.094979
Standardized	0.095864

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	Raw Variables		Standardized Variables		Label
	Correlation with Total	Alpha	Correlation with Total	Alpha	
C14_a	0.050345	.	0.050345	.	C14_a
C14_b	0.050345	.	0.050345	.	C14_b

Pearson Correlation Coefficients, N = 41 Prob > |r| under H0: Rho=0		
	C14_a	C14_b
C14_a	1.00000	0.05035
C14_a		0.7546
C14_b	0.05035	1.00000
C14_b	0.7546	

D.2.10 Strategic risk: Liquidity

The CORR Procedure

4 Variables:	C16_a C16_b C16_cn C16_d

Simple Statistics							
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
C16_a	41	3.34146	1.21675	137.00000	1.00000	5.00000	C16_a
C16_b	41	4.41463	0.74080	181.00000	3.00000	5.00000	C16_b
C16_cn	41	1.85366	1.01393	76.00000	1.00000	4.00000	
C16_d	41	4.43902	0.63438	182.00000	3.00000	5.00000	C16_d

Cronbach Coefficient Alpha	
Variables	Alpha
Raw	0.371801

Cronbach Coefficient Alpha	
Variables	**Alpha**
Standardized	0.396248

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	**Raw Variables**		**Standardized Variables**		**Label**
	Correlation with Total	**Alpha**	**Correlation with Total**	**Alpha**	
C16_a	0.208675	0.318204	0.210943	0.334887	C16_a
C16_b	0.235528	0.282971	0.231445	0.312737	C16_b
C16_cn	0.199708	0.308367	0.213322	0.332337	
C16_d	0.200196	0.322267	0.206962	0.339143	C16_d

Pearson Correlation Coefficients, N = 41 Prob > |r| under H0: Rho=0				
	C16_a	**C16_b**	**C16_cn**	**C16_d**
C16_a C16_a	1.00000	0.19956 0.2110	0.12257 0.4452	0.09243 0.5655
C16_b C16_b	0.19956 0.2110	1.00000	0.11609 0.4698	0.13494 0.4003
C16_cn	0.12257 0.4452	0.11609 0.4698	1.00000	0.18012 0.2598
C16_d C16_d	0.09243 0.5655	0.13494 0.4003	0.18012 0.2598	1.00000

D.2.11 Other risk and elements that exist in business

The CORR Procedure

12 Variables:	C17 D18_a D18_b D18_c D18_d D18_e D18_f D18_g D18_h D18_i D18_j D18_k

Simple Statistics							
Variable	**N**	**Mean**	**Std Dev**	**Sum**	**Minimum**	**Maximum**	**Label**
C17	40	1.97500	0.15811	79.00000	1.00000	2.00000	C17
D18_a	40	1.57500	0.50064	63.00000	1.00000	2.00000	D18_a
D18_b	40	1.55000	0.50383	62.00000	1.00000	2.00000	D18_b
D18_c	40	1.12500	0.33493	45.00000	1.00000	2.00000	D18_c
D18_d	40	1.42500	0.50064	57.00000	1.00000	2.00000	D18_d
D18_e	40	1.70000	0.46410	68.00000	1.00000	2.00000	D18_e
D18_f	40	1.60000	0.49614	64.00000	1.00000	2.00000	D18_f
D18_g	40	1.67500	0.47434	67.00000	1.00000	2.00000	D18_g
D18_h	40	1.22500	0.42290	49.00000	1.00000	2.00000	D18_h
D18_i	40	1.35000	0.48305	54.00000	1.00000	2.00000	D18_i

Simple Statistics							
Variable	**N**	**Mean**	**Std Dev**	**Sum**	**Minimum**	**Maximum**	**Label**
D18_j	40	1.42500	0.50064	57.00000	1.00000	2.00000	D18_j
D18_k	40	1.40000	0.49614	56.00000	1.00000	2.00000	D18_k

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.750543
Standardized	0.709410

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	**Raw Variables**		**Standardized Variables**		**Label**
	Correlation with Total	**Alpha**	**Correlation with Total**	**Alpha**	
C17	-.224362	0.767647	-.235792	0.765282	C17
D18_a	0.346200	0.739056	0.340040	0.691403	D18_a
D18_b	0.558288	0.710377	0.540391	0.662118	D18_b
D18_c	0.267818	0.745636	0.211362	0.709201	D18_c
D18_d	0.500078	0.718541	0.499522	0.668251	D18_d
D18_e	0.687089	0.695110	0.666042	0.642741	D18_e
D18_f	0.482189	0.721052	0.457770	0.674431	D18_f
D18_g	0.362507	0.736559	0.354912	0.689296	D18_g
D18_h	0.338297	0.739012	0.344262	0.690806	D18_h
D18_i	0.229316	0.753063	0.239286	0.705404	D18_i
D18_j	0.412907	0.730297	0.412966	0.680969	D18_j
D18_k	0.377860	0.734865	0.371500	0.686933	D18_k

Pearson Correlation Coefficients, N = 40 Prob > |r| under H0: Rho=0												
	C17	**D18_a**	**D18_b**	**D18_c**	**D18_d**	**D18_e**	**D18_f**	**D18_g**	**D18_h**	**D18_i**	**D18_j**	**D18_k**
C17 C17	1.00000	-0.13767 0.3969	-0.14484 0.3725	-0.42366 0.0064	-0.18625 0.2498	-0.10483 0.5197	-0.13074 0.4213	-0.11111 0.4949	0.08628 0.5966	0.11750 0.4702	-0.18625 0.2498	-0.19612 0.2252
D18_a D18_a	-0.13767 0.3969	1.00000	0.23889 0.1377	0.32495 0.0408	0.12532 0.4410	0.32004 0.0441	0.02065 0.8994	0.48318 0.0016	-0.14230 0.3811	0.10073 0.5363	0.22762 0.1578	0.28904 0.0705
D18_b D18_b	-0.14484 0.3725	0.23889 0.1377	1.00000	0.03799 0.8160	0.37104 0.0184	0.72375 <.0001	0.80009 <.0001	0.12338 0.4481	0.36704 0.0198	0.03161 0.8465	0.06608 0.6854	0.22567 0.1615
D18_c	-0.42366	0.32495	0.03799	1.00000	0.43963	0.08248	-0.15430	0.26227	-0.02263	-0.11886	0.43963	0.30861

Pearson Correlation Coefficients, N = 40 Prob > |r| under H0: Rho=0												
	C17	**D18_a**	**D18_b**	**D18_c**	**D18_d**	**D18_e**	**D18_f**	**D18_g**	**D18_h**	**D18_i**	**D18_j**	**D18_k**
D18_c	0.0064	0.0408	0.8160		0.0045	0.6129	0.3418	0.1021	0.8898	0.4651	0.0045	0.0527
D18_d D18_d	-0.18625 0.2498	0.12532 0.4410	0.37104 0.0184	0.43963 0.0045	1.00000	0.34211 0.0307	0.39227 0.0123	0.38061 0.0154	0.26341 0.1005	0.00530 0.9741	0.28389 0.0759	0.22711 0.1587
D18_e D18_e	-0.10483 0.5197	0.32004 0.0441	0.72375 <.0001	0.08248 0.6129	0.34211 0.0307	1.00000	0.69042 <.0001	0.24460 0.1282	0.22209 0.1684	0.25163 0.1173	0.34211 0.0307	0.31180 0.0502
D18_f D18_f	-0.13074 0.4213	0.02065 0.8994	0.80009 <.0001	-0.15430 0.3418	0.39227 0.0123	0.69042 <.0001	1.00000	0.08716 0.5928	0.43994 0.0045	0.17118 0.2909	0.08258 0.6124	0.04167 0.7985
D18_g D18_g	-0.11111 0.4949	0.48318 0.0016	0.12338 0.4481	0.26227 0.1021	0.38061 0.0154	0.24460 0.1282	0.08716 0.5928	1.00000	-0.00959 0.9532	0.06155 0.7060	0.16466 0.3099	0.23970 0.1363
D18_h D18_h	0.08628 0.5966	-0.14230 0.3811	0.36704 0.0198	-0.02263 0.8898	0.26341 0.1005	0.22209 0.1684	0.43994 0.0045	-0.00959 0.9532	1.00000	0.23221 0.1493	0.14230 0.3811	0.29329 0.0662
D18_i D18_i	0.11750 0.4702	0.10073 0.5363	0.03161 0.8465	-0.11886 0.4651	0.00530 0.9741	0.25163 0.1173	0.17118 0.2909	0.06155 0.7060	0.23221 0.1493	1.00000	0.42941 0.0057	0.04280 0.7932
D18_j D18_j	-0.18625 0.2498	0.22762 0.1578	0.06608 0.6854	0.43963 0.0045	0.28389 0.0759	0.34211 0.0307	0.08258 0.6124	0.16466 0.3099	0.14230 0.3811	0.42941 0.0057	1.00000	0.22711 0.1587
D18_k D18_k	-0.19612 0.2252	0.28904 0.0705	0.22567 0.1615	0.30861 0.0527	0.22711 0.1587	0.31180 0.0502	0.04167 0.7985	0.23970 0.1363	0.29329 0.0662	0.04280 0.7932	0.22711 0.1587	1.00000

D.2.12 Elements that exist in business

The CORR Procedure

11 Variables:	D18_a D18_b D18_c D18_d D18_e D18_f D18_g D18_h D18_i D18_j D18_k

Simple Statistics							
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
D18_a	41	1.58537	0.49878	65.00000	1.00000	2.00000	D18_a
D18_b	41	1.53659	0.50485	63.00000	1.00000	2.00000	D18_b
D18_c	41	1.12195	0.33129	46.00000	1.00000	2.00000	D18_c
D18_d	41	1.43902	0.50243	59.00000	1.00000	2.00000	D18_d
D18_e	41	1.68293	0.47112	69.00000	1.00000	2.00000	D18_e
D18_f	41	1.58537	0.49878	65.00000	1.00000	2.00000	D18_f
D18_g	41	1.65854	0.48009	68.00000	1.00000	2.00000	D18_g
D18_h	41	1.21951	0.41906	50.00000	1.00000	2.00000	D18_h
D18_i	41	1.34146	0.48009	55.00000	1.00000	2.00000	D18_i
D18_j	41	1.41463	0.49878	58.00000	1.00000	2.00000	D18_j
D18_k	41	1.39024	0.49386	57.00000	1.00000	2.00000	D18_k

Cronbach Coefficient Alpha	
Variables	Alpha
Raw	0.768178
Standardized	0.765750

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	Raw Variables		Standardized Variables		Label
	Correlation with Total	Alpha	Correlation with Total	Alpha	
D18_a	0.313033	0.763853	0.317685	0.759796	D18_a
D18_b	0.571997	0.730381	0.562775	0.729627	D18_b
D18_c	0.295157	0.763360	0.288662	0.763212	D18_c
D18_d	0.446870	0.747026	0.461690	0.742360	D18_d
D18_e	0.692882	0.716126	0.674379	0.715082	D18_e
D18_f	0.498470	0.740333	0.482487	0.739774	D18_f
D18_g	0.383366	0.754864	0.384499	0.751808	D18_g
D18_h	0.336922	0.759584	0.325942	0.758818	D18_h
D18_i	0.233027	0.772626	0.224893	0.770604	D18_i
D18_j	0.431693	0.748974	0.449645	0.743850	D18_j
D18_k	0.397679	0.753246	0.410551	0.748646	D18_k

Pearson Correlation Coefficients, N = 41 Prob > |r| under H0: Rho=0											
	D18_a	D18_b	D18_c	D18_d	D18_e	D18_f	D18_g	D18_h	D18_i	D18_j	D18_k
D18_a	1.00000	0.21067	0.31366	0.14599	0.27765	-0.00490	0.43798	-0.15170	0.08403	0.20588	0.26734
D18_		0.186	0.0458	0.3624	0.078		0.004		0.6014	0.196	0.091

Pearson Correlation Coefficients, N = 41 Prob > |r| under H0: Rho=0											
	D18_a	**D18_b**	**D18_c**	**D18_d**	**D18_e**	**D18_f**	**D18_g**	**D18_h**	**D18_i**	**D18_j**	**D18_k**
a		1			8	0.9757	2	0.3437		6	1
D18_b	0.21067	1.00000	0.04739	0.32933	0.73321	0.80635	0.15598	0.37468	0.05031	0.08717	0.24211
D18_b	0.1861		0.7686	0.0355	<.0001	<.0001	0.3301	0.0158	0.7547	0.5879	0.1272
D18_c	0.31366	0.04739	1.00000	0.42127	0.09376	-0.14022	0.26836	-0.01757	-0.11118	0.44281	0.31305
D18_c	0.0458	0.7686		0.0061	0.5598	0.3819	0.0898	0.9132	0.4889	0.0037	0.0463
D18_d	0.14599	0.32933	0.42127	1.00000	0.28594	0.34551	0.32609	0.24327	-0.01517	0.25305	0.19905
D18_d	0.3624	0.0355	0.0061		0.0699	0.0269	0.0375	0.1254	0.9250	0.1104	0.2122
D18_e	0.27765	0.73321	0.09376	0.28594	1.00000	0.70322	0.28307	0.23473	0.26959	0.36069	0.33021
D18_e	0.0788	<.0001	0.5598	0.0699		<.0001	0.0729	0.1396	0.0883	0.0205	0.0350
D18_f	-0.00490	0.80635	-0.14022	0.34551	0.70322	1.00000	0.12477	0.44634	0.18843	0.10539	0.06436
D18_f	0.9757	<.0001	0.3819	0.0269	<.0001		0.4370	0.0034	0.2381	0.5120	0.6893
D18_g	0.43798	0.15598	0.26836	0.32609	0.28307	0.12477	1.00000	0.00909	0.08466	0.18843	0.25974
D18_g	0.0042	0.3301	0.0898	0.0375	0.0729	0.4370		0.9550	0.5987	0.2381	0.1010
D18_h	-0.15170	0.37468	-0.01757	0.24327	0.23473	0.44634	0.00909	1.00000	0.23943	0.15170	0.30052
D18_h	0.3437	0.0158	0.9132	0.1254	0.1396	0.0034	0.9550		0.1316	0.3437	0.0562
D18_i	0.08403	0.05031	-0.11118	-0.01517	0.26959	0.18843	0.08466	0.23943	1.00000	0.43798	0.05658
D18_i	0.6014	0.7547	0.4889	0.9250	0.0883	0.2381	0.5987	0.1316		0.0042	0.7253
D18_j	0.20588	0.08717	0.44281	0.25305	0.36069	0.10539	0.18843	0.15170	0.43798	1.00000	0.24011
D18_j	0.1966	0.5879	0.0037	0.1104	0.0205	0.5120	0.2381	0.3437	0.0042		0.1305
D18_k	0.26734	0.24211	0.31305	0.19905	0.33021	0.06436	0.25974	0.30052	0.05658	0.24011	1.00000
D18_k	0.0911	0.1272	0.0463	0.2122	0.0350	0.6893	0.1010	0.0562	0.7253	0.1305	

Annexure E: Descriptive statistics

E.1 Descriptive statistics for all the variables in the survey

Variables	Categories	Frequency	Percentage out of total
Section A: General Information			
1. How long has your business been operating?	0-5 Years	9	22.0%
	6-10 Years	14	34.2%
	11-15 Years	9	22.0%
	16-20 Years	8	19.5%
	More than 20 Years	1	2.4%
2. How many employees does your business have?	1-5 Employees	9	22.0%
	6-10 Employees	13	31.7%
	11-20 Employees	12	29.3%
	21-30 Employees	5	12.2%
	31-40 Employees	1	2.4%
	41-50 Employees	1	2.4%
3. What is your position within the business?	Owner	13	31.7%
	Manager	18	43.9%
	Owner and Manager	8	19.5%
	Other = Assistant Manager	1	2.4%
	Unknown	1	2.4%
4. How long have you been in this position?	1-5 Years	19	46.3%
	6-10 Years	16	39.0%
	11-15 Years	4	9.8%
	16-20 Years	2	4.9%
Section B: Types of risks:			
5. The frequency represents the number of times a risk is mentioned by respondents. The risks which were mentioned several times include fraud and bad debts.			

5.1 Types of risk being faced by your microfinance business	Absconding	1	1.1%
	Affordability	1	1.1%
	Bad debts (12)	26	27.7%
	Change in technology	1	1.1%
	Changing of bank resulting in debt or orders being rejected	1	1.1%
	Client apply for debt review	1	1.1%
	Competition (2)	4	4.3%
	Credit risk	3	3.2%
	Crime (5)	11	11.7%
	Delinquent (2)	2	2.1%
	Theft (5)	10	10.6%
	Economic downturn	1	1.1%
	Fraud (6)	20	21.3%
	Liquidation	2	2.1%
	Long term loan	1	1.1%
	Loss of portfolio	1	1.1%
	Market risk	1	1.1%
	Regulation (3)	3	3.2%
	Operational risk	1	1.1%
	Over-indebtedness	2	2.1%
	Strategic risk	1	1.1%
Section C: Risk management practices			
6a Credit risk – Credit scoring	Never	0	0.0%
	Seldom	0	0.0%
	Sometimes	5	12.2%
	Often	16	39.0%
	Nearly always	20	48.8%

6b	Credit risk – Customer affordability calculation	Never	0	0.0%
		Seldom	0	0.0%
		Sometimes	0	0.0%
		Often	5	12.2%
		Nearly always	36	87.8%
6c	Credit risk – Credit Bureau information	Never	0	%
		Seldom	0	%
		Sometimes	6	14.6%
		Often	8	19.5%
		Nearly always	27	65.9%
6d	Credit risk – Collateralisation	Never	17	41.5%
		Seldom	10	24.4%
		Sometimes	5	12.2%
		Often	7	17.1%
		Nearly always	2	4.9%
6e	Credit risk – Surety-ships	Never	10	24.4%
		Seldom	5	12.2%
		Sometimes	14	34.2%
		Often	8	19.5%
		Nearly always	4	9.8%
6f	Credit risk – Peer monitoring through group lending methodology	Never	9	22.0%
		Seldom	0	0.0%
		Sometimes	5	12.2%
		Often	16	39.0%
		Nearly always	11	26.8%
6g	Credit risk – Character based lending methodology	Never	4	9.8%
		Seldom	4	9.8%
		Sometimes	8	19.5%
		Often	10	24.4%

		Nearly always	15	36.6%
6h	Credit risk – Customer orientation	Never	2	4.9%
		Seldom	3	7.3%
		Sometimes	1	2.4%
		Often	11	26.8%
		Nearly always	24	58.5%
6i	Credit risk – Start with smaller amounts for first time borrowers and then grow the loan size as the business builds a credit history with the borrower	Never	0	0.0%
		Seldom	2	4.5%
		Sometimes	11	26.8%
		Often	7	17.1%
		Nearly always	21	51.2%
6j	Credit risk – Other	None	-	-
7a	Loan repayment overdue – Make a follow up call to the client	Never	0	0.0%
		Seldom	0	0.0%
		Sometimes	0	0.0%
		Often	6	14.6%
		Nearly always	35	85.4%
7b	Loan repayment overdue – Calling upon community leaders to put pressure on the client	Never	27	65.8%
		Seldom	2	4.9%
		Sometimes	2	4.9%
		Often	10	24.4%
		Nearly always	0	0.0%
7c	Loan repayment overdue – Make a public announcement through national media like newspapers	Never	27	65.8%
		Seldom	2	4.9%
		Sometimes	3	7.3%
		Often	2	4.9%
		Nearly always	7	17.1%

7d	Loan repayment overdue – Take a legal action against the client	Never	0	0.0%
		Seldom	2	4.9%
		Sometimes	25	61.0%
		Often	7	17.1%
		Nearly always	7	17.1%
7e	Loan repayment overdue – Penalties	Never	0	0.0%
		Seldom	0	0.0%
		Sometimes	19	46.3%
		Often	6	14.6%
		Nearly always	16	39.0%
7f	Loan repayment overdue – Other	None	-	-
8a	Fraud risk – Immediately fire staff involved in fraud	Never	4	9.8%
		Seldom	0	0.0%
		Sometimes	0	0.0%
		Often	22	53.7%
		Nearly always	15	36.6%
8b	Fraud risk – Maintain a record of fraudulent staff and use it to enhance recruitment	Never	0	0.0%
		Seldom	0	0.0%
		Sometimes	0	0.0%
		Often	25	61.0%
		Nearly always	16	39.0%
8c	Fraud risk – Regularly rotate staff	Never	0	0.0%
		Seldom	9	22.0%
		Sometimes	29	70.7%
		Often	3	7.3%
		Nearly always	0	0.0%
8d	Fraud risk – Segregation of duties	Never	7	17.1%
		Seldom	12	29.3%
		Sometimes	14	34.2%

		Often	8	19.5%
		Nearly always	0	0.0%
8e	Fraud risk – Client visits by an independent to verify loan balances	Never	7	17.1%
		Seldom	20	48.8%
		Sometimes	8	19.5%
		Often	0	0.0%
		Nearly always	6	14.6%
8f	Fraud risk – Avoiding staff to make decisions outside the regulations by standardising all loan policies and procedures	Never	0	0.0%
		Seldom	6	14.6%
		Sometimes	0	0.0%
		Often	21	51.2%
		Nearly always	14	34.2%
8g	Fraud risk – Other	Do regular internal checks and reconciliation	1	
9a	Human error risk – Using computer systems and minimise manual entries	Never	0	0.0%
		Seldom	0	0.0%
		Sometimes	13	31.7%
		Often	8	19.5%
		Nearly always	20	48.8%
9b	Human error risk – Continuous staff training	Never	0	0.0%
		Seldom	0	0.0%
		Sometimes	6	14.6%
		Often	19	46.3%
		Nearly always	16	39.0%
9c	Human error risk – Recruiting competent staff	Never	0	0.0%
		Seldom	0	0.0%
		Sometimes	7	17.1%
		Often	13	31.7%
		Nearly always	21	51.2%

9d	Human error risk – Provide the employees with the necessary equipment e.g. calculators	Never	0	0.0%
		Seldom	0	0.0%
		Sometimes	0	0.0%
		Often	7	17.1%
		Nearly always	34	82.9%
9e	Human error risk – Other	Internal check input	1	-
10a	IT risks – Use of access controls like using IDs, user profile and passwords	Never	0	0.0%
		Seldom	0	0.0%
		Sometimes	0	0.0%
		Often	12	29.3%
		Nearly always	29	70.7%
10b	IT risks – Use of firewalls	Never	0	0.0%
		Seldom	0	0.0%
		Sometimes	7	17.1%
		Often	19	46.3%
		Nearly always	15	36.6%
10c	IT risks – Use of intrusion detection software	Never	4	9.8%
		Seldom	3	7.3%
		Sometimes	8	19.5%
		Often	4	9.8%
		Nearly always	22	53.7%
10d	IT risks – Other	Back-ups	1	
11a	Exchange rate risk – Avoid funding the loan portfolio with foreign currency	Never	6	14.6%
		Seldom	4	9.8%
		Sometimes	8	19.5%
		Often	12	29.3%
		Nearly always	11	26.8%

11b Exchange rate risk – Use interest rates swaps or futures contracts	Never	18	43.9%
	Seldom	7	17.1%
	Sometimes	16	39.0%
	Often	0	0.0%
	Nearly always	0	0.0%
11c Exchange rate risk – Other	None	-	-
12a Interest rate risk – Use the financial model to test the business's sensitivity to an increase or decrease in interest rates	Never	6	14.6%
	Seldom	9	22.0%
	Sometimes	14	34.2%
	Often	6	14.6%
	Nearly always	6	14.6%
12b Interest rate risk – Have a treasury department to manage risks associated with interest rate changes	Never	6	14.6%
	Seldom	18	43.9%
	Sometimes	10	24.4%
	Often	5	12.2%
	Nearly always	2	4.9%
12c Interest rate risk – Other	None	-	-
13a Reputation risk – Creating clear channels for customer complaints	Never	0	0.0%
	Seldom	2	4.9%
	Sometimes	0	0.0%
	Often	15	36.6%
	Nearly always	24	58.5%
13b Reputation risk – Have reputation policies that create a framework for managing reputation risk on a continuous basis	Never	0	0.0%
	Seldom	0	0.0%
	Sometimes	4	9.8%
	Often	17	41.5%
	Nearly always	20	48.8%
13c Reputation risk – Other	None	-	-

14a Governance risk – Clearly communicate performance expectations	Never	9	22.0%
	Seldom	0	0.0%
	Sometimes	0	0.0%
	Often	6	14.6%
	Nearly always	26	63.4%
14b Governance risk – Clearly define lines of accountability	Never	5	12.2%
	Seldom	4	9.8%
	Sometimes	7	17.1%
	Often	8	19.5%
	Nearly always	17	41.5%
14c Governance risk – Other	None	-	-
15a Legal compliance risk – Communicate regularly with regulators to provide an opportunity to resolve any potential problems	Never	0	%
	Seldom	4	9.8%
	Sometimes	7	17.1%
	Often	5	12.2%
	Nearly always	25	61.0%
15b Legal compliance risk – Other	None	-	-
16a Liquidity risk – Surplus funds are invested or disbursed as loans	Never	7	17.1%
	Seldom	0	0.0%
	Sometimes	10	24.4%
	Often	20	48.8%
	Nearly always	4	9.8%
16b Liquidity risk – Cash budgets are continuously updated	Never	0	0.0%
	Seldom	0	0.0%
	Sometimes	6	14.6%
	Often	12	29.3%
	Nearly always	23	56.1%

16c Liquidity risk – Cash needs are forecast	Never	0	0.0%
	Seldom	6	14.6%
	Sometimes	0	0.0%
	Often	17	41.5%
	Nearly always	18	43.9%
16d Liquidity risk – Policies are set for minimum and maximum cash levels	Never	0	0.0%
	Seldom	0	0.0%
	Sometimes	3	7.3%
	Often	17	41.5%
	Nearly always	21	51.2%
16e Liquidity risk – Other	Budget closely followed	1	-
1. Are there any other risks which were not mentioned above, which are significant to your business?	Yes	1	2.4%
	No	39	95.2%
	Unknown	1	2.4%
1.1 Risk 1: Crime			
17.1a Management strategy 1	Always be aware and alert		
17.1b Management strategy 2	Hire necessary security		
17.1c Management strategy 3	Insurance		
1.2 Risk 2: Change in technology			
17.2a Management strategy 1	Update regularly		
17.2b Management strategy 2	Stay up to date with changes		
Section D: Basic elements of effective risk management			
18.a A risk appetite is set	Yes	17	41.5%
	No	24	58.5%
18.b Written risk policies exist	Yes	19	46.3%
	No	22	53.7%
18.c A risk management plan exists	Yes	36	87.8%
	No	5	12.2%
18.d Address the most significant	Yes	23	56.1%

	risks first	No	18	43.9%
18.e	A risk strategy is developed and implemented	Yes	13	31.7%
		No	28	68.3%
18.f	All staff levels are involved in risk management	Yes	17	41.5%
		No	24	58.5%
18.g	A risk management framework is developed or adopted	Yes	14	34.2%
		No	27	65.8%
18.h	Effective mechanisms of internal controls are developed	Yes	32	78.0%
		No	9	22.0%
18.i	Risk management is incorporated into operating process and systems design	Yes	27	65.8%
		No	14	34.2%
18.j	The risk management process is regularly monitored, reported and kept up to date	Yes	24	58.5%
		No	17	41.5%
18.k	Risks are actively identified, categorised, prioritised and documented before being assessed	Yes	25	61.0%
		No	16	39.0%

E.2 Frequency analysis for all variables

The FREQ Procedure

A01				
A01	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
3	3	7.32	3	7.32
4	4	9.76	7	17.07
5	2	4.88	9	21.95
6	2	4.88	11	26.83
7	6	14.63	17	41.46
9	2	4.88	19	46.34
10	4	9.76	23	56.10
11	5	12.20	28	68.29
13	1	2.44	29	70.73
14	3	7.32	32	78.05
16	2	4.88	34	82.93

A01				
A01	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
17	4	9.76	38	92.68
18	1	2.44	39	95.12
19	1	2.44	40	97.56
21	1	2.44	41	100.00

A02				
A02	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
2	2	4.88	2	4.88
4	4	9.76	6	14.63
5	3	7.32	9	21.95
6	3	7.32	12	29.27
8	5	12.20	17	41.46
9	4	9.76	21	51.22
10	1	2.44	22	53.66
11	3	7.32	25	60.98
12	1	2.44	26	63.41
13	4	9.76	30	73.17
14	3	7.32	33	80.49
15	1	2.44	34	82.93
23	1	2.44	35	85.37
25	1	2.44	36	87.80
28	1	2.44	37	90.24
30	2	4.88	39	95.12
40	1	2.44	40	97.56
50	1	2.44	41	100.00

A03				
A03	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
Owner	13	32.50	13	32.50
Manager	18	45.00	31	77.50
Owner and manager	8	20.00	39	97.50
Other	1	2.50	40	100.00
Frequency Missing = 1				

A03_1				
A03_1	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
Assistant Manager	1	100.00	1	100.00
Frequency Missing = 40				

A04				
A04	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
2	2	4.88	2	4.88
3	4	9.76	6	14.63
4	7	17.07	13	31.71
5	6	14.63	19	46.34
6	3	7.32	22	53.66
7	7	17.07	29	70.73
8	2	4.88	31	75.61
9	4	9.76	35	85.37
11	3	7.32	38	92.68
14	1	2.44	39	95.12
17	2	4.88	41	100.00

B05_01				
B05_01	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
Absconding	1	2.50	1	2.50
Bad debts	6	15.00	7	17.50
Collections	1	2.50	8	20.00
Competition	2	5.00	10	25.00
Credit risk	1	2.50	11	27.50
Customers failing to pay back	1	2.50	12	30.00
Customers not making payments on time	1	2.50	13	32.50
Default	1	2.50	14	35.00
Defaults	1	2.50	15	37.50
Dishonesty from employees	1	2.50	16	40.00
Economic downturn	1	2.50	17	42.50
Fraud	5	12.50	22	55.00
Fraud = Clients submitting fraudulent documents	1	2.50	23	57.50
Liquidation	1	2.50	24	60.00
Losing money from clients that do not pay	1	2.50	25	62.50
Loss of portfolio	1	2.50	26	65.00
Market risk	1	2.50	27	67.50
New regulation preventing garnishments	1	2.50	28	70.00
Non-payment by clients	1	2.50	29	72.50
Non-payment of loans	1	2.50	30	75.00
Non-payments	2	5.00	32	80.00
Regulation changes	1	2.50	33	82.50
Robberies	1	2.50	34	85.00
Robbery	1	2.50	35	87.50
Theft	4	10.00	39	97.50

B05_01				
B05_01	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Theft by staff	1	2.50	40	100.00
Frequency Missing = 1				

B05_02				
B05_02	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Bad debts	2	6.25	2	6.25
Bad debts written off	1	3.13	3	9.38
Changing of Bank accounts resulting in debit orders being rejected	1	3.13	4	12.50
Competition	1	3.13	5	15.63
Credit risk	2	6.25	7	21.88
Crime	3	9.38	10	31.25
Fake documents	1	3.13	11	34.38
Fraud	8	25.00	19	59.38
Fraud committed by both clients and employees	1	3.13	20	62.50
Getting robbed	1	3.13	21	65.63
Irrecoverable debts	1	3.13	22	68.75
Long term loan	1	3.13	23	71.88
Non payments on loans	1	3.13	24	75.00
Non-payments	1	3.13	25	78.13
Reckless lending by too many lenders	1	3.13	26	81.25
Risk of being robbed	1	3.13	27	84.38
Robbery	2	6.25	29	90.63
Strategic risk	1	3.13	30	93.75
Theft	1	3.13	31	96.88
Theft by untrustworthy employees	1	3.13	32	100.00
Frequency Missing = 9				

B05_03				
B05_03	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Affordability	1	5.88	1	5.88
Bad debts	2	11.76	3	17.65
Change in technology	1	5.88	4	23.53
Competition = risk of losing customers	1	5.88	5	29.41
Customers failing to pay borrowed cash	1	5.88	6	35.29
Delinquent	1	5.88	7	41.18
False information by clients	1	5.88	8	47.06
Fraud	1	5.88	9	52.94
Fraud by workers	1	5.88	10	58.82

B05_03				
B05_03	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
Irrecoverable debts	1	5.88	11	64.71
Liquidation	1	5.88	12	70.59
Operational risk	1	5.88	13	76.47
Regulation risk	1	5.88	14	82.35
Robberies	1	5.88	15	88.24
Robbery	1	5.88	16	94.12
Theft	1	5.88	17	100.00
Frequency Missing = 24				

The remaining part of Annexure E.2 can be provided on request

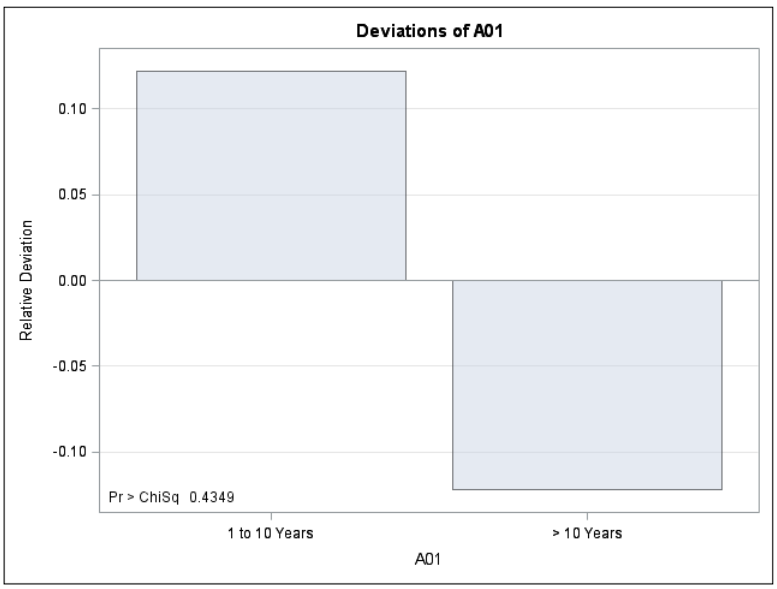
Annexure F: Inferential statistics

F.1 Determine whether the response variables has equal proportions

The FREQ Procedure

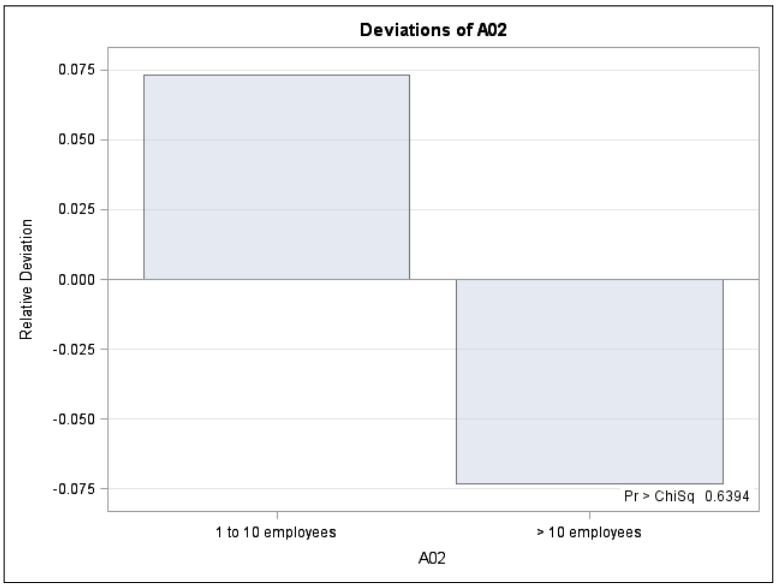
A01				
A01	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
1 to 10 Years	23	56.10	23	56.10
> 10 Years	18	43.90	41	100.00

Chi-Square Test for Equal Proportions	
Chi-Square	0.6098
DF	1
Pr > ChiSq	0.4349



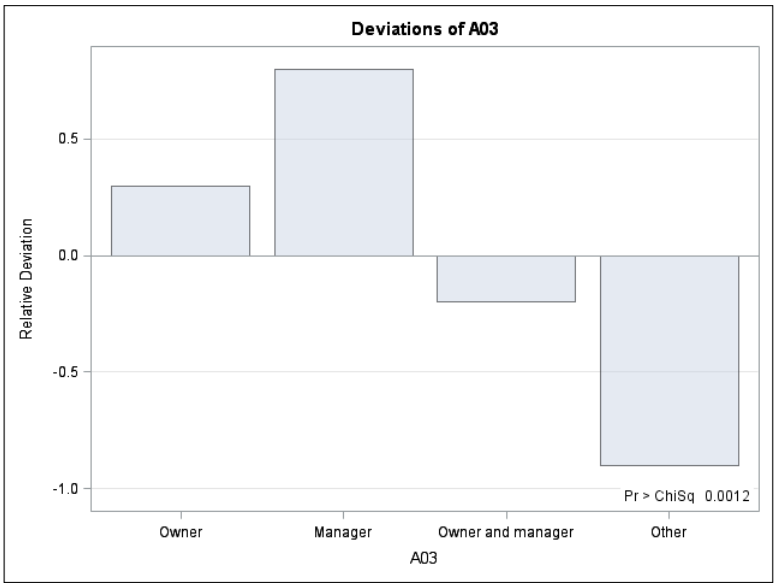
A02				
A02	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
1 to 10 employees	22	53.66	22	53.66
> 10 employees	19	46.34	41	100.00

Chi-Square Test for Equal Proportions	
Chi-Square	0.2195
DF	1
Pr > ChiSq	0.6394



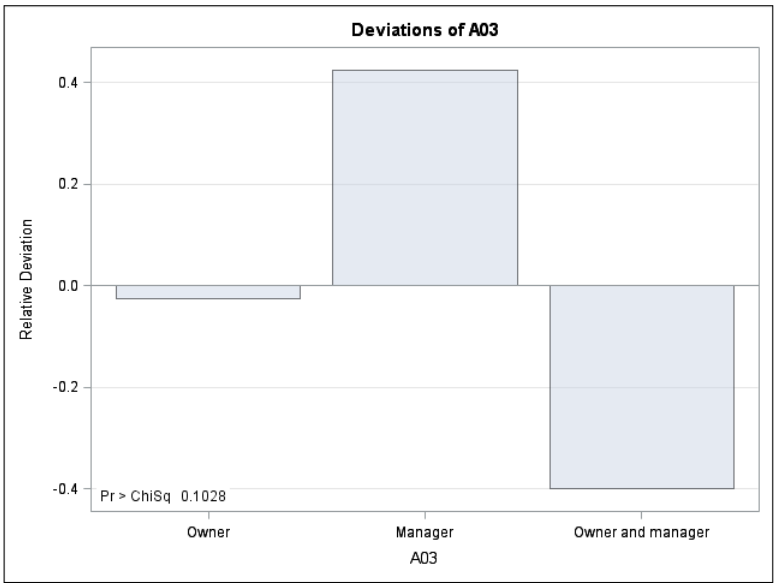
A03				
A03	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
Owner	13	32.50	13	32.50
Manager	18	45.00	31	77.50
Owner and manager	8	20.00	39	97.50
Other	1	2.50	40	100.00
Frequency Missing = 1				

Chi-Square Test for Equal Proportions	
Chi-Square	15.8000
DF	3
Pr > ChiSq	0.0012



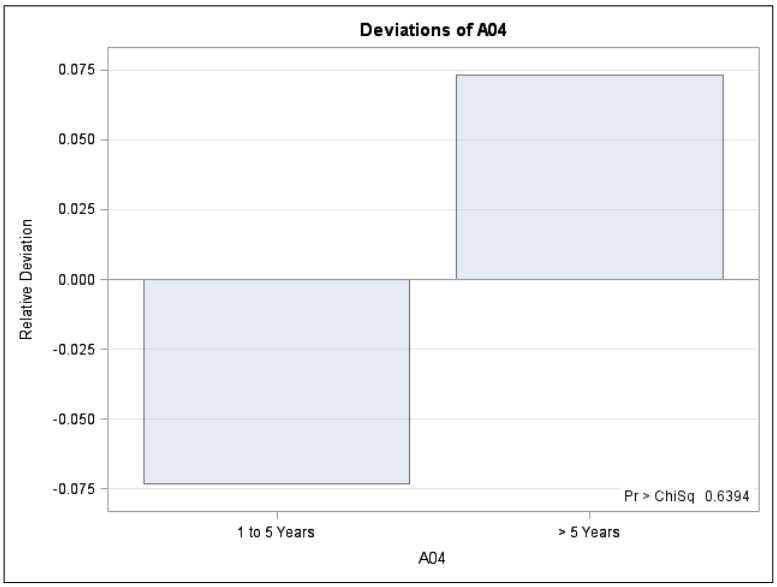
A03				
A03	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Owner	13	32.50	13	32.50
Manager	19	47.50	32	80.00
Owner and manager	8	20.00	40	100.00
Frequency Missing = 1				

Chi-Square Test for Equal Proportions	
Chi-Square	4.5500
DF	2
Pr > ChiSq	0.1028



A04				
A04	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1 to 5 Years	19	46.34	19	46.34
> 5 Years	22	53.66	41	100.00

Chi-Square Test for Equal Proportions	
Chi-Square	0.2195
DF	1
Pr > ChiSq	0.6394



The remaining part of Annexure F.1 can be provided on request

F.2 Cross Tables

F.2.1 Operating time of business

The FREQ Procedure

Frequency Percent Row Pct Col Pct	Table of A01 by C06_a			
A01(A01)	C06_a(C06_a)			
	Sometimes	Often	Nearly always	Total
1 to 10 Years	2	8	13	23
	4.88	19.51	31.71	56.10
	8.70	34.78	56.52	
	40.00	50.00	65.00	
> 10 Years	3	8	7	18
	7.32	19.51	17.07	43.90
	16.67	44.44	38.89	
	60.00	50.00	35.00	
Total	5	16	20	41
	12.20	39.02	48.78	100.00

Statistics for Table of A01 by C06_a

Statistic	DF	Value	Prob
Chi-Square	2	1.4112	0.4938
Likelihood Ratio Chi-Square	2	1.4181	0.4921
Mantel-Haenszel Chi-Square	1	1.3570	0.2441
Phi Coefficient		0.1855	

Statistic	DF	Value	Prob
Contingency Coefficient		0.1824	
Cramer's V		0.1855	
WARNING: 33% of the cells have expected counts less than 5. Chi-Square may not be a valid test.			

Sample Size = 41

Frequency
Percent
Row Pct
Col Pct

Table of A01 by C06_b			
A01(A01)	C06_b(C06_b)		
	Often	Nearly always	Total
1 to 10 Years	2	21	23
	4.88	51.22	56.10
	8.70	91.30	
	40.00	58.33	
> 10 Years	3	15	18
	7.32	36.59	43.90
	16.67	83.33	
	60.00	41.67	
Total	5	36	41
	12.20	87.80	100.00

Statistics for Table of A01 by C06_b

Statistic	DF	Value	Prob
Chi-Square	1	0.5992	0.4389
Likelihood Ratio Chi-Square	1	0.5948	0.4406
Continuity Adj. Chi-Square	1	0.0860	0.7694
Mantel-Haenszel Chi-Square	1	0.5845	0.4445
Phi Coefficient		-0.1209	
Contingency Coefficient		0.1200	
Cramer's V		-0.1209	
WARNING: 50% of the cells have expected counts less than 5. Chi-Square may not be a valid test.			

Fisher's Exact Test	
Cell (1,1) Frequency (F)	2
Left-sided Pr <= F	0.3808
Right-sided Pr >= F	0.8947
Table Probability (P)	0.2755
Two-sided Pr <= P	0.6384

Sample Size = 41

Frequency
Percent

Table of A01 by C06_c	
A01(A01)	C06_c(C06_c)

Row Pct Col Pct		Sometimes	Often	Nearly always	Total
	1 to 10 Years	5	3	15	23
		12.20	7.32	36.59	56.10
		21.74	13.04	65.22	
		83.33	37.50	55.56	
	> 10 Years	1	5	12	18
		2.44	12.20	29.27	43.90
		5.56	27.78	66.67	
		16.67	62.50	44.44	
	Total	6	8	27	41
		14.63	19.51	65.85	100.00

Statistics for Table of A01 by C06_c

Statistic	DF	Value	Prob
Chi-Square	2	2.9339	0.2306
Likelihood Ratio Chi-Square	2	3.1391	0.2081
Mantel-Haenszel Chi-Square	1	0.5646	0.4524
Phi Coefficient		0.2675	
Contingency Coefficient		0.2584	
Cramer's V		0.2675	
WARNING: 67% of the cells have expected counts less than 5. Chi-Square may not be a valid test.			

Sample Size = 41

Frequency Percent Row Pct Col Pct	Table of A01 by C06_d					
A01(A01)	C06_d(C06_d)					
	Never	Seldom	Sometimes	Often	Nearly always	Total
1 to 10 Years	9	8	4	1	1	23
	21.95	19.51	9.76	2.44	2.44	56.10
	39.13	34.78	17.39	4.35	4.35	
	52.94	80.00	80.00	14.29	50.00	
> 10 Years	8	2	1	6	1	18
	19.51	4.88	2.44	14.63	2.44	43.90
	44.44	11.11	5.56	33.33	5.56	
	47.06	20.00	20.00	85.71	50.00	
Total	17	10	5	7	2	41
	41.46	24.39	12.20	17.07	4.88	100.00

Statistics for Table of A01 by C06_d

Statistic	DF	Value	Prob
Chi-Square	4	8.5476	0.0735
Likelihood Ratio Chi-Square	4	9.1924	0.0565

Statistic	DF	Value	Prob
Mantel-Haenszel Chi-Square	1	1.2008	0.2732
Phi Coefficient		0.4566	
Contingency Coefficient		0.4153	
Cramer's V		0.4566	
WARNING: 70% of the cells have expected counts less than 5. Chi-Square may not be a valid test.			

Sample Size = 41

The remaining part of Annexure F.2.1 can be provided on request

F.2.2 Position within business

The FREQ Procedure

Frequency Percent Row Pct Col Pct	Table of A03 by C06_a			
A03(A03)	C06_a(C06_a)			
	Sometimes	Often	Nearly always	Total
Owner	2	4	7	13
	5.00	10.00	17.50	32.50
	15.38	30.77	53.85	
	50.00	25.00	35.00	
Manager	2	9	8	19
	5.00	22.50	20.00	47.50
	10.53	47.37	42.11	
	50.00	56.25	40.00	
Owner and manager	0	3	5	8
	0.00	7.50	12.50	20.00
	0.00	37.50	62.50	
	0.00	18.75	25.00	
Total	4	16	20	40
	10.00	40.00	50.00	100.00
Frequency Missing = 1				

Statistics for Table of A03 by C06_a

Statistic	DF	Value	Prob
Chi-Square	4	2.2548	0.6890
Likelihood Ratio Chi-Square	4	3.0049	0.5570
Mantel-Haenszel Chi-Square	1	0.4350	0.5095
Phi Coefficient		0.2374	
Contingency Coefficient		0.2310	
Cramer's V		0.1679	
WARNING: 56% of the cells have expected counts less			

Statistic	DF	Value	Prob
than 5. Chi-Square may not be a valid test.			

Effective Sample Size = 40
Frequency Missing = 1

Frequency Percent Row Pct Col Pct	Table of A03 by C06_b		
A03(A03)	**C06_b(C06_b)**		
	Often	**Nearly always**	**Total**
Owner	2 5.00 15.38 50.00	11 27.50 84.62 30.56	13 32.50
Manager	2 5.00 10.53 50.00	17 42.50 89.47 47.22	19 47.50
Owner and manager	0 0.00 0.00 0.00	8 20.00 100.00 22.22	8 20.00
Total	4 10.00	36 90.00	40 100.00
Frequency Missing = 1			

Statistics for Table of A03 by C06_b

Statistic	DF	Value	Prob
Chi-Square	2	1.3135	0.5185
Likelihood Ratio Chi-Square	2	2.0574	0.3575
Mantel-Haenszel Chi-Square	1	1.1963	0.2741
Phi Coefficient		0.1812	
Contingency Coefficient		0.1783	
Cramer's V		0.1812	
WARNING: 50% of the cells have expected counts less than 5. Chi-Square may not be a valid test.			

Effective Sample Size = 40
Frequency Missing = 1

Frequency Percent Row Pct Col Pct	Table of A03 by C06_c			
A03(A03)	**C06_c(C06_c)**			
	Sometimes	**Often**	**Nearly always**	**Total**
Owner	3 7.50 23.08	3 7.50 23.08	7 17.50 53.85	13 32.50

	50.00	42.86	25.93	
Manager	2	3	14	19
	5.00	7.50	35.00	47.50
	10.53	15.79	73.68	
	33.33	42.86	51.85	
Owner and manager	1	1	6	8
	2.50	2.50	15.00	20.00
	12.50	12.50	75.00	
	16.67	14.29	22.22	
Total	6	7	27	40
	15.00	17.50	67.50	100.00
Frequency Missing = 1				

Statistics for Table of A03 by C06_c

Statistic	DF	Value	Prob
Chi-Square	4	1.7627	0.7793
Likelihood Ratio Chi-Square	4	1.7280	0.7856
Mantel-Haenszel Chi-Square	1	1.1446	0.2847
Phi Coefficient		0.2099	
Contingency Coefficient		0.2054	
Cramer's V		0.1484	
WARNING: 67% of the cells have expected counts less than 5. Chi-Square may not be a valid test.			

Effective Sample Size = 40
Frequency Missing = 1

The remaining part of Annexure F.2.2 can be provided on request

F.2.3 Number of years in position

The FREQ Procedure

Frequency Percent Row Pct Col Pct	Table of A04 by C06_a			
A04(A04)	**C06_a(C06_a)**			
	Sometimes	**Often**	**Nearly always**	**Total**
1 to 5 Years	0	9	10	19
	0.00	21.95	24.39	46.34
	0.00	47.37	52.63	
	0.00	56.25	50.00	
> 5 Years	5	7	10	22
	12.20	17.07	24.39	53.66
	22.73	31.82	45.45	
	100.00	43.75	50.00	

Total	5	16	20	41
	12.20	39.02	48.78	100.00

Statistics for Table of A04 by C06_a

Statistic	DF	Value	Prob
Chi-Square	2	5.0576	0.0798
Likelihood Ratio Chi-Square	2	6.9624	0.0308
Mantel-Haenszel Chi-Square	1	1.8690	0.1716
Phi Coefficient		0.3512	
Contingency Coefficient		0.3314	
Cramer's V		0.3512	
WARNING: 33% of the cells have expected counts less than 5. Chi-Square may not be a valid test.			

Sample Size = 41

Frequency
Percent
Row Pct
Col Pct

Table of A04 by C06_b

A04(A04)	C06_b(C06_b)		
	Often	**Nearly always**	**Total**
1 to 5 Years	0	19	19
	0.00	46.34	46.34
	0.00	100.00	
	0.00	52.78	
> 5 Years	5	17	22
	12.20	41.46	53.66
	22.73	77.27	
	100.00	47.22	
Total	5	36	41
	12.20	87.80	100.00

Statistics for Table of A04 by C06_b

Statistic	DF	Value	Prob
Chi-Square	1	4.9179	0.0266
Likelihood Ratio Chi-Square	1	6.8229	0.0090
Continuity Adj. Chi-Square	1	3.0245	0.0820
Mantel-Haenszel Chi-Square	1	4.7980	0.0285
Phi Coefficient		-0.3463	
Contingency Coefficient		0.3273	
Cramer's V		-0.3463	
WARNING: 50% of the cells have expected counts less than 5. Chi-Square may not be a valid test.			

Fisher's Exact Test	
Cell (1,1) Frequency (F)	0

Fisher's Exact Test	
Left-sided Pr <= F	0.0351
Right-sided Pr >= F	1.0000
Table Probability (P)	0.0351
Two-sided Pr <= P	0.0507

Sample Size = 41

Frequency
Percent
Row Pct
Col Pct

Table of A04 by C06_c

A04(A04)	C06_c(C06_c)			
	Sometimes	Often	Nearly always	Total
1 to 5 Years	4	1	14	19
	9.76	2.44	34.15	46.34
	21.05	5.26	73.68	
	66.67	12.50	51.85	
> 5 Years	2	7	13	22
	4.88	17.07	31.71	53.66
	9.09	31.82	59.09	
	33.33	87.50	48.15	
Total	6	8	27	41
	14.63	19.51	65.85	100.00

Statistics for Table of A04 by C06_c

Statistic	DF	Value	Prob
Chi-Square	2	5.0110	0.0816
Likelihood Ratio Chi-Square	2	5.5590	0.0621
Mantel-Haenszel Chi-Square	1	0.0127	0.9103
Phi Coefficient		0.3496	
Contingency Coefficient		0.3300	
Cramer's V		0.3496	
WARNING: 67% of the cells have expected counts less than 5. Chi-Square may not be a valid test.			

Sample Size = 41

Annexure G: Letter of confirmation of proofreading

J&T Dorrington

Editing, Proofreading, Copywriting & Historical Research

18D South Road Table View 7441, South Africa

Telephone: (021) 557 7477; Cell: 082 343 9610; E-mail: john@jandtdorrington.com

Website: www.jandtdorrington.com

TO WHOM IT MAY CONCERN

13 February 2015

MASTER'S THESIS: MR OSCAR CHAKABVA

Dear Sir or Madam,

This is to confirm that I have proofread / edited Mr Oscar Chakabva's master's thesis.
My contribution to his dissertation was merely for the purpose of editing his writing style and grammar, as he is not a first-language English speaker.

In no way did I assist him in the subject matter of his dissertation, which remains his work and his alone.

My editing / proofreading qualification are as follows:

- I have a BA degree from UCT, with majors in English and History.
- After selling my printing company I took up freelance writing and editing.
- I have written four books and am presently editing an American film script.
- My work includes having edited numerous theses (including several master's and doctoral theses) written by students from various universities.

Sincerely,

John Dorrington.