ASSESSMENT ON THE IMPACT AND EFFICIENT OF CREDIT RISK
MANAGEMENT ON PROFITABILITY OF FIVE MICROFINANCE
INSTITUTIONS IN ZAMBIA

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Abstract

Microfinance Institutions (MFIs) today are one of the largest non-banking financial intermediaries around the world most particularly in Zambia, with branches and agencies throughout the country. However, microfinance institutions are facing a number of risks when they are operating. Credit risk is one of the most significant risks that microfinance institutions face, considering that granting credit and advances is one of the core business and a source of their income. Therefore, the management of the risk related to that credit affects the profitability of these microfinance institutions. The aim of the research is to provide stakeholders with accurate information regarding the credit risk management of microfinance institutions with its impact on profitability and liquidity.

The main purpose of the research is to investigate if there is a relationship between effective credit risk management and profitability of microfinance institutions in Zambia. We also aim to investigate if the relationship is stable or fluctuating when independent variables are manipulated. In the research model, ROE and ROA are defined as substitutes of profitability while NPL and CAR are defined as substitutes of credit risk management. The researcher collects data from the central bank BOZ for a period of five years from 2010 to 2015 and formulates empirical testing which are related to the research question. A series of statistical tests are performed in order to test if the relationship exists.

Other statistical tests are performed to investigate if the relationship is stable or not. The findings reveal that credit risk management does have a positive effect on profitability of microfinance institutions. Between the two proxies of credit risk management, NPLS has a significant effect on both ROE and ROA while CRA has an insignificant effect on both ROE and ROA. However, from 2010 to 2015, the relationships between all the proxies are not stable but fluctuating.

Key words: Credit risk management, Profitability, Commercial banks, Credit Risk Assessment, Non-Performing Loans.
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Declaration

I …………………………………… do hereby declare that this piece of work is my own and that all the works of other people have been duly acknowledged and that this research paper has not previously been presented at this University or indeed any other University for similar purposes.

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<td>ROA</td>
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<td>CRAS</td>
<td>Credit Risk Assessment System</td>
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<td>BCBS</td>
<td>Basel Committee on Banking Supervision</td>
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<td>CAR</td>
<td>Capital Adequacy Ratio</td>
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<td>IFRS</td>
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Chapter one:
1.0 Introduction

Lending is an integral element of microfinance business; it is itself at the heart of an economy’s financial architecture. It therefore behooves policy makers to continually review the credit market to minimize inefficiencies that hinder faster economic growth. Credit risk management is the current and prospective risk earnings or capital arising from an obligor’s failure to meet the terms of any contract with the financier or otherwise to perform as agreed (Kargi, 2011).

Credit risk management is a structured approach to managing uncertainties through risk assessment developing strategies to manage it, and mitigation of risk using managerial resources. The strategies include transferring to another party, avoiding the risk, reducing the negative effects of the risk and accepting some or all of the consequences of a particular risk. Credit risk management is very important to microfinance institutions as it is an integral part of the loan process.

When financial institutions grant loans, they expect the customers to repay the principal and interest on an agreed date. A credit facility is said to be performing if payment of both principal and interest are up to date in accordance with agreed repayment terms. The non-performing loans (NPLs) represent credits which the financial institutions perceive as possible loss of funds due to loan defaults. They are further classified into substandard, doubtful or bad debts. Bank credit in lost category hinders bank from achieving their set target (Kolapo et al., 2012).

Financial performance is company’s ability to generate new resources, from day-to-day operations, over a given period of time; performance is gauged by net income and cash from operations. A micro-financial institution is an institution that provides financial services, including issuing short to medium term loans, receiving deposits of money, lending money and processing transactions and the creating of credit (Campel, et. al., 1993).

Credit risk management models include the systems, procedures and control which a company has in place to ensure the efficient collection of customer payments and minimize the risk of non-payment. The high level of non-performing loans is a challenge to many financial institutions in Zambia.

Financial institutions are exposed to a variety of risks among them; interest rate risk, political risk, market risk, liquidity risk, operational risk and credit risk (Yusuf, 2003; Cooperman, Gardener and Mills, 2000). In some instances, financial institutions have approved decisions
that are not vetted; there have been cases of loan defaults and non-performing loans, massive extension of credit and directed lending.

1.1 Background to the study
Risk is an inevitable phenomenon which has lived with mankind since time immemorial. In our domestic and especially in our business life, we find ourselves in situations where risk taking becomes the solution to our break through. Nevertheless, one should find a way to minimize or manage/mitigate this risk in order not to affect the expected result from a given investment. In the financial sector, risk management is seen as one of the most essential internal circuits upon which decisions are made by financial institutions. (Aureliju et al, 2014).

Carey (2001) disclosed that the most essential issue in the managing of an economy is the mitigation of risk. This is not different from what happens in the commercial industry including microfinance institutions. In the aspect of microfinance institutions, credit risk is given much attention due to the characteristics of their borrowers and the kind of businesses they invest into. Advanced risk management processes and systems have to put in place to properly mitigated unwarranted outcomes.

The microfinance theory identifies six popular categories of risk which are related with credit guidelines of banks. They include credit risk (risk of repayment), interest risk, portfolio risk, operating risk, credit deficiency risk, and trade union risk (Muhammad, 2014). Analysis have shown that, credit risk is the main risk that causes the collapse of any microfinance institutions and banks. (Sinkey, 1992, p.279)
According to Fatemi et al (2006), credit risk occurs as a result of the refusal of one party to deliver his or her duties.

The development of different kinds of counterparties, ranging from individuals to sovereign governments and the new forms of obligations has stressed on the reason why credit risk management is on top in terms of actions laid down for the benefits of managing risk in the microfinance institutions. The management of risk has become the order of the day because microfinance institutions are financially incapacitated to take in more loan losses (Boffey 2 and Robson, 1995). In a larger spectrum, the ability of a microfinance institutions to absorb losses is possible when loans yield profit, shareholders’ funds and deposits from customers (Boffey and Robson, 1995).
Over the years, microfinance institutions have encountered hitches from different sources. The chief causes of these challenges are the careless ways of loan scrutiny of borrowers and counterparties, improper management of loan portfolios, and ignoring the overall economic indicators of the country or other situations that can result to decline in the credit level of a microfinance’s counterparties.

The inability of a bank or a micro financial institution to effectively control its credit risk has a substantial adverse results on the performance of its profitability both in the short and long term. In the last five years, some financial institutions in Zambia have had their hard earned reputation tarnished and others who could not curtail or curb the situation have collapsed because of weak measures in the controlling of credit risk categorized by massive of insider loans, external fraud and the avoidance of diversified loan portfolio.

Inefficient credit risk supervision methods and poor credit quality remain overriding reason of microfinance institutions’ collapse and globe financial crises (Tetteh, 2012). Researches on the failure of banks/microfinance institutions in the world at large have revealed that low quality of loans is a predominant cause of bank distresses (Boahene, el at 2012). Therefore, an effective supervision of credit risk should be implemented during the credit granting stage to the recovery stage. Financial Institutions have to stress credit worthiness of the customer because if default occurs, they will find themselves in a financial shortage linked with its adverse implications.

1.2 Problem statement

The nature of the microfinance business is so delicate because more than 100% of their loans are either the shareholder’s money or borrowed funds. Microfinance Institutions create loans from these inflows and these loans are major income generating source and profitability of the company. However, this action is associated with enormous risks to both the microfinance institutions and the deficit units.

With the aim of increasing revenue/profitability and gaining a large portion of the market share, many microfinance institutions in Zambia have given out loans and advances which could not be recovered leading to a massive growth in Non-Performing Loans (NPLs) or bad debts in their accounts. This has become a worrisome situation for microfinance management and other stakeholders.
However, a study carried out by Boahene et al (2012) on the topic “Credit risk and profitability of some selected banks in Ghana” exposed that credit risk constituents do not reduce the profitability of a bank. This implies that, banks in Ghana experience high profit irrespective of the huge credit risk exposure, conflicting with views shared by other researchers; Njanike (2009), Al-Khoury (2011), Poudel (2012) that credit risk indicators are inversely related to profitability. The prime concern of this thesis is to determine whether credit risk has an impact on the profitability of Microfinance Institutions in Zambia using secondary data from 2010 to 2015.

1.3 Research Purpose
The main purpose of the research is to analyse how the credit risk management will influence the profitability of microfinance institutions in Zambia. To analyse the effect, we need to find whether the relationship of those two variables exists or not. The major issue is the indicators of credit risk management and profitability. We will use capital adequacy ratio (CAR) and non-performing loan ratio (NPLR) as variables to represent credit risk management and ROE and ROA as variables to measure the profitability of microfinance institution in Zambia.

When we have found if the relationship truly exists, the next step will be to empirically investigate whether the relationship is positive or negative. Finally, we will test the stability over time of such relationship to find whether the relationship is fluctuating or stable. This kind of test will be conducted on sub-periods in the chosen time horizon. This will help us to go deep into the research area and could lead to further research topics in the future.

1.4 Research Gap
As we have described before, microfinance strength plays an important role in the stability and growth of economy. And the stability of microfinance institutions depends on the profitability and liquidity adequacy (Tabari et al., 2013, p.1624). A thorough study of previous research relating the profitability of microfinance institutions has made us aware of the lacking conclusion of relationship between credit risk management and profitability of MFIs.

Most of researchers have focused on one or several countries and showed different results. However, very few or no researcher has put the research in Zambia. Therefore, we have found the existence of research gap and bestow our effort to conduct a research on it. For a theoretical
contribution, the study will fill the research gap on the influence of credit risk management to the profitability in microfinance institutions.

Another contribution will be that this research will supply the foundation for other researchers who wish to dig into further study of such area, for example, is the geographic variable an influential factor related to the stability of the relationship? From a practical perspective, the information provided in this research will offer a guideline for credit managers, investors and microfinance management, depending on the outcome of our research. Credit managers could pay more attention to improve loan performance by managing the credit risk microfinance face.

Microfinance thus can better arrange and allocate their resources regarding the position of credit risks. Besides, private investors can have a more comprehensive outlook of how the profitability will be affected. By evaluating the risk management from the risk report that banks provide, they may have more resources on decision making according to the empirical result of our research.

Last but not the least, credit managers will be provided with more evidence for the impact of credit risk management and to investigate if it is necessary to deregulate or impose further regulation. If the result indicates that no relationship exists, the contribution could be that there is no need for other researchers to make effort into this area or more influential factors should be considered to produce more significant relationship.

1.5 Rationale of the study
The research will be a unique study and is likely to bring fruitful results in terms of credit risk management information concerned with microfinance institutions. In these days of highly competitive world and globalization the automated and Fintech financial services are getting recognition day by day. The biggest issue is that how the microfinance is responding to customer needs and managing the critical aspect of credit risk. The research will assess the effects of good credit scoring system and its impact on profitability of microfinance institutions. It is also hoped that the present research work will motivate further researches in this field and will contribute to the Zambian society as a whole. The study would be both Exploratory and Descriptive.
The objective of exploratory research is to gather preliminary information that will help define problems and suggest hypothesis. The objective of descriptive research is to describe things, such as the risk management, profitability and liquidity. The study has attempted to identify two factors which are independent and dependent, independent factors are those that have a direct or indirect impact on the desired and expected outcome whereas dependent factors are those which are highly dependent on the independent factors.

1.6 Objectives of study
In relation to the selected microfinance institutions, the specific objectives for the study include;

i) To determine the effect of credit risk management have on financial performance of microfinance institutions in Zambia.

ii) To determine the effect of loan security on financial Performance of microfinance institutions in Zambia.

iii) To determine the effect of credit risk assessment (scoring) on financial performance of microfinance institutions in Zambia.

iv) To determine the effect of credit appraisal analysis on financial performance of microfinance institutions in Zambia.

v) To determine the effect of credit approval process and sanctions on financial performance of microfinance institutions in Zambia.

vi) To establish the moderating effect of Central Bank of Zambia.

vii) To establish the moderating effect of Government Regulations

1.7 Research hypothesis
In order to achieve the above study objectives, the research aims at addressing the following questions in relation to the selected microfinance institutions in Zambia.

i) What is the effect of credit risk management guarantees on the financial performance of Zambian microfinance institutions

ii) What is the effect of loan security on the financial performance of microfinance in Zambia?

iii) Does credit risk scoring impact on the financial performance of microfinance in Zambia?
iv) What is the effect of credit appraisal analysis on the financial performance of microfinance in Zambia?

v) Does credit approval process and sanctions impact on a bank’s financial performance?

vi) What is the moderating effect of central bank of Zambia regulations?

vii) What is the moderating effect of government regulations?

1.8 Significance of the study

Credit risk underpins the performance of microfinance institution and therefore proper credit risk management reduces the default rate of customers and assists banks to be on top in the loan generating market. Credit risk which is as a result of ineffective management is one of the foremost catalysts of microfinance institution letdown. Furthermore, the degree to which credit risk is controlled has a bearing on the progress and sustainability of that financial institution and the economy at large.

The purpose of this research is to discover the impact of credit risks on the profitability of banks in Zambia. It would serve as an embodiment of knowledge to individuals, management and practitioners in the banking and non-bank financial industry. The findings of the research would also be of scholarly importance in the academic arena.
Chapter two

2.0 Literature review

2.1 Overview of literature

This chapter deliberates other research works conducted on credit risk and its impact on profitability. Additionally, it makes comparative analysis and tries to assess the credit risk management strategies in relation to microfinance institutions in Zambia. This chapter reviews the concept of credit risk and profitability. It also brings to bear some internal and external determinants of microfinance profitability.

2.2 Literature review

2.2.1 THE CONCEPT OF CREDIT

According to Kitua (1996), the idea of credit came into the limelight after the second World War when it was large embraced in Europe and advanced to Africa. Credit is the faith lender has in a borrower so that resources can be transferred to the borrower without immediate payment (Greuning et al., 2003). This means the lender gives a borrower an asset with the intention of getting an equal asset in value on the day of payment in a later and agreed date. According to Onyeagocha (2001), the term credit is used precisely to refer to the confidence lender have in a borrower by prolonging a loan which may take the form of money, goods or securities.

Onyeagocha (2001) sees credit more as the belief a creditor entrusts in a borrower that whatever given him will be paid. Essentially, when a loan is made, the lender is said to have given credit to the borrower and he automatically accepts the credit of the borrower. In the financial parlance, Credit also refers to the giving out of loans and the making of debt. Other researchers who look at commercial trade define credit as the approval for deferred payment for goods acquired. The credit facility may take the form of a liquid asset (cash) or fixed asset.

In the microfinance arena for which this research is based, credit is the advancement of funds based on some financial expectations a borrower believes to gain and the assurance that the debt (principal and interest) will be paid in full. According to Tetteh (2012), sound credit-giving is one of the most essential principles which strengthen financial institutions in their financial standing.
This researcher stressed that, sound credit giving establishes credit limits as well as develop credit granting process for approving new credits. Credit plays a very vital part in the economic growth and development of a country by channeling resources from abundance to deficit areas. These roles credit plays can be categorized into two: it enables the transfer of funds to where it will be most effectively and efficiently used and secondly, credit economizes the use of currency or coin money as granting of credit has a multiplier effect on the volume of currency or coin in circulation (Aremu et al, 2010). The giving out of credit goes through a chain of processes known as the Lending cycle.

2.2.2 CREDIT EVALUATION
This is a very sensitive stage because it helps ensure loan quality. In simple terms, the giving of credit rest on the sureness the lender has in the borrower's ability to pay (credit worthiness). Credit worthiness is the ability and the readiness of a borrower to settle his or her debt. This is one of numerous issues which determine what should go into the credit policies of a lender.

A lot of financial models come into play when assessing the credit worthiness of the deficit units. The most commonly used is the five financial analysis tools which include character, capital, capacity, condition and collateral. These tools are generally known as the 5c”s of credit (Machiraju, 2004).

2.2.3 CHARACTER
According to Machiraju (2004), Character signifies the customer’s preparedness and willpower to settle his or her debt. Character is usually known when the lender engages a one on one talk with the borrowers; scrutinize their debt history and also how they manage their finances and the operational aspect of their business. Character is considered as the most important of the five c’s because refusal to do due diligence will lead to a clear case of moral hazard.

2.2.4 CAPACITY
Capacity is a quantitative financial analysis to decide whether the customers have the capacity to payback what they have taken. According to Owusu Tweneboa (2000), capacity is the ability of the borrower to generate cash from the overall operations to pay for the loans given. Capacity is very important to the lender because it serves as a form of assurance that the loan can be recovered.
2.2.5 CAPITAL
Capital is also referred to as the net worth which represents funds set aside to cater for unexpected losses. Thus it serves as a cushion for the business. The lender is much interested in the capital adequacy of the borrower. (Machiraju, 2004).

2.2.6 CONDITION
Conditions are the outward factors that can have an impact on the credit portfolio of a business. This can take the form of economic policies prevailing in the country and the international market at large. Lenders will be in a safe position if they consider the effect of the economic conditions both the borrowers and themselves (Machiraju, 2004).

2.2.7 COLLATERAL
Machiraju (2004) defined collateral as the properties a lender in exchange for the loan given. It serves as insurance for the lender when the borrower could not settle his or her debt. Collateral is considered as insulation against default but it is not advisable for a lender to give out loans based on collateral.

Many scholars and financial experts have advanced this credit evaluation tools by developing another effective tool known as CAMPARI. CAMPARI is an acronym for character, ability. It also includes margin, purpose, amount, repayment and insurance. The procedure employed in the granting of loans determines the quality of a loan. According to Boahene (2012), credit officers should not only consider these five (5) C”s but to gain better understanding on how to analyze the credit risk factors, some principal economic determinants that control the performance of a loan portfolio and the impact these economic factors have on one another must be determined. These factors include inflation, interest rate, GDP, market value of collaterals.

2.3.1 THE CONCEPT OF RISK
Financial institutions through their role as a financial intermediary help circulate funds deposited by the various surplus units to the deficit units. In the course of performing this role, they are confronted with risk which remains one of the topical issues of current financial studies that had attracted special attention from both scholars and professionals.
One key factor that determines the success of any banking institution is risk management. According to Boahene et al. (2012), the business of banking is full of risk and hence a bank’s ability to generate profit and maximize the wealth of their shareholders depends on their attitude toward risk and management of the risk.

Risk is the probability that the actual will be different from the expected value. Thus it is the possibility that the actual may be different from the expected return. In banking, “risk is defined as the sum of threats likely to occur until the money loaned and all other committed are settled by the borrower.

Financial institutions in the quest to make profit and maximize shareholders’ wealth often engage in some activities which expose them to various types of risks. Lidgerwood (1993) identifies five diverse categories of risk allied with the operation of any financial institutions. These are credit risk, interest risk, foreign exchange risk, capital adequacy risk, fiduciary risk. Out of these, she pointed credit risk as the most influential among them.

In 2001, the Basel Committee divided bank risk into three major parts. Namely, credit risk, operational risk and market risk. According to this committee, credit risk is the failure of a borrower to honour his or her debt obligations.

2.3.2 CREDIT RISK

Lending involves a number of risks. Among these risks, credit risk plays the major role since by far the largest asset item for banks is loans, which generally account for half to almost three-quarters of the total value of all bank assets. Credit risk has long been an important and widely studied topic in bank lending decisions and profitability.

According to Van Greuning and Bratan (2000), credit risk means, payment may be delayed or ultimately not paid at all which can in turn cause cash flow problems and affect a bank’s liquidity. From these researchers’ point of view, credit risk is the risk of loss that might occur if one party to an exchange fails to honour the terms under which the exchange was to take place. Credit risk comes up from uncertainty in a given counterparty to meet up with the obligation of honoring the terms and conditions of the credit arrangement (Fatemi and Foolad, 2006).
In essence, credit risk arises from uncertainty in counterparty’s ability or willingness to meet his/her contractual obligations. In the same vein, Naomi (2011) argued that credit risk represents the potential variation in the net income from non-payment or delayed payment of credit facility granted to customers. According to Basel committee on Banking Supervision, credit risk is most simply defined as the potential that a bank borrower or counterparty will fail to meet its obligations in accordance with agreed terms.

Han (2015) defines credit risk as the possible losses of banks coming from borrowers’ failing to repay. According to him, credit risk is made of three main forms: principal loss risk, interest loss risk and profit loss risk. Al- khouri (2010) outlines some major causes of credit risk and they include; inadequate institutional capacity, unsuitable loan guidelines, unstable interest rates, inefficient management, unfitting regulations, increasing number in microfinance, negligence in credit valuation, ineffective lending methods, government interference and insufficient monitoring by the central bank. From the above definitions and meanings given by these researchers, they bore down to the fact that, credit risk is a cancer which causes serious financial problems when it is not properly managed.

2.3.3 CREDIT RISK MANAGEMENT

Many researchers had come out with reasons backing microfinance failures and recognized numerous issues (Chijoriga, 1997, Santomera 1997, Brown Bridge and Harvey, 1998). Glitches associated with loan specifically, porous credit risk management policies, have been identified as the major explanations behind banking problems. According to Kitua (1996), majority of microfinance equity is made up of 100% Loans. This means any decline in the quality of loans can bring serious problems in the microfinance business.

One factor that exists between financial institutions and borrowers is information asymmetry. This phenomenon makes it difficult for microfinance to identify creditable borrowers from bad ones. Therefore, microfinance must put systems in place in order to analyze and evaluate the creditworthiness of borrowers to avoid adverse selection and moral hazard (products of information asymmetry) which cause enormous accumulation of nonperforming loans in their records.
Emphatically, the attributes of borrowers gained two main models. They are the qualitative and the quantitative. The qualitative is known as credit scoring models (Hefferman, 1996). If this model is applied effectively, it signals variations in predictable level losses (Santomero, 1997). The quantitative model on the other hand, helps numerically to bring to bear the factors which contribute to credit risk, assess the strength of these factors.

According to Raghavan, CRM helps to detect measure and supervise the activities of a microfinance institutions. This means, credit risk management aids microfinance in monitoring the number of activities so as to avoid credit risk. Most microfinance have chalked successes as a result of an effective CRM system used in their daily operations. In the same dimension, the author of Introduction to Banking, The Casu et al (2006), also described CRM as a weapon used by management to increase its returns by bringing credit risk to its lowest minimum.

Santomero (1997) bring to bear the importance of having an effective CRM in place. According to this researcher, the presence of CRM limits the probabilities of distinctive losses by erasing risks that does not bring any reasonable return. He pointed out that, CRM has led to a uniform assessment across borrowers. According to Wenner et al (2007) CRM empowers financial institutions to become potent and achieve a stable growth.

According to Onaolapo (2012), the Basel Committee on banking supervision sees CRM as a way of reducing the likelihood that the deficit unit cannot meet the agreed payment and time of payment. Credit risk management is an essential element of a microfinance financial standings. That is to say, the performance of microfinance is highly dependent on effective and efficient credit risk management (Prakash and Poudel, 2012). CRM is very important in the microfinance sector because, it forms a fundamental part of the credit process.

However, there are disadvantages that will scare some banks from engaging in CRM. These bottlenecks in the initial stages affect the financial position of these financial institutions but in the long run yields offsetting benefits.

### 2.3.4 CREDIT RISK MANAGEMENT STRATEGIES

The credit risk management strategies are procedures banks and microfinance institutions adopt in the mitigation or reducing the negative effect credit risk. A comprehensive credit risk management structure is vital because as stated it helps increase the revenue and survival.
According to Lindergren (1987), the main ideologies in credit risk management strategies take the following form. They include formation of a clear structure, delegation of powers, discipline, and communication at all level and holding people accountable. Some of approaches for preventing credit risk include the following.

2.4.1 SELECTION
According to Gestel et al (2009), a sound CRM begins with a proper choosing of borrowers and the products that suit them. For this to be possible, a competent loan officers and Operative models of estimating risk should be in place. This is a very crucial stage because decisions are taken by the entire committee member. Here, borrowers that are likely to default are either denied or asked to secure the loan with more collateral to limit the effect of default.

2.4.2 LIMITATION
This method aids the microfinance institutions by reducing the amount of loss suffered from a borrower. It prevents the event where the failure of counterparty to meet his or her obligation will heavily affect the financial performance of the bank. The number of riskier transactions is brought to the bearer minimal. (Gestle et al, 2009).

2.4.3 DIVERSIFICATION
Gestel et al (2009) stressed that banks should deal with different counterparties ranging from individuals, industries. This helps to spread the risk across various borrowers so that banks can reduce the impact of loss it is much workable for large and international financial institutions.

2.4.4 CREDIT ENHANCEMENT
According to Gestel et al (2009) when a bank realizes it is exposed to too much risk when dealing with a particular kind of borrower, it solves this by acquiring an insurance policy to cover for the any future losses. Through this, the quality of the loan facility is improved. It is called credit risk mitigation.

2.4.5 COMPLIANCE TO BASEL ACCORD
Basel committee on Banking Supervision enlarges the procedures through which a bank or microfinance institution can manage its exposure to credit risk. One of the principles is
constantly changing and reviewing their credit risk policies to suit the prevailing economic trend in the country.

This can be done by the introduction of new products and services. Secondly, banks should investigate their borrowers properly. This will lead to a better understanding of the customer they are dealing with (Basel Committee on Banking Supervision, 1999). These strategies do not prevent credit risk totally; however, they can reduce the level of credit risk the banks are exposure to. And this will increase the profitability performance of the banks.

2.4.6 CREDIT RISK MEASUREMENT
The successful management of credit risk is dependent on the ability to measure it. The main challenge of financial institutions is how to precisely measure credit risk exposure and portfolio level because as the level of credit risk rises, the realized rate of return on the loan portfolio is reduced and the required level of capital increases (Cole et al, 2012).

Muhammad and Garba, (2014) identify two important tools that can be used in assessing or measuring credit risk. These include Default ratio (DR) and Cost per loan advanced.

2.5.1 DEFAULT RATIO (DR)
DR is a ratio that determines the amount of non-performing loans as against the total loans and advance over a period. It shows the percentage of loans and advances that were not paid over a period. It also shows the efficiency of management has performed in controlling their loan portfolio over a period. (Appa, 1996; Ahmed et al., 1998; Kolapo et al., 2012). DR ratio can be calculated as:

\[ DR \text{ Ratio} = \frac{\text{Non performing Loans}}{\text{Total Loan and advances}} \]

2.5.2 COST PER LOAN ADVANCE RATIO (CLA)
CLA is the average cost per loan advanced to customer in monetary terms. The function of this is to point out efficiency in distributing loans to customers (Appa, 1996; Ahmed et al., 1998; Kolapo et al., 2012). CLA ratio can be calculated as:

\[ CLA \text{ Ratio} = \frac{\text{Total Operating Cost}}{\text{Total Amount of Loans}} \]

2.6.1 PROFITABILITY
Microfinance Profitability may also show managers attitude toward risk. Microfinance that make huge profits are not scared when venturing into risky activities. In a similar fashion,
banks that are not effective in their management encounter higher bad debt. Profitability measure is important to the investors. The level of profitability is very significant for shareholders of a microfinance because it shows how effective management has utilized their investments (Devinaga, 2010).

In determining the financial strength of microfinance institutions, the level of profitability is predominant. According to Codjia (2010), profitability performance will concentrate on the income statement which shows how much is generated (revenue), how much is spent (expenses) net income. This may be prepared by the bank on a monthly, quarterly or annual basis (Codjia, 2010).

According to Rushdi and Tennant (2003), profitability can be measured in a number of ways. They include return on assets (ROA), return on equity (ROE). But over the year, most researchers prefer using return on asset (ROA). Godlewski (2004) used ROA in measuring profitability. It was disclosed that; the performance of a microfinance institution was negatively affected by the level of nonperforming ratio. In theory, ROA shows the capacity of a microfinance management to make profits using the level of asset available.

It may be unfair because of the other events that take place outside the balance sheet (Athanasoglou et al., 2005). Moreover, the performance of a business is normally estimated using their profitability standings. These researchers used return on asset as a measure for profitability. In their defense, these researchers selected ROA over ROE because it is free of financial leverage and the risks associated with it (Flamini et al, 2009). Additionally, it is possible to compare companies in the same industry or diverse industry when ROA is employed as a proxy for profitability. This makes ROA a strong measure for profitability (Devinaga, 2010).

### 2.6.2 INTERNAL DETERMINANTS OF MICROFINANCE PROFITABILITY

According to Devinaga (2010), researchers who paid more attention to the discovery of the determinants of a microfinance performance and profitability classified them into two main factors. These are the internal and the external factors. According to Husni (2011), the internal determinants of profitability are made up of factors that can be controlled by the microfinance management.
Thus it is within the power of the microfinance institutions to determine the level these factors should take. These determinants have effect on both the revenue and cost incurred by the microfinance institutions. Some research papers have divided these determinants into two groups. They are the financial statement variables and non-financial variables.

The financial statement variables have a direct effect on both the financial statement and the statement of financial position of the microfinance and the non-financial statement variables consist of factors like the number of branches of a particular company, location (Haron, 2004). The following are the internal determinants of the profitability of microfinance.

2.7.1 LOAN QUALITY
Loan and advance business is the core business of microfinance institutions thorough which income is generated. It has been established that loan and advances is one of the main avenue through which the banks and microfinance institutions make profit. This means the more the microfinance gives out loans, the more they grow in terms of profit (Abreu and Mendes, 2003).

However, microfinance have to tread cautiously because this exposes them to liquidity and default risks which affect the profit and survival of microfinance and banks (Devinaga, 2010). For instance, the global financial crisis that begun in the United State of America in 2008 had its roots from the sub-prime loans which the banks engaged in and when the housing market experienced a decline in prices, borrowers or customers who were granted these sub-prime loans could not pay back the loans and the interests attached to them and this led to the doom of some banks and microfinance institutions (Gaurav and Kelly 2011).

During this period of financial recession, Zambian microfinance institutions and banks experienced profit in spite of the continuous increase in non-performing loans. The stress test conducted the IMF revealed that, anytime the assets of the bank are not put into efficient and effective use and bad debt rises, the financial strength of the banks begins to decline and this can cause the banks to collapse if immediate steps are not taken. Therefore, it is important to put measures in place to enhance the quality of loans and advances in order to avoid large numbers of defaults and bad debts.

Furthermore, the ratio of loan loss to total loans (LLTR) is also a significant determinant of microfinance and banks profit (Sufian et al (2008). The rise in LLTR represents a rise in the
credit risk the microfinance is exposed to. Hence higher credit risk affects profitability of a microfinance adversely.

A study carried out by Vong et al in 2009 revealed that, loan loss provisions is inversely related to the performance of banks and microfinance institutions in Macao. Another measure for a loan quality is the ratio of loan to total asset (LOLA). Again, the work of Vong et al (2009) disclosed that LOLA had a negative relationship with profitability instead of increasing it and according to these authors, this result was in confirmation with the initial finding of Vong (2005). To summarize on this point, the quality of a loan can be measured using non-performance loans, loan loss provisions and loans and advances ratio as suggested by Rasiah (2010) and Vong et al (2009) respectively.

2.7.2 INCOME
According to Devinaga (2010), the income of a bank can be broken down into two, namely, interest and non-interest income. Interest income is made up of Interest charge on loans and short term advances which are made available to customers by the microfinance institutions. Non – interest income on the other hand consists of fees, commissions, brokerage charges and returns on investments in subsidiaries and securities. From these two incomes generated by the microfinance, interest income is the major source of revenue (Vong et al, 2009) because it contributes about 90% of the earning of the microfinance.

2.7.3 DEPOSITS
Some microfinance institutions are said to be deeply reliant on the monies largely given by the customers in the form of deposits to generate the credit being offered to borrowers. It has been established that deposits are easy and inexpensive source of financing for some deposit taking microfinance institutions and therefore positively affected the profitability of these microfinance institutions when request for loan facility is on the rise.

This implies that microfinance and banks make more profit when the level of deposits rises and loans are given out to customers (Devinaga 2010). However, the caveat here is that, if the demand for loan is low, having more deposits could rather reduce the profit because of the interest the microfinance would pay on these deposits (Devinaga 2010). A study carried out by Husni (2011) on the determinants of commercial banks performance in Jordan unveiled that ROA and Total Liability to Total Assets are positively related.
2.7.4 CAPITAL RATIO

Capital ratio was identified as a variable in the studies done by both Devinaga (2010) and Vong et al (2009) on the topic “Determinants of banks profitability and performance”. They both share the view that shareholders’ funds, reserves and retained profit which make up the capital structure has an influence on the profitability of banks because of its consequence on leverage and risk.

According to these researchers, the assets of banks can be raised through capital (equity) and debt. Among the two, debt financing can be riskier when it comes to credit and liquidity risk. For instance, microfinance or banks which are financed through debt will be scare to move into risky investments because when losses are made they are still obliged to settle the debt. On the other hand, a microfinance or bank financed by capital can invest in riskier projects and also absorb problems which rise as a result of liquidity and credits risks. Sufian et al (2008) also stressed on the importance of a strong capital structure for microfinance in developing countries because it offers them ability to endure financial crunches and protect creditors in times of bankruptcy and distress macroeconomic conditions.

Molyneux et al (1992) argued that lower cost of capital can be achieved when a bank is financed predominantly by equity and this can boost the profitability of that bank. In addition, Both Basel II and III accord concedes that majority of bank bankruptcies are as a result of credit losses and for this reason it is important for banks or microfinance institutions to have a strong capital base which will serve as a cushion against loss (Basel Committee’s response to the Financial Crises 2010).

Berger (1995) also stated that banks with weak capital base stands on risky grounds. This will have a negative impact on profitability. This is the brain behind Bank of Zambia persistent increase in the capital requirement in the banking industry. A research carried out by Karkrah and Ameyaw (2010) on the topic profitability determinants of commercial banks in Ghana disclosed that the equity ratio which is the measure of the capital strength of the banks is positively related to the ROA.

2.7.5 LIQUIDITY RATIO

According to Devinaga (2010), regulators of the banking industry requires banks to hold enough liquid assets (cash) to deal with the day to day activities like meeting the withdrawal
needs of the customers. He explained that this is possible if the banks and microfinance are able to amass enough cash and the quickest way to raise funds from other sources.

This means that, the ability for a microfinance to survive also dependent greatly on the level of liquidity. However, Devinaga (2010) stated that the lesser earnings on liquid assets and funds which are not utilized have a negative impact on the profitability of a bank. And because of this, liquidity management serves as an important factor of profitability. Devinaga (2010) used the ratio of loan and advances to deposits as a measure for liquidity. The researcher used this ratio because information on loans and deposits are easily accessible.

2.7.6 EXTERNAL DETERMINANTS OF PROFITABILITY OF MICROFINANCE

The ambiences in which microfinance operate have a significant influence on the financial performance and their strategies employed. These external determinants are the outside factors that affect the positioning of a bank. These factors are above the controlled of the microfinance; however, microfinance which are proactive can position themselves very well to make the best out of the anticipated changes. According to Karkra and Ameyaw (2010), these external factors are the macroeconomics variables and can affect the profitability of a bank. In this research, Gross Domestic Product, interest rate and exchange rate are adopted as the external determinants.

2.7.7 GDP

According to Vong et al (2009), the real GDP growth rate is used as a measure for economic growth of a country and has a positive impact on the profitability of a microfinance. These authors stressed that, when there is a favourable economic growth, the probability of borrowers defaulting is very low and vice versa. However, some studies have revealed a diverse relationship between the profitability of a microfinance and GPD.

As some research works support the idea of positive relationship between these variables, others reveal otherwise. a study conducted by Sufian et al (2008) on Philippian banks revealed a positive relationship between banks” profitability and GDP. This is in line with the work done by Athanasoglou et al., (2008) which showed a positive correlation between the variables. On the other hand, a study by Husni (2011) on the banks in Jordan indicated a significant and an inverse relationship between ROA and GDP. Interestingly, the finding of Vong et al (2009) showed an insignificant relationship between the two variables.
2.7.8 INTEREST RATE

Interest rate have been used in many studies as a determinant of bank’s profitability since net income interest which is the difference between interest income and interest expenses has massive influence on the profitability of a bank (Devinaga, 2010). This researcher described interest rate as an external factor since it is determined by the economic policies of the government and the invisible hand of demand and supply. Additionally, he stressed that, the effect of change on profitability depends on the extent and speed at which interest rate differs in both short and long run period in the bank.

According to Devinaga (2010), banks frequently change their rate of return on their assets to cancel any differences as a result of variations in economic policies. The assets of the banks especially short term loans have short maturity and these loans are usually flexible in terms of rate. This makes it easy for the microfinance to amend their rate to suit the fluctuations with the interest rate.

A study by Uhomoibhi (2008), into the impact of interest rate on profitability of commercial banks revealed that interest rate is not only significant but also has a positive impact on the profitability. The finding was in line with that of Karkra and Ameyaw and Husni (2011). Furthermore, a research conducted by Pasiouras and Kosmidou (2007) on the factors influencing the profitability of domestic and foreign commercial banks in the European Union” indicated a positive relationship.

2.3 Research variables arising from the literature

The independent variable is credit management strategies divided into three proxies: credit risk assessment strategy, debt recovery strategy, and credit collection strategy. The dependent variable is liquidity categorized into three sub-variables: the ability to pay, level of bad debt and cash inflow, which is perceived to have the ability to moderate profitability. Table 1 showed the description of the variables used in the research.
Table 1: Description of variables used in the research

<table>
<thead>
<tr>
<th>Variables</th>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credit Management Strategy</td>
<td>CMS</td>
<td>Credit management strategies are plans put in place by an organization to ensure that credit sales are controlled, receivables are collected when due, and bad debt losses are minimized to attain the company objective.</td>
</tr>
<tr>
<td>Credit Risk Assessment Strategy</td>
<td>CRAS</td>
<td>This is the analysis conducted on prospective credit customer’s information to ascertain whether the customer can meet his obligations according to the terms of trade.</td>
</tr>
<tr>
<td>Debt Recovery Strategy</td>
<td>DRS</td>
<td>This is a procedure designed to assist a firm in debt collection to reduce costs and save the time of collection and improve liquidity.</td>
</tr>
<tr>
<td>Credit Collection Strategy</td>
<td>CCS</td>
<td>This is a receivable collections guideline that govern how an organization grants credit and collect receivables.</td>
</tr>
<tr>
<td>Liquidity</td>
<td>LIQ</td>
<td>Liquidity is the extent to which an organization has adequate cash or near cash to meet its obligations in a short-term.</td>
</tr>
<tr>
<td><strong>Dependent</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquidity</td>
<td>LIQ</td>
<td>Liquidity is the extent to which an organization has adequate cash or near cash to meet its obligations in a short-term.</td>
</tr>
<tr>
<td>Profitability</td>
<td>PRO</td>
<td>This is the degree to which an organization’s activity yields profit or financial gain. It is measured by deducting total expenditure from the total revenue of the same period.</td>
</tr>
<tr>
<td>Ability To Pay</td>
<td>ATP</td>
<td>This is an economic principle which shows that a credit customer can to pay his debt when due.</td>
</tr>
<tr>
<td>Bad Debts</td>
<td>BD</td>
<td>Bad debt is a monetary amount owed to a creditor which is unlikely to be collected</td>
</tr>
<tr>
<td>Cash Inflow</td>
<td>CIF</td>
<td>Cash inflow is the net amount of cash and cash-equivalents being transferred into a business.</td>
</tr>
</tbody>
</table>

Source: Researchers’ Initiative (2019)

2.4 Conceptual model

The conceptual model and research hypotheses in the current study, the researchers proposed a conceptual model which suggests that there is a relationship between credit management strategies and adequate liquidity. Liquidity form a moderating factor between credit management strategies and profitability in the quoted microfinancing institutions in Zambia under research. Figure 1 shows the relationship between the conceptual model indicating the independent and dependent variables.
Diagram 1

CREDIT COMMITTEE
(Credit Management Strategy)

- Credit Risk Assessment
- Debt Recovery Strategy
- Debt Collection Strategy

- Customers’ Ability To Pay
- Level of Bad Debt
- Cash Inflow

Availability of Cash (Liquidity) → Profitability
Chapter Three

3.0 Methodology and design

3.1 Introduction

The researcher employed a quantitative method to estimate the impact of credit risk on profitability. These approaches are deemed appropriate for studying credit risk and its impact on profitability as it gave the researcher more vivid space. A breakdown of this is seen in the third chapter of this research work.

3.1 RESEARCH DESIGN

This aspect describes the nature of the pattern the research intends to follow. This is the overall plan or strategy for conducting the research. The primary purpose of the study was to explore the relationship between credit risk and the profitability of some selected microfinance institutions in Zambia. The research was conducted through a Historical Research Design. Historical research design is where the researcher explores, explains and understands past phenomenon from already existing data. This helped the researcher to arrive at conclusions about the impact of credit risk management on the profitability in order to explain the present and predict and control the future outcome.

As to the descriptive studies, they are designed to obtain data that describe the characteristics of the topic of interest in the research (Hair et al., 2011, p.148). The objective of descriptive study is to represent an accurate profile of persons, events or situations (Robson, 2002, cited in Saunders et al., p. 140). In descriptive research, the research problem is structured and well understood (Ghauri and Grønhaug, 2005, p.58). Saunders et al. (2007) expanded the idea like “it is necessary to have a clear picture of the phenomena on which a researcher wish to collect data prior to the collection of data.” Compared with exploratory study, descriptive study would give the readers a comfortary answer addressed to the research question. In other words, it is used for testing hypothesis (Hair et al., 2011, p.149).

The last category is explanatory study (Saunders et al., 2009, p. 140) or in some books called “causal research design” (Hair et al., 2011, p.147). In this research, the problems are well structured as in descriptive studies. In contrast to descriptive studies, the researcher is facing with “causes-and-effects” problems. The main task is to separate such causes and to say to what extent do they lead to such effects (Ghauri and Grønhaug, 2005, p. 59). In other words, it is to explain the causal relationship between variables (Saunders et al., 2009, p. 140).
However, the study adopted quantitative research approach. The quantitative research approach answered the “How many?” questions in the study, thus allowed the measurement of relationships between variables in a systematic and statistical way.

### 3.2 Research Approach

Research approach this is a plan and procedure that consists of the steps of broad assumptions to detailed method of data collection, analysis and interpretation. It is therefore, based on the nature of the research problem being addressed. A deductive approach is concerned with “developing a hypothesis (or hypotheses) based on existing theory, and then designing a research strategy to test the hypothesis”.

It has been stated that deductive means reasoning from the particular to the general. If a causal relationship or link seems to be implied by a particular theory or case example, it might be true in many cases. A deductive design might test to see if this relationship or link did obtain on more general circumstances.

Deductive approach offers the following advantages: explain causal relationships between concepts and variables, measure concepts quantitatively and generalize research findings to a certain extent.

Research approach is essentially divided into two categories:

1. **Approach of data collection:** questionnaires where issued to the targeted companies to try and get more qualitative information based on credit scoring, risk management and credit risk mitigation procedures and second secondary data was analysed from individual financial institutions statements to ascertain profitability, liquidity and the impact of non-performing loans.

2. **Approach of data analysis or reasoning:** a deductive approach was used to analyse data which is developed from research hypothesis.
Diagram 2 below shows the entire research approach;

![Diagram](image)

*Source: Creswell (2013)*

### 3.3 Research Strategy
Research strategy includes experiment, survey, case study, action research, grounded theory, ethnography and archival research. These research strategies are inherently equally superior to each other and should not be considered as mutually exclusive (Saunders et al., 2009, p. 141). The importance of research strategy is whether it will enable researchers to answer their research questions and meet their objectives.

This means the choice of research strategy will be guided by research questions and objectives (Saunders et al., 2009, p. 141). Also the extent of existing knowledge, the amount of time and other resources have the influence on determining research strategy (Saunders et al., 2009, p. 141). Experiment focuses on the study of causal links whether a change in one independent variable produces a change in another dependent variable (Saunders et al., 2009, p. 142).

The simplest experiments concern whether the link exists between two variables (Saunders et al., 2009, p. 142). More complex experiments also concern the size of the change and the relative significance of two or more independent variables (Saunders et al., 2009, p. 142). It is a form of research that owes much to the natural science (Saunders et al., 2009, p. 142). Survey strategy is usually linked with deductive approach (Saunders et al., 2009, p. 144).
It is a popular and common strategy in business and management research (Saunders et al., 2009, p. 144). And it allows the collection of a large amount of data from a sizeable population in a highly economical way (Saunders et al., 2009, p. 144). It often obtained by using a questionnaire administered to a sample; these data are standardized that allow easy comparison (Saunders et al., 2009, p. 144).

Case study is an empirical in depth research about an individual, family, group or organization and is mostly used when “how” and “why” questions are asked (Fridlund, 1997, p.3). It is mainly used to explain those causal links in real-life interventions that are too complex for other research strategies (Fridlund, 1997, p.3). Case study is most often used in explanatory and exploratory research (Saunders et al., 2009, p. 146). And the data collection method may be various and are likely to be used in combination (Saunders et al., 2009, p. 146). Cases involved in this strategy can be a unique case or multiple cases. Alternatively, case study can regard an organization as a unit or investigate a number of logical sub-units within the organization (Saunders et al., 2009, p. 146).

Action research focuses on the research, which means it is the research "in" action rather than the research "about" action. For example, “the research is concerned with the resolution of organization issues such as the implication of change together with those who experience the issues directly.” (Saunders et al., 2009, p. 147). It emphasizes the involvement of practitioners in research while the researcher also needs to be part of the organization where the research is taking place. Glaser and Strauss (1967, p.1) have defined grounded theory as “the discovery of theory from data systematically obtained from social research”. It major aim is to generate or discover a theory (Glaser and Strauss, 1967, p.8). In grounded theory, data is collected without the formation of an initial theoretical framework (Saunders et al., 2009, p. 149).

Then these data lead to a generation of prediction which will be tested by further observations (Saunders et al., 2009, p. 149). It is particular helpful to predict and explain behavior, the emphasis being upon developing and building theory (Saunders et al., 2009, p. 149). Ethnography is a research strategy which derives from the field of anthropology (Saunders et al., 2009, p. 149). It is rooted firmly in the inductive approach (Saunders et al., 2009, p. 149). The purpose of this strategy is to describe and explain the social world the research subjects inhabit in the way in which they would describe and explain it (Saunders et al., 2009, p. 149).
It is a strategy which is time consuming because the researchers need to immerse themselves in the social world being researched as completely as possible (Saunders et al., 2009, p. 149).

Archival research is a research that uses archives as the source of data (Saunders et al., 2009, p. 150). For many social scientists, using archives might be relatively unexciting compared to employ fieldwork which is fresh and vibrant (Lewis et. al., 2004, p. 21). Original source materials may be discussed and analysed to ask new questions of old data (Lewis et. al., 2004, p. 21).

It provides a comparison over time or among geographic areas to verify or challenge existing findings (Lewis et. al., 2004, p. 21). Or the researchers draw together evidence from different sources in order to provide a bigger picture (Lewis et. al., 2004, p. 21). Actually, archival research enables the social scientist to both enhance and challenge the established methods of defining and collecting data (Lewis et. al., 2004, p. 21). Our research should be archival strategy which involves the data from administrative records.

The data are collected from the annual report of each bank, one type of documentary secondary data. So we consider that archival strategy is more appropriate for our study. Other research strategies we introduced have clear distinctions from our research. Specifically, we do not insert survey research but collect data directly from annual report in our study. Even though we aim on the valuation of credit risk management in the study, only ratios are used as indicators to measure the performance of risk management.

Action strategy focuses management research such as resolution of organizational issues while our research purpose is testing the existence of relationship between credit risk management and profitability. Action strategy is too excessive to be adopted in this research. Besides, action strategy emphasizes the involvement of researcher as a practitioner in the organization. But we are actually “outsiders” of these banks so that action research should not be taken here. And ethnography fits better for inductive research not in deduction approach as our study.

Compared with archival strategy, experiment strategy owes much to the natural sciences which is not our concern (Saunders et al., 2009, p. 142). The classic experiment strategy involves two groups which will have exactly the same relevance to the research. One of them will be defined as experimental group and the alternative one is control group (Saunders et al., 2009, p. 142).
Some form of planned intervention or manipulation will be made to experimental group and research measure the change before and after the manipulation (Saunders et al., 2009, p. 142).

This process is not similar with what we plan. The experimental and control group are not set in this research, neither the intervention nor manipulation. Hence experiment strategy is unsuitable for us. We focus our subject on European area, but this is not a case study strategy. Case study emphasizes on one unit or limited variables to gain rich understanding of the context in the research (Morris& Wood, 1991, p.79). Moreover, the data in our research will be only used once and without further test. To this extent, our research strategy is not grounded theory.

3.4 Sampling frame

A sampling frame is a list of all the items in the study. It’s a complete list of everyone or everything a researcher want to study. However, in this case, the researcher is more interested on investigating the Zambian Microfinance Business (ZMFB) and the overall participants are all microfinance institutions listed below.

1. Agora Microfinance Zambia Limited
2. ALS Capital Limited
3. Altus Financial Services Limited
4. ASA Microfinance
5. Bayport Financial Services Limited
6. Bomach Finance Limited
7. Christian Empowerment Microfinance Zambia Limited
8. Direct Finance Limited
9. Easy Cash Financial Services Limited
10. Ecsponent Financial Services Limited
11. Elpe Finance Limited
12. Fair Choice Finance Limited
13. FMC Finance Limited
14. FINCA Zambia Limited
15. Goodfellow Finance Limited
16. Innovate Capital Solutions Limited
17. Izwe Loans Zambia Limited
18. JMAAC Financial Services
19. Madison Finance Company Limited
20. Meanwood Finance Corporation Limited
21. Microfinance Zambia Limited
22. Microloan Foundation Limited
23. Moneta Finance Limited
24. Nchanga Financial Services Limited
25. Premier Choice Finance Limited
26. Pulse Financial Services Limited T/A Entrepreneurs Financial Centre
27. Robert & Syls Microcredit Limited
28. Sigma Financial Solutions Limited
29. Tandiza Zambia Finance Limited
30. Unity Finance Limited
31. VisionFund Zambia Limited
32. Xtenda Finance Limited
33. YesCash Zambia Limited T/A Expresscredit. co.zm
34. Zambou Financial Services Limited
35. Zampost Microfinance Zambia Limited

All these institutions indicated above stood an equal chance of being picked and any outcome from the research represents a fair judgement/participation to all participants in the sample.

3.5 Sample size and sampling techniques
The sample size is five (5) Microfinance Institutions (MFIs) in Zambia, this indicates an equal representation of each participant in the sample. Cluster sampling was used to arrive at five randomized sampled groupings. Cluster sampling refers to a type of sampling method were clusters are formed and the researcher divides the population/sample into separate groups, called clusters. Then, a simple random sample of clusters is selected from the population or sample. The researcher conducts analysis based on data from the sampled clusters.
3.6 Operationalization of Research Variables

Operationalization is the process of strictly defining variables into measurable factors. The process defines fuzzy concepts and allows them to be measured, empirically and quantitatively. The following will be measured using the process flow below, credit risk management has to be measured to what extent does it affect liquidity and profitability.
3.7 Data collection techniques

There are numerous sources through which one can obtain data for a research work. According to Yin (1994), data can be sourced through documentation, archival records, interviews, direct observation, participant observation and fiscal artifacts. The researcher of this study employed document analysis in accessing data for the research.

Document analysis is a “critical investigation of public or private recorded information related to the issue under investigation”. This helped the researcher to gain unobtrusive information at the pleasure of the researcher and without interrupting the researched. The researcher used this technique to obtain data from the annual reports and audited financial accounts of 5 out of the 35 Microfinance Institutions (MFIs) from 2010 to 2015.

This helped the researcher to gain correct result and leverage and used gretl software which was used to calculate descriptive statistics (mean, standard deviation, correlation) of the study variables, correlation matrix for the purpose of multicollinearity and a panel data regression analysis was also used in determining the relationship of credit risk on profitability performance.

3.8 Data analysis methods

Panel data analysis model was used to determine the relationship between credit risk management and profitability of some selected microfinance institutions in Zambia. The Panel Data Model is longitudinal or cross sectional time-series data in which the behavior of entities is observed across time (Reyna 2007).
This model allows researchers to control for variables that cannot be measured like cultural factors or difference in business practices across companies or variables that change over time but not across entities (national policies, government regulations and international agreements). It helps to account for individual heterogeneity. It also provides more informative data, more variability, less co-linearity among the variables, more degree of freedom and efficiency (Gujarati and Sangeetha, 2007).
Chapter four

4.0 Presentation of Findings

4.1 Introduction

In this chapter, the researcher presents the findings from all the processes and procedures described in the previous chapter that the researcher engaged in in the field to generate and collect secondary data central to the study. The guiding procedures of the relationship of effective risk management system and profitability is premised on the regulators and company’s business strategies.

4.2 Presentation of quantitative findings

4.2.1 Credit Risk Scoring

Data analysis below indicates that credit approval guidelines and monitoring of borrowers affect the microfinance loan performance to a great extent as indicated by NPL ratio for MFI4 of -0.06 in 2010 to 0.30 in 2015 and that clearly established process flow affect the performance of the MFI to a great extent as indicated by fluctuations from 2010 to 2015 which clearly indicates fluctuations from -3.43 to 1.56.

From the findings, the researcher strongly agreed that clear established process for approving new credits and extending the existing credits has been observed to be very important while managing Credit Risks in microfinance and must have in place written guidelines on the credit approval process and the approval authorities of individuals or committees as well as the basis of those decisions affect the performance of the MFIs as indicated by the NPL ratio of -0.59 in 2010 for MFI 1 to 0.18 in 2015.
Chapter five
5.0 Analysis of data
5.1 Analysis of overall findings

Formula
\[ \text{ROE} = \frac{\text{Profit After Tax} - \text{Preference Shareholding}}{\text{Ordinary Shareholders Funds}} \]

Table 2
<table>
<thead>
<tr>
<th></th>
<th>ROE Calculations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2011</td>
<td>8.67852047</td>
</tr>
<tr>
<td>2012</td>
<td>-5.121394231</td>
</tr>
<tr>
<td>2013</td>
<td>2.173076923</td>
</tr>
<tr>
<td>2014</td>
<td>-0.317788462</td>
</tr>
<tr>
<td>2015</td>
<td>7.179086538</td>
</tr>
</tbody>
</table>

Formula
\[ \text{ROA} = \frac{\text{Profit After Tax}}{\text{Average Loan Assets}} \]

Table 3
<table>
<thead>
<tr>
<th></th>
<th>ROA Calculations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2010</td>
<td>-3.431698799</td>
</tr>
<tr>
<td>2011</td>
<td>0.771422109</td>
</tr>
<tr>
<td>2012</td>
<td>-1.466919771</td>
</tr>
<tr>
<td>2013</td>
<td>0.568485884</td>
</tr>
<tr>
<td>2014</td>
<td>-0.07349716</td>
</tr>
<tr>
<td>2015</td>
<td>1.564753756</td>
</tr>
</tbody>
</table>

Formula
\[ \text{NPL Ratio} = \frac{\text{Non Performing Assets}}{\text{Total Loan Assets}} \]

Table 4
<table>
<thead>
<tr>
<th></th>
<th>NPL Ratio Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2010</td>
<td>-</td>
</tr>
<tr>
<td>2011</td>
<td>0.07</td>
</tr>
<tr>
<td>2012</td>
<td>-0.05</td>
</tr>
<tr>
<td>2013</td>
<td>-0.05</td>
</tr>
<tr>
<td>2014</td>
<td>-0.01</td>
</tr>
<tr>
<td>2015</td>
<td>0.18</td>
</tr>
</tbody>
</table>
According to the Least Square Regression analysis indicated below, it indicates a weak positive relationship between variable.

![Graph showing actual vs. predicted Netprofit](image)

The coefficient of determination which is the R-squared clearly indicates a low value of 0.220245. This indicates a non-linear relationship between variables. This is so because of qualitative factors that are independent and difficult to be quantified.
Chapter six

6.0 Conclusion and Recommendations

6.1 Conclusion & Recommendation

The study investigated the impact and efficiency of credit risk management on microfinance institutions (MFIs) on profitability in Zambia. From the findings it is concluded that microfinance institutions profitability is inversely influenced by level of quality loans and advances, non-performing loans and deposits thereby exposing them to great risk of liquidity and distress.

Therefore, management need to be cautious in setting up a credit policy that will not negatively affect profitability and also they need to know how credit policy affects the operation of their microfinance institutions to ensure cautious utilization of shareholders’ funds and maximization of profit. Improper credit risk management reduce the microfinance profitability, affects the quality of its loan assets and increase loan losses and non-performing loans which may eventually lead to financial distress.

Central bank of Zambia for policy purpose should regularly assess the lending attitudes of financial institutions. One direct way is to assess the degree of credit scoring process by monitoring the process flow loan sanctioning. Finally, strengthening the security and loan hypothecation will have positive impact on the overall development of the microfinance sector by increasing competitiveness in the financial sector. When the range of portfolio selection is wide, people can compare the return and security of their investment.
References


