

**IMPACT OF CREDIT RISK MANAGEMENT ON FINANCIAL
PERFORMANCE OF ETHIOPIAN MICROFINANCE INSTITUTIONS:
THE CASE STUDY OF SOMALI MICROFINANCE INSTITUTION
SHARE COMPANY**

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Statement of Declaration

I, **Abdirahman Ahmed Isse**, have carried out independently a research work on **Credit risk management and its impact on financial performance of Somali Microfinance Institution Share Company in Ethiopia** in partial fulfillment of the requirement of the Master of Business Administration with the guidance and support of the research advisor.

This study is my original work and that has not been presented for any degree or diploma program in this or any other university/institutions, and that all source of materials used for the thesis have been duly acknowledged.

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Statement of Certification

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This is to certify that **Abdirahman Ahmed Isse** has carried out his research work on the topic entitled “**Credit risk management and its impact on financial performance of Somali Microfinance Institution Share Company in Ethiopia**”. The work is original in nature and is suitable for submission for the reward of the Master of Business Administration.

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LIST OF ACRONYMS

CAR Capital Adequacy Ratio

CBE Commercial Bank of Ethiopia

NBE National Bank of Ethiopia

NI Net Income

NPL Nonperforming Loan

NPLR Nonperforming loan ratio

Q Quarter

ROE Return on Equity

RWA Risk Weighted Asset

SPSS Statistical Package for Social Science

SMISC Somali microfinance institution share company

TL Total Loan

TSHE Total Shareholders Equity .

Abstract

A effective credit risk management is the ability to intelligently and efficiently manage customer credit lines. In order to minimize exposure to bad debt, over-reserving and bankruptcies, companies must have greater insight into customer financial strength, credit score history and changing payment patterns. Moreover, 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. This paper examined the impact level of credit risk management towards the financial performance of Somali microfinance Share Company. Also, The main purpose of this study is to describe the impact level of credit risk management on financial performance of the microfinance. The research design followed was determine by the nature of the problem statement or more specifically by the research objectives. Hence in this study survey, exploratory and caused variables are used. The researcher was selected Somali microfinance Share Company and collected the necessary data from the microfinance by using purposive sampling technique. To collect the necessary data for this study, the researcher was used secondary sources. The sources of secondary data for the study were annual reports from 2010 to 2013. In addition, the quantitative method was used in order to fulfill the main purpose of this study. To examine its impact level the researcher used multiple regression models by taking 4 years Return on Equity (dependent variable), Nonperforming Loan Ratio and Capital Adequacy Ratio (independent variables). To examine its impact level the researcher used multiple regression models by taking 4 years. Since microfinance institutions are set up to provide credit and other financial services to the poor it is imperative that the management of such credit services be sound in order to mitigate the high risks involved. Thus, credit risk management determines the success and survival of micro finances. Weak credit risk management leads to capital erosion and eventual failure, whereas sound credit risk management guarantees profitability and sustainability.

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

The credit can be traced back in history and it was not appreciated until and after the Second World War when it was largely appreciated in Europe and later to Africa (Kiiru, 2004).

Credit risk is the possibility that the actual return on an investment or loan extended will deviate from that, which was expected (Conford, 2000). Credit risk is losses from the refusal or inability of credit customers to pay what is owed in full and on time (Coyle, 2000). The main important part of credit risk include, limited institutional capacity, inappropriate credit policies, volatile interest rates, poor management, inappropriate laws, directed lending, reckless lending, poor credit assessment, laxity in credit assessment, poor lending practices, government interference and inadequate supervision by the central bank (Laker, 2007; Sandstorm, 2009).

Credit is defined as identification, measurement, monitoring and control of risk arising from the possibility of default in loan repayments. Credit extended to borrowers may be at the risk of default such that whereas micro finances extend credit on the understanding that borrowers will repay their loans, some borrowers usually default and as a result micro finance's income decrease due to the need to provision for the loans. Where micro finances do not have an indication of what proportion of their borrowers will default, earnings will vary. Every financial institution bears a degree of risk when the institution lends to business and consumers and hence experiences some loan losses when certain borrowers fail to repay their loans as agreed. Principally, the credit risk of a micro finances is the possibility of loss arising from non-repayment of interest and the principle, or both (Coyle, 2000).

In 1990s loans given to customers did not perform which called for an intervention. Most suggestions were for the evaluation of customer's ability to repay the loan, but this didn't work as loan defaults continued (Modurch, 1999). The concept of credit management became widely appreciated by Microfinance Institutions (MFI's) in the late 1990s, but again this did not stop loan defaults to this date (Modurch, 1999).

Microfinance Institutions and other finance institutions must develop a credit policy to govern their credit risk management operations and since microfinance institutions generate their revenue from credit extended to low income individuals in the form of interest charged on the funds granted the loan repayments may be uncertain (Pandey, 2008).

The success of lending out credit depends on the methodology applied to evaluate and to award the credit and therefore the credit decision should be based on a thorough evaluation of the risk conditions of the lending and the characteristics of the borrower (Ditcher, 2003).

The health of the financial system has important role in the country as its failure can disrupt economic development of the country (Das & Ghosh, 2007) Risk management is the human activity which integrates recognition of risk, risk assessment, developing strategies to manage it, and mitigation of risk using managerial resources (Appa, 1996) whereas credit risk is the risk of loss due to debtor's non-payment of a loan (Campbell, 2007).

An effective credit risk management is the ability to intelligently and efficiently manage customer credit lines. In order to minimize exposure to bad debt, over-reserving and bankruptcies, companies must have greater insight into customer financial strength, credit score history and changing payment patterns. The ability to penetrate new markets and customers hinges on the ability to quickly and easily make well-informed credit decisions and set appropriate lines of credit. Credit risk management starts with the sale and does not stop until the full and final payment has been received. In fact, a sale is technically not a sale until the money has been collected. It should be noted that the firm's credit policy is greatly influenced by economic conditions. As economic conditions change, the credit policy of the firm may also change (Pandey, 2008). However, 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 (Apps, 1996).

The formal financial sectors are the principal for any investment or business that can be undertaken at micro, small-scale and large-scale levels in an economy. The major financial institutions in the formal financial sector in Ethiopia are the Commercial Bank of Ethiopia (CBE), the Development Bank of Ethiopia (DBE), and other Private Banks. Banks serve big businessmen and disregard poor households as bankable.

The prevailing operation of the formal financial institution in many low-income countries such as Ethiopia is inefficient in providing sustainable credit facilities to the poor. Thus, delivering financial services to the poor requires an innovative targeting design and a mechanism of credit delivery that helps identify and target only the poor who can take the initiative and sustain productive use of loans (Solomon 1996) The development of microfinance institutions in Ethiopia is a recent phenomenon. The proclamation, which provides for the establishment of microfinance institutions, was issued in July 1996. Since then, various microfinance institutions have legally been registered and started delivering microfinance services (Wolday, 2000).

In particular, the Licensing and Supervision of Microfinance Institution Proclamation of the government encouraged the spread of Microfinance Institutions (MFIs) in both rural and urban areas as it authorized them among other things, to legally accept deposits from the general public (hence diversify sources of funds), to draw and accept drafts, and to manage funds for the micro financing business (Getaneh, 2005).

The current global financial crisis indicates that risk management of the financial institutions is not adequate enough. This leads to the failure of the financial institutions in highly challenging financial market. Furthermore, the discussion of financial crisis in mass media and among scholars mentions the risk management as omissions or neglect of risk measurement signals. They state that more attentive participants could avoid the tremendous affect of the financial meltdown. Therefore, Risk Management as a discipline is being taken seriously nowadays (Joe Nocera, 2009). However, the financial storm teaches several key lessons which can assist to improve the risk management in future. As a result, risk has become a very challenging area of studies.

1.2 Statement of the problem

Currently the micro financing business is so sensitive because more of their income (revenue) will be generated from credit (loan) given to their customers. This credit creation process exposes the micro finance to high credit risk which leads to loss. Without effective credit risk management good micro finance financial performance or profit will be unthinkable (Jeoitta C., 2007).

Credit risk in micro finances is commonly defined as the probability of a borrower defaulting his loan commitments. Micro finances are in the risky business. In the process of providing financial services, they assume various kinds of financial risks. Credit risk management should be at the centre of microfinance's operations in order to maintain financial sustainability and reaching more clients (Campbell, 2007).

Lack of proper credit risk management causes poor microfinance's financial performance or bankruptcy. Likewise, effective credit risk management causes high financial performance in microfinance. The success of microfinance institutions largely depend on the effectiveness of their credit management systems because these institutions generate most of their income from interest earned on loans extended to small and medium entrepreneurs. This trend not only threatens the viability and sustainability of the microfinance institutions but also hinders the achievement of the goals for which they were intended which are to provide credit to the rural unbanked population and bridge the financing gap in the mainstream financial sector (Migiri, 2002).

Microfinance problems, mostly failures and financial distress have afflicted numerous micro finances; weakness in credit risk management has all along been cited as the main cause for microfinance's financial performance problems (Richard et al., 2008 and Chijoriga, 1997).

Since exposure to credit risk continues to be the leading source of problems in micro finances, micro finances and their supervisors should be able to draw useful lessons from past experiences. Micro finances should now have a keen awareness of the need to identify measure, monitor and control credit risk as well as to determine that they hold adequate capital against these risks and that they are adequately compensated for risks incurred (Basel, 1999).

Suffice it to say that market participants seek the services of the financial institutions because of their ability to provide market knowledge, transaction efficiency and funding capability.

In performing these roles they generally act as a principal in the transaction. As such, they use their own balance sheet to facilitate the transaction and to absorb the risks associated with it. All the same, beside other services, micro finances must create credit for their clients to make some money, grow and survive stiff competition at the market place (Aktan & Bulut, 2008). Financial performance is company's ability to generate new resources, from day-to-day operation over a given period of time and it is gauged by net income and cash from operation (Das & Ghosh, 2007). The Ethiopian government identified a number of priority areas of actions as part of the government's poverty reduction and development programs. One of the priority areas acknowledged is the provision of support to microfinance institutions. In this regard the government is working hard to solicit funds from international donors for supporting the microfinance sector (Meklit et al., 2005). Hence, in the previous study no assessment did about credit risk management and its impact on financial performance in Somali microfinance institution Share Company. The study therefore, sought to endeavor to investigate credit risk management and its impact on financial performance in Somali microfinance institution Share Company.

1.3 Objectives of the study

The general objective of the study is impact of credit risk management on financial performance in the Somali microfinance institution share company.

1.3.1 Specific Objective

- ✓ To assess the impact of capital adequacy on the return on equity on the financial performance of the micro finance.
- ✓ To assess the impact of nonperforming loans on the return on equity on the financial performance of the micro finance.

1.4. Research question

1. How does credit risk management affect on the financial performance of the microfinance?
2. What are the factors under financial performance?

1.5 Significance of the study

After the research has been completed, its output was contributed a lot to those parties who have similar objectives and seek information on issues related to the study under Investigation. The result of this study was significance in various respects. Firstly, it was help as a source of reference and for those researchers who want to make further study on the area afterwards. Secondly, contribute for the existing knowledge about credit risk management and its impact on financial performance and fill some of the gap between the previous research studies and the present research. Thirdly, the study was draw some the findings, conclusions and recommendations that was be used as an input for future formulation and implementation of a well-functioning credit risk management and its impact on financial performance microfinance institution Share Company. Although some studies have been conducted on the credit schemes, no empirical study has been done credit risk management and its impact on financial performance on Somali microfinance institution Share Company. So this study was tried to provide a detailed analysis on the credit risk management and its impact on financial performance of Somali microfinance institution Share Company.

1.6 Scope of the Study

This study was focus on impact of credit risk management on financial performance on Somali microfinance institution Share Company for the period of 16 quarters (2010 – 2013).

1.7 Limitation of the Study

This research is limited to credit risk management and its impact on financial performance on Somali microfinance institution Share Company and therefore the findings, analyses and recommendations do not represent the entire micro financing industry in Ethiopia.

1.8 Organization of the paper

This paper is organized in five major parts, the first chapter deals about the introduction of the study that is background, statement of the problem, objective, and the research questions significance, scope and limitation of study. Next to this the review literature with theoretical as well as empirical reviews are followed. The third part gives explanation of research design and method used in the study. In the fourth part of the research, data presentation and analysis side by side. The last, fifth part of the research is conclusion and recommendations.

CHAPTER TWO

REVIEW OF RELATED LITERATURES

2.1 Theoretical Review

2.1.1 Credit in Microfinance

Credit in microfinance is defined as “the use or possession of goods or services without immediate payment” and it “enables a producer to bridge the gap between the production and sale of goods” and “virtually all exchange in manufacturing, industry and services is conducted on credit”. Consequently, credit generates debt that a party owes the other. The former is called a debtor or borrower. The latter is a creditor or lender. Certainly the debtor will have to pay an extra amount of money for delaying the payment. In that circle, both debtor and creditor expect a return which is worth their paying more and waiting, respectively. So now it is clear why credit exists and how important it is to the economy. Firms or individuals that run short of capital need credit to continue or expand their businesses/investments (Colquitt 2007).

2.1.2 Credit Management in Microfinance

Credit Management refers to the efficient blend of the four major credit policy variables to ensure prompt collection of loans granted to customers and at the same time boost their confidence in and loyalty to the microfinance (Van Horne, 1995). The first variable is the assessment of the quality of the customer account. This examines the ability of the customers to repay on time. The second policy variable is that of setting the credit period. In so doing, the microfinance has to give enough time to allow the customers derive the full benefits of the credit. Such period must not be too long to put the microfinance at a disadvantage. The third variable is the discount or the enticement to credit beneficiaries to repay credit on time. The last variable considers the expenditure level that could be incurred in the collection exercise. This implies that the microfinance must not grant credit where the amount to be expended on collecting the debt will likely be greater than the debt itself. To blend these variables into an efficient workable system requires careful planning, controlling and co-ordination of all available human and material resources (Laker, 2007; Sandstorm, 2009).

Credit management involves establishing formal legitimate policies and procedures that will ensure that: the proper authorities grant credit, the credit goes to the right people, the credit is granted for the productive activities or for businesses which are economically and technically viable, the appropriate size of credit is granted, the credit is recoverable and there is adequate flow of management information within the organization to monitor the credit activity (Asiedu Mante, 2011).

2.1.3 Risk in Microfinance

The microfinance business, compared to other types of business, is substantially exposed to risks, especially in this ever-changing competitive environment (Mads, 2011). Risks defined as possibility of unpredicted incidents that occur in the future that either brings benefits or threats to their recipients (Muninarayanappa and Nirmala, 2004). Risk management is constantly developing as an essential tool for the effective manager. Even though there is no unique definition of risk, the common feature of many risk definitions is that risk deals with uncertainty. Micro finances face risk when made loans to the debtors. A balance between the gains and losses is essential and risk management will take care of that balance (Robert M., 2006)

2.1.4 Risk Management in Microfinance

Financial intermediation involves some risks, with one major challenge facing financial institutions being to identify such risks and to hedge against them. The risks vary in type and intensity for different financial institutions, whether or not they operate in the same business environment. Each microfinance bank, therefore, has to identify its own unique set of risks and to manage it in its own way if it wishes to continue to sustain its operations (Mwisho., 2001).

Risk management, in relation to a microfinance institution, is “the process of controlling the likelihood and potential severity of an adverse event; it is about systematically identifying, measuring, limiting, and monitoring risks faced by an institution (Haron, Justo., Nebat, and Mary, 2012). Services are relatively small and simple when a new microfinance bank commences operations. During the setting up of a new microfinance bank, it tends to be very aware of the financial risks that it faces, causing it to make a conscious effort to mitigate them. However, as microfinance bank grows in size and diversifies its loans, different types of risks, other than the obvious financial ones, tend to begin to manifest them (Fernando 2008). Generally, the following three categories of risks that might face microfinance business have been identified: financial, operational, and strategic.

2.1.4.1 Financial risks

Financial risk defines as “risk to the firm of being not able to cover required obligations”. In the context of microfinance banks, such risks are associated with financial intermediation and are concerned with fund disbursement and repayment default. Usually, microfinance banks, being aware of the financial risks facing them, try to modify their lending approach in order to avoid or minimize the risks. Consequently, they focus more on reducing risks in the form of loans that they offer (transaction risk) and in the structure of the overall loan (Lawrence J., 1988).

2.1.4.2 Liquidity risks

Such risk arises when a microfinance bank is unable to meet its cash requirements or payment obligations timely and in a cost-efficient manner. Microfinance banks have to plan the volume of loans to be approved and disbursed, the withdrawal pattern of their saving clients (where microfinance institution is allowed to mobilize deposits), and other fund requirements for operational purposes, and should be able to match available funds against such requirements (Onaolapo,2012). In order to reduce liquidity risk, each microfinance bank branch needs to prepare a daily fund plan that guides the matching of cash inflows from loan repayment and saving deposits (that usually take place in the afternoon) with cash outflows (from draw-downs, customer withdrawals and operational expenses) for the branch on a daily basis(Poudel, 2012).

Any positive balance or surplus fund should be deposited with a correspondent bank daily, while any anticipated shortfall should be covered by withdrawing cash from the bank early in the day. No overnight cash should be held by the branch, in order to eliminate the risk of fraud or theft (Ramos, 2000).

As in the case of the daily fund plan, each branch should also prepare a monthly fund plan that should outline the amount of loans to be granted, the volume of saving withdrawals from customers, and the anticipated operational expenses. The preparation of the plan assists the finance department to anticipate the funding requirements of the various branches, thereby allowing the determination in advance of any potential cash shortfall or surplus facing the branches concerned. The funds should then be moved to a position where they can address the situation, while any arising idle funds are invested appropriately (Mersland, 2007).

2.1.4.3 Market risks

Market risks are, by nature, environmental and include risks from financial losses as a result of changes in interest rates, fluctuations in foreign exchange, or mismatch in the management of long-term assets and liabilities (investment risk). Managing credit risk is an integral part of microfinance bank operating techniques, with reducing the risks requiring a major operational effort. As a provider of loan service, the microfinance institution faces the hazard of imperfect selection of credit clients with little or no collateral security (Morduch, 2005).

2.1.5 Credit risk in microfinance

Credit risk is an investor's risk of loss arising from a borrower who does not make payments as promised. Such an event is called a default. Another term for credit risk is default risk. Investor losses include lost principal and interest, decreased cash flow, and increased collection costs. Credit risk can be mitigated using risk based pricing, covenants, credit insurance, tightening and diversification (Ross et al, 2008). Credit Risk is the potential that a microfinance borrower/counter party fails to meet the obligations on agreed terms. There is always scope for the borrower to default from his commitments for one or the other reason resulting in crystallization of credit risk to the microfinance (Raghavan, 2003).

Basically, it is understandable that credit risk in microfinance occurs when the debtor cannot repay part or whole of the debt to the creditor as agreed in the mutual contract. More formally, “credit risk arises whenever a lender is exposed to loss from a borrower, counterparty, or an obligor who fails to honor their debt obligation as they have agreed or contracted”. This loss may derive from deterioration in the counterparty’s credit quality, which consequently leads to a loss to the value of the debt. Or in the worst case, the borrower defaults when he/she is unwilling or unable to fulfill the obligations (Crouhy, 2006).

2.1.6 Credit risk management in microfinance

In microfinance, credit risk is taken for granted as a fundamental feature of the institutions. If an organization refuses to acknowledge the inherent risk, it is not in the lending industry. Wherever risk survives, its enemy, risk management, will also exist and fight against it. Credit risk management is simply the procedures implemented by organizations with the aim of diminishing or avoiding credit risk(Ferguson Roger, 2001).

Credit risk management has been a hot topic of debate as it is one of the fastest evolving practices thanks to institutional developments in the credit market, diversification of financial institutions participating in the lending business and modern technologies (Nimmo 2008). Credit risk management processes enforce the microfinance to establish a clear process in for approving new credit as well as for the extension to existing credit. These processes also follow monitoring with particular care, and other appropriate steps are taken to control or mitigate the risk of connected lending (Judith A., 2004).

Credit granting procedure and control systems are necessary for the assessment of loan application, which then guarantees microfinance's total loan portfolio as per the bank's overall integrity (Narayanan, 2006). It is necessary to establish a proper credit risk environment, sound credit granting processes, appropriate credit administration, measurement, monitoring and control over credit risk, policy and strategies that clearly summarize the scope and allocation of microfinance credit facilities as well as the approach in which a credit portfolio is managed i.e. how loans are originated, appraised, supervised and collected, a basic element for effective credit risk management (Othman, 2007).

The microfinance loan is commonly referred to the borrower who got an amount of money from the lender, and need to pay back, known as the principal. In addition, the micro finances normally charge a fee from the borrower, which is the interest on the debt (Ferguson Roger, 2001). The risk associated with loans is credit risk. As the extension of credit has always been at the core of microfinance operation, the focus of microfinance's risk management has been credit risk management (Dellien, 2003). Credit risk management incorporates decision making process; before the credit decision is made, follow up of credit commitments including all monitoring and reporting process. The credit decision is based on the financial data and judgmental assessment of the market outlook, borrower, management and shareholders (Ramos, 2000).

The follow-up is carried out through periodic reporting reviews of the microfinance commitments by customer. Loans that are in default or close to being default become nonperforming loans. Nonperforming loans ratio shows the proportion of the default or near to default loans to the actual performing loans. It indicates the efficiency of the credit risk management employed in the micro finance. Therefore, the less the ratio the more effective the credit risk management (Joel Bessis, 1998).

According to Frederick, (2004), Micro finances can reduce their exposure to credit risk on different loans by applying major credit risk management principles. These are:

1. Screening and Monitoring: adverse selection in loan market requires the lenders screen out the bad credit from the good ones so that loans are profitable to them. Once a loan has been made, the microfinance has to monitor or follow up the borrower's activities.

2. Long-term Customer Relationship: if the borrower has borrowed previously from the microfinance, the microfinance has a record of the loan payments. This reduces the costs of information collection and makes it easier to screen out bad credit risks.

3. Collateral Requirements: is an important credit risk management tool. Collateral, which is properly promised to the lender as compensation if the borrower defaults, it lesser the lender's losses in the case of a loan default

Credit risk management indicators in this study are capital adequacy and nonperforming loans.

2.1.6.1 Capital adequacy

Capital adequacy ratios are a measure of the amount of microfinance's capital expressed as a percentage of its risk weighted credit exposures. The introduction of capital adequacy regulations strengthens microfinance. However, these rules may cause a shift of providing loans from private sector to public sector. Micro finances can comply with capital requirement ratios either by decreasing their risk-weighted assets or by increasing their capital. An international standard which recommends minimum capital adequacy ratios has been developed to ensure micro finances can absorb a reasonable level of losses before becoming insolvent (Magda, 2009).

2.1.6.2 Nonperforming loans

Nonperforming loans is a loan that is not earning income and: (1) full payment of principal and interest is no longer anticipated, (2) principal or interest is 90 days or more delinquent, or (3) the maturity date has passed and payment in full has not been made() Nonperforming loan ratio is defined as Nonperforming loans divided by total loans. Nonperforming loan amount is provided in the notes to financial statements under loans section. Total loan amount, the denominator of the ratio, has been gathered by adding two types of loans: loans to institutions and loans to the public (Brewer, 2006). According to the International Monetary Fund, a non-performing loan is any loan in which: interest and principal payments are more than 90 days overdue; or more than 90 days' worth of interest has been refinanced, capitalized, or delayed by agreement; or payments are less than 90 days overdue but are no longer anticipated.

Again, a non-performing loan is one in which the maturity date has passed but at least part of the loan is still outstanding. The specific definition is dependent upon the loan's particular terms. The huge bad debts recorded by most Ghanaian banks in 2009 and early parts of this year have affected the performance of the financial intermediaries. According to the Bank of Ghana (BoG), the current level of Non-Performing Loans (NPLs) was impacting the balance sheets of the banks. The Central Bank, in a statement, revealed that the ratio of NPL to gross loans had declined, but it was affecting overall credit delivery in the banking sector.

Park (2002) states in a study that according to the Financial Agency Services, the total sum of non-performing loans extinguished from the book for the entire banking industry of Japan since 1992 amounted to nearly 69 trillion yen, but the new non-performing loans cropped up faster.

2.1.7 Mechanism of the Credit Risk Management in Microfinance

The failures of formal banks in rural sector especially the bad repayment rates of agricultural state banks that had provided subsidized loans to rural farmers have given rise to the innovative lending institutions that are microfinance institutions. This type of organization has become an increasingly popular means that can alleviate poverty by making small, uncollateralized loans to poor customers. Moreover, what attracted attention to microfinance institutions were its remarkably high repayment rates. Microfinance institutions implement multiple mechanisms that overcome the screening and enforcement problems, which reduce the default risk and improve repayment rates. Microfinance has become a revolutionary way to reduce poverty due to the fact that this type of organization and the way that it operates are better designed to face information problems (Giné *et al.*, 2010).

In order to explain the success of microfinance in providing credit to the poor, a large number of theoretical works uses the principal/agent theory to demonstrate that microfinance contracts lending to joint-liable groups solve the problems of asymmetric information in the credit market. They permit the lender to bypass adverse selection and moral hazard and hence help to maintain high repayment rates. Kono and Takahashi (2010) describe the existing literature and theoretical models on innovative factors underlying the high repayment rates in microcredit programs. They present simple models to argue that different elements of microcredit, such as group lending solve the problems of asymmetric information in the credit market. However, a large part of microfinance institution does not offer group but just individual loans. Many practitioners of group lending are now turning steadily toward individual lending (Babu and Singh, 2007).

This give rise to a very important question: when microfinance institutions is not associated with joint liability lending mechanism and offer just individual loans, how microfinance institutions manage their credit risk. In their interesting theoretical analysis, Armendariz and Morduch (2000) have highlighted several important mechanisms that allow microfinance institution to generate high repayment rates from poor borrowers without requiring collateral and without using group lending contracts. These mechanisms include the use of incentive mechanism of group lending, regular repayment schedules, collateral substitutes, and the regular repayment schedule.

2.1.7.1 Incentive Mechanism of Group Lending

One of the major mechanisms that most microfinance institutions employ is group lending. Group lending refers specifically to arrangements by individuals without collateral who get together and form groups with the aim of obtaining loans from a lender. According to Kono and Takahashi (2010), in the typical group lending scheme: (a) each member is jointly liable for each other's loan, (b) if any members do not repay, all the members are punished, and (c) prospective borrowers are required to form groups by themselves. Group lending model has attracted an enormous amount of public and academic attention mainly after the success of group lending program in Grameen Bank. Many economic works on microfinance focus on the incentives induced by joint liability in group lending contracts and nearly all authors have proven that group lending enforces joint liability mechanisms, involves borrowers in sharing information and then reduces asymmetric information (Besley and Coate, 1995; Ghatak, 1999; Kono and Takahashi, 2010; Stiglitz, 1990; Van Tassel, 1999). Zeller (1998) uses information on 168 credit groups in Madagascar and shows that the group effectively generates insurance, transfer screening and monitoring costs from the bank to borrowers, providing an effective way for microfinance institutions to overcome adverse selection, moral hazard, and enforcement problems, which leads to a better repayment performance.

In a group lending contract, borrowers are required to form groups and the entire group is responsible for repaying the loan of any member who is unable to pay. Each borrower obtains a loan for individual project but the liability is joint. This joint-liability induces group members to self select each other and provides incentive for peer monitoring, such each borrower in the group will have information about the other's actions.

Hence, it is believed that this interdependence between borrowers helps mitigate problems caused by adverse selection and moral hazard and therefore contributes significantly in obtaining high repayment rates. First, peer selection in group lending model provides a screening mechanism for borrower's character, the choice of investment project and the proposed loan use, that can help to reduce adverse selection (Ghatak, 1999; Morduch, 1999; Van Tassel, 1999; Zeller, 1998). Ghatak (1999) and Van Tassel (1999) provide original theoretical models to explain how group lending with joint liability affects the problem of adverse selection. They mentioned that borrowers in group lending have perfect knowledge of their partners and every individual wants to form a group with safe borrowers.

This peer selection and screening mechanism make the effective cost of borrowing lower to safer borrowers and hence improve repayment rates and efficiency. In addition, joint liability in group lending can reduce the problem of moral hazard by increasing borrower's incentives to monitor each other and then to repay the loan. The original theoretical models dealing with the effect of group lending with joint liability on moral hazard can be found in Stiglitz (1990) and Varian (1990). These studies conclude that joint liability may induce borrowers in a group to monitor each other, thereby alleviating moral hazard problems. However, Kono and Takahashi (2010) advance that group lending alleviates the problem of moral hazard only if the group can coordinate its members' decisions and achieves higher repayment rates only if the returns are sufficiently high.

According to Besley and Coate (1995), Karlan (2007), Wydick (1999), moral hazard can be reduced also by social sanctions against defaulting borrowers in group members. For example, Besley and Coate (1995) construct a model to compare the repayment performance between group lending with and without the use of social sanctions and argue that social sanctions can improve repayment rates under group lending. However, group lending in practice suffers from some disadvantages such as domino effect or risk of contagion if one of the members is unable to meet repayments (Armendáriz and Morduch, 2000; Churchill, 1999)

2.1.7.2 Dynamic Incentives

Lenders may use dynamics incentive as an important incentive mechanism (Besley, 1995; Kono and Takahashi, 2010; Morduch, 1999). Although group lending mechanism manages credit risk only in group loans, the mechanism of dynamics incentive or progressive lending, as named by Armendariz and Morduch (2005), can manage credit risk both in group and individual loans.

Dynamics incentives mechanism boils down to the threat not to refinance a borrower who defaults on his/ her debt obligations. This incentive has a large effect on microfinance borrowers' behavior because they have considerable needs for future loans to develop their business. Morduch (1999) notes that the repeated nature of the interactions and the credible threat to cut off any future lending when loans are not repaid can be exploited to overcome information problems. Morduch (1999) states that dynamic incentives are enhanced further if borrowers can anticipate a stream of increasingly larger loans.

2.1.7.3 Collateral Substitutes

In financing theory, the lender uses a guarantee to reduce the risk attached to the loan. One particularity of microfinance institution is that they do not require their clients to provide any physical collateral that traditional commercial banks do. However, in order to maintain high repayment rate, microfinance institution can use important mechanism that is collateral substitutes. Collateral substitutes serve as a means to secure repayment since collateral. For example, following the model of Grameen bank, many microfinance institutions especially during their initial years of operation require borrowers to pay 0.5 percent of every unit borrowed (beyond a given scale) in order to collect the emergency fund. The emergency fund serves as insurance against loan default, death or disability (Morduch, 1999).

The borrowers are also required to pay an additional five percent of the loan that is taken out as a 'group tax'. These contributions are usually deducted from the members' loans or form part of weekly contributions in addition to loan amortization and thus are forced savings. These forced savings can be withdrawn upon leaving, but only after the banks have taken out what they are owed. Babu and Singh (2007) note that the lender may accept the borrower's degree certificate, driver's license, marriage certificate and such other documents as collateral substitutes in individual lending. Bank Rakyat Indonesia, a leading name in microfinance, uses this technique effectively. In rural areas of Albania, lender may accept tangible assets such as stocks as collateral substitutes.

In addition, microfinance institution providing individual microcredit may require guarantor agreeing to guarantee the borrower's loan. However, it must be noted that the essential role of a guarantor is to be a decisive factors for granting the credit and not a secondary repayment source.

Indeed, presence of a guarantor primarily acts as an ex ante signal that can reduce adverse selection problem in as much as the request for guarantors requires costly efforts for the potential borrower to find one or more guarantors and hence bad borrowers will be discouraged (Churchill, 1999). Moreover, presence of a guarantor is also an ex post sanction mechanism. Indeed, in case of default of payment, the cosigner who may lose his reputation to the same extent as the borrower can put pressure on the borrower to meet its obligations. The guarantor can even apply direct sanctions by revealing his or her bad conduct to neighbors or, more generally, to members of the community he or she belongs to (Venet 2009).

2.1.7.4 Regular Repayment Schedule

Even though economic theory suggests that a more flexible repayment schedule would benefit clients and potentially increase their repayment capacity, microfinance practitioners believe that the discipline imposed by regular repayment maintains high repayment rates in the absence of collateral. Although that this feature is less usual than the previous mechanisms, it helps microfinance institution to maintain high repayment rates (Armendariz and Morduch, 2000; Morduch, 1999). In the microfinance institution, the repayment starts almost immediately after disbursement and then occurs on a weekly or monthly basis.

Morduch (1999) points out the different advantages of regular repayment schedules.

-) Screens out undisciplined borrowers at an early stage
-) Gives early warning to loan officers and peer group members about potential future problems.
-) Requires that the borrowers have an additional income source on which to rely since the repayment process begins before investments bear fruit. This permits a positive selection of clients for the lender (Armendariz and Morduch, 2000).

Field and Pande (2008) note that regular payment schedule provide clients a credible commitment device, which enables them to form the habit of saving regularly.

They note also that frequent meetings with a loan officer may improve client trust in loan officers and their willingness to stay on track with repayments. However, this early regular repayment schedules may exclude potential borrowers who have a single source of income from the market. These borrowers are mostly present in areas focused sharply on highly seasonal occupations like agricultural cultivation. The income generation of agriculture areas is unstable and regular repayment schedules are difficult to respect.

2.1.8 Credit Risk Management Strategies

The credit risk management strategies are measures employed by micro finances to avoid or minimize the adverse effect of credit risk. A sound credit risk management framework is crucial for micro finances so as to enhance profitability guarantee survival. According to Lindergren (1987), the key principles in credit risk management process are sequenced as follows; establishment of a clear structure, allocation of responsibility, processes have to be prioritized and disciplined, responsibilities should be clearly communicated and accountability assigned.

The strategies for hedging credit risk include but not limited to these;

i. Credit Derivatives: This provides micro finances with an approach which does not require them to adjust their loan portfolio. Credit derivatives provide micro finances with a new source of fee income and offer micro finances the opportunity to reduce their regulatory capital (Shao and Yeager, 2007). The commonest type of credit derivative is credit default swap whereby a seller agrees to shift the credit risk of a loan to the protection buyer. Recent innovations in credit derivatives markets have improved lenders' abilities to transfer credit risk to other institutions while maintaining relationship with borrowers (Marsh, 2008).

ii. Credit Securitization: It is the transfer of credit risk to a factor or insurance firm and this relieves the microfinance from monitoring the borrower and fear of the hazardous effect of classified assets. This approach insures the lending activity of micro finances. The growing popularity of credit risk securitization can be put down to the fact that micro finances typically use the instrument of securitization to diversify concentrated credit risk exposures and to explore an alternative source of funding by realizing regulatory arbitrage and liquidity improvements when selling securitization transactions (Michalak and Uhde,2009).

A cash collateralized loan obligation is a form of securitization in which assets (bank loans) are removed from a microfinance's balance sheet and packaged (tranche) into marketable securities that are sold on to investors via a special purpose vehicle (SPV) (Marsh,2008).

iii. Compliance to Basel Accord: The Basel Accord are international principles and regulations guiding the operations of micro finances to ensure soundness and stability. The Accord was introduced in 1988 in Switzerland. Compliance with the Accord means being able to identify, generate, track and report on risk-related data in an integrated manner, with full auditability and transparency and creates the opportunity to improve the risk management processes of micro finances.

The New Basel Capital Accord places explicitly the onus on micro finances to adopt sound internal credit risk management practices to assess their capital adequacy requirements (Chen and Pan,2012).

iv. Adoption of a sound internal lending policy: The lending policy guides micro finances in disbursing loans to customers. Strict adherence to the lending policy is by far the cheapest and easiest method of credit risk management.

The lending policy should be in line with the overall microfinance strategy and the factors considered in designing a lending policy should include; the existing credit policy, industry norms, general economic conditions of the country and the prevailing economic climate (Kithinji,2010).

v. Credit Bureau: This is an institution which compiles information and sells this information to micro finances as regards the lending profile of a borrower. The bureau awards credit score called statistical odd to the borrower which makes it easy for banks to make instantaneous lending decision.

2.1.9 Measurement of credit risk

According to Gerhard S., (2002) Usually, microfinance can project the average level of credit losses it can reasonably expect to experience. These losses are referred to:

a. Expected Losses: perceived as cost of business undertaking by financial institutions.

b. Unexpected Losses: losses above expected level when micro finances anticipate their occurrence though the timing and severity cannot be known beforehand

c. Loss Given Default: the amount of fund that bank can lose when the borrower defaults on a loan. Therefore, capital is needed to cover the risks of such losses.

2.1.10 Impacts of credit risk management in microfinance

It is important that the investor knows credit risk of microfinance, if he/she has investments in any microfinance. The ratio of nonperforming loans to total loans should be on the decrease. This indicates that the microfinance is recovering most of its loans and as such is maximizing its assets to generate profits. The loan profile detailing amount of performing and nonperforming loans could be gotten from their annual reports and accounts statements. The goal of credit risk management is to maximize microfinance's risk-adjusted rate of return by maintaining credit risk exposure within acceptable parameters(Daley-Harris, 2006).

Micro finances and financial institutions gave importance to the credit risk and considered as an essential factor in the financial sector that is needed to be managed. When micro finances recognized the credit risk, it means that there is a possibility that a borrower tends to fail in meeting the obligations in accordance with the agreed terms(Field, and Rohini, 2007). Credit risk in microfinance deals with lending to corporate, individuals, etc. Credit risk management needs to be a robust process that enables the micro finances to proactively manage the loan portfolios to minimize the losses and earn an acceptable level of return to its shareholders (Focus Group, 2007).

2.1.11 Credit Risk Performance Measurement in microfinance

Credit risk performance measurement is very important in the microfinance. In fact, if you would ask any person in the microfinance industry how important it is, he/she would tell you that this aspect has an impact on the overall success of the microfinance itself. Thus, micro finances and other financial institutions, especially the ones that are delving in the business of lending, should pay attention to this aspect(Dellien, 2003).

By financial definition, credit risk management pertains to that process of assessing the risks that come with any investment. For the most part, risk comes in the form of investments and the allocation of capital. These risks should be assessed so that a reliable and sound investment decision would be achieve. Risk assessment is also an important factor to consider when you are aiming for a certain position in balancing risks and returns. Also, micro finances have to monitor the financial performance of the microfinance, as well as evaluate it (Tags, 2000).

2.1.12 Financial Management Risks

2.1.12.1 Asset and Liability

The financial vulnerability of the microfinance institution is summarized in asset and liability risks, which include interest rate, liquidity, and foreign exchange risks. Interest rate risk rises when the terms and interest rates of the microfinance institution's assets and liabilities are mismatched. For example, if the interest rate on short-term liabilities rises before the microfinance institution can adjust its lending rate, the spread between interest earnings and interest payments will narrow, seriously affecting the microfinance institution's profit margin. Microfinance institutions operating in inflationary environments are particularly vulnerable to this type of risk.

Liquidity risk involves the possibility of borrowing expensive short-term funds to finance immediate needs such as loan disbursement, bill payments, or debt repayment. Microfinance institutions are most vulnerable to foreign exchange risk if they have to repay loans in a foreign currency that they have converted to local currency and therefore are earning revenue in the local currency.

2.1.12.2 Inefficiency

Efficiency remains one of the greatest challenges for microfinance institutions. It reflects an organization's ability to manage costs per unit of output, and thus is directly affected by both cost control and level of outreach. Inefficient microfinance institutions waste resources and ultimately provide clients with poor services and products, as the costs of these inefficiencies are ultimately passed on to clients through higher interest rates and higher client transaction costs.

2.1.12.3 System Integrity

Another aspect of financial management risk is the integrity of the information system, including the accounting and portfolio management systems. An assessment of this risk involves checking the quality of the information entering the system, verifying that the system is processing the information correctly, and ensuring that it produces useful reports in a timely manner (Craig C., 2001).

2.1.13 Financial Performance of micro finances

Financial institutions such as banks, micro finances, securities and credit unions have very different ways of reporting financial information. Micro finance's financial performance can be measured using return of equity ratios (Hosna, 2006). The habitual measure of the financial performance of microfinance is return on equity (ROE). Loans are microfinance's assets and are used to provide most of microfinance's income. However, to make loans, microfinance must have money, which comes primarily from the microfinance's owners in the form of microfinance capital, and from money that it borrows from other financial institutions.

Microfinance institutions earn financial income from loans and other financial service in the form of interest fees, penalties, and commission etc. these financial assets, such as investment income. Profitable institutions earn a positive net income i.e. operating income exceeds total expenses. In order to measure the over all financial performance, financial revenue and financial expense indicators as well as returns can be compared against the institutional of equity and assets (Lafarcade et al, 2005).

2.1.13.1 Return on Equity in microfinance

The measurement of microfinance performance has been developed over time. The riskiness of underlying assets becomes more and more important. Return on equity is commonly used to measure the financial performance of micro finances. The efficiency of the microfinance can be evaluated by applying return on equity, since it shows that microfinance reinvest its earnings to generate future profit. If the microfinance uses capital more efficiently, it will have a better financial performance and consequently a higher return on equity. The rise in return on equity can also reflect increased risks because high risk might bring more profits. This means return on equity does not only go up by increasing returns or profit but also grows by taking more debt which brings more risk. Credit risk management becomes more and more significant in order to ensure sustainable profits in microfinance (Gerhard S., 2006).

2.1.14 Credit policy

Credit policies are set of objectives, standards and parameters to guide bank officers who grant loans and manage the loan portfolio. Thus, they are procedures, guidelines and rules designed to minimize costs associated with credit while maximizing the benefit from it (Ahimbishwe, 2002). A lenient credit policy on the other hand gives credit to customers on very liberal, lax terms and standards .The main purpose of a lenient credit policy is to increase gains through extending more credits to customers (Kakuru1998 and Pandey 2001).therefore a firm must try to balance between these two extremes in order to maximize portfolio performance.

According to Johansson and Terry (1995), credit policy means procedures aimed at checking and controlling the granting of credit facilities, to follow up procedures used to obtain collection of debts outstanding.

2.1.15 Micro financing Credit Risk Management Guidelines in Ethiopia

2.1.15.1 Introduction

Credit risk is the financial exposure resulting from a microfinance institution's dependence on another party (counterparty) to perform an obligation as agreed. It is the risk to earnings or capital due to borrower's late and non repayment of loan obligation. Credit risk encompasses both the loss of income resulting from the Microfinance institution's inability to collect an anticipated interest earnings as well as the loss of principal resulting from loan defaults(). Microfinance institutions need to manage the credit risk inherent in the entire portfolio as well as the risk in individual credits or transactions.

Additionally, microfinance institutions should be aware that credit risk does not exist in isolation from other risks, but is closely intertwined with those risks. An effective and sound credit risk management is critical to the stability of an institution. Effective credit risk management is the process of managing an institution's activities which create credit risk exposures, in a manner that significantly reduces the likelihood that such activities will impact negatively on a microfinance institution's earnings and capital. Credit risk is not confined to a microfinance institution's loan portfolio, but can also exist in its other assets and activities (Derban,2005).

According to Drehman, Sorensen, & Stringa. (2008). Effective approaches to managing credit risk in MFIs include:

- a. Active oversight by board and senior management, well designed borrower screening, careful loan structuring, close monitoring clear collection procedures etc. To avoid rapid spread and potential of significant loss, delinquency should be understood and addressed promptly.
- b. Good portfolio reporting that accurately reflects the status and monthly trends in delinquency, including a portfolio at risk aging schedule and separate reports by product, sector, loan officer, branch etc.
- c. Following up concentration of credit

2.1.15 Board and Senior Management Oversight Board

The board of directors is has the critical role and ultimate responsibility for reviewing and approving a microfinance institution's credit risk strategy and policies. Each microfinance institution should develop a strategy that sets the objectives of its credit-granting activities and adopts the necessary policies and procedures for conducting such activities(Churchill, 1999).

According to (Cassar, Crowley and Wydick, (2007), the board should ensure that it:

- a. approves broad business strategies and policies that govern or influence the management of credit risk of the microfinance institution.
- b. sets out the microfinance institutions' tolerance for credit risk in the context of types of credits, economic sectors, geographical locations, currencies, and maturities ;
- c. establishes goals for credit quality, earnings and growth;
- d. establishes clear levels of delegation within the credit risk management function;
- e. ensures that senior management as well as individuals responsible for credit risk management posses sound expertise and knowledge to accomplish the credit risk management function;

- f. ensures that the microfinance institution's management adopts appropriate plans and procedures for credit risk management;
- g. ensures that credit risk is adequately measured, monitored and controlled and effectively communicates the strategies and policies to all relevant microfinance institutions personnel;
- h. Periodically re-evaluate significant credit risk management policies as well as overall business strategies that affect the credit risk exposure of the microfinance institution.

The board of directors is also responsible for monitoring compliance with the credit risk management strategy. This is usually accomplished through periodic reporting of management and internal auditors. The reports must provide sufficient information to satisfy the board of directors that a microfinance institution is complying with its credit risk management policies and NBE directives. The board should review loans in line with NBE directives on provisions.

Moreover, the Board of Directors should:

- a. Ensure that internal audit reviews the credit operations to assess whether or not the institutions policies and procedures are adequate and being addressed to;
- b. require independent reviews of credit operations to assess whether the microfinance institution's policies and procedures are being properly followed on ongoing basis;
- c. review exposures and policies regarding credit to related parties as defined by the NBE directives;
- d. review exposures and policies regarding credit to corporations or other legal entities controlled by the microfinance institution through ownership or management structure;
- e. review all credit exposures that are in excess of the credit approval authority delegated to management
- f. review all restructured exposures;
- g. review trends in portfolio quality and the adequacy of the microfinance institution's provision for credit losses;
- h. specify the content and frequency of management reports to the board on credit risk management; and
- i. Ensure compliance with all relevant regulations and NBE directives. The board is also responsible for the selection and retention of senior management capable of managing the credit activities of the microfinance institution and seeing that such activities are performed within the NBE regulations, the risk strategy, policies and tolerances approved by the board.

2.1.15.1 Management Responsibilities

Management of the institution is responsible for implementing the credit risk management strategies and policies approved by the board of directors and also ensure that the procedures are put in place to manage and control credit risk and quality of credit portfolio. Such policies and procedures should address credit risk in all of the microfinance institution's activities at both the individual credit and portfolio levels. Senior management must ensure that there is a periodic independent internal or external assessment of the microfinance institution's credit management functions(Godquin, 2004).

According to Chen, K. and Pan, (2012). Management of each Microfinance institution should:

- a. develop credit policies, procedures and practice as apart of overall credit management framework for approval by the board;
- b. implement credit risk management policies
- c. undertake the management of credit risk in accordance the delegated authority developed by the board;
- d. develop measures that will facilitate the measurement, monitoring and control of credit risk;
- e. implement a system of internal controls that will serve as an effective check over the measures used to manage credit risk;
- f. ensure that internal audit reviews the credit risk management system on an on-going basis;
- g. monitor the quality of the credit portfolio and ensure that the portfolio is classified in line with the NBE Directive on Provisioning, uncollectible exposures written off and loan losses provisions are accounted in line with the NBE requirements;
- h. ensure that internal audit reviews are conducted on an ongoing basis and assess the credit portfolio and credit risk management system;
- i. develop lines of communication to ensure the timely dissemination of credit risk management policies and other credit risk management information to all individuals involved in the process; and
- j. develop an effective system of reporting to the board on issues related to the management of credit risk.

2.1.15.2 Credit Policies and Procedures

According to Berger and Miller, (2005) at a minimum the credit policy should include:

- a. detailed credit evaluation and appraisal process, administration and documentation;
- b. Credit approval authority at various hierarchy levels, including authority for approving exceptions;
- c. Risk identification, assessment, measurement, monitoring and control;
- d. Risk acceptance criteria;
- e. Credit origination, credit administration and loan documentation procedures;
- f. Roles and responsibilities of units/staff involved in origination of credit;
- g. Authority for approval of allowance for probable losses and write-offs
- h. Guidelines on large credit exposures and connected lending;
- i. Guidelines for management of problem loans including the institution's loan portfolio aging and loan provisioning system
- j. Credit pricing
- k. The institution's plan to grant credit based on various client segment and products, economic sectors, geographical location and maturity
- l. sound and prudent portfolio concentration limits.

In order to be effective, credit policies must be communicated throughout the institution, implemented through appropriate procedures, and periodically revised to take into account changing internal and external circumstances

2.1.15.2.1 Credit Risk management Committee

The credit risk management strategy of a microfinance institution should be articulated in a policy approved by the board of directors. For that purpose, each microfinance institution should establish a board level committee to address issues relating to credit policy and procedures, and to analyze, manage and control credit risk on an institution-wide basis(Bandyopadhyay Arindam, 2006).

2.1.15.2.2 Credit Philosophy

The foundation for effective credit risk management is the identification of existing and potential risks in the microfinance institution's credit products and credit activities. This creates the need for development and implementation of clearly defined policies, formally established in writing, which set out the credit risk philosophy of the microfinance institution and the parameters under which credit risk is to be controlled. Measuring the risks attached to each credit activity permits provides a platform against which the microfinance institution can make critical decisions about the nature and scope of the credit activity it is willing to undertake. A cornerstone of safe and sound microfinance institution is the design and implementation of written policies and procedures related to identifying, measuring, monitoring and controlling credit risk(Botero, Mokros, El Tabaa, M, Ferreyra, , & Schreiner, 2007).

Credit policies establish the framework for lending and guide the credit-granting activities of the microfinance institution. The policies should be designed and implemented with consideration for internal and external factors such as the microfinance institution's market position, trade area, staff capabilities and technology; and should particularly establish targets for portfolio mix and exposure limits to single counterparties, groups of connected counterparties, industries or economic sectors, geographic regions and specific products(Bagchi, 2003).

Effective policies and procedures enable a microfinance institution to: maintain sound credit-granting standards; monitor and control credit risk; properly evaluate new business opportunities; and identify and administer problem credits(Balthazar.,2006).The basis for an effective credit risk management process is the identification and analysis of existing and potential risks inherent in any product or activity. Consequently, it is important that microfinance institutions identify the credit risk inherent in all the products they offer and the activities in which they engage. This is particularly true for those products and activities that are new to the microfinance institution where risk may be less obvious and which may require more analysis than traditional credit-granting activities. Although such activities may require tailored procedures and controls, the basic principles of credit risk management will still apply. All new products and activities should receive board approval before being offered by the microfinance institution(Bandyopadhyay Arindam, 2006).

2.1.15.2.3 Credit Analysis and Approval Process

Prior to entering into any new credit relationship, consideration should be given to the integrity and reputation of the party as well as their legal capacity to assume the liability. Microfinance institutions need to understand to whom they are granting credit (Ayayi, 2008).

Therefore, prior to entering into any new credit relationship, a microfinance institution must become familiar with the borrower or counterparty and be confident that they are dealing with an individual or organization of sound repute and creditworthiness. In particular, strict policies must be in place to avoid association with individuals involved in criminal activities. Establishing sound, well-defined credit-granting criteria is essential to approve credit in a safe and sound manner. In order to conduct an effective credit-granting program, microfinance institutions must receive sufficient information to enable a comprehensive assessment of the risk profile of the counterparty (Ben-Naceur, and Omran, 2008).

According to (Arvelo, Novak, & Rose, 2008), depending on the type of credit exposure and the nature of the credit relationship with the counterparty, the factors to be considered and documented in credit granting include:

- a. purpose of the credit and sources of repayment;
- b. borrower's repayment history and current capacity to repay, based on historical financial trends and future cash flow projections under various scenarios;
- c. terms and conditions of the credit including covenants designed to limit changes in the future risk profile of the borrower;
- d. adequacy and enforceability of collateral or guarantees under various scenarios;
- e. current risk profile of the counterparty (including the nature and aggregate amounts of risk), and sensitivity to economic and market developments; and
- f. borrower's business expertise and management capability.

In order to maintain a sound credit portfolio, a microfinance institution must have a clearly established process in place for approving new credits as well as extensions or renewal and refinancing of existing credits. Approvals should be made in accordance with the microfinance institution's written guidelines and granted by the appropriate level of management. There should be a clear audit trail documenting the approval process and identifying the individual(s) and/or committee(s) making the credit decision (Abraham Gebeyehu, 2002).

Each credit proposal should be subjected to careful analysis by a qualified credit risk officer with expertise commensurate with the size and complexity of the transaction. An effective evaluation process establishes minimum requirements for the information on which the analysis is to be based as listed above. The information received will be the basis for any internal evaluation or rating assigned to the credit and its accuracy and adequacy is critical to management making appropriate judgments about the acceptability of the credit(Armendariz and Morduch ,2005).

2.1.15.2.4 Authority for Loan Approval

In order to maintain a sound credit portfolio, a banking institution must have an established formal evaluation and approval process for granting of credits. Approval should be made with written guidelines and granted by appropriate level of management. Each credit approval should be subject to careful analysis with expertise commensurate with the size and complexity of the transaction. There should be policies in place regarding the information and documentation needed to approve new credits, renew existing credit and/or change the terms and conditions of previously approved credits. A microfinance institution's credit approval process should establish accountability for decisions taken and designate the individuals who have authority to approve credits or changes in credit terms. Depending upon its size and nature, credit may be approved through individual authority, joint authorities or through a committee (Yoonhee Tina Chang, 2006).

According to Wolf Wagner & Ian Marsh, 2004). Approval authorities should be commensurate with the expertise of the individuals involved and the delegation of authority should include, as a minimum:

- a. the absolute and/or incremental credit approval authority being delegated;
- b. the provision or write –off authority being delegated;
- c. the officers, positions or committees to whom authority is being delegated;
- d. the ability of recipients to further delegate risk approval and writeoff authority; and
- e. the restrictions, if any, placed on the use of delegated risk approval and write-off authorities.

The degree of delegation of authority will depend on a number of variables, including:

- a. the microfinance institution's credit risk philosophy;
- b. the quality of the credit portfolio;
- c. the degree of market responsiveness required;
- d. the types of risks being assessed; and

e. the experience of lending officers.

In case where lending authority is assigned to the loan originating function, there should be compensating process and measures to ensure adherence to lending standards. There should be periodic review of lending authority assigned to officers.

2.1.15.2.5 Credit Limits and Credit Concentration

To ensure diversification, exposure limits are needed in all areas of the microfinance institution's activities that involve credit risk. Microfinance institutions should establish credit limits for individual counterparties and groups of connected counterparties that aggregate different types of on and off balance sheet exposures. Under no circumstance can limits established by microfinance institutions be higher than regulatory limits set by NBE. Limits should also be established for particular industries or economic sectors, geographic regions specific products, a class of security, and group of associated borrowers (Walter Okibo Bichanga and Mrs. Lilian Aseyo 2013).

2.1.15.2.6 Credit Concentration

According to (Tianwei Zhang and Paul N. Ellinger 2006). Credit concentration can occur when a microfinance institution's portfolio contains a high level of direct or indirect credits to:

- a. a single counterparty;
- b. an industry/sector;
- c. a geographical region;
- d. a type of credit facility and
- e. a class of collateral.

Excessive concentration renders a microfinance institution vulnerable to adverse changes in the area in which the credit is concentrated and to violations of statutory and regulatory limits.

Sound and prudent risk management involves the minimization of concentration risk by diversifying the credit portfolio. At a minimum, credit diversification policies should:

- a. be stated clearly
- b. include goals for portfolio mix;
- c. place exposure limits on single counter parties, key industries or economic sectors, geographical regions and new or existing products; and
- d. be in compliance with NBE statutory and regulatory limits on single exposures.

In considering potential credits, microfinance institutions must recognize the necessity of establishing provisions for identified and expected losses in line with the NBE directives on provisions and holding adequate capital to absorb unexpected losses. These considerations should factor into credit-granting decisions as well as the overall portfolio risk management process.

2.1.15.2.7 Credit Risk Mitigation

A number of techniques are available to microfinance institutions to assist in the mitigation of credit risk. Group collateral and guarantees are the most commonly used. Various forms of other collateral and guarantees (Including physical collateral, personal guarantees etc.) could also be used. Notwithstanding the use of various mitigation techniques individual credits transactions should be entered into primarily on the strength of the borrower's repayment capacity(Ramos 2000). Microfinance institutions should also be mindful that the value of collateral might well be impaired by the same factors that have led to the diminished recoverability of the credit. Microfinance institutions should have policies covering the acceptability of various forms of collateral, procedures for the ongoing valuation of such collateral, and a process to ensure that collateral is, and continues to be, enforceable and realizable. With regard to guarantees, microfinance institutions should evaluate the level of coverage being provided in relation to the credit-quality and legal capacity of the guarantor. Microfinance institutions should be careful when making assumptions about implied support from third parties including government entities (Robert , 2012).

2.1.15.3 Risk Measurement, Monitoring and Control

Failure to establish adequate procedures to effectively monitor and control the credit function within established guidelines has resulted in credit problems for many microfinance institutions. Compromising credit policies and procedures has been another major cause of credit problems. Accordingly, each microfinance institution needs to develop and implement comprehensive procedures and information systems to effectively monitor and control the risks inherent in its credit portfolio (Jain, and Ghazala, 2003).

These procedures need to define prudent criteria for identifying and reporting potential problem accounts to ensure that such accounts are identified for more frequent review, followed up with appropriate corrective action, adversely classified where appropriate and that provisions are made where necessary (Psillaki, 2010).

Categorization of the credit portfolio by credit characteristics, risk rating and regular review of individual and groups of credits within the portfolio and independent internal credit inspections or audits are integral elements of effective and prudent portfolio monitoring and control. Good portfolio reporting that actually reflects the status and monthly trends in delinquency including portfolio at risk aging schedule and separate reports by loan product (Mugenda, and Mugenda,2003).

2.1.15.3.1 Credit Administration Policies

Credit administration is a critical element in maintaining the safety and soundness of a microfinance institution. Once a credit is granted, it is the responsibility of the microfinance institution to ensure that the credit is properly maintained. This includes keeping the credit file up to date, obtaining current financial information, sending out renewal notices and preparing various documents such as loan agreements. In larger microfinance institutions, the responsibility for credit administration may be split among different departments, but in smaller microfinance institutions these responsibilities may be assigned to individuals. Where individuals perform such sensitive functions as custody of key documents, entering credit limits into the computer database e.t.c, they should report to managers who are independent of the business origination and credit approval processes (Mugenda, and Mugenda 2003).

According to (Kolapo 2012), In developing credit administration arrangements, microfinance institutions should ensure:

- a. the efficiency and effectiveness of credit administration operations, including monitoring of credits, maintenance of adequate documentation, observance of contractual obligations and legal covenants and maintenance of collateral, etc.;
- b. the accuracy and timeliness of information generated by management information systems;
- c. the effectiveness of the segregation of duties;
- d. the adequacy of controls over all “back office” procedures; and
- e. compliance with prescribed management policies and procedures as well as applicable laws and regulations.

2.1.15.3.2 Credit Files

The credit files of a microfinance institution should include all the information necessary to ascertain the current financial condition of counterparties as well as sufficient information to track the decisions made and credit history of borrowers (Jain, and Ghazala, 2003).

2.1.15.3.3 Credit Monitoring Procedures

Microfinance institutions need to develop and implement comprehensive procedures and information systems for monitoring the condition of individual counterparties across the microfinance institution's various portfolios. These procedures should define the criteria for identifying and reporting potential problem credits and other transactions to ensure that they are subject to more frequent monitoring, corrective action, and proper classification/provisioning (Jain, and Ghazala, 2003).

According to (Haron, Nebat and Mary 2012) An effective credit monitoring system will include measures to:

- a. ensure that the microfinance institution understands the current financial condition of the counterparty;
- b. ensure that all credits are in compliance with existing covenants;
- c. follow up of custom's utilization of the approved credit lines;
- d. ensure that projected cash flows on major credits meet debt servicing requirements;
- e. ensure, where applicable, collateral coverage provides adequate coverage relative to the obligator's current condition;
- f. determine if payments are being made from the source that was anticipated at the time the credit was booked;
- g. identify and classify potential problem credits on a timely basis; and
- h. direct promptly problems for remedial management.

Specific individuals should be responsible for monitoring credit quality, including ensuring that relevant information is passed to those responsible for assigning internal risk ratings to the credit. In addition, individuals should be made responsible for monitoring on an ongoing basis any underlying collateral and guarantees. Such monitoring will assist the microfinance institution in making necessary changes to contractual arrangements as well as maintaining adequate reserves for credit losses.

2.1.15.3.4 Managing Problem Credits

Microfinance institutions should establish a system that helps identify problem loans a head of time when there may be more options available for remedial measures. Microfinance institutions must have disciplined and vigorous remedial management process, triggered by specific events, that are administered through the credit administration and problem recognition systems.

Once the loan is identified as problem, it should be managed under a dedicated remedial process (Ferguson Roger 2001). A microfinance institution's credit risk policies should clearly set out how the microfinance institution will manage problem credits. Microfinance institutions should document how various courses of actions should be applied. These include renewal, and extension of impaired credit facilities. The procedures should clearly set out the level of officers within the organization that will have responsibility to make such decisions and how standard credit approval practices will be enhanced in the case of impaired credit(Ghatak, 1999).

2.1.15.3.5 Management Information Systems

The effectiveness of a microfinance institution's risk measurement process is highly dependent on the quality of its management information systems since this information is used by the board and management to fulfill their respective oversight roles. Microfinance institutions should establish management information systems and analytical techniques that enable management to measure the credit risk inherent in all on- and off-balance sheet activities (Derban, 2005).

The information system should provide adequate information on the composition of the credit portfolio, including identification of any concentrations of risk. The analysis of credit risk data should be undertaken at an appropriate frequency with the results reviewed against relevant limits. Microfinance institutions should use measurement techniques that are appropriate to the complexity and level of the risks involved in their activities, based on robust data, and subject to periodic validation (Chen and Pan, 2012). In particular, information on the composition and quality of the various portfolios, including on a consolidated microfinance institution basis, should enable the board and all levels of management to fulfill their respective roles (Derban, 2005). Therefore, the quality, detail and timeliness of information are critical to assess quickly and accurately the level of credit risk that the microfinance institution has incurred through its various activities and determine whether the microfinance institution's performance is within the tolerance limits of the credit risk strategy(Ghatak, 1999). Microfinance institutions should monitor actual exposures against established limits. It is important that microfinance institutions have a management information system in place to ensure that exposures approaching risk limits are brought to the attention of senior management. All exposures should be included in a risk limit measurement system. The microfinance institution's information system should be able to aggregate credit exposures to individual borrowers and counterparties and report on exceptions to credit risk limits on a meaningful and timely basis. (Cassar, Crowley and Wydick2007).

2.1.15.3.6 Internal Controls

Microfinance institutions must establish a system of independent, ongoing assessment of their credit risk management processes and the results of such reviews should be communicated directly to the board of directors and senior management. The microfinance institution should have an efficient internal review and reporting system as an effective oversight mechanism in respect of its credit function. This system should provide the board of directors and senior management with sufficient information to evaluate the performance of account officers and the condition of the credit portfolio (Ferguson Roger 2001).

Internal credit reviews conducted by individuals' independent from the business function provide an important assessment of individual credits and the overall quality of the credit portfolio. Such a credit review function can help evaluate the overall credit administration process, determine the accuracy of internal risk ratings and judge how effectively credits are being monitored (Carey 2001).

The credit review function should report directly to the board of directors, a committee with audit responsibilities, or senior management without lending authority (e.g., senior management within the risk control function(Derban 2005).

The goal of credit risk management is to maintain a microfinance institution's credit risk exposure within parameters set by the board of directors and senior management. The establishment and enforcement of internal controls, operating limits and other practices will help ensure that credit risk exposures do not exceed levels acceptable to the individual microfinance institution. Such a system will enable microfinance institution management to monitor adherence to the established credit risk objectives(Godquin, 2004).

According to (Giné Jakiela and, Karlan Morduch 2010) Internal audits of the credit risk processes should be conducted on a periodic basis. They should be used to confirm that:

- a. credits have been granted in compliance with the microfinance institution's credit policies and procedures,
- b. periodic reports on all the exposures are available to senior management and are submitted to the board;
- c. weaknesses in the credit risk management process are identified and reported to the board; and
- d. exceptions to established policies and procedures are reported to the board.

2.2 Empirical Review

Kargi (2011) evaluated the impact of credit risk on the profitability of Tunisian microfinances. Financial ratios as measures of microfinance's performance and credit risk were collected from the annual reports and accounts of sampled microfinances from 2004-2008 and analyzed using descriptive, correlation and regression techniques. The findings revealed that credit risk management has a significant impact on the profitability of Tunisian microfinances. It concluded that Tunisian microfinances' profitability is inversely influenced by the levels of loans and advances, non-performing loans and deposits thereby exposing them to great risk of illiquidity and distress.

Epure and Lafuente (2012) examined microfinance's performance in the presence of risk for Malawian microfinances industry during 1998-2007. The results showed that performance improvements follow regulatory changes and that risk explains differences in microfinances and non-performing loans negatively affect efficiency and return on equity while the capital adequacy ratio has a positive impact. Felix and Claudine (2008) investigated the relationship between microfinance's performance and credit risk management. It could be inferred from their findings that return on equity (ROE) and return on assets (ROA) both measuring profitability were inversely related to the ratio of non-performing loan to total loan of financial institutions thereby leading to a decline in profitability.

Ahmad and Ariff (2007) examined the key determinants of credit risk of microfinance's on emerging economy micro financing systems compared with the developed economies. The study found that regulation is important for micro financing systems that offer multi-products and services; management quality is critical in the cases of loan-dominant microfinance's in emerging economies. An increase in loan loss provision is also considered to be a significant determinant of potential credit risk. The study further highlighted that credit risk in emerging economy microfinance's is higher than that in developed economies. Al-Khoury (2011) assessed the impact of microfinance's specific risk characteristics, and the overall micro financing environment on the performance of microfinance's over the period 1998-2008. Using fixed effect regression analysis, results showed that credit risk, liquidity risk and capital risk are the major factors that affect microfinance performance when profitability is measured by return on assets while the only risk that affects profitability when measured by return on equity is liquidity risk.

Robert G., (2012) 'Effectiveness of Credit Management in Microfinance'. The researcher covered a number of Kenyan microfinance institutions. The paper outlines the results of the investigation. It reports that top management involvement in formulating credit terms does not affect loan performance. The non performance of the loans can be attributed to the fact that management are busy in day to day operation of microfinance institution's and therefore do not understand the best credit terms in the ever changing microfinance environment. A high involvement of credit officers in formulating credit terms was found to have a significant relationship with loan performance.

This thesis only analyze the effectiveness of credit management system on loan performance, it doesn't focus on its impact on financial performance.

Boahene, Dasah and Agyei (2012) used regression analysis to determine whether there is a significant relationship between credit risk and financial performance of microfinance in Kenya. They followed the line of Hosna (2009) by using Return of Equity as a measure of microfinance's financial performance and a ratio of non-performing loans to total asset as proxy for credit risk management. They found empirically that there is an effect of credit risk management on financial performance level of micro finances. The study also suggests that higher capital requirement contributes positively to microfinance's financial performance.

Hakim and Neamie (2001) examined the relationship between credit risk and microfinance's financial performance. The findings show that credit variable is positively related to financial performance, while liquidity variable is insignificant across all micro finances and have no impact on financial performance. The study also finds a strong link between capital adequacy and microfinance return, with high capitalization being the hindrance to return. The study concludes that the capital is a sunk cost with large micro finances realizing high profits in absolute but not in percentage terms. The study also contributes in terms of how micro finances can better employ their current capital and evaluate their future performance.

Poudel (2012) appraised the impact of the credit risk management in microfinance's financial performance using time series data from 2007 to 2011. The result of the study indicates that credit risk management is an important predictor of microfinance's financial performance.

Fredrick (2010) demonstrated that credit risk management has a strong impact on microfinance's financial performance. Musyoki and Kadubo (2011), also found that credit risk management is an important predictor of microfinance's financial performance; they concluded that microfinance success depends on credit risk management.

Onaolapo (2012), while analyzing the credit risk management efficiency in microfinance sector from 2006 through 2009 provides some further insight into credit risk as profit enhancing mechanism. Kithinji (2010) analyzed the effect of credit risk management (measured by the ratio of loans on total assets and the ratio of non-performing loans to total loans and advances on return on total asset in microfinance between 2004 to 2008). The study found that the bulk of the profits of microfinance are influenced by the amount of credit and non performing loans.

Rajagopal (1996) made an attempt to overview the microfinance's risk management and suggests a model for pricing the products based on credit risk assessment of the borrowers. He concluded that good risk management is good micro financing, which ultimately leads to profitable survival of the institution. A proper approach to risk identification, measurement and control will safeguard the interests of micro financing institution in long run.

Froot and Stein (1998) found that credit risk management through active loan purchase and sales activity affects microfinance's investments in risky loans. Micro finances that purchase and sell loans hold more risky loans (Credit Risk and Loss loans and commercial real estate loans) as a percentage of the balance sheet than other micro finances. Again, these results are especially striking because micro finances that manage their credit risk (by buying and selling loans) hold more risky loans than micro finances that merely sell loans (but don't buy them) or micro finances that merely buy loans (but don't sell them).

Bagchi (2003) examined the credit risk management in micro finances. He examined risk identification, risk measurement, risk monitoring, risk control and risk audit as basic considerations for credit risk management. The author concluded that proper credit risk architecture, policies and framework of credit risk management, credit rating system, monitoring and control contributes in success of credit risk management system. Diagne and Zeller (2001) analyzed the determinants of access to credit and its impact on farm and non-farm income and on household food security in Malawi. Their report showed that the contribution of rural microfinance institutions to small income holder can be limited or negative if the design of the institutions and their services do not take into account the constraints and demands of their clients. Ferguson (2001) analyzed the models and judgments related to credit risk management. The author concluded that proper risk modeling provides a formal systematic and disciplined way for firms to measure changes in the riskiness of their portfolio and help them in designing proper strategic framework for managing changes in their risk.

Brewer et al. (2006) use NPLR as a strong economic indicator. Efficient credit risk management supports the fact that lower NPLR is associated with lower risk and lower deposit rate. However it also implies that in long run, relatively high deposit rate increases the deposit base in order to fund relatively high risk loans and consequently increases possibility of NPLR. Therefore, the allocation of the available fund and its risk management heavily depend on how the credit risk is handled and diversified to decrease the NPL amount.

Muninarayanappa and Nirmala (2004) outlined the concept of credit risk management in microfinances. They highlighted the objectives and factors that determine the direction of microfinance's policies on credit risk management. The challenges related to internal and external factors in credit risk management are also highlighted. They concluded that success of credit risk management require maintenance of proper credit risk environment, credit strategy and policies. Thus the ultimate aim should be to protect and improve the loan quality.

Muhammed et al., (2012) used descriptive, correlation and regression techniques to study whether credit risk affect financial performance. They also found that credit risk management has a significant impact on profitability Boahene et al., (2012) used regression analysis to determine whether there is a significant relationship between credit risk and profitability. They found empirically that there is an effect of credit risk management on profitability level. The study also suggests that higher capital requirement contributes positively to financial performance.

Poudel (2012) appraised the impact of the credit risk management in microfinanc's financial performance using time series data from 2001 to 2011. The result of the study indicates that credit risk management is an important predictor of microfinance's financial performance.

Fredrick (2010) demonstrated that credit risk management has a strong impact on microfinanc's financial performance. Niinima`ki (2004) in his paper entitled "The effects of competition on banks' risk taking" found that the magnitude of risk taking depends on the structure and side of the market in which competition takes place.

He also concluded that if the bank is a monopoly or banks are competing only in the loan market, deposit insurance has no effect on risk taking. Banks in this situation tend to take risks, although extreme risk taking is avoided.

The study of Joetta C (2007) “Credit risk management: how to avoid lending disasters and maximize earnings” presented the purpose of ROE as the measurement of the amount of profit generated by the equity in the firm. It is also mentioned that the ROE is an indicator of the efficiency to generate profit from equity. This capability is connected to how well the assets are utilized to produce the profits as well. The effectiveness of assets utilization is significantly tied to the amount of assets that the company generates for each dollar of equity.

Goddard, Molyeux and Wilson (2004) analyzed the determinants of profitability of European banks. The authors found a considerable endurance of abnormal profits from year to year and a positive relationship between the capital-to-asset ratio and profitability.

Mohammad M, (2008) Non-Performing Loans in Bangladesh Banking Sector: Some Issues and Observations by using two sources which were Banking Regulation and Policy Department, Bangladesh Bank And Bangladesh Bank Annual Report of eleven year result from 1997 to 2007. Then he come to conclusion and says that their banking sector was characterized by low profitability and inadequate capital base. The crux of the problem lies in the accumulation of high percentage of non-performing loans over a long period of time. As per him unless NPL ratio of the county can be lowered substantially they will lose competitive edge in the wave of globalization of the banking service that is taking place throughout the world. So they have had a two-decade long experience in dealing with the NPLs problem and much is known about the causes and remedies of the problem. So, it is very important for the lenders, borrowers and policy makers to learn from the past experience and act accordingly.

However Mohammad Mohiuddin focuses only on non-performing loan. He doesn't watch other factors like Capital adequacy which harm banking sector of Bangladesh and others. And he cannot relate its impact to the profitability of the sector. However, all the literature studied; there is no study that explores the credit risk management and its impact on financial performance in Somali Microfinance Institution Share Company. Thus, statements of the problem and research question were developed after a cautious review of this literature. The gap that is filled therefore is, exploring the credit risk management in enhancing financial performance in Somali Microfinance Institution Share Company.

2.3 Conceptual Framework

The Conceptual framework shows the relationship between independent and dependent variables. This study is based on two categories, namely Capital adequacy ratio Nonperforming loans independent variables. On the other hand, credit risk management and financial performance of microfinance is the dependent variable whose indicator is Return on equity.

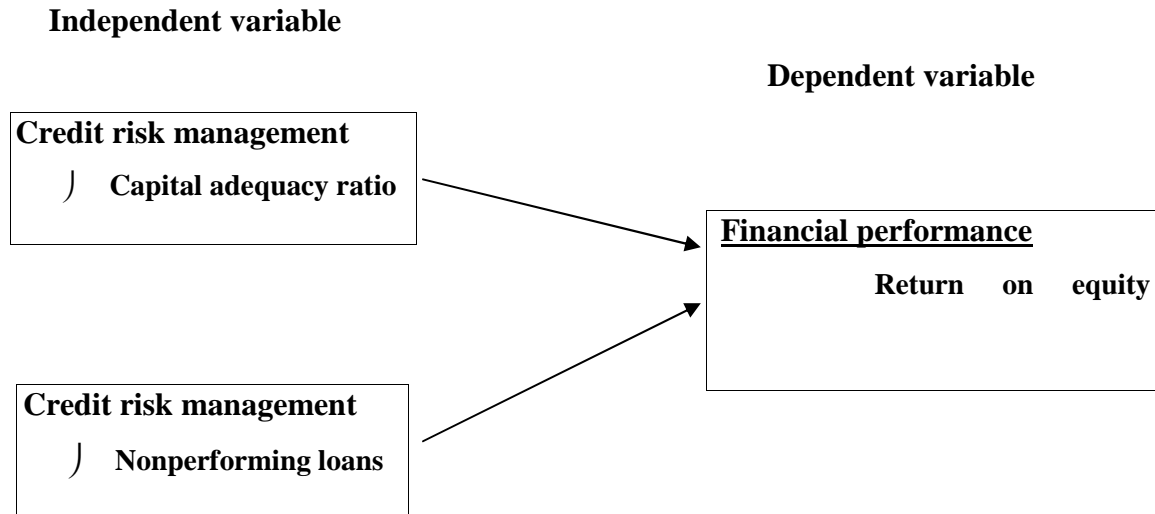


Figure 2.1 Conceptual framework

Source (Yohee Tina Chang, 2006)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Research Design

The research design followed was determined by the nature of the problem statement or more specifically by the research objectives. Hence in this study survey, exploratory and causal variables are used which were to analyze the data which is collected from the Somali microfinance Share Company. Depending on the result of regression output and feedback from research questions, then analysis was conducted and research questions were answered. The researcher used secondary data sources.

3.2 Sampling

The researcher selected Somali microfinance Share Company and collected the necessary data from the microfinance by using purposive sampling technique. The reason why the researcher purposively selects Somali microfinance Share Company is because it is not done this time in this microfinance before. In addition, the researcher used personal data from 2010-Q1 to 2013-Q4 of microfinance to collect the data.

3.3 Data Collection Tools

To collect the necessary data for this study, the researcher used secondary sources. The sources of secondary data for the study were annual reports from 2010 to 2013.

3.4 Data analyzing instruments

The researcher used multiple regression analysis in this study. Multiple regression models identify variables simultaneously associated with a dependent variable and estimate the separate and distinct influence of each variable on the dependent variables. Besides the regression output was obtained by using Statistical Package for Social Science. In addition, the researcher applied Microsoft Excel to confirm the accuracy of the results.

3.5 Data Analysis.

3.5.1 Dependent variable

The return on equity (ROE) ratio measures how much the shareholders earned for their investment in the company. The higher the ratio percentage, the more efficient management is in utilizing its equity base and the better return is to investors. Therefore, the researcher used return on equity as the indicator of financial performance.

$$\text{ROE} = \frac{\text{Net Income}}{\text{Total shareholder's equity}}$$

3.4.2 Independent variables

The researcher used two independent variables namely nonperforming loan ratio (NPLR) and capital adequacy ratio (CAR) because these two are the indicators of risk management which affect the profitability of microfinance.

NPLR, in particular, indicates how micro finances manage their credit risk because it defines the proportion of nonperforming loan (NPL) amount in relation to total loan (TL) amount.

$$\text{NPLR} = \frac{\text{NPL amount}}{\text{TL amount}}$$

CAR is a ratio that regulators in the microfinance system use to watch microfinance's health, specifically microfinance's capital to its risk. Shortly Capital adequacy ratio is the ratio which determines the capacity of microfinance in terms of meeting the time liabilities and other risk such as credit risk, market risk, operational risk, and others. It is a measure of how much capital is used to support the microfinance's risk assets.

$$\text{CAR} = \frac{\text{Capital}}{\text{Risk weighted average}}$$

3.4.3 Regression analysis explained

The regression analysis is conducted to find out the relationship between credit risk management and financial performance in the microfinance: the researcher uses 4 years period (2010-2013).

$$Y = a + b_1X_1 + b_2X_2 + \dots$$

Standard

Y – The value of dependent variable; Y: ROE- financial performance indicator

– The constant term;

– The coefficient of the function;

X – The value of independent variables: X1: NPLR –credit risk management indicator

X2: CAR –credit risk management indicator

– The disturbance or error term.

Thus the regression equation becomes: $ROE = \beta_0 + \beta_1 NPLR + \beta_2 CAR + \epsilon$

It is the regression function which determines the relation of X (NPLR and CAR) to Y (ROE). β_0 is the constant term and β_1 is the coefficient of the function, it is the value for the regression equation to predict the variances in dependent variable from the independent variables. This means that if β_1 coefficient is negative, the predictor or independent variable affects dependent variable negatively: one unit increase in independent variable will decrease the dependent variable by the coefficient amount. In the same way, if the β_1 coefficient is positive, the dependent variable increases by the coefficient amount. β_0 is the constant value which dependent variable predicted to have when independent variables equal to zero (if $X_1, X_2=0$ then $\hat{Y} = \beta_0$). ϵ is the disturbance or error term.

Regression analysis output contains values which we discuss below:

R² is the proportion of variance in the dependent variable that can be predicted from independent variables. There is also adjusted R² which gives more accurate value by avoiding overestimation effect of adding more variables to the function.

The Probability value (P-value) is used to measure how reliably the independent variables can predict the dependent variable. It is compared to the significance level which is typically 0.05. If the P-value is greater than 0.05, it can be said that the independent variable does not show a statistically significant relationship with the dependent variable.

3.5 Reliability and validity

Reliability and validity are often used by the scientific researchers in their studies in the quantitative. Reliability refers to the consistency and accuracy of the research results. In the quantitative research, reliability can be illustrated as the stability of the measurement over time, the similarity of the measurements during the given period, and also the degree to the same results of the measurement given repeatedly.

Validity means the accuracy of the measurement of which it is intended to be measured and how truthful the results of the research are (Nahid G., 2003).

The researcher ensured content validity of the research instrument by ensuring that question of item in it conformed to the study's conceptual framework. Relevance, wording and clarity of the question of item in instruments were also evaluated by both the researcher and supervisor. Besides, To ensure the accuracy of the results, the researcher has checked the data collection and calculation processes. In this research, Cronbach's alpha has been used to test the reliability of the measures. Also, it is commonly used as a measure of the internal consistency or reliability of a psychometric test score for a sample of examinees. Hence, According to Lombard (2010), Coefficients of .90 or greater are always acceptable, .80 or greater is also acceptable in most situations, and .70 may be appropriate in some exploratory studies for some indices. Therefore, as shown in table3.2 the reliability of the whole items is 0.792 which means the whole items were reliable and acceptable because as Lombard stated coefficients.

3.6 Ethical considerations

The researcher maintained scientific objectivity throughout the study, recognizing the limitations of his competence. Every person involved in the study was entitled to the right of privacy and dignity of treatment, and no personal harm was caused to subjects in the research. Information obtained was held in strict confidentiality by the researcher. All assistance, collaboration of others and sources from which information was drawn is acknowledged. The following ethical considerations were at the base of this research.

- a) Fairness and Openness of intent.
- b) Disclosure of methods and respect or the integrity of the individuals.
- c) Informed willingness on the part of the subjects to participate voluntarily in the research activities.

CHAPTER FOUR: DATA ANALYSIS AND PRESENTATION

4.1 Introduction

The regression analysis is used to test if an independent variable influences a dependent variable and whether this effect is positive or negative. In this research the researcher use multiple regression analysis which is used to test whether one or more independent variables (predicates) influence a dependent variable (outcome variable) and if this effect is positive or negative. But before rushing towards data analysis and presentation the researcher made a diagnostic test for the data which were collected. To address this problem, the researcher tried to find out whether the problem arises from NPLR, CAR or from both independent variables sides. And finally the problem is found from NPLR side.

$$Y = \text{Constant} + \beta_1 X_1 + \beta_2 X_2 + \epsilon$$

Where, Y is the dependent variable (return on equity)

Constant term (the value of y if x1 and x2 both are 0)

X1 stands for Nonperforming loan ratio

X2 stands for Capital Adequacy ratio,

ϵ stands for error term

Thus the regression equation becomes:

$$ROE = \text{Constant} + \beta_1 \text{NPLR} + \beta_2 \text{CAR} + \epsilon$$

4.2 Diagnostic tests

Below the researcher uses regression command for administration of regression. This is followed by the output of these SPSS commands.

Table 4.1: Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	CAR, NPLR ^a	.	Enter

a. All requested variables entered.

b. Dependent Variable: ROE

Source: SPSS regression out put

Table 4.1 displays the variables entered or variables removed from the study at any point in time from the beginning till the end of the work. As it explained in variables entered column there are two independent variables entered on the study, those are capital adequacy ratio and non-performing loan ratio. Since there was no variable removed from the study, the 3rd /variable removed /column is free. The last column shows the method that was used by the researcher, so here the researcher uses “enter method” to remove or enter the variables. All variables are entered on the above table. The dependent variable which is return on equity explained in the bottom of the table.

Table 4.2: Does the model fit?

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.002	2	.001	17.091	.000 ^a
	Residual	.001	13	.000		
	Total	.003	15			

a. Predictors: (Constant), CAR, NPLR

b. Dependent Variable: ROE

Source: SPSS regression out put

ANOVA, table 4.2 summarizes the output of the analysis of variance. In regression row, the output for regression displays information about the variation accounted for by the existing model. Residual displays information about the variation that is not accounted for by the model. And total in the table shows the sum of regression and residual. Mean square is the sum of squares divided by the degrees of freedom. And F statistics is the regression mean square divided by the residual mean square. If the significance value of the F statistics is small then the independent variable does a good job in explaining the variation in the dependent variables.

Hypothesis

Ho = the fit is NOT good

H1 = the fit is good

P value is 0.05 then it is better to compare with significance level which is 0.000 and the p value is greater than that of sign value. Then the researcher rejects Ho and fail to reject H1 meaning the model is fit.

Table 4.3: How much the model is good?

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	Sig. F Change
1	.851 ^a	.724	.682	.00763860	.724	17.091	.000

a. Predictors: (Constant), CAR, NPLR

b. Dependent Variable: ROE

Source: SPSS regression out put

Tables 4.3 demonstrate about large R, which shows the multiple correlation coefficients and the correlation between the observed and predicted values of the dependent variables. And the value of R for models produced by the regression procedure range from 0 to 1. The larger the value of R display that there is strong relationship among observed and predicted value. In our case R is 0.851. R square is the proportion of the variation in the dependent variable explained by the regression model. As of R the value of R square ranges between 0 and 1, beside to that small value indicates that the model does not fit the data well. As the table indicates the independent variable explained the dependent variable by 72.4%. Adjusted R square attempts to correct R square to more closely reflect the goodness of fit of the model in the population. In table 4.2 the researcher assures that the model does fit. But here one may ask question by saying how much the model is fit or how much the good is good? it gets answer from table 4.3 by observing adjusted R square, which means CAR & NPLR together they are explaining ROE in 68.2%. And conclude that the model is 68.2% fit.

4.2.1 Correlation test

When the correlation coefficient is -1, it shows that there is perfectly negatively correlation, when the correlation coefficient is +1 its indication is perfectly positively correlated, When it became in between 0.3 and 1 it shows that there is positive correlation among variables, and when it lies in between -0.3 and -1 it shows that negative correlation among variables . But when the variable is in between -0.3 and +0.3, it shows that there is no correlation among variables.

Table 4.4: correlations

Model		NPLR	CAR
Correlations	NPLR	.	.003
	CAR	.003	.

Source: SPSS regression output.

Table 4.4 displays the correlation of the independent variables included in the model at each step. In the correlation matrices, the values of the correlation coefficients range from -1 to 1. correlation coefficient describes about two variables , to check whether they are related each other or not .

As we can from the table 4.4 the correlation coefficient is 0.003 which shows that there is no correlation among independent variables.

4.2.2 Collinearity (Multicolinearity) Test

Table 4.5: Collinearity (Multicolinearity) Test

Model		Coefficients ^a						
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.038	.008		4.764	.000		
	NPLR	-4.983	1.976	-.480	-2.521	.026	.584	1.712
	CAR	.389	.162	.458	2.405	.032	.584	1.712

a. Dependent Variable: ROE

Source: SPSS regression out put

Table 4.5 concentrated on unstandardized and standardizes coefficients. Unstandardized coefficients are the coefficients of the estimated regression model.

Whereas standardized coefficients or beta are an attempt to make the regression coefficients more comparable. The 't' statistics can help us to determine the relative importance of each variable in the model. As a guide regarding useful predictors, look for t values well less than -2 or greater than +2.

Collinearity (or multicollinearity) is the undesirable situation where the correlations among the independent variables are strong. Tolerance is a statistics used to determine how much the independent variables are linearly related to one another. Tolerance is the proportion of variables variance not accounted for by other independent variables in the model. A variable with a very low tolerance contributes little information in to a model, and can cause computational problems.

VIF or the variance inflation factor is the reciprocal of the tolerance. As the variance inflation factor (VIF) increases, so does the variance of the regression coefficient, making it an unstable estimate. Large VIF values are an indicator of multicollinearity.

When there is a perfect linear relationship among the predictors, the estimates for a regression model cannot be uniquely computed. The term collinearity implies that two variables are near perfect linear combinations of one another. When more than two variables are involved it is often called multicollinearity, even though the two terms are often used interchangeably.

The primary concern is that as the degree of multicollinearity, the regression model estimates of the coefficient become unstable and the standard error for the coefficients can get wildly inflated. Let's see some SPSS commands that help to detect multicollinearity. One can use VIF and Tolerance value for each predictor as a check for multicollinearity. The tolerance is an indication of the percent of variance in the predictor that cannot be accounted for by the other predictors, hence very small values indicate that a predictor is redundant, and values that are less than 0.10 may merit further investigation. The VIF, which stands for variance inflation factor, is $(1/\text{tolerance})$ and as a rule of thumb, a variable whose VIF values are greater than 10 may merit further investigation. If two explanatory variables are highly correlated with each other, they can cause problems during multivariable analysis because they are explaining almost the same variability in the outcome. Therefore, it is beneficial to examine associations/correlation between explanatory variables and exclude one of a pair of highly correlated variables before conducting multivariable analysis.

Let us first look at the regression we did from the last section, the regression model predicting ROE from NPLR and CAR using SPSS. As we can see from the table above the ‘tolerance’ and ‘VIF’ are all acceptable.

Table 4.6: Collinearity Diagnostics

Collinearity Diagnostics^a

Model	Dimension	Eigen value	Condition Index	Variance Proportions		
				(Constant)	NPLR	CAR
1	1	2.523	1.000	.01	.02	.02
	2	.441	2.393	.00	.24	.12
	3	.036	8.364	.99	.74	.86

a. Dependent Variable: ROE

Source: SPSS regression output.

Table 4.6 is a table which shows statistics that help for determine whether there are any problems with collinearity or not. Collinearity (multicollinearity) is the undesirable situation where the correlations among the independent variables are string.

Eigen values proved an indication of how many areas dimensions are there among the independent variables. When several Eigen values are close to zero, the variables are highly inter-correlated and small changes in the data values may lead to large changes in the estimates of the coefficients. Condition index are the square roots of the ratios of the largest Eigen value to each successive Eigen value. A condition index greater than 15 indicates a possible problem and an index greater than 30 suggests a serious problem with collinearity. Even if Eigen values are used for checking the existence of collinearity, the best way is conditional index. So in this research case, since conditional index value scored around 1, 2 and 8, from this ground the researcher can say that there is no multicollinearity among independent variables.

4.2.3 Test of normality of Residuals

The normality tests for this study as shown in Figure 4.1, the result showed that, majority of distributions are full in to the bell shaped boundary of histogram with the mean of $1.67E-16$ and standard deviation 0.931 . One of the assumptions of linear regression analysis is that the residual are normally distributed, at the mean of zero and standard deviation of one. All of the results from the examine command suggest that the residual or the error term are normally distributed. The skewness and kurtosis are near to 0. As we can observe from the histogram and p-p plot it looks normal. Based on these results, the residuals from this regression appear to conform to the assumption of being normally distributed.

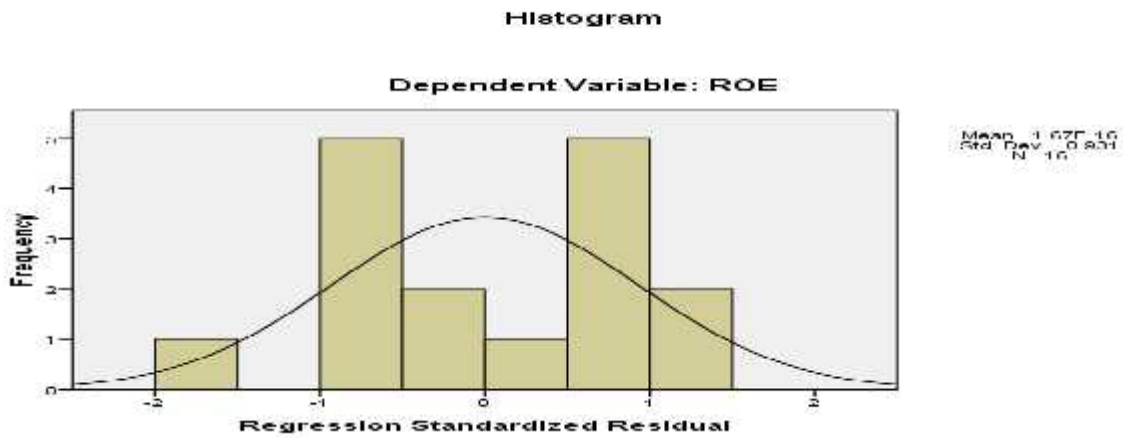


Figure 4.1: Histogram

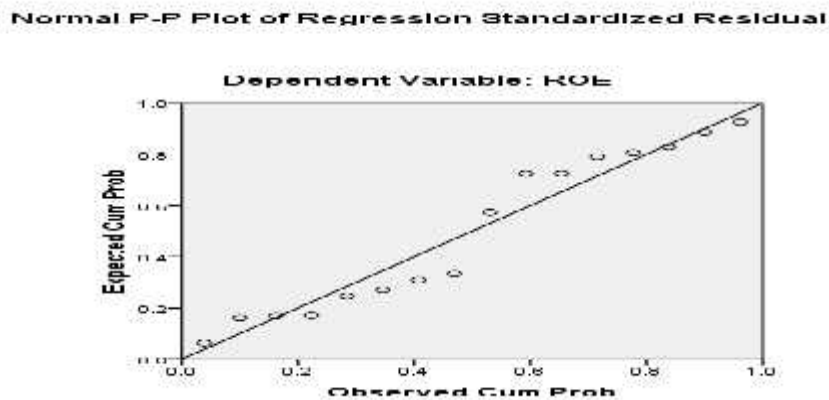


Figure 4.2 P-P Plot

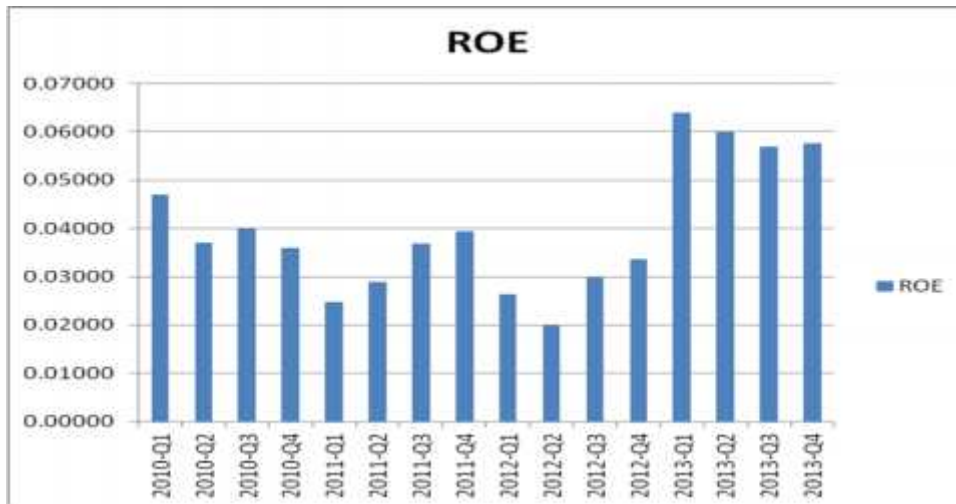
Figure 4.1 shows whether the data are normally distributed or not. The error term should be normally distributed at the mean of 0 and standard deviation 1, here in Figure 4.2 shows that the plots are closer to the line, so the model is normally distributed. The researcher watched from the histogram and from the p- p plot too.

4.3 Data Analysis and Presentation

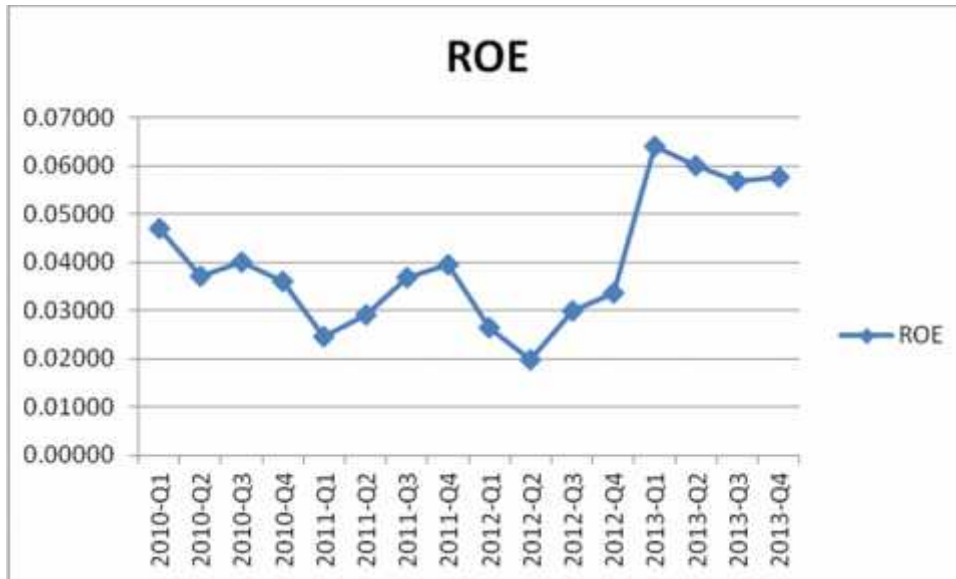
4.3.1 Credit risk management and financial performance in Somali microfinance institution share company.

As the graph bellow shows the return on equity of each quarter are positive in every of the observation. The Microfinance has positive return on equity from year to year as we can observe from the graphs bellow. Somali microfinance institution Share Company defines its credit risk as the risk of loss if counterparties fail to fulfill their agreed obligations and that the pledged collateral does not cover the claims. Each customer area and product area primarily bears the responsibility for managing credit risk in its operation. In case the customer is unable to repay its debt obligations for 90 days the credit obligation becomes non-performing and if the situation cannot be improved afterwards the credit obligation becomes default.

Graph 4.1: ROE



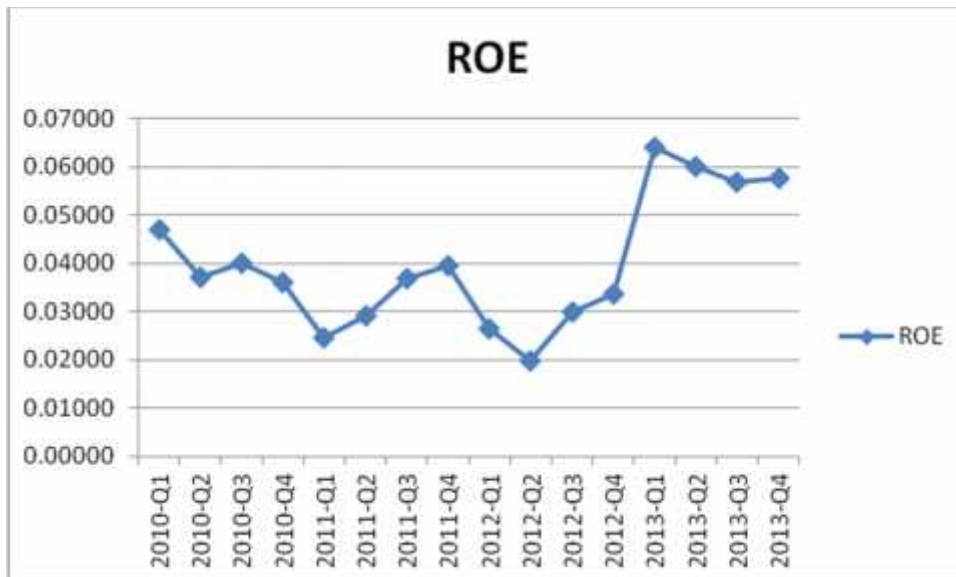
Graph 4.3: NPLR of SMFISC 2010-2013



Note: NPLR = Nonperforming loans ratio, SMFISC = Somali microfinance institution share company.

Source: Annual financial report of SMFISC 2010-2013 and own computation.

Graph 4.4: ROE of SMFISC 2010-2013



Note: ROE = Return on Equity, SMFISC = Somali microfinance institution share company

Source: Annual financial report of SMFISC 2010-2013 and own computation

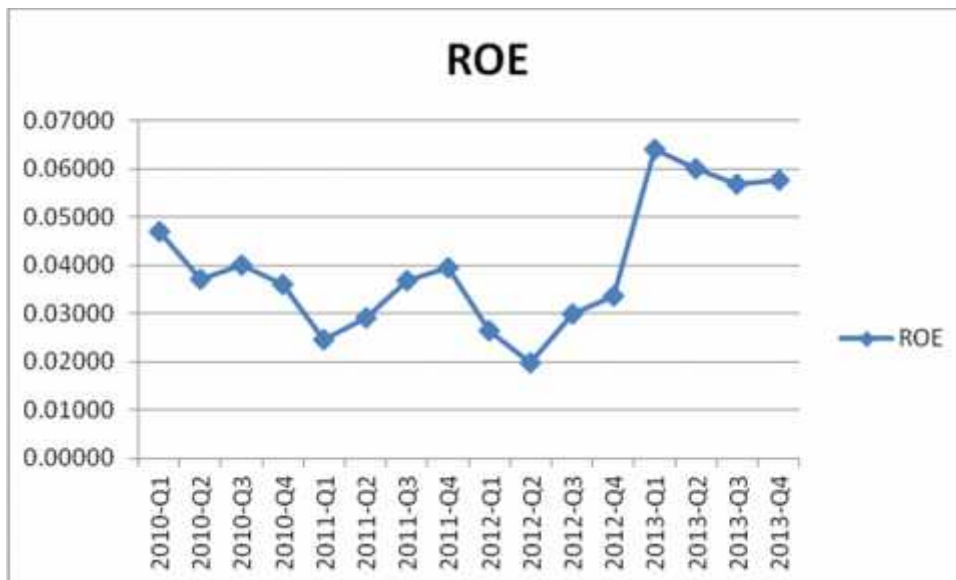
The graph 4.3 shows that in 2010 NPLR have increased Q1, Q2 and Q4 while in Q3 decreased.

In 2011 all the quarters have increased. In 2012 NPLR have increased Q2, Q3 while Q1 and Q4

decreased. In 2013 Q1 has highly decreased while Q1, Q2 and Q3 have straight.

The graph 4.4 shows that ROE in 2010, Q1, Q2, and Q4 have decreased while in Q3 have increased. In 2011, ROE has decreased in Q1 while Q2, Q3 and Q4 have increased. In 2012, ROE has decreased Q1 and Q2 while Q3, Q4 have increased. In 2013, ROE has highly increased in Q1 while Q2 and Q3 have decreased and Q4 is straight. The decreased quarters caused by uncertainties on the equity market while the increased quarters the organization put a lot of efforts to improve performance through the strategies of ensuring the capital efficiency and maintaining the credit portfolio quality.

Graph 4.5 CAR of SMFISC 2010-2013



Note: CAR=Capital adequacy ratio, SMFISC = Somali microfinance institution share company

Source: Annual financial report of SMFISC 2010-2013

Source: Annual financial report of SMFISC 2010-2013

Graph 4.5 shows that in 2010 CAR have increased all the quarters. In 2011, CAR has decreased in Q1 and Q3 while Q2 and Q4 have increased. In 2012, CAR has decreased in Q1 and Q2 while Q3 and Q4 have increased. In 2013, CAR has increased in Q1, Q3 and Q4 while Q2 has decreased. The decreased quarters were due to the more dividend payment. The goal of SMFISC's capital management is to increase returns to shareholders while keeping a prudent risk and return relationship. SMFISC's recent capital policy has been structured to have lower dividend along with active management of risk.

Table 4.7 Coefficient summary table, SMISC

ROE	Beta Coefficient	Sig.p-value	N
NPLR	-4.983	0.026	16
CAR	0.389	0.032	16

Table 4.8 Model summary table, SMISC

R ²	Adjusted R ²	Model sig. p-value
0.724	.682	.000

Source: SPSS regression output of the financial report

Table 4.7 shows that NPLR has a negative effect on ROE with a coefficient -4.983. This means that one unit increase in NPLR; ROE will decrease by 4.983 units, while CAR is held constant. The statistical significance of NPLR is 0.026; this tells that 97.40% of the variance of ROE can be predicted by NPLR. However, CAR has a visible positive effect on ROE. It refers if CAR increases one unit, ROE will increase 0.389 units, when NPLR is held constant. Comparing with NPLR & CAR, NPLR has the significance 0.026, which indicates that the regression is significant; since it is lower than 0.05. NPLR has a reliable prediction probability (97.40%) on ROE. Therefore, credit risk management (NPLR and CAR) in Somali microfinance institution share company has a considerable effect on the financial performance.

Table 4.8 R² (0.724) represents the prediction level of ROE by NPLR and CAR together. It means that 72.4% of change in ROE can be predicted by NPLR and CAR, which shows that the credit risk management in Somali microfinance institution share company (SMISC) has a significant effect on its profitability. In addition, the Adjusted R² (68.2%) is considered a more reliable value for the regression analysis.

Therefore, the regression of the equation for Somali microfinance institution Share Company is significant; this means that NPLR and CAR can reliably predict ROE in Somali microfinance institution Share Company. In addition, the P-value is 0.000; this reflects that the NPLR and CAR together predict approximately 100% of the differences in ROE correctly.

The regression outputs of the Somali microfinance institution share company show that NPLR has negative and significant effect on ROE while CAR has positive and significant effect on ROE.

The finding above consequently helps the researcher to understand and answer how the credit risk management affects financial performance of the Somali microfinance institution share company.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATION

5.1 Conclusion

This study shows that there is a significant financial performance (in terms of return on equity) and credit risk management (in terms of nonperforming loan and capital adequacy ratio). Better credit risk management results in better financial performance. Thus, it is of crucial importance that microfinance practice prudent credit risk management. So, the credit risk management strategy defines profitability level to an important extent. Especially, NPL amount appears to be adding the most weight to that than CAR. Nonperforming loan ratio has a negative impact on financial performance while capital adequacy ratio has a positive impact on financial performance of Somali microfinance institution Share Company.

5.2 Recommendation

On the basis of the findings and conclusions reached, the following suggestions were forwarded in order to improve the impact on financial performance of Somali microfinance institution Share Company. More importantly, the Somali microfinance institution share company is suggested to highly improve credit risk monitoring and supervision efforts that should increase by the microfinance. However, the microfinance should ensure that credit officers perform periodic follow-ups on borrowers to ensure that loans are used for the intended purpose, The microfinance should put in place proper debt collection mechanisms. So that, the microfinance needs to hire credit officers who has high experience and qualification on credit risk management and the one who aware about its significant impact to microfinance's profitability. Therefore, the Somali microfinance institution share company are responsible for each and every activities of the microfinance so they need to conduct continues training for their employees particularly for credit risk management department managers and employees as well.

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