

**THE EFFECT OF CREDIT RISK ON FINANCIAL PERFORMANCE: A
CASE STUDY ON SOME SELECTED MICROFINANCE INSTITUTIONS
IN ETHIOPIA**

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ABSTRACT

This study attempts to reveal the relationship between credit risk and financial performance of micro finance institutions in Ethiopia. In order to investigate these study quantitative research approach is employed based on documentary analysis. A panel data from five selected micro finance covering the four-year period (2013-2017) is analyzed using SPSS software. The study used one dependent variable return on asset (ROA), four independent variables that are: non-performing loan to total loan and advance ratio (NPLTLA), loan provision to total loan and advance ratio (LPTLA), total loan and advance to total deposit ratio (TLATD) and the ratio of non-performing loan to loan provision (NPLLP) as measures of credit risk. Classical linear regression model were used to analyze the relationships of the depended variable with explanatory variables. Total loan and advance to total deposit ratio show positive and significant effect on micro finance institutions performance in Ethiopia. The research concluded that credit risk has effect on financial performance of micro finance in Ethiopia. Hence, the study recommend in support of each variable for micro finance institutions of Ethiopia should enhance their capacity in credit analysis and loan administration.

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LIST OF ACRONYMS

AMFI	Association of micro finance institutions
BCB	Basel committee on banking supervision
CBE	Central bank of Ethiopia
HKIB	Hong Kong institute of banks
MFI	Microfinance institutions
NPL	Non- performing loans
NPLR	Non- performing loans ratio
NGOs	Non-government organization
PAR	Portfolio at risk
ROA	Return on asset
PAR	Portfolio at risk
ROE	Return on equity
SPSS	Statistical package for social sciences

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

The economic crisis that occurred in 2007 and 2008 along with the credit crunch placed credit risk management into the regulatory focus. Subsequently, supervisory bodies instigated more transparency. This called for financial institutions in the lending business to have comprehensive knowledge of their borrowers (customers) and their associated credit risk (Lybeck, 2011). The new Basel III policies conveyed by BCBS present a superior regulatory burden for banks. The proposed Basel (IV) standards for capital reserves for banks will assist in the mitigation of risk in the occurrence of a financial crisis. It is probable to follow the third Basel accords and more rigorous capital requirements and superior financial disclosure will be required. These Basel accord impose certain minimum capital ratios as a guarantee that banks have a sturdy capital position to guard their solvency in the occurrence of a deep recession. The capital strength ensures that the banks carry on lending even in the depression stage of the business cycle.

One of the major assets of a MFI is the loan portfolio and its quality is a reflection of loan delinquency, establishes projected income and its capacity to augment its outreach, and services to existing customers (Lidgerwood, Earne& Nelson, 2013). Portfolio at risk over 30 days and non-Performing loans ratio (NPLR) are the key measures of portfolio quality. The performance of a loan portfolio is assessed in terms of the returns generated from the different loan products; which is a factor of the loans financed and the outlay of advancing them. PAR30 may include

refinanced, restructured, evergreen, or any other adjusted loans. Most of the loans advanced by MFIs are deemed high risk for the fact that they do not have collateral and are frequently advanced to a more susceptible and low income individuals. Regardless of this fact, the repayment rate on MFI loans has in the past proven strong.

As defined by Gibson (2012), financial performance may be referred to as the extent to which financial goals and objectives of a financial institution have been accomplished or are being attained. It is a process of matching up the revenue generated to the institution's set policies. It is a key measure for assessing the financial health of a particular organization within the set time.

Several financial institutions to measure their financial stability and performance utilize profitability ratios. These ratios are key indicators of credit analysis in most banks as well as MFIs, as they are linked to the results that are attributable to the performance of management (Gibson, 2012). Regularly used ratios are Return of equity as well as return on assets. The superiority level of return on equity should be at least 15% and 30%, for Return on Assets; it should be at least 1%. ROE is a significant indicator in measuring profitability, consequentially, financial performance. Further, ROE evaluates the efficiency of MFIs illustrating the level at which MFIs reinvest their earnings to generate their projected future revenue.

As defined by Öttker-Robe and Podpiera (2010), ROE is measured by dividing a corporation's net annual income after tax by shareholder equity. It establishes the revenue derived from equity. An increase in ROE might indicate that an institution's revenue is on the rise without necessarily adding more capital. Thus, a rise on return on equity as well as return on assets indicates that the institution is financially stable. A superior return on equity or return on assets indicate enhanced revenue projection for a MFI expansion and pliability to shocks, and thus leads to lower credit risk. Likelihood of counterparty defaulting on his or her obligations is referred to as default risk. This brings about deterioration of the credit quality deteriorates or else there is an increase in default risk. As stated by Gregory (2010), it is difficult to evaluate the extent of credit risk since information on non-payment and resurgence rates are not wide-ranging.

As illustrated by Otieno and Nyagol (2016), the microfinance industry is on the rise and gaining significance in the global financial sector. In their study, there were over a thousand microfinance

institutions at the end of year 2010 with a projected borrower base of around two hundred million and an outstanding portfolio in excess of forty four billion dollars.

As illustrated by Aduda and Kalunda (2012), Ethiopia is known as one of the African countries at the forefront in the discovery of the significance of MFIs as a poverty eradication tool thus more efforts have been directed in the development and promotion of the MFI sector.

1.2.STATEMENT OF THE PROBLEM

The asset quality formerly known as portfolio quality is still a key measure of financial performance and stability for Microfinance institutions.

Supervision Report (2014) highlighted a soaring rate of credit risk because of the increasing rate of NPLs in MFI's. This kind of a drift threatens the stability, viability, and sustainability of the MFIs. Whilst many studies that have been carried out by researchers on the causes of poor loan performance and their effects on the wide-reaching banking crises in Europe, Asia and some parts in Africa, there have not been detailed studies on the outcome of credit risk management on the Microfinance industry's financial performance.

Poor credit-risk rating, analysis and modeling result in financial instability. Most of the financially stable MFIs have maintained far above the ground levels of loan recovery rates. These recovery ratios are because of donor funding and funding agencies used in the expansion of their operations (Ledgerwood et al., 2013). Regardless of the fact that these financially stable MFIs maintain their credit risks within preferred levels, volatility of their portfolio at-risk (PAR30) ratios create bigger challenges. The sources of these challenges include increased competition in the market, product diversification of long term structures, increased operations, move to individual lending, expansion and efforts to intensify the outreach. Credit risk management practices help MFIs reduce their exposure to credit risks, and enhance their ability to compete in the market with other well-established financial institutions like banks.

Studies have been done to establish the outcome of credit risk management of micro finance institution performance. For instance, Kisala (2014) evaluated credit risk management practices in relation to loan performance of MFIs in Nairobi.

Korir (2014) investigated the correlation of credit risk management in regards to the financial performance of licensed by the Central Bank in Ethiopia. Therefore this study tries to close this gap of knowledge by examining MFIs financial performance in Ethiopia. The current study therefore aimed at contributing to the literature gap on the subject matter by expanding the independent variables and also taking into consideration of the performance. This study is conducted first by considering the impact of credit risk management. This enables the researcher to evaluate from different directions and to examine the impact of credit risk management on performance of Ethiopian MIFs.

1.3. Research Question

- What is the effect of non-performing loan to loan provision ratio on performance of micro finance in Ethiopia?
- What is the effect of loan provision to total loan and advance ratio on performance of micro finance of Ethiopia?
- What is the effect of non-performing loan to total loan and advance ratio on performance of micro finance in Ethiopia?
- What is the effect of total loan and advance to total deposit ratio on performance of MFIs in Ethiopia?

1.4. Research Objective

1.4.1. General Objective

The main objective of the research was to investigate the effect of credit risk on financial performance a case study on some selected MFIs in Ethiopia

1.4.2. Specific objectives

This study attempt to achieve the following specific objectives

- ✓ To analyze the effect of non-performing loan to loan provision ratio on performance of micro finance in Ethiopia.

- ✓ To examine the effect of loan provision to total loan and advance ratio on performance of micro finance in Ethiopia.
- ✓ To scrutinize the effect of non-performing loan to total loan and advance ratio on performance of micro finance in Ethiopia.
- ✓ To investigate the effect of total loan and advance to total deposit ratio on performance of MFIs in Ethiopia.

1.5. Scope of the study

The major aim of the research is investigate the effect of credit risk on financial performance a case study on some selected MFIs in Ethiopia. The data were use 2013 to 2017 period from MFIs in Ethiopia. This study confined itself and only considered a time series data of 5years (2013- 2017) on the identified proxy performance indicators of Return on Asset and proxy credit risk indicators of Non-Performing Loan to Loan Provision, Loan Provision to Total Loan and Advances, Non-Performing Loan to Total Loan and Advances and Total Loan and Advances to Total Deposit.

Considering the above mentioned circumstances, the results of the study are limited to select MFIs in Ethiopia. As a sample and are generalized to all Ethiopian MFIs. Finally, the study used the quantitative approach and focus on the description of the outputs from software and give the researcher own explanation.

1.6. Significance of the

The results of this study is crucial in the management of Microfinance institutions in Ethiopia as it would unearth the effect of credit risk management on financial performance and take on suitable credit risk analysis procedures to reduce the level of nonperforming loans and improve financial performance and stability. The study will also present an insight on superlative credit risk analysis and management approaches Microfinance

Institutions ought to implement in order to efficiently control and augment their financial performance.

This study were essential for the players in the Microfinance industry, as it will present in sights on the best credit risk management practices and approaches that should be implemented to cut down the incidence of nonperforming loans as well as improve portfolio at risk performance. The study would be helpful to the government in the policy making process vis-à-vis the loan requirements along with the regulation of Microfinance institutions. The study will also avail knowledge to the policy makers on the best practices that ought to be adopted and implemented to reduce the poor

performance of loans. This study would consequently act as a guide in taking on effectual credit risk management procedures by MFIs in mitigating the occurrence of defaults. Finally, the study would complement the existing literature on credit risk management practice that has shown the effects of credit risk in the management of portfolios of Microfinance institutions.

1.7. Organization of the Study

The study consists of five chapters. The first chapter deals with introductory part which consists of background of the study, statement of the problem, objective(s) of the study, significance of the study, and scope and limitation of the study. The second chapter deals with review of theoretical and empirical literature. The third chapter deals with methodology of the study. The fourth chapter deals with analysis and discussion of the results and the fifth chapter deals with summary, conclusion and recommendation.

CHAPTER TWO

Literature review

Introduction

This chapter presents the literature reviews consist of both theoretical and empirical reviews of literature and at the end of this chapter the researcher include the gaps and summery of the literature reviews.

2.1. Theoretical review

The theoretical framework of a thesis identify with the set of concepts, descriptions, and suggestions that relay to the research problem. It can be termed as the basis on which the whole research project is founded. Therefore, a theoretical framework identifies and defines the indispensable variables that are significant to the problem and consequently illustrate and explicate the interrelationships among these variables. This framework acts as a guide in determining the factors that will be evaluated and the statistical association the study will analyze.

2.1.2. Evolution of Microfinance

Traditional banking sector cannot reach millions of poor for whom small loans could make huge

differences. There are several reasons for this. Most of the poor are rural, and they are much dispersed. They have low education levels, if at all. As a result, administrative cost of supplying loans to the poor population is extremely high. Another issue that makes it difficult to serve these customers through traditional banking is that the poor does not have any assets to use as collateral. As a result, the poor had access to loans only through local money lenders at exorbitantly high interest rates.(Stiglitz and Weiss, 2000).

Micro credit and microfinance are relatively new terms in the field of development, first coming to prominence in the 1970s, according to Robinson (2001) and Otero (2000). Prior to then, from the 1950s through to the 1970s, the provision of financial services by donors or governments was mainly in the form of subsidized rural credit programmers'. These often resulted in high loan defaults, high lose and an inability to reach poor rural households (Robinson, 2001). Robinson states that the 1980s represented a turning point in the history of microfinance in that MFIs such as Grameen Bank and BRI2 began to show that they could provide small loans and savings services profitably on a large scale. They received no continuing subsidies, were commercially funded and fully sustainable, and could attain wide outreach to clients (Robinson, 2001).It was also at this time that the term “micro credit” came to prominence in development (MIX3, 2005). The difference between micro credit and the subsidized rural credit programmers of the 1950s and 1960s was that micro credit insisted on repayment, on charging interest rates that covered the cost of credit delivery and by focusing on clients who were dependent on the informal sector for credit (Stiglitz and Weiss, 2001).

It was now clear for the first time that micro credit could provide large-scale outreach profitably. The 1990s “saw accelerated growth in the number of microfinance institutions created and an increased emphasis on reaching scale” (Robinson, 2001, p.54). Dichter (2000, p.12) refers to the 1990s as “the microfinance decade”.

Microfinance had now turned into an industry according to Robinson (2001). Along with the growth in micro credit institutions, attention changed from just the provision of credit to the poor (micro credit), to the provision of other financial services such as savings and pensions. (Microfinance) when it became clear that the poor had a demand for these other services (MIX, 2005).

2.1.3. Evolution of the MFIs Industry in Ethiopia

Initially, micro credit started as a government and non-government organizations motivated scheme.

Following the 1984/85 severe drought and famine, many NGOs started to provide micro credit along with their relief activities although this was on a limited scale and not in a sustained manner (IFAD2001).

The Government also sporadically provided loans largely for the purchase of oxen through its Rural Finance Department of the Ministry of Agriculture and Cooperatives. But these loans were not based on proper needs assessment and no mechanism was in place to monitor their effectiveness.

In many cases, these loans were not to be repaid and might have fostered a culture of not repaying loans. (Getachew Tefera Yishak Mengesha 2005).

During the command economic system (1974-91), the Development Bank of Ethiopia (DBE) and the Commercial Bank of Ethiopia (CBE) were also involved in extending loans to cooperatives largely in response to the government's pressure.

A massive default by the cooperatives following the demise of the command economy along with its extensive control systems, however, forced the CBE to continue to provide loans for the purchase of fertilizers and improved seeds on the basis of regional government guarantees. The DBE has also been providing loans to micro and small-scale operators in some selected towns. This scheme was, however, based on donor funds designed in the form of revolving fund, and essentially based on a limited scale in terms of the number of clients covered.

Funds were simply given from the DBE to clients identified and screened by the Trade and Industry Bureaux of regional Governments. In line with this, the early formal microfinance activity is the DBE (Development Bank of Ethiopia) which led to a low loan recovery rate (DBE 1999). (Now Oromia Credit and Saving S.C.) Started in 1996 (Gerehiwot Ageba).

2.1.4. The meaning of Microfinance Institutions

Microfinance is the provision of a broad range of financial services such as – deposits, loans, pension services, payment services, money transfers and insurance products – to the poor and low-income households. (Robinson M, 2001)

Microfinance refers to small scale financial services primarily credit and savings provided to people who farm or fish or herd who operate small enterprises or micro enterprises where goods are produced, recycled, repaired or sold i.e. Microfinance stands for financial services addressed to the poor as targeted clients with different motives to use such services. . (Robinson M, 2001)

Performance of an institution shall be measured from the objectives of the organization angle. Microfinance's goal is to eradicate poverty. In the early days when MFIs started, they were financed by donor funds that have a poverty eradication goal. Hence the performance of the MFI was measured on how much MFI reach to the poor (outreach) and impact (how far the lives of those who get financial services are changing as compared to those who don't get these services). But as the industry grows in size, the need for increased financing coupled with unpredictability of donor funds activate the issue of building a sustainable MFIs that stand on their own feet. That is; MFIs shall start covering their own cost of operation from their program revenues. (LetenahEjigu,

Sustainability is loosely defined as the ability of a MFI to cover its operating and other costs from generated revenue and provide for profit. It is an indicator which shows how the MFI can run independent (free) of subsidies.(LetenahEjigu, 2009).

This change in emphasis has created a different perspective on the analysis of performance of the MFIs. Today many key players in the industry use sustainability as one core criteria to evaluate the performance of MFIs in addition to the outreach and impact measures described earlier. For a country like Ethiopia, poverty and food insecurity remains to be one of the biggest policy concerns eradicate it, Microfinance, has provided a ray of hope. . (LetenahEjigu, 2009)

2.1.5. Definition and concept of credit

Credit is defined as transactions involve in the transfer of money or other property on Promise of repayment, usually at a fixed future date. The transferor and transferee will involve in which the former referred us a creditor, and the later as a debtor; hence credit and debt are simply terms describing the same operation viewed from opposite standpoints (Donald, 2008).

Bank credit is related with a loan extended by a bank to an individual, firm or organization, in the form of cash. The type of loan may take several forms from short term loan to a line of credit. The principal function of credit is to transfer property from those who own it to

those who wish to use it, as in the granting of loans by banks to individuals and corporate bodies who plan to initiate or expand their business ventures (Bessis J., 2002).

Credit is the confidence of the bank to its customer to give him/her a certain amount, to be used in a particular purpose for a certain period, and payment is made under specific conditions, and provides guarantees for the bank to recover his/her (loan Omra, 2011). The role of banks in general and importance of credit in particular towards economic growth and development of a country is notable. The primary functions of credit are facilitating transfer of capital or money to where it will be most effectively and efficiently used and economizing the use of currency or coin money as granting of credit has a multiplier effect on the volume of currency or coin in circulation. Credit uses an essential tool like interest and discount rates to control and regulate money in the economy.

As it is explained by Al-Zubadi (2002), banking credit is one of the most attractive banking activities for the banks management, but it is also a very sensitive and dangerous, because it is considered as important investment for the commercial banks, may lead the bank to bankruptcy or access to the very high profits. Therefore, in order to avoid any unforeseen risk and so as to satisfy customer's credit demand, banks should strike the balance of demand and supply of credit

2.1.6. Financial Performance of MFIs

MFIs earn financial revenue from loans and other financial services in the form of interest fees, penalties, and commissions. Financial revenue also includes income from other financial assets, such as investment income. An MFI's financial activities also generate various expenses, from general operating expenses and the cost of borrowing for provisioning to the potential loss from defaulted loans. Profitable institutions earn a positive net. (Rahman&Mazlan, 2014)

2.2. Review of empirical literatures

This review of the study summarizes various studies conducted in Ethiopia and other countries which is related with banks profitability and credit risk management. The researcher reviewing empirical studies which concluded on the existence of significant impact of credit risk on banks profitability and then reviewing those empirical studies which concluded the existence of positive impact of credit risk management on banks profitability and then later reviewing those studies which shows the negative relationship of credit risk and banks profitability.

At the end researcher has reviewed those empirical studies with the same topic but conducted by taking into consideration external determinants of bank profitability and also studies conducted in Ethiopia as well.

Bourke's (1989) reports on the effect of credit risk on profitability appear clearly negative in Europe, North America and Australia. This result may be explained by taking into account the fact that the more financial institutions are exposed to high risk loans, the higher is the accumulation of unpaid loans, implying that these loan losses have produced lower returns to many commercial Banks in U.S.A (Miller and Noulas, 1997). The findings of Felix and Claudine (2008) also shows that return on equity (ROE) and return on asset (ROA) all indicating profitability were negatively related to the ratio of non-performing loan to total loan (NPL/TL) of financial institutions therefore decreases profitability.

The study conducted with the title of Efficiency of Credit Risk Management on the Performance of Banks in Nigeria A Study of Union Bank PLC (2006-2010) by Rufai (2013) aimed at assessing the efficacy of credit risk management on banks performance and also to determine if credit risk has effect on the profitability and examining the relationship between interest income and bad debt of the Union Bank. In this study, Return on equity and Return on assets indicates the overall profitability and efficiency while Non-performing loan over total assets shows the level of banks' exposure to credit risk. The study conducted in a population of the twenty-one (21) commercial banks in Nigeria, Secondary sources of data were used for the study. Time series and trend analysis are used for the analysis. Correlation coefficient and regression analysis were used in testing the hypotheses. The study conclude that credit risk affect the performance of Union Bank PLC and that to maintain high interest income, attention needs to be given to credit risk management especially regarding the lending philosophy of Union Bank.

Credit risk is a serious threat to the performance of Banks; therefore various researchers have examined the impact of credit risk on Banks in varying dimensions. Kargi (2011) evaluated the impact of credit risk on the profitability of Nigerian Banks. Financial ratios as measures of Bank performance and credit risk were collected from the annual reports and accounts of sampled Banks 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 Nigerian Banks. The study concluded that Banks' 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.

Kithinji (2010) assessed the effect of credit risk management on the profitability of commercial Banks in Kenya. Data on the amount of credit, level of non-performing loans and profits were collected for the period 2004 to 2008. The findings revealed that the bulk of the profits of commercial Banks are not influenced by the amount of credit and non-performing loans, therefore suggesting that other variables other than credit and non-performing loans impact on profits.

Felix and Claudine (2008) investigated the relationship between Bank 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 nonperforming 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 commercial Banks on emerging economy banking systems compared with the developed economies. The study found that regulation is important for banking systems that offer multi-products and services; management quality is critical in the cases of loan-dominant Banks 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 Banks is higher than that in developed economies.

Al-Khouri (2011) assessed the impact of Bank's specific risk characteristics, and the overall Banking environment on the performance of 43 commercial Banks operating in 6 of the Gulf Cooperation Council (GCC) countries 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 Bank 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. Ben-Naceur and Omran (2008) in attempt to examine the influence of Bank regulations, concentration, financial and institutional development on commercial Banks' margin and profitability in Middle East and North Africa (MENA) countries from 1989-2005 found

that Bank capitalization and credit risk have positive and significant impact on Banks' net interest margin, cost efficiency and profitability.

2.3. Summary and knowledge gap

Up to the best knowledge of the researcher, in Ethiopia context it's not fully possible to get a study which took; the impact of credit risk management on financial performance of micro finance in Ethiopia. The current study therefore aimed at contributing to the literature gap on the subject matter by expanding the independent variables and also taking into consideration of the performance. This study is conducted first by considering the impact of credit risk management. This enables the researcher to evaluate from different directions and to examine the impact of credit risk management on performance of Ethiopian MIFs.

CHAPTER THREE

METHODOLOGY

3. Introduction

This section highlights the technique that was employed in conducting the study. It also spells out the approaches, sampling, research design, the population under evaluation, the Sample size, the collection methods of facts, instruments, along with the analytical tools for data and presentation.

3.1. Research Design and research approach

Classical multiple regression model were used in obtaining information on the correlation between credit Risk management and MFIs' financial performance in relation to the Ethiopian Microfinance industry. Classical multiple linear regression model were used in view of the fact that it presents acumen into the study issue by evaluating the variables. It is used to classify, estimate, predict, and examine associative correlations. This helps in presenting constructive and precise information to rejoin the queries that are founded on who, what, When, and how (Mitchell and Jolley, 2012)

The researcher in relation to the aim of the study were used a qualitative approach so as to get the necessary information related to the study. A qualitative approach would be employed, focusing on issues related to existing practice Review of documents and discussions will be used to clarify the gathered data.

3.2. Target Population

The target populations of the study were MFIs which consisted of 35 Microfinance institutions in Ethiopia through the Period 2013 to 2017.

3.3. Data type, source and methods of data collection

3.3.1. Data type

The researcher used secondary type of data which from annual audited financial statement of micro finance institutions.

3.3.2. Source of data

Secondary data were collected from annual audited financial statement of micro finance institutions. The research was only conduct on secondary source.

3.3.3. Data Collection method

Data collection is a course of action of assembling empirical facts and statistics in Pursuance of insights concerning a particular situation and answering the questions that Investigate undertaking of a research (Healey, 2014). In this research, data were collected from secondary sources which included the Microfinance's statistical information and financial statements for the period 2013 to 2017.

3.4. Sampling Design and Sampling Technique

To conduct the study the researcher were used non probability sampling technique of convenience sampling. From MFIs, the researcher selects five MIFs purposively such as Metemamen, meklit, shashemene, Omo microfinance and Amhara micro finance. The reason that I use this institutions where there is credit available in those institutions and to make the customers beneficiaries.

3.5. Data Analysis and Presentation

The facts gatherer is evaluate using explanatory statistics with the aid of SPSS Descriptive statistics aids in summarizing the wide-ranging propensities in Data, presenting a perceptive of

how diverse scores might be, and providing insight into Where one score stands in contrast with other scores (Healey, 2014).

3.6. Analytical model

To investigate the effect of credit risk on financial performance of MFIs in Ethiopia following general multiple linear regression models used:

$$Y_i = \beta_0 + \beta X_i + \mu_i \dots \dots \dots (1)$$

Where:

Y_i –Dependent Variable

β_0 - Constant term,

X_i - Explanatory or independent Variables

μ_i - Disturbance term

Hence, based on the above general multiple linear regression models and on the basis of selected variables for the study the specific analytical model presented as follows:

$$ROA = f(NPLTLA, LPTLA, NPLLP, TLATD)$$

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \mu$$

Where: Y= Return on Asset (dependent variable) - performance measure

Proxy credit risk indicators

X_1 = Non-Performing Loan to Total Loan

X_2 = Loan Provision to Total Loan

X_3 = Non-Performing Loan to Loan Provision

X_4 = Total Loan and Advance to Total Deposit

μ = disturbance term

Also α is an intercept and β is the parameter of explanatory variable and it measures by what amount the dependent variable (ROA) increases or decreases when the specific explanatory variables increases or decreases by a unit.

3.7. Variables definition and hypothesis of the study

In this section explained the variables used as dependent and independent (explanatory) variables in the study. The definitions and measurements that are used for these variables are described and accordingly with the help of empirical data hypothesis developed as follows:

Dependent Variable

Return on Asset (ROA)

Prior works on credit risk management and bank performance indicated that Return on assets

(ROA) was an important measurement used in comparing the financial performance of banks (Girma, 2011; Agegnehu, 2013). It is defined as Profit after Tax divided by Total Asset; reflect how well bank managers are using the banks real investment resource to generate profit. It shows the profit earned per dollar of assets and most importantly, reflects the management ability to utilize the bank's financial and real investment resources to generate profits. For any bank, ROA depends on the bank's policy decisions as well as uncontrollable factors relating to the economy and government regulations. Many regulators believe return on assets is the best measure of bank efficiency from the two major alternative measures of profitability, namely ROA and ROE. As highlighted by Athanasoglou et al. (2008) and Sufian (2011), many scholars suggest that ROA is the key ratio for the evaluation of bank performance given that ROA is not distorted by high equity multipliers, while ROE disregards the risks associated with high leverage and financial leverage.

Independent Variables

Non-Performing Loan to Loan Provision

NPLLP: is a loan that is in default or close to being in default out of loan provision in future or become slow-paying. The ratio of non-performing loan to loan provision (NPLLP) used as a measure for credit risk. The ratio of non-performing loan to loan provision, which measures how much a MFIs is suffer default in year relative to its reserved loan provision, is used to measure the effect of non-performing loans to loan provision on performance of commercial banks in Ethiopia.

Loan provision to Total loan and advance

LPTLA; first 'Loan Loss Provision' is a non-cash expense for banks to account for future losses on loan defaults. Banks assume that a certain percentage of loans will default or become slow-paying. Banks enter a percentage as an expense when calculating their pre-tax incomes. This guarantees a bank's solvency and capitalization if and when the defaults occur.

Non-performing loan to Total loan and advances

NPLTLA is a loan that is in default or close to being in default. Many loans become nonperforming after being in default for 90 days, but this can depend on the contract terms. NPL amount has been presented using different names, such as, impaired loans, problem loans, doubtful claims and loan allowances. However, the definitions of those are similar to the definition of NPLs..

Total loan and advance to Total Deposit

TLATD; the formula for the loan to deposit ratio is exactly as its name implies, total loans and advance divided by total deposits. A lending institution that accepts deposits must have a certain measure of liquidity to maintain its normal daily operations. Advances to Total deposit (TLA/TD) it used as indicators of credit risk. For banks, it is how much they have coming in (deposits) vs how much they have going out (loans).

CHAPTER FOUR

4. DATA ANALYSIS AND DISCUSSION OF RESULT

As the researcher discussed in the previous chapters the major objective of this study is to investigate the effect of credit risk on financial performance of Ethiopian micro finance institution.

Therefore, this chapter deals with the results and analysis of the findings. This sections presented descriptive and correlation analysis on variables of the study;

The data analysis procedures used for ratio scale measurement and the ratio of the specified dependent and independent variables were calculated for further statistical analysis. The collected data was analyzed by the aid of the statistical software SPSS.

4.1. Descriptive statistics

This section presents the descriptive statistics of dependent and explanatory variables used in this study. The dependent variable used in this study was ROA, while the explanatory variables are NPLTLA, NPLLP, LPTLA and TLATD.

Table 4.1 Summary of Descriptive Analysis

Statistics of dependent and independent variables for five micro finance institutions over the sample period of 20013 - 2017 with a total of 35 observations. The table shows the mean, minimum, maximum, standard deviation and number of observations for the dependent variable and independent variables of firms' performance.

Table 4.1 Descriptive statistics

	ROA	NPLLP	LPTLA	NPLTLA	TLATD
Mean	0.025790	0.646007	0.030677	0.026548	0.577008

MEDIAN	0.027515	0.644215	0.021800	0.020400	0.563130
MAXIMUM	0.044700	0.975500	0.315350	0.198540	0.901820
MINIMUM	-0.018800	0.121490	0.002440	0.002742	0.297430
Std.Dev.	0.010317	0.208977	0.042687	0.029111	0.133128

Source: - annual report of sample microfinance institutions SPSS soft ware

As indicated in the table 4.1, the firms' performance measured by return on asset shows that sampled of micro finance institution achieved 2.579% on average after tax profit over the last four years from 20013 to 2017. From the total sample, return on asset had a maximum of 4.47% and minimum of -1.88%. It means that the most profitable microfinance among the sampled earned 4.47 cents of profit after tax for a single birr (1.00) invested in the assets of the firm. On the other hand, not profitable micro finance of the sampled lost -1.88 cents of profit after tax for each birr (1.00) invested in the assets of the firm and the value of return on asset deviate from its mean by 1.03%.

The average value for non-performing loan to loan provision as measured by ratio of micro finance institutions was 64.60% with a maximum of 97.55% and a minimum of 12.15%. It implies that there is large amount of non-performing which tends to have default risk. On the other hand, sampled of micro finance who have excess uncollected amount has average 0.64 cents from the reserved loan provision birr (1.00) and the value of nonperforming loan to loan provision deviate from its mean by 20.89%.

On the other hand, the loan provision to total loan and advance ratio indicated by the range between 31.53% and 0.24%. The mean value is equals 3.06 %. The relatively high range between the minimum and maximum value implies that the most efficient micro finance has a profitable capability compared to the least efficient micro finance. The standard deviation statistics for loan provision to total loan and advance ratio was 4.26% which indicates that the written amount of loan loss variation between the selected micro finance was medium.

The average value of Non-performing loan to total loan advance rate equals 2.54% with a maximum of 19.85% and its minimum value was 0.27%. The standard deviation statistics for NPLR is 2.91%. This means despite the inverse relationship that exists between nonperforming loan and performance and the value of non-performing loan to total loan and advance deviate from its mean by 2.91%.

Finally, the average value of the total loan to deposit was 57.70% with a minimum 29.74% and maximum of 90.18%. The standard deviation statics for this was 13.31%. This shows the existence relatively high variation of loan to deposit ratio between the selected micro finance compared with the variation in ROA.

4.2 Correlation Analysis

Correlation measures the degree of linear association between variables. Values of the correlation coefficient are always ranged between +1 and -1. A correlation coefficient of +1 indicates that the

existence of a perfect positive association between the two variables, while a correlation coefficient of -1 indicates perfect negative association. A correlation coefficient of zero, on the other hand, indicates the absence of relationship (association) between two variables (Brooks, 2008). The table below shows the correlation matrix among dependent and independent variables.

Table 4.2 Correlation Analysis of Variables

	ROA	NPLLP	LPTLA	NPLTLA	TLATD
ROA	1.000000	-0.227633	-0.330013	-0.283095	0.267086
NPLLP	-0.227633	1.000000	0.187480	-0.338694	0.091506
LPTLA	-0.330013	0.187480	1.000000	-0.106438	0.029683
NPLTLA	-0.283095	-0.338694	-0.106438	1.000000	-0.047537
TLATD	0.267086	0.091506	0.029683	-0.047537	1.000000

Source: - annual report of sample Microfinance computed using SPSS

The results in table 4.2 revealed that a correlation between dependent variables with independent variables. According to the result non-performing loan to loan provision, loan provision to total loan and advance and non-performing loan to total loan and advance have negative correlation with return on asset and total loan and advance to total deposit have positive correlation with return on asset for measurement of Ethiopian micro finance institution performance. It refers that when non-performing loan to loan provision, loan provision to total loan and advance and non-performing loan to total loan and advance variables increases, performance of Ethiopian micro finance will be go down and when total loan and advance to total deposit increases, performance of micro finance will be go up.

The coefficient estimates of correlation in the above table shows -0.227633, -0.330013, 0.283095 and 0.267086 for loan provision to non-performing loan, loan provision to total loan and advance, non-performing loan to total loan and advance and total loan and advance to total deposit respectively. This implies that non-performing loan to loan provision, loan provision to total loan and advance and non-performing loan to total loan and advance are negatively correlated with return on asset and total loan and advance to total deposit are positively correlated with return on asset.

4.3 Regression model tests

For valid hypothesis testing and to make data available for reliable results, the test of assumption of regression model is required. Accordingly, the study has gone through the most critical regression diagnostic tests consisting of model specification tests, heteroskedasticity, autocorrelation, normality and multicollinearity test accordingly.

4.3.1 Model Selection (Random Effect versus Fixed Effect Models)

As Brooks (2008) referring on his book, there are broadly two classes of panel estimator approaches that can be employed in financial research: fixed effects models and random effects models. The choice between both approaches is done by running a Hausman test. To conduct a Hausman test the number of cross section should be greater than the number of coefficients to be estimated. In this study the numbers of

cross section are greater than the number of coefficients to be estimated so it is possible to conduct a Hausman test. Therefore a fixed cross-sectional effect is specified in the estimation to capture the effects of different commercial banks.

Table. 4.3. Hausman Test

Test cross section random effect

Test summary	Chi-sq- statistic	Chi-sq-d.f.	Prob
Cross-section random	13.831540	4	0.0079

Source: - annual report of sample MFIs computed using SPSS

The Hausman model selection test for this study has a p-value of 0.0079 for the regression models. On this score, fixed effect model is preferable. According to Brooks (2008) it is often said that the random effects model is more appropriate when the entities in the sample can be thought of as having been randomly selected from the population, but a fixed effect model is more reasonable when the entities in the sample effectively represent the entire population. Thus, the sample for this study was not selected randomly instead it selected rationally that can effectively represent the total number of population, due to this it is appropriate for fixed effect model selection.

4.3.2. Tests for the Classical Linear Regression Model (CLRM) assumptions

To maintain the data validity and robustness of the regressed result of the research, the basic classical linear regression model (CLRM) assumptions must be tested for identifying any misspecification and correcting them so as to augment the research quality (Brooks,2008).

There are different CLRM assumptions that need to be satisfied and that are tested in this study, which are: errors equal zero mean test, model specification, heteroskedasticity, autocorrelation, normality and multicollinearity test.

I. The errors have zero mean ($E(u_t) = 0$)

This part shows the test for the assumptions of classical linear regression model (CLRM) namely the error have zero mean, heteroscedasticity, autocorrelation, normality and multicollinearity. Relay on Brooks (2008), the first assumption required is that the average value of the errors is zero. In fact, if a constant term is included in the regression equation, this assumption will never be violated. Hence, study’s regression model has included a constant term, so that this assumption was not violated.

II. Test for heteroskedasticity assumption ($var(u_t) = \sigma^2 < \infty$)

As indicated by Brooks (2008), this assumption requires that the variance of the errors to be constant. If the errors do not have a constant variance, it is said that the assumption of homoscedasticity has been violated. This violation is termed as heteroscedasticity. In this study test was used to test for existence of heteroscedasticity across the range of explanatory variables.

Table 4.4 Heteroskedasticity Test

F. statistics	1.240639	probF(5,54)	0.3031
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Obs*R-squared	6.182260	Prob.chi-square	0.2889
Scaled explained SS	5.569338	Prob.chi-sqqare(s)	0.3504

In this case, both the F- statistic and R-squared versions of the test statistic give the same conclusion that there is no evidence for the presence of heteroscedasticity, since the p-values are considerably in excess of 0.05 and also the third version of the test statistic, ‘Scaled explained SS’, which as the name suggests is based on a normalized version of the explained sum of squares from the auxiliary regression, suggests also that there is no evidence of heteroscedasticity. Thus, there is no evidence of heteroscedasticity. Thus, the conclusion of the test has shown that no evidence of heteroscedasticity.

III. Test for autocorrelation assumption ($cov(u_i, u_j) = 0$ for $i \neq j$)

This assumption stated that the covariance between the error terms over time (or cross sectionals, for that type of data) is zero. In other words, it is assumed that the errors are uncorrelated with one another. If the errors are not uncorrelated with one another, it would be stated that they are auto correlated or that they are serially correlated (Brooks, 2008).

The Durbin-Watson test statistic of 1.617 is close to two, so that there is no evidence for the presence of autocorrelation.

Table. 4.5. Correlation Matrix between independent variables

	NPLLP	LPTLA	NPLTLA	TLATD
NPLLP	1			
LPTLA	0.187480	1		
NPLTLA	-0.338694	-0.106438	1	
TLATD	0.091506	0.029683	-0.047537	1

Source: - annual report of sample MFIs computed using SPSS

The method used in this study to test the existence of multicollinearity was by checking the Pearson correlation between the independent variables. The correlations between the independent variables are shown in table above. All correlation results are below 0.75, which indicates that multicollinearity is not a problem for this study.

4.4. Regression Analysis

This section presents the empirical findings from the econometric output results on effect of credit risk on MFIs performance in Ethiopia. Table below shows regression results between the dependent variable (ROA) and explanatory variables. Under the following regression outputs the beta coefficient may be negative or positive; beta indicates that each variable’s level of influence on the dependent variable.

Regression result

Empirical model: The empirical model used in the study in order to identify the effect of credit risk on MFIs performance:-

$$ROA = \beta_0 + \beta_1 NPLLP + \beta_2 LPTLA + \beta_3 NPLTLA + \beta_4 TLATD + \varepsilon$$

Table 4.6 Regression result

R-squared	Adjusted R-squared	S.E-regression	Sum squared residual	F-statistic
0.700112	0.638910	0.006199	0.001883	11.43942

Source: - annual report of sample MFIs computed using SPSS

This section discusses in detail the analysis of the results for each explanatory variable and their effect on Ethiopian MFIs performance. Furthermore, the discussion analyzed the statistical findings of the study in relation to the previous empirical evidences.

P-value indicates at what percentage or precession level of each variable is significant. The

R-squared value measures how well the regression model explains the actual variations in the dependent variable (Brooks, 2008). R-squared statistics and the adjusted- R squared statistics of the model was 70.01% and 63.89% respectively. The adjusted R-squared value 63.89% indicates that the dependent variable of return on asset (ROA) of Ethiopian MFIs is well explained by the independent variables that are listed in the model. Thus, these variables collectively are good explanatory variables to identify the effect of credit risks on MFIs performance in Ethiopia. The regression F-statistic (11.43942) and the p-value of zero attached to the test statistic reveal that the null hypothesis that all of the coefficients are jointly zero should be rejected. Thus, it implies that the independent variables in the model were able to explain variations in the dependent variable.

4.4.1 Discussion of results

Non-performing loan to Loan provision

H1: non-performing loan to loan provision has negative and statistically significant effect on Ethiopia MFIs performance.

According to the regression result of non-performing loan to loan provision (NPLLP) has a negative relationship with Ethiopian MFIs performance by a coefficient estimate of -0.012455. This means that holding other independent variables constant and when one percent increases in non-performing loan to loan provision, consequently it reduces return on asset (ROA) of Ethiopian MFIs by 1.24% and the p value of non-performing loan to loan provision (NPLLP) is 0.0104 reveals that it is statistically significant at 5% level of significance. Accordingly, the result supports the working hypothesis that non-performing loan to loan provision has negative and statistically significant effect on performance of MFIs in Ethiopia for the period of 2013 to 2017.

Thus, this outcome is consistent with prior study of Girma (2011) that point out the negative significant effect of nonperforming loan to loan provision on performance.

As implied from the above finding, non-performing loan to loan provision is adversely affecting the performance of the MFIs during the study period in Ethiopia.

Hence, the possible reason is associated with the non-performing loan, customers who is likely fail to pay their debt to the MFIs on due date.

Loan Provision to Total Loan and Advance

H2: loan provision to total loan and advance has negative and statistically significant effect on Ethiopia MFIS performance

The results of fixed effect model table indicated that the relationship between loan provision to total loan and advance has a negative relationship with Ethiopian MFIS performance by a coefficient estimate of -0.100671. This means that holding other independent variables constant and when one percent increases in total loan and advance to total deposit, as a result it decreases return on asset (ROA) of Ethiopian MFIs by 10.06% and the p value of loan provision to total loan and advance is 0.0000 discloses that it is statistically significant at 1% level of significance

Hence, this significant negative relationship between loan provision and ROA similar to with the fact which suggest that firms income before excluding provision also affect performance of MFIs.

Non-Performing Loan to Total Loan and Advance

H3: Non-performing loan to total loan and advance has negative and statistically significant effect on Ethiopia MFIs performance.

The ratio of non-performing loan to total loan and advance, which measures how much a MF is suffer default in year relative to its gross loan disbursed, is used to measure the effect of non-performing loans on performance of MFIs in Ethiopia. According to the regression result of non-performing loan to total loan and Advance (NPLTLA) has a negative relationship with Ethiopian MFIs performance by a coefficient estimate of 0.071777. This means that holding other independent variables constant and when one percent increases in non-performing loan to total loan and Advance, consequently it decreases return on asset (ROA) of Ethiopian MFIs by 7.17% and the p value of NPLTLA is 0.0270 shows that it is statistically significant at 5% level of significance.

Accordingly, the result supported the working hypothesis that non-performing loan to total loan and Advance has negative and statistically significant effect on performance of commercial banks in Ethiopia for the period of 2013 to 2017. This result shows that, high NPL increase the level of default rate and reduces the performance of MFIs in Ethiopia. Hence, the possible reason is that the borrowers fail to pay the loan.

Total Loan and Advance to Total Deposit

H4: Total loan and advance to total deposit has positive and statistically significant effect on Ethiopia MFIs performance.

In accordance with the regression result of total loan and advance to total deposit (TLATD) has a positive relationship with Ethiopian MFIs performance by a coefficient estimate of 0.017800. This means that holding other independent variables constant and when one percent increases in total loan and advance to total deposit, as a result it increase return on asset (ROA) of Ethiopian MFIs by 1.798 and the p value of TLATD is 0.0099 discloses that it is statistically significant at 1% level of significance and the result supported the working hypothesis that Total loan and advance to total deposit has positive and statistically significant effect on Ethiopia MFIs performance for the period of 2013 to 2017. Hence, this is the result of the interest rate difference between what the banks charging on loan and what they actually paying on the deposits.

Generally this chapter discussed the results of the analysis and then presented the discussions of these results using the appropriate method. Accordingly, the chapter discussed the descriptive analysis, correlations between the variables and through the regressions analyses; it illustrates how the independent variables influence the dependent variable. Thus, a discussion of the result indicates that non-performing loan, total loan and advance and provision profit were statistically significant credit risk factors that determine the performance of MF in Ethiopia.

CHAPTER FIVE

5. SUMMARY, CONCLUSION AND RECOMMENDATION

The preceding chapter presented the results and discussion, while this chapter deals with summary, conclusion and recommendations based on the findings of the study. Accordingly this, chapter is organized into three subsections.

5.1 Summary of findings

The research general objective was to examine the effect of credit risk on financial performance of micro finance in Ethiopia. The study used Five year period of time from 2013-2017 data from five (5) selected micro finance in Ethiopia.

The overall result indicates that credit risk has an effect on performance of micro finance in Ethiopia. The dependent variable used to measure micro finance performance was return on asset and independent variables these are nonperforming loan to total loan and advance, loan provision to total loan and advance, nonperforming loan to loan provision and total loan and advance to total deposit in order to attain the objective of the study.

The overall result obtained from the regression model indicates that credit risk has an effect on performance of MFIs in Ethiopia. The dependent variable used to measure MFIs performance was return on asset and independent variables these are nonperforming loan to total loan and advance, loan provision to total loan and advance, nonperforming loan to loan provision and total loan and advance to total deposit in order to attain the objective of the study.

From the regression result, non-performing loan to total loan and advance, loan provision to total loan and advance and non-performing loan to loan provision had negative and significant effect on Ethiopian MFIs performance. However, total loan to total deposit had positive and significant effect on Ethiopian MFIs performance.

5.2 Conclusions

This study aimed to identify the relationship between credit risk and financial performance of Ethiopian micro finance. In doing so, previous studies on credit risk have been reviewed and it is summarized that the performance of micro finance is usually affected by non-performing and total loan. Both are originated from micro finance accounts (balance sheets and/or profit and loss accounts) and therefore could be termed micro or bank-specific factors for performance included in asset quality.

To achieve the intended objectives the study has employed quantitative research approach.

The data were collected purposively from a sample of five microfinances over the time period from 2013-2017. The collected data were analyzed by using SPSS.

In order to conduct the empirical analysis, one dependent variable and four independent variables were selected from prominent previous research works namely non-performing loan to total loan and advance ratio, total loan and advance to total deposit ratio, non-performing loan to loan provision ratio and loan provision to total loan and advance ratio.

The findings of the study on the effect of credit on financial performance of micro finance in Ethiopia for the sample suggest the following conclusions.

According to the results, the findings indicated that micro finance credit risk measured in terms of Non-performing loan to total loan and advance had statistically significant negative relationship with ROA, which was in line with previous studies. A negative sign suggests that MF with high default rate affect performance negatively.

On the other side, the findings indicated that micro finance credit risk measured in terms of loan to deposit ratio of micro finance in this study, the result shows that as there was positive and statistically significant relationship with ROA. This implies that micro finance charge more than what the micro finance incurring as interest expense for the depositors and the more loan the micro finance give will have a significant effect on micro finance profitability.

Next, the findings indicated that micro finance credit risk measured in terms of non-performing loan to loan provision shows that negative and statistically significant relationship with ROA. This implies that the borrower failed to pay.

Finally, the result showed a negative relationship between loan provision to total loan and advance and performance with statistical significance. This implies that micro finance income before excluding provision also affects performance of micro finance.

5.3 Recommendation

In light of the major finding obtained from the results, the following recommendations are made.

Micro finance institutions non-performing loan to total loan and advance ratio, ratio of loan Provision to total loan and advance, ratio of non-performing loan to loan provision and ratio of total loan & advances to total deposit are significant key credit risk drivers of performance of micro finance institutions in Ethiopia.

Therefore micro finance should pay greater attention to these significant variables in determining their credit risk management policy. By establishing standards and overall objectives to reduce the level of credit exposures

The study also shows that, performance of micro finance institutions in Ethiopia mainly negatively influenced by non-performing loan and loan provision. Therefore, it is recommendable for micro finance need for strong credit risk and loan service process management must be adopted to keep the level of non-performing loan and loan provision as low as possible which will enable to maintain high performance of micro finance in Ethiopia.

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