



**THE EFFECT OF LOAN DELINQUENCY ON FINANCIAL  
PERFORMANCE OF MICRO FINANCE INSTITUTION IN ETHIOPIA**

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**HAWASSA, ETHIOPIA**

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**DEPARTMENT OF ACCOUNTING AND FINANCE**

**MARCH/ 2024**

**HAWASSA, ETHIOPIA**

**SCHOOL OF GRADUATE STUDIES**  
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This is to certify that the thesis proposal entitled “**The Effect of Loan Delinquency on Financial Performance of Micro Finance Institution in Ethiopia**” submitted in partial fulfillment of the requirements for the degree of Master of Science in Accounting and Finance, the Graduate Program of the School of Business and Economics, and has been carried out by **Asaye Kontamo, GPAcFnW 0003/14** under our supervision. Therefore, we recommend that the student has fulfilled the requirements and hence, can submit the final thesis to the department of Accounting and Finance.

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We, the undersigned, members of the Board of Examiners of the final open defense by **Asaye Kontamo** have read and evaluated his thesis entitled **The Effect of Loan Delinquency on Financial Performance of Micro Finance Institution in Ethiopia** and examined the candidate. This is, therefore, to certify that the thesis has been accepted in partial fulfillment for the Requirements for the Degree of Master of Accounting and Finance.

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## **DECLARATION**

I, **Asaye Kontamo**, hereby declare that the thesis work entitled “**The Effect of Loan Delinquency on Financial Performance of Micro Finance Institution in Ethiopia**” submitted by me for the award of the degree of Master of Accounting and Finance of Hawassa University at Hawassa Ethiopia, this study is my own work that has not been submitted for any degree or diploma program in this or any other institutions.

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## **Acronym Lists**

<b>ACSI</b>	<i>Amahar credit and saving institution</i>
<b>ADCSI</b>	<i>Addis credit and saving institution),</i>
<b>AVFS</b>	<i>Africa Village Financial Services</i>
<b>MFI</b>	<i>Microfinance Institutions</i>
<b>OCSSCO</b>	<i>Oromia credit and saving S.C</i>
<b>NBE</b>	<i>National Bank of Ethiopia</i>
<b>ROA</b>	<i>Return on Assets</i>
<b>NPL</b>	<i>Nonperforming Loans</i>
<b>CDR</b>	<i>Credit to Deposit Ratio</i>
<b>CA</b>	<i>Capital Adequacy</i>
<b>LLP</b>	<i>Loan Loss Provision Ratio</i>
<b>CPA</b>	<i>Cost per Asset Ratio</i>
<b>FS</b>	<i>Firm Size</i>
<b>ETB:</b>	<i>Ethiopian Birr</i>
<b>Mo FED</b>	<i>Ministry of Finance and Development</i>
<b>OLS</b>	<i>Ordinary Least Square</i>
<b>FSS</b>	<i>Financial Self-Sufficiency</i>
<b>OSS</b>	<i>Operational Self-Sufficiency</i>
<b>NIM</b>	<i>Net Interesting Margin</i>

## **Abstract:**

*This study examines the impact of loan delinquency on the financial performance of 11 microfinance institutions in Ethiopia from 2008 to 2021. Using a quantitative research approach with an explanatory research design, the researcher employs regression analysis to investigate the determinants of return on assets (ROA). The findings align with prior research, showing a negative relationship between nonperforming loans (NPL) and ROA. Higher NPLs indicate increased credit risk and potential losses, consistent with theoretical expectations and previous studies. Similarly, a negative relationship is found between credit to deposit ratio (CDR) and ROA, suggesting that greater reliance on credit for funding is associated with higher risk and potentially lower profitability. However, the positive coefficients on capital adequacy (CA) and firm size (FS) confirm prior research indicating that well-capitalized and larger entities perform better financially. Surprisingly, the loan loss provision ratio (LLP) and cost per asset ratio (CPL) were found to be statistically insignificant in determining ROA. These results imply that the significance of these variables may be context-specific or subject to variations across industries or time periods. This study contributes to the understanding of the relationship between loan delinquency and financial performance in the Ethiopian microfinance sector.*

*Keywords: Loan delinquency, financial performance, microfinance institutions, Ethiopia, nonperforming loans, credit risk, profitability, credit to deposit ratio, capital adequacy, firm size, loan loss provision ratio, cost per asset ratio.*

# CHAPTER ONE

## 1. INTRODUCTION

### 1.1 Background to the study

In developing countries, including Ethiopia, micro financing institutions (MFIs) emerged with unique opportunity to serve poor people who do not have access to commercial banks. Microfinance involves the provision of micro-credit, savings, and other services to the poor that are excluded by the commercial banks for collateral and other reasons. Microfinance is relatively new to Ethiopia and came to existence during 1994-95 with the government's licensing and supervision of microfinance institution proclamation (Zerai and Rani, 2012).

The main objective of these institutions are they deliver micro-loans, micro savings, micro-insurance, money transfer, leasing, etc. to a large number of productive resource-poor people in the country in a cost-effective and sustainable way. The objective of microfinance institutions as development organizations are to service the financial needs of un-served or underserved markets as a means of meeting development objectives such as to create employment, reduce poverty, help to develop existing business or diversify their activities, empower women or other disadvantaged population groups, and encourage the development of new business ( Bayeh, 2012).

A large number of MFIs in Ethiopia has progressed significantly in terms of sustainability. Although the development of MFIs started very recently, however, the industry showed a remarkable growth. (Mohana and Ludego, 2013).

Microfinance institutions (MFIs) provide financial services to the poor, particularly impoverished women, such as credit, savings, micro insurance, and remittance, which help to alleviate poverty for those who would not otherwise have access to banking services. Microfinance is a type of credit union that is established in the economy for the poor's economic gain and to alleviate poverty. Microloans assist the underprivileged in producing income, accumulating capital, and improving their living standards. In general, people confuse microfinance and microcredit. Microcredit is a key component of microfinance, entails providing extremely modest loans to low-income clients with no collateral and, in many cases, no written contract. (Dhakil, 2012)

Microfinance institutions offer medium and small amounts of loans mostly to poor people who cannot afford collaterals to get loans from the main commercial banks. Despite the recent growth in the Micro-finance sector, the sector is faced with challenges of loan repayment defaults by clients. Individual groups have tried using group's equity for collaterals which is expected to ensure the revolving of money for the benefits of other individual's members of the group. However, loan defaults have continued to causes serious challenge to most microfinance institutions. One of the key issues facing the micro finance industry today is the high percentage of loans that are in arrears. In order for micro finance institutions (MFIs) reach scale and move towards operational and financial sustainability, arrears rate must be reduced. High delinquency rates in credit programs for the poor were often blamed on poor market infrastructure, deficient business income and client's misallocation of loan funds in to consumptions activities (Rural Financial intermediation Program (RUFIP), 2005).

Loan delinquency is the situation where loan repayment is overdue. It indicates payments to be made on due date. It can be defined in two ways. The first situation is emerging delinquency which is the early stage of delinquency when a borrower unable to repayment instalment and it is the state of possibility of delinquency. Whereas there is also another form of delinquency named endemic delinquency. If emerging delinquency is not dealt on time it will become where the borrower does not take repayment as bearing matter reasoning in way becoming endemic delinquency. Usually, delinquency can be measured in three ways- repayment rate (RR), overdue rate, and portfolio at risk (PAR). Lamichhane, B.D (2023).

Interest income from lending is the major source of income of any bank and financial institution. If a loan instalment recovery is not on time, it arises credit risk due to loan delinquency. Delinquent loan does not generate income but it increases expenses such as loan loss provision, recovery cost, and other costs. An institution must lose opportunity cost due to loan delinquency. High level of delinquency loan may have negative effect on institutions reputation. The chances of increase in loan delinquency due to imitation of negative learning by good borrowers. The effect of delinquency on MFIs clearly reflects on its profitability and sustainability. The profitability of MFIs is affected if interest is not received on delinquent loan. The effect of delinquent loan is provision must be made according to regulatory norms and regulation. If invested loan is not returned on time the entire principle amount goes to a loan loss provision. As a result it greatly affects the profitability and sustainability of MFIs.

Sometimes the loan products offered by MFIs do not match with the expectations and needs of borrowers. If the features of product offered i.e. nature, objective, tenure, repayment frequency etc. does not meet with borrowers' needs it may arise delinquency in loan. One of the major causes of loan delinquency is over financing. So, MFIs need to identify actual loan repayment capacity of borrower. If borrowers' actual cash flow does not meet his /her loan instalment, it is called over indebtedness.

## **1.2 Statement of the problems**

Financial institutions all over the world are faced with the challenge of loan delinquency which has necessitated the need for reviewing lending policies to mitigate the delinquency risk as well as putting in place mechanisms that monitor the behaviour of borrowers. Irena (2014) notes that loan default was one of the major causes of the financial crises of 2008 and consequently, after the Global Financial Crisis, credit management increased, especially with the purpose of improving the resiliency of the banking sector by requiring more and higher quality capital and more balanced liquidity.

Financial institutions face the enormous risks of non-performing loans (NPLs) which adversely affect their financial performance. Loan delinquency among Microfinance institutions in East Africa has become so crucial , which, as Warui (2012) argues may be a pointer to increasing ineffectiveness of financial Institutions. Because of the far-reaching implications of NPLs on Microfinance Banks as well as the overall economy, stringent evaluation and monitoring strategies have been put in place by the institutions to ensure repayment of loans by borrowers to mitigate NPLs.

Lending functions is the major service line of the financial institutions, which contributes the major share of revenue to their profits. As a result, the need to employ a sound credit appraisal and management system is crucial in providing effective credit services and achieve the micro finance institutions overall objectives.

Every loan disbursed should be collected including its return, if the lending micro finance has to sustain as a going business concern. However, today, the problem of uncollected loans has been growing in micro finance institutions. Different sources have revealed that most of the micro finance institutions have been facing serious problem having a significant portion of their loans fall into the category of bad debts or what is technically termed as delinquent loan. Lending activities require micro finance institutions to make judgment related to the credit

worthiness of a borrower. However, the judgment does not always prove to be accurate and the credit worthiness of a borrower may decline overtime due to various factors. Consequently, micro finance institutions face credit risks that the borrower may fail to meet the terms of the underlining loan agreement.

Interest income from lending is the major source of income of any bank and financial institution. If a loan instalment recovery is not on time, it arises credit risk due to loan delinquency. Delinquent loan does not generate income but it increases expenses such as loan loss provision, recovery cost, and other costs. An institution must lose opportunity cost due to loan delinquency. High level of delinquency loan may have negative effect on institutions reputation. The chances of increase in loan delinquency due to imitation of negative learning by good borrowers. The effect of delinquency on MFIs clearly reflects on its profitability and sustainability. The profitability of MFIs is affected if interest is not received on delinquent loan. The effect of delinquent loan is provision must be made according to regulatory norms and regulation. If invested loan is not returned on time the entire principle amount goes to a loan loss provision. As a result it greatly affects the profitability and sustainability of MFIs.

The growing trend of delinquent loan is becoming a concerning issue not only for the micro finance institutions but also for the national economy, at large. It hinders financing capacity of the MFLs, where in effect it has an adverse impact on the financial performance. It has been believed that there are a number of factors contributing to the source and extent of this problem.

Among the previous related researchs, Hagos A(2015) the study focuses on the impact of NPL on Dashen bank profitability. Bank loans have a vital contribution towards development of economy by financing different sectors. However, non-performing loans are leads to incidence of huge loss on banks profit in particular and country economy in general. The study was conducted to examine both internal factors (non-performing loan rate and lending interest rate) and external factors (Ethiopian inflation and GDP rate) impact of NPL on bank profitability. Finally, the study recommended the bank should emphasize the management of loans to reduce the level of nonperforming loans.

GEZU G (2014) the study was conducted to examine both bank specific (loan to deposit ratio, capital adequacy ratio, return on asset and return on equity) and macroeconomic (lending rate, inflation and effective tax rate) determinants of NPLs of commercial banks in

Ethiopia. To this end, the researcher had selected eight senior commercial banks in Ethiopia judgmentally. The study used secondary sources of data, which is panel data in nature, over the period 2002-2013. These data were collected from NBE and CSA. Furthermore, fixed effect model was used to examine the determinants of NPLs. The study shows a downward sloping of nonperforming loans for commercial banks in Ethiopia. The finding also revealed that LTD ratio had positive whereas INFR had negative, but insignificant effect on NPLs of commercial banks in Ethiopia. However, bank profitability measured in terms of ROE, banks capital adequacy ratio and lending rate had negative and statistically significant effect whereas bank profitability measured in terms of ROA and effective tax rate had positive and statistically significant effect on NPLs of commercial banks in Ethiopia. The study recommended that bank managers should emphasize the management of current assets and loans than fixed assets in order to reduce the level of nonperforming loans. Empirical studies conducted in our country focused only on banks and on determining factors that affect nonperforming loans. And it didn't address the effect of loan delinquency on financial performance of micro finance institutions (MFLs). Furthermore, as to the knowledge of the researcher, there is no research conducted on this regard. Therefore, this study will try to address the gap by focusing on assessing the effect of loan delinquency on financial performance of MFLs.

### **1.3 Research Objective**

#### **1.3.1 General Objective**

The main objective of the study is to examine the effect of delinquent loans on financial performance of MFIs in Ethiopia.

#### **1.3.2 Specific objectives**

- i. To assess the effect of non-performing loan ratio on financial performance of micro finance institution in Ethiopia.-
- ii. To examine the effect of loan loss provision on financial performance of microfinance institutions in Ethiopia.
- iii. To evaluate the effect of cost per loan asset ratio on financial performance of microfinance institutions in Ethiopia.

- iv. To determine the effect of credit to deposit ratio on financial performances of microfinance institutions in Ethiopia.
- v. To identify the effect of capital adequacy on financial performances of microfinance institutions in Ethiopia.
- vi. To evaluate the effect of firm size on financial performance of microfinance institutions in Ethiopia.

#### **1.4 Research Hypothesis**

Hp1; Non-performing loan ratio has a significant negatively Effect on financial performance.

Hp2; Loan loss provision has a significant negatively effect on financial performance.

Hp3; Cost per loan asset ratio have significant positive effect on financial performance.

Hp4; Credit to deposit ratio negatively influenced the micro financial institution performance.

Hp5; Capital adequacy have significant positive effect on financial performance.

Hp6; Firm size positively influenced the micro financial institution performance.

#### **1.5 Significance of the Study**

The study is anticipated to be useful in expanding the existing strands of literature on delinquent loan and financial performance. It is expected to be of help to the future researchers as a point of reference. Similarly, the study is expected to be helpful to different government agencies involved in making by laws of MFIs in Ethiopia; in implementing the various measures they have put in place and to ensure compliance to provisioning and loan asset reporting. The relevant bodies was employed the research findings to establish guidelines that were helped in managing delinquent loans in MFIs in Ethiopia. On the same note, this study was enable the financial consultants to know the responsiveness of ROA to delinquent loan and be able to make their financial advice to micro finance institutions and other stakeholders.

In addition, the study was useful to all MFIs in Ethiopia at large in evaluating the effectiveness of managing delinquent loans. The management of MFIs was able to identify the gaps in monitoring and controlling of delinquent loans and adjust accordingly. This study was also enable the executives to find and understand in-depth of how delinquent loans affect the institutions financial performance and enable them to engage the better loan-performing strategies.

## **1.6 Scope and Limitation of the Study**

This study was confine only to know the key the effect of loan delinquency of financial performance of selected Ethiopian MFIs by analysing the financial statements start from 2008 to 2022 G.C. Conceptually scope of the study was to identify the effect of delinquent loan on financial performance of microfinance institutions in Ethiopia. The dependent variable is financial performance, whereas, Delinquent loan ratio, loan loss provision ratio, cost per asset and credit to deposit ratio is the independent sub-variables. Methodologically the study will use panel secondary data for a period of 14 years (2008 to 2022 G.C) and geographically study is restricted to selected for (11) MFIs in Ethiopia. Furthermore, study was also use of regression analysis and correlation to determine the effect of NPLs on the financial performance of MFIs in Ethiopia. Since the 2023 annual performance report that is published by AEMFI is not include the recent data which is 2023 and 2024, so this paper is limited to analyze the performance till 2022. Those MFIs included in the recent annual performance report was limited in number so this paper is limited to analyze only 11 MFIs.

## **1.7 Organization of the Paper**

This study was consists of five chapters. The first chapter focus on the introductory parts; such as background of the study, statement of the problem, objective of the study, Hypothesis and significance of the study, scope and organization of the study. The second chapter deals with review of related theoretical and empirical literatures. The third chapter deals with research methodology; which includes research paradigm, research design, types and sources of data, methods of data collection and techniques, target groups and sampling design and methods of data analysis. The fourth chapter contains data presentation, analysis and interpretation. Finally, the last chapter was concern with conclusions and recommendations that will be forwarded by the researcher.

# **CHAPTER TWO**

## **2. LITERATURE REVIEW**

Under this chapter was presents theoretical foundation, empirical literature review, summary of the literature review, gaps and conceptual framework on the effects of loan delinquency on

financial performance of micro finance institution. Accordingly, the first section, describes overall theoretical overview of micro finance concepts.

The second section presents review of empirical studies on the effects of loan delinquency on financial performance of micro finance institution and summary of the literature review, gaps and conceptual framework.

## **2.1. Theoretical Overview about Microfinance Institution**

The theoretical framework was, through a review of existing literature within the microfinance field, serve as a platform for the forthcoming empirical study.

### **2.1.1. Definition of Microfinance**

Different authors and organizations have defined Microfinance institutions in different ways. However the concept or the meaning of the definitions is usually the same in which microfinance refers to the provision of financial services; primarily savings and credit to the poor and low income households that don't have access to commercial banks service.

Consultative Group to Assist the poor (CGAP,2012) defined “microfinance” the provision of formal financial services to poor and low-income people, as well as others systematically not benefited from the financial system. As noted, “Microfinance” it is not only providing a range of credit products (for consumption, smoothing for business purposes, to fund social obligations, for emergencies, etc.) only, but also savings, money transfers, and insurance.

The other researcher defined about MFIs is that, it offers financial services to poor people. The aim of Access to financial services for poor people is help to alleviate risks, build their assets, improve their income, and furthermore contribute to development of the focal community (Cull *et al*, 2009).

The popularly known institution which is Microfinance information exchange (MIX) defined the microfinance institutions as a variety of financial services that target low- income clients, particularly women. Since the clients of microfinance institutions have lower incomes or poor and often have limited access to other financial services, microfinance products tend to be for smaller monetary amounts than traditional financial services. These services not only provide micro credit service for those have lower incomes but also include loans, savings, insurance, and remittances. Micro-loans are given for a variety of purposes, frequently

for micro-enterprise development. The diversity of products and services offered shows the reality that the financial needs of individuals, households and enterprises can change significantly over time, especially for those who live in poverty, which is not benefited from the formal bank. Because of these varied needs, and because of the industry's focus on the poor, microfinance institutions often use non-traditional methodologies, such as group lending or other forms of collateral not employed by the formal financial sector especially by bank. According to Robinson, (2001) definition: Microfinance refers to small-scale financial services-primarily credit and savings-given to people who involved in farm or fish or herd; who work in small enterprises or microenterprises where goods are produced, recycled, repaired, or sold; who provide services; who work for wages or commissions; who gain income from renting out small amounts of land, vehicles, draft animals, or machinery and tools; and to other individuals and groups at the local levels of developing countries, both rural and urban (Robinson, 2001 p.9).

Ethiopian Proclamation No. 626/2009 defines micro financing business as "the provision of financial services like accepting savings extend credit, drawing and accepting drafts payable, providing money transfer services and others specified in the Article 3(2) of the proclamation.

### **2.1.2. History of Microfinance**

The ideas and aspirations towards microfinance are not new. Small, informal savings and credit groups have worked for centuries across the world, from Ghana to Mexico to India and beyond (Helms, 2006). In Europe, as early as the 15th century, the Catholic Church founded pawn shops as an alternative to usurious moneylenders. These pawn shops spread throughout the urban areas in Europe throughout the 15th century. Formal credit and savings institutions for the poor have also been around for generations, offering financial services for customers who were traditionally neglected by commercial banks.

The Irish Loan Fund system, started in the early 1700s, is an early (and long-lived) example. By the 1840s, this system had about 300 funds throughout Ireland (Helms, 2006).

On the other hand in the early 1800s a financial organization that was credit association to serve predominantly farmers in rural areas based on cooperative principles was founded by Friedrich Wilhelm Raiffeisen in Germany and expanded rapidly within Germany and later since it was successful also to the rest of Europe, North America and developing countries beyond. Ledger wood (1999) described the focus of these cooperative financial institutions as

savings mobilization in rural areas that attempt to teach poor farmers how to save money and utilize it. In the early 1900s the concept of Raiffeisen began to appear with adaptations in parts of rural Latin America (Helms, 2006).

Another milestone in the history of microfinance was the opening of the Indonesian People's Credit Bank in 1895 that became the largest microfinance system in Indonesia (Helms, 2006).

In Bangladesh Professor Muhammad Yunus who was the Nobel Prize winner in 2006, disbursed first loans from his own pocket to a group of rural women in Jobra in 1976 and successfully developed the concept of microfinance with his Grameen Bank throughout the country and later the whole world (Ledger wood, 1999). The Grameen bank, which is now serves more than 2.4 million clients (94 % of them women) and is a model for many countries (Ledger wood, 1999). Other examples of early pioneers besides Grameen Bank are ACCION International in Latin America, Self-employed Women's Association Bank in India and many more (Helms, 2006).

Beginning in the mid-1980s, the subsidized, targeted credit model supported by many donors was the object of steady criticism, because most programs accumulated large loan losses and required frequent recapitalization to continue operating. It became more and more evident that market-based solutions were required. This led to a new approach that considered microfinance as an integral part of the overall financial system. Emphasis shifted from the rapid disbursement of subsidized loans to target populations toward the building up of local, sustainable institutions to serve the poor.

In the early 1990s the term "microcredit" was replaced by "microfinance" which included not only credits but also other financial services for poor people (Elia, M. 2006).

The introduction of the term microfinance followed the success of many microcredit programmes around the world and in 1997, during the first Microcredit Summit, 2,900 delegates from 137 countries representing around 1,500 organizations gathered in Washington, D.C. During that occasion the birth of the global industry of microfinance was officially recognized. Since then the focus started to change and move from the predominant welfares' idea, where only the provision of credit was considered to be important, to the need of becoming financially sustainable through the provision of a complete range of financial products and to reach more people.

### **2.1.3. History of Microfinance in Ethiopia**

Initially, micro-credit started as a government and non-government organizations motivated plan. Following the 1984/85 severe drought and famine, many NGOs started to offer micro credit along with their relief activities although this was on a limited scale and not in a sustained manner (Alemayehu, 2008) although the development of deposit-taking MFIs started only in 1996, the industry has shown outstanding growth. Since 1996, NBE has registered 30 MFIs to deliver financial services to the poor. As of 2008, these MFIs had an active loan portfolio of about ETB 4.5 billion delivered to 2.3 million active borrowers and 3 million total active clients.

They also mobilized savings of about ETB 1.9 billion (USD 144 million). The average size of loans in 2006 was about USD 170, which indicates that MFIs target the active poor and also do a significant amount of their business (54 percent) with women. Despite their strong growth, MFIs provide less than seven percent of the total national loan portfolio, again with government-owned MFIs playing the major role (Wolday *et al*, 2010).

## **2.2 Theoretical Literature Review**

Theoretical literature introduces and describes the theory that explains why the research problem under study exists. Theories are formulated to explain, predict, and understand phenomena and, in many cases, to challenge and extend existing knowledge within the limits of critical bounding assumptions. Without theoretical literature, the structure and vision for a study is unclear, much like a house that cannot be constructed without a blueprint. By contrast, a research plan that contains theoretical literature allows the dissertation study to be strong and structured with an organized flow from one chapter to the next (Ravitch & Riggan, 2017). The current study was applied moral hazard theory, modern portfolio theory, stakeholders' theory and financial accelerator theory.

### **2.2.1 Moral Hazard Theory**

Moral hazard theory was born by Diamond (1984). This theory is based on moral hazard which refers to the condition leading to risk where a party (the borrower) gives false and misleading information on financial statement assets, liabilities or credit ability, or has a hidden intention to take uncommon risks in an effort to gain revenue before the parties settles their contract. In many occasions as cited by Wangai et al., (2014), a party to a transaction

may not enter into the contract in allegiant, thus resulting to misleading information on his books of account.

The moral hazard may result from asymmetric information between the financial institution and the customer thus making it difficult to differentiate between a bad and a prospective borrower (Richard, 2011). In many occasions, customers referred to as the borrower may fail to honor the agreement with the bank in good faith thus giving misguiding report about financial status or credit worthiness. According to Mohaddes, Raissi and Weber (2017), moral hazard problem has led to notable collection of NPLs resulting from generous government guarantees.

Moral hazard theory was applicable for this study because both the borrower and financial institution intentionally fail to disclose vital information related to lending and borrowing contract. MFIs with low capital may respond to the moral hazard motive by hiking the exposure of their loan portfolio (Wangaiet al., 2014). MFIs should avoid moral hazard incentives like low equity since these incentives aggravate NPLs in order to mitigate losses caused by NPLs. In addition, affected financial systems and financial intermediation require accurate information about borrower and the venture the credit is used for (Chege & Bichanga, 2017).

### **2.2.2 Modern Portfolio Theory (MPT)**

This theory was originally advanced by Markowitz (1952) and is among significant economic theories concerned with money and wealth making since it weighs the advantages of diversification called “not keeping all your eggs in one basket”. As an investment theory, it explains how investors could optimize their wealth and reduce their exposures through introduction of different products in various portfolios. In 1958, Tobin elaborated portfolio theory further by including analysis of risk-free investments. This enabled to impact portfolios on the efficient frontier. Both Markowitz (1952) and Tobin (1958) implied maximum portfolio of risk securities components are achievable and can be known, given future returns projections and suitable co-variance matrix of share returns.

According to Atamnkeng and Nzongang (2012), the portfolio theory approach is commonly applicable and acts a vital task to financial institution performance studies. The management of MFI's should make decisions on the portfolio management and the desired portfolio composition based on policy decision which are determined by firm such as quantity of return

on all assets held in the assorted investments, the risk linked with possession of every financial asset and the magnitude of the investment (Kavata, 2016).

In order to mitigate and minimize risk in loans which lead to NPLs (default), MFI's should consider diversifying their investment portfolio and thus relevant for this study. The revenue diversification theory concept matches the portfolio theory conceptualization indicating investors can minimize certain exposures through portfolio diversification. Through portfolio diversification, MFIs will reduce NPLs and have increased return on asset since diversification provides a firm with less turbulent income, economies of scope and scale and the potential to leverage managerial efficiency across product (Kavata, 2016).

### **2.2.3 Stakeholders Theory**

The stakeholder theory was pioneered by Penrose (1952) and later refined by Freeman (1984). The stakeholder theory argues that apart from shareholders, there are numerous agents (groups) that have interest in running and management of corporations called stakeholders and are affected by decisions made by MFIs. Stakeholders include investors (shareholders), employees, customers, managers, creditors, suppliers, government and the community at whole. The stakeholders' theory asserts that business organizations which include microfinance institutions and banks have an obligation to the society and thus necessitates them to factor the interest of all stakeholders affected by their actions.

Further according to this theory, the management should consider all parties affected by its action in addition to shareholders when making decisions in regards to the organization. Top management is challenged through stockholder's achievement appraisal, to review broadly organization wealth creation from the view of the stakeholders who are key participants in organization growth. The appraisal achievement accords management with required report which helps management in upgrading their administration style and work keenly with all respective parties in their locations for business expansion. A study by Freeman, Harrison, Wicks, Parmar and De Core (2014) noted stakeholder theory postulates that the goal of any institution should always be the prosperity of the organization and its key stakeholders.

A number of people have interest in stakeholder theory as a subject of investigation. A detailed evaluation of corporate governance has been provided by Breuer (2006) with a specific focus on stakeholder theory. The authors noted the existence of many parties interacted in the well-being of the firm and that these groups often had an emulating interest.

On one hand, are the shareholders who may welcome investment in high yielding but risky projects. This may not go well with the credit provider especially when the company is in the verge of bankruptcy.

Stakeholder's theory was applicable to the current study, since one of the stakeholders to MFIs is the customers who borrow loans. They are the source of income to the firms through borrowing the firm cash for investment in exchange (Berman, Andrew, Kotha & Thomas, 2015). When the customer fails to pay their installment on due date due to reasons like loan over pricing, level of NPLs raises hence poor financial performance of the MFIs.

#### **2.2.4 Financial Accelerator Theory**

This theory was advanced by Bernanke and Gertler (1989) and seeks to explain how small economic shocks have large effect on the lending and borrowing business. It pegs on the interaction between economic agent's net worth and the external finance premium that occurs due to asymmetric information between lenders and borrowers. This theory presents that the less the amount of borrower's wealth contribution to the project the more the borrower's interest will diverge from the interest of the supplier of the external fund.

According to financial accelerator theory borrowers are more eager to undertake riskier projects which have high probability for huge profits and also those contributing to low gains (Bernanke, Gertler & Gilchrist, 2015). These projects favor the borrower since the firm losses in the case when the projects return is low or limited to zero by legal regulations. From the lenders point of view, these projects are unfavorable for they bear all or most of the costs in the case of low projects returns. Due to economic shocks the theory further indicates that the borrowers may not be in a position to borrow and are likely to stop repayments of their loans hence eventually leading to non-performing loans (Bernanke et al., 2015).

This theory was relevant because microfinance institutions should be alert on the economic trends and make wise decisions during the time of loan appraisal, carry out proper and thorough business assessment, and also set clear policies and monitoring to avoid bad debts. Microfinance institutions need to enhance their control by considering tangible collaterals, or lend secured loans in case the borrower defaults.

## **2.3 Empirical Review of Literature**

This section presents previous studies conducted in the area of current study. It is from the review of empirical literature that the research hypotheses have been developed for further investigation.

### **2.3.1 Delinquent Loans**

The term Non-Performing Loans is used interchangeably with Bad loans and impaired loans as identified in (Fofack, 2005). A Non-Performing Loan is a loan that is in default or close to being in default. A loan is non-performing when payments of interests and principal are past due by 90 days or more, or at least 90 days of interest payment have been capitalized, refinanced or delayed by agreement, or payments are less than 90 days overdue, but there are other good reasons to doubt that payment will be made in full. (IMF, 2009)

According to Bismark (2015), there are several definitions to a delinquent loan, a loan is said to be delinquent if the debtor is either unwilling or unable to pay the amount borrowed when it is due or when the debtor does not make required payments or comply with the loan covenant or agreement between the borrower and the lender. The delinquent loans can also be termed as loans for which both principal amount and interest charges are outstanding contrary to the terms and conditions of the loan agreement between the borrower and the lender and mostly are at least 90 days overdue. Delinquent loans also are referred to as non-performing loan or impaired loans or bad loans or even problem loans, are loans that are ninety days or more past due.

Delinquent loans have created a global problem in the banking industry and in Indonesia where NPLs represented about seventy-five percent of total loan portfolios show that there were increase in the NPLs in the period leading up to the financial crisis and over sixty banks collapsed during the crisis. (Cortavarria, 2000) The growth of banks in both Malaysia and Singapore was constrained by banks which faced the accumulation of NPLs that eroded their capital. (Karim, 2010)

Gulf Cooperation Council (GCC) in the Middle East had a favorable credit conditions and lower NPLs as well as significant banking credit between 2003 and 2008 but in 2009 the global crisis exposed the vulnerabilities of the banks in the Gulf Cooperation Council (GCC) and the NPLs rose sharply and credit stagnated, causing worries that economic recovery

could be stagnated by credit constraints. NPL levels increase as the economic situation deteriorates and interest payments rise. (Raphael, 2010)

### **2.3.2 Non-performing Loan Ratio and Financial Performance**

Non-performing loan ratio (NPLR) denotes the total default loans over total outstanding loans and advances. NPLR mainly reflects financial institutions credit risk (Gizaw, Kebede and Salvaraj, 2015). Various studies have examined the relationship between non-performing loan ratio and performance of various business entities across the world. Definitely, these studies might not have conceptual similarity with the current study but at least, they shade light on the relationship between non-performing loans and different dependent variables there in.

A study by Alshatti (2015) examined on effect of non-performing loan ratio on financial performance of 13 Jordanian commercial banks for the period 2005 to 2013. Using panel data the study revealed that credit risk has a positive effect on financial performance on Jordan banks and further capital adequacy ratio (CAR), credit interest to credit facilities and the leverage ratio do not affect the profit of the banks measured by ROE implying other variables effect on bank profitability, hence need to carry out the current study.

Another study by Hasan and Wall (2014) analyzed the determinants of bank loan loss allowance for samples in US banks and non-US banks in 21 nations for a period between 2003- 2010. The fundamental determinants (non-discretionary) included non-performing loans and discretionary determinants used income before the loan loss provision. Using data techniques to analyze, the study revealed that high amount of NPLs is linked with bulk levels of loan loss provision reserve. However, some variable like net charge offs reflected fundamental factor in US analysis are not a significant factor for non-US banks.

A similar study by Boudriga, Boulila and Jellouli (2011) to analyze the cross-countries determinates of non-performing loans and the potential impact of regulatory factors on credit risk exposure employed aggregate, financial economic and legal environmental data for a panel of 59 countries for period 2002-2006. The study showed that higher loan loss provision tends to reduce the levels of impaired loans with eventual severe financial performance consequences.

A study by Bloem and Gorter (2001) examined the relationship between non-performing loan ratio and financial performance. The study established that unstable NPLR affected financial performance of financial institutions. They also indicated that poor management, poor supervision, overoptimistic assessments of creditworthiness during economic booms and moral hazards resulting from generous government guarantees could also lead to loan default.

Wangai et al.,(2014) performed a research study on effect of non- performing loans on financial performance of microfinance banks (MFBs) at Nakuru town. The study used primary data on 66 credit and management staff for specific period September to October 2014, and was guided by credit risk measured by NPLR; macroeconomic factors like inflation and growth rate formed the control variables. Pilot testing was done prior to the main study, descriptive and inferential statistics was applied to analyze the data.

Finding from the study revealed that increase in credit risk would significantly reduce the financial performance of MFBs. However, the study did not show sufficiently how financial performance will be measured, thus the current study intends to fill the gap by using ROA to measure performance. On the same note, the study was investigated for a particular point of time September and October hence the current study intends to expand the time frame and utilize secondary data.

A study aimed to investigate credit risk management and profitability of 43 commercial banks in Kenya by Kithinji (2013) for the period 2003 to 2008 measured credit risk by NPLR and profitability was proxied by ROA. Using panel data techniques, the study revealed that huge profits of commercial banks are not affected by the amount of credit and NPLs but other variables impact on profits. Thus, the current study will explore other variables like; liquidity measured by credit to deposit ratio; operational risk factors measured by cost per loan asset ratio to assess the effect of NPLs on MFIs profitability.

Study by Mombo (2013) investigated the effect of NPLs on financial performance of deposit taking MFIs in Kenya using data set for 7 MFBs for a period of 5 years. NPLRs, rate of loan repayments and operational costs measured NPLs and performance was measured by ROA. Using data analysis techniques, the study established that NPLs account for the percentage of profitability in the MFIs. However, the variables show a 64.6% of the profitability where NPLs and operations cost has great significant implying other factors effect MFI performance hence need to conduct the current study.

### **2.3.3 Loan Loss Provision and Financial Performance**

Loan loss provision (LLP) is that cost allocated for unrecovered debts and loan installments. LLP covers significant loan losses like customer defaults and bad loans. Financial institutions with anticipation of high equity losses may give higher provisions to loan loss in order to minimize returns fluctuations and build up their solvency (Ahmad, Takeda & Thomas, 2010).

A study by Mendoza and Rivera (2017) conducted a secondary data based on quantitative approach of 576 rural banks on the relationship between loan loss provision ratio proliferation and financial performance. The study observed loan loss provision ratio proliferation negatively affected financial performance of financial firms. The authors advised much importance be placed on the lender's role in ensuring good decisions relating to the granting of loans in order to minimize credit risk.

Also, the above study share sentiments of Hasan and Wall (2014) who examined a relationship between non-performing loans with loan loss provision reserve. Using secondary data, the study revealed that high amount of NPLs is linked with bulk levels of loan loss provision reserve. The study recommended viable intervention and preventive credit management systems to reverse the NPL proliferation among financial institutions.

The above studies, however, contradict the findings of Lata (2014) which showed a negative significant relationship between the two variables. Annor and Obeng (2017) established a statistically significant negative relationship between asset ratio and the profitability of a bank. Equally, the results are in contradiction to Kodithuwakku (2015) study which explored the relationship between credit risk management and performance of 8 commercial banks in Sri Lanka for a five year period from 2009 to 2013 and revealed that non-loan loans provisions have a negative impact on the financial performance of the institutions.

In Uganda, Serwadda (2018) analyzed the impact of credit risk management on the financial performance of 20 commercial banks for a period of 2006-2015. ROA was used to measure the bank performance, while NPLs, LLP to total loans and growth in interest earnings measured credit risk. Using panel data estimation techniques, the study indicated banks performance is inversely influenced by NPLs and that credit risk management impact on the performance of Ugandans banks.

Study by Muriithi, Waweru and Muturi (2016) aimed at assessing the effect of credit risk on financial performance of 43 commercial banks in Kenya for a period between 2005 and 2014. Credit risk was measured by capital to risk weighted assets, loan and advances ratios, assets quality and loan loss provision while financial performance was computed by ROE. Using panel data technique, the study indicated that credit risk has a negative and significant relationship with bank profitability, further the study showed poor asset quality to total asset relates to poor bank performance both in short and long run.

#### **2.3.4 Cost per Loan Asset and Financial Performance**

Cost per loan asset (CLA) is average cost per loan disbursed to borrowers and is denoted by dividing total operating costs by total loans amounts. There are mixed results from the empirical studies on the effect of cost per loan asset (CLA) on financial institution profitability. Using pooled data for 14 commercial banks in Nepal, Bhattarai (2016) examined the effect of NPLs on the profitability of commercial banks for the period 2010 to 2015. NPL was measured by NPLR and cost per loan asset ratio, performance on the other hand was measured by ROA and ROE, while firm size, GDP growth rate and inflation rate formed the control variables.

Using panel data estimation techniques, the study indicated NPL has a negative effect measured by ROA whereas NPLs has a positive effect measured by shareholders returns-ROE. Moreover, cost per loan asset has a positive significant association with bank profitability as measured by ROA. However, this study was carried in Nepalese context with a varied regulatory, cultural and economics set up; the current study will use ROA to measure performance of MFIs in Ethiopia. A similar study by Pondel (2012) explored on impact of credit risk management on financial performance of 31 commercial banks for a period of 11 years (2001-2011) in Nepal. Various parameters including default rate, cost per loan assets and capital adequacy ratio measured the credit risk whereas profitability was proxied by ROA. Using data techniques, the study showed negative but statistically insignificant association between CLA ratio and bank achievement measured by ROA. However, default rate was the most predictor of banks performance and had an inverse impact. The current study will sought to fill the contextual gap by conducting effect of NPLs on financial performance of MFIs.

Panta (2018) investigated the bank-specific and macroeconomic determinants of non-performing loans on profitability. The study used secondary data of 7 joint ventures from the year 2006 to 2017 with a fixed effect panel model. The bank-specific variables taken are capital adequacy, net interest margin, the size of banks measured by total assets and loan to deposit ratio. Similarly, the macroeconomic variables include GDP growth, inflation and loan concentration of the banking industry measured by the Herfindahl-Hirschman Index. The study finds the net interest margin (NIM) has a positive and significant effect while the bank size has a negative and significant relationship. However, the macroeconomic variables do not relate. Furthermore, when the net interest margin, bank size & non-performing loan are used as an independent variable, its significant effect is seen with the profitability.

Another study by Kurawa and Garba (2014) aimed at evaluation of the effect of credit risk management (CRM) on the profitability of Nigerian banks for the period from 2002 to 2011. The study aimed to discover the extent to which default rate (DR),

A study to investigate on the impacts of credit risk management on the financial performance of commercial banks in Kenya by cost per loan asset (CLA) and capital adequacy ratio (CAR) influence profitability measured by ROA. Using least square regression technique, the study findings established that CRM measured by default rate, cost per loan asset and capital adequacy ratios have significant positive effect on profitability of Nigerian banks. Musyoki and Kadubo (2012), ten banks were sampled for a period of 7 years (2000-2006). Default rate, bad debt cost and cost per loan asset were used as proxies to CRM, whereas profitability was computed by ROA. Using data techniques, the results revealed that all the parameters (default rate, bad debt cost and cost per loan asset) have statistically and negative impact on financial performance of banks with default rate being major predictor of banks financial performance. The current study will sought to evaluate the effect of NPLs on MFIs financial performance and determine if there is any variation in the findings.

### **2.3.5 Credit to Deposit Ratio and Financial Performance**

Credit to deposit ratio (CDR) is used frequently as statistical way to measure liquidity in a financial institution. A study by Patil (2018) interested with audit risk on public and private banks performance used panel data of 40 commercial banks (24 public and 16 private) for a period of 16 years (2000-2015). Gross non-performing asset ratio, loan loss allowance to total advances, credit to deposit ratio and loan loss advances to assets were the proxy for credit

risk whereas deposits and bank size measured by natural logarithm of assets formed the control variables. ROA, ROE, and NIM were used for measure performance.

Using data technique, the study revealed a positive and significant relationship between loan loss allowance and ROE, ROA and NIM. Similarly, credit to deposit ratio positively influenced the banks performance measured in all the parameters. However, loan loss allowance to non-performing assets inversely and significantly influences all the 3 performance indicators. However, the current study will use a specific parameter ROA to measure financial performance and apply a smaller database and with specific characteristics like nature of clientele, liquidity infrastructure underlying the MFI operation.

Another study examined in Malaysia by Tumin and Said (2011) aimed to determine the impact of bank specific factor on effect of credit risk and financial performance on 26 commercial banks for a period of 6 years. Credit risk was measured by liquidity, bank size and capital asset. Performance was measured by Return on Asset (ROA) and return on equity (ROE). The study results implied ratios employed have different effect on performance, with liquidity measured by credit to deposit ratio having no relationship with bank performance. On contrary, this study was performed in a developed country -Malaysia with different economic and regulatory background and set up.

A study by Bichanga and Chege (2017) examined NPLs and financial performance using data set of 44 commercial loans in Kenya for the period 2011 to 2015. NPL was measured by bank size, liquidity, operating costs and capitalization bank ratio while ROA measured performance. Using data analysis techniques, the study indicated that NPLs have a significant effect on financial performance and in specific bank factors including bank size, capitalization and operating cost. In addition, liquidity measured by credit to deposit ratio has statically insignificant effect on financial performance. However, this study was performed on commercial banks set up, thus the current study will be carried on MFIs to find out if there is any significant.

In Pakistan, a study by Hamza (2017) on impacts of CRM on banks performance was carried for a period 2005-2014 on 13 commercial banks. Using pooled regression model bank performance was proxied by ROA and ROE, while CRM was measured by LLPR, CAR, liquidity ratio, NPLR, loan and advances ratio and bank size. The study results indicated that

CRM is inversely associated with bank performance measured by ROA and ROE and have significant impact. However, this study was conducted in a developed country.

These findings are an important confirmation of Bernstein (1996) results that revealed that non-performing loans significantly affect costs and thus determine the financial performance of an organization. Further Abreu and Mends (2002), Ferdi (2005), Fitriani (2010) and Rasiah (2010) found that there is a positive and significant relationship between loan deposit ratio and bank profits. However, this finding is in direct contradiction to another study in Malaysia by Tumin and Said (2011) who concluded that credit to deposit ratio have no relationship with bank performance.

A study by Gathuni, (2015) on the effectiveness of credit management system on financial performance on microfinance sector in Kenya and examined 70 credit officers of the 14 microfinance institutions registered and operating in Meru town .They used a Chi-square and found that top management involvement in formulating credit terms does not affect financial performance, a high involvement of credit officers had a significance effect on financial performance.

### **2.3.6 Size of Microfinance (Total Asset) and Financial Performance**

Another factor that can affect the financial performance of an MFI is its size. The size of an MFI is measured by the value of its assets (Hermes et al, 2008). According to Cull et al, (2007) the size of an MFI is significantly positively linked to its financial performance. This variable is included to capture the economies or diseconomies of scale. There is consensus in academic literature that economies of scale and synergies arise up to a certain level of size. Beyond that level, financial organizations become too complex to manage and diseconomies of scale arise. The effect of size could therefore be nonlinear (Amdemikael,2012). Natural logarithm of total asset of MFIs is used as a proxy of size. The study observed that since the dependent variable in the model (ROA) can be deflated by total assets it would be appropriate to log total assets before including it in the model. It is argued that failure to become profitable in microfinance is partly due to lack of scale economies Muriu (2011) this implies that profitable MFIs in Africa have a greater control of the domestic market, and therefore lending rates may remain high while deposit rates remain lower since larger MFIs may be perceived to be safer, therefore this high interest rate spread translates to and sustains higher profits margins. Cull et al, (2007) point out that size of MFIs and financial performance has

significantly related but loan size is negatively related financial performance meaning Controlling for other relevant factors, institutions that make smaller loans are not necessarily less profitable. But the result find that larger loan sizes are associated with lower average costs for both individual-based lenders and solidarity group lenders. Since larger loan size is often taken to imply less outreach to the poor, the result could have negative implications.

The empirical evidence regarding the relationship between firm size and financial performance is more diverse and context-dependent. In some studies, a positive relationship has been found, indicating larger firms tend to have better financial performance. This can be attributed to economies of scale, better access to capital markets, and greater ability to diversify risk. On the contrary, some studies have found a negative relationship, suggesting that smaller firms tend to outperform larger ones. This may be due to greater flexibility, adaptability, and entrepreneurial characteristics often exhibited by smaller firms. Additionally, certain industries may benefit from being small and specialized, leading to superior financial performance. The interaction between capital adequacy and firm size on financial performance is an area of on-going debate among researchers. Some studies argue that the positive impact of capital adequacy on financial performance is more pronounced for smaller firms. This is because smaller firms are typically more sensitive to financial distress and are more likely to face difficulties in accessing external financing. Adequate capital can help alleviate these challenges and improve their financial performance. Other studies suggest that the positive impact of capital adequacy is more significant for larger firms. Larger firms have greater financial requirements and bear higher risks, which can be mitigated by higher levels of capital. Improving capital adequacy is more crucial for larger firms in maintaining stability and favourable financial performance.

Overall, while there may be varying findings across different studies, a general consensus suggests that higher capital adequacy positively influences financial performance, regardless of firm size. The impact of firm size on financial performance is more nuanced, with contextual factors playing a significant role. Therefore, it is essential to consider industry-specific characteristics, country-level regulations, and various other factors when examining the relationship between these variables.

### **2.3.7 Capital adequacy and Financial Performance**

Patheja (1994) has defined bank capital as common stock plus surplus plus undivided profits plus reserves for contingencies and other capital reserves. In addition since a bank's loan-loss reserves also serve as a buffer for absorbing losses, a broader definition of bank capital include this account. Opposing to the standard view of liquidity creation in which banks create liquidity by transforming liquid liabilities into illiquid assets, the recent theories indicates the creation of liquidity by changing assets mixes. Diamond and Rajan (2000, 2001) and Gorton and Winton (2000) showed that banks can create more or less liquidity by simply changing their funding mix on the liability side. Thakor (1994) shows that capital adequacy may also affect bank's asset portfolio composition, thereby affecting liquidity creation through a change in the assets mix. As Richard Cantor (2001) definition capital adequacy is the sufficient fund to absorb losses to protect depositors, creditors, and official institutions in the interest of maintaining banking system stability. NBE-Capital adequacy framework indicates the regulatory requirements for the banking institutions to meets its obligations if they fall due, while also maintaining the confidence of customer, depositors, creditors and other stakeholders in their dealings with the institution. Ritab al-Khoury (2012) indicates a bank's financial ability to pay depositors whenever they demand their money and still have enough funds to increase the bank's assets through additional lending. Based on the definition above, it is understood that the NBE's definition fits best since this research concerning Ethiopia. NBE provides the measurement of

A high ratio expresses low risk. It shows how much the market value of the bank's assets can drop before endangering its depositors and creditors. Basically, capital adequacy seeks to ensure that risk exposures of banking institution are backed by an adequate amount of capital to absorb losses on a continuous process. To best knowledge, authorities have put forth capital requirements to preserve liquidity among financial institutions and also promote public confidence towards financial providers. This fact is enticed by Robert Anderson (n.d.), stating minimum capital requirement is necessary to take up unexpected losses simultaneously reducing the risk of insolvency, while ensuring banking institutions have adequate capacity to operate the intermediation function, which is compulsory for the progress of the economy (Gorton and Winston 2000).

Empirical evidence suggests a positive relationship between capital adequacy and financial performance. Higher levels of capital adequacy, indicated by a high capital adequacy ratio

(CAR), are associated with improved financial performance. This is primarily due to the increased ability of well-capitalized firms to absorb losses, lower risk of insolvency, and improved creditworthiness. The positive correlation between capital adequacy and financial performance holds true across different industries and countries.

## **2.4. Ethiopian Scenario**

The quality literatures on the Ethiopian MFIs industry financial performance are not as such available. Among the previous related research's in Ethiopia, Hagos A (2015) the study focuses on the impact of NPL on Dashen bank profitability. Bank loans have a vital contribution towards development of economy by financing different sectors. However, non-performing loans are leads to incidence of huge loss on banks profit in particular and country economy in general. The study was conducted to examine both internal factors (non-performing loan rate and lending interest rate) and external factors (Ethiopian inflation and GDP rate) impact of NPL on bank profitability. Finally, the study recommended the bank should emphasize the management of loans to reduce the level of nonperforming loans.

GEZU G (2014) the study was conducted to examine both bank specific (loan to deposit ratio, capital adequacy ratio, return on asset and return on equity) and macroeconomic (lending rate, inflation and effective tax rate) determinants of NPLs of commercial banks in Ethiopia. To this end, the researcher had selected eight senior commercial banks in Ethiopia judgmentally. The study used secondary sources of data, which is panel data in nature, over the period 2002-2013 These data were collected from NBE and CSA. Furthermore, fixed effect model was used to examine the determinants of NPLs. The study shows a down ward sloping of nonperforming loans for commercial banks in Ethiopia. The finding also revealed as LTD ratio had positive whereas INFR had negative, but insignificant effect on NPLs of commercial banks in Ethiopia. However, bank profitability measured in terms of ROE, banks capital adequacy ratio and lending rate had negative and statistically significant effect whereas bank profitability measured in terms of ROA and effective tax rate had positive and statistically significant effect on NPLs of commercial banks in Ethiopia. The study recommended as bank managers should emphasize the management of current assets and loans than fixed assets in order to reduce the level of nonperforming loans.

## **2.5 Summary of Literature Review and Knowledge Gaps**

From the different literature discussed it is evident that both theoretical concepts and empirical studies subsists on NPLs and financial performance that affect a number of financial institutions including commercial banks & MFIs, with commercial banks being largely affected. However, empirical review indicated varied outcomes on effect of NPLs and financial performances of various financial institutions. From the studies mentioned, some confirm NPLs effect on the financial performance of organizations especially commercial banks. Review of the literature generally agreed that apart from credit risk, there are other variables like liquidity, default rate, loan loss provision, management practices towards NPLs and CLA that have effect on institution sustainable performance.

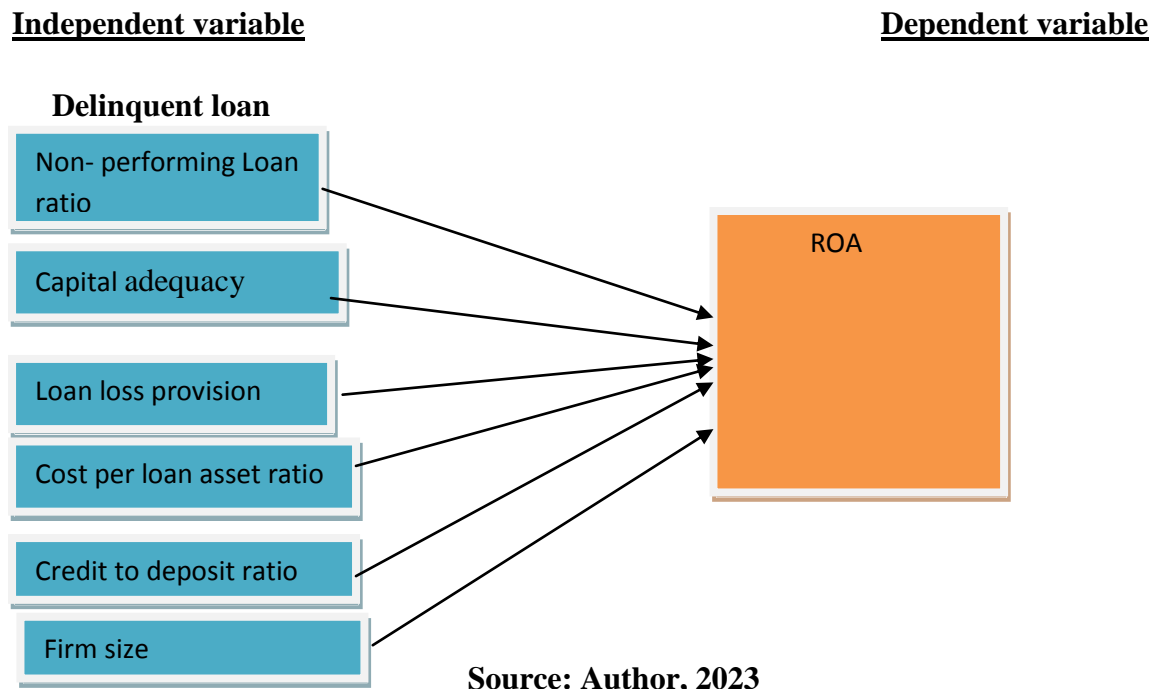
From the empirical studies on effect of NPLs and financial performance majority have shown focus on commercial banks leaving MFIs a gap for researchers to carry out studies. Similarly, many of the studies are from varied context with different economic, regulatory and culture set-up and close in Ethiopia, few studies are there and a knowledge gap need to be filled. This study is therefore aimed at bridging the gap in the field of study on effect of delinquent loans and financial performance of MFIs in Ethiopia. Moreover, previous empirical studies conducted in our country focused only in banks and on determining factors that affect non-performing loan. And it didn't address the effect of loan delinquency on financial performance of micro finance institutions (MFLs). Furthermore, as to the knowledge of the researcher, there is no research conducted on this regard. Therefore, this study will try to address the gap by focusing on assessing the effect of loan delinquency on financial performance of MFLs.

The study was focus on the following financial theories in the course of the study, moral hazard theory, modern portfolio theory, stakeholders' theory and financial accelerator theory. MFI specific ratios affecting performance will be applied in the study are non-performing loan ratio, loan and loss provision ratio, cost per asset ratio and credit to deposit ratio.

## **2.6 Conceptual Framework**

Basically, the conceptual framework is a diagrammatically representation of variables and how they relate. The conceptual framework indicates the association between the dependent variable (financial performance) and the independent variables (NPLs) under study. The framework above explains the relationship between the independent and dependent variables

in the current study. NPLR, loan loss provision ratio, cost per asset ratio and credit to deposit ratio was used to measure NPLs, the independent variable and two control variables such as capital adequacy and firm size. The dependent variable is ROA the proxy for financial performance. It is developed from the literature review discussed above and presented in the Figure 2.1 below.



**Figure 2.1: Conceptual Framework**

The framework above explains the relationship between the independent and dependent variables in the current study. NPLR, loan loss provision ratio, cost per loan asset and credit to deposit ratio, Capital adequacy, firm size will be used to measure NPLs, the independent variable. The dependent variable is ROA the proxy for financial performance.

Return on Asset (ROA) measures how well the institution uses all its assets. It is also overall measures of profitability which reflects both the profit margin and the efficiency of the institutions. Return on Asset (ROA) was applied as the dependent variables because the Microfinance financial reporting standard the use ROA as measures of profitability rather than financial self-sufficiency.(Muriu,2011).

The study was use ROA since it gives investors a good idea of how effective the MFIs are converting the money it invests into net income.

Empirical studies on the relationship between capital adequacy, firm size, and financial performance have yielded mixed results, with varying degrees of agreement and disagreement among different studies. However, a general trend can be observed based on the literature available.

## **CHAPTER THREE**

### **3. RESEARCH DESIGN AND METHODOLOGY**

This chapter sets to explain research paradigm the research design and methodology, target population, sampling technique and sample size, methods of data collection, data analysis and techniques and also operational definition and model specifications were presented

#### **3.1 Introduction**

The purpose of this chapter is to discuss the research methodology along with the detailed methods that was used in the study. It is divided into six major sections. The first section describes the study's research paradigm, which is followed by research approach, research design, data type and source, sample design, model and variable measurement and data analysis technique.

#### **3.2. Research Paradigm**

There are four knowledge claims or paradigm in research. Those are Positivism, Constructivism, Advocacy/participatory and Pragmatism. Positivism knowledge claim or philosophy holds a deterministic philosophy in which causes probably determine effects or outcomes. And according to this theory, there is a cause and effect relationship between the independent and dependent variables with an objective judgment (Creswell, 2014). As the main objective of this research is to examine the effect of macro and microfinance specific variables on credit risk of Ethiopian microfinance institutions, this study adopts a positivism paradigm.

#### **3.3. Research Design**

The study with the aims of assessing determinants of financial performance of microfinance institutions in Ethiopia were used the quantitative research approach by using panel research design to realize stated objectives. According to Gujarati, (2004) using Panel or longitudinal research design has advantage for instance: The techniques of panel data estimation can take heterogeneity explicitly into account by allowing for individual-specific variables, By combining time series and cross-section observations, panel data give “more informative data, more variability, less colinearity among variables, more degrees of freedom and more efficiency” By studying the repeated cross section of observations, panel data are better suited to study the dynamics of change, panel data can better detect and measure effects that simply cannot be observed in pure cross-section or pure time series data, by making data

available for several thousand units, panel data can minimize the bias that might result if we aggregate individuals or firms into broad aggregates.

According to Srejesh, Mohapatra and Anusree (2014) there are three types of research design. Those are descriptive research design, exploratory research design and explanatory research design. Descriptive Research Design is the method of collecting information by asking a set of pre-formulated questions in a predetermined sequence in a structured questionnaire to a sample of individuals drawn. Exploratory research is used to identify the boundaries of the environment in which the problem, opportunity, or situation of interest is likely to be found, and to identify the hidden factors or variables found there that might be relevant to the research. Finally, the explanatory research design will be used to identify the cause-and-effect relationship between variables. As the main objective of this paper is to examine the effect of delinquent loans on financial performance of Ethiopian microfinance institutions, this study was employed explanatory (causal) research design.

### **3.4. Research Approach**

According to Creswell (2014) there are three research approaches. Namely: qualitative research approach, quantitative research approach and mixed research approach. Qualitative research is a means of exploring and understanding the meaning that individuals or groups attach to a social or human problem. The research process involves emerging questions and procedures, data typically collected from the participants' environment, data analysis building inductively from details of general issues, and the researcher making interpretations of the meaning of the data. Quantitative research is a means of testing objective theories by examining the causal relationship between variables. These variables, in turn, can typically be measured on instruments so that numbered data can be analysed using statistical methods. Mixed methods research is an investigative approach that combines or connects both qualitative and quantitative forms. As the main objective of this study is to examine the effect of delinquent loans on financial performance of Ethiopian microfinance institutions, this study was used quantitative research approach because it is helpful to test causal (cause and effect) relationship.

### **3.5. Sampling Technique, Target Population and Sample size**

A sample of a subject is taken from the total population to make inference about the population because it is time consuming and expensive to collect data about every individual

institutions in the population. However, where the selected sample can reliably represent the population, the sample can still be used to make inferences about the population (Collis and Hossey, 2003 cited in Yonas, 2012).

**Population of the study:** The target population for this particular study was all the microfinance institutions currently operating in the country. According to AEMFI, (2023), currently there are 41 microfinance institutions in Ethiopia, including the five that transitioned in to partially fledged banks-sinqee,shebelle,sidama,tседey and amahara. Which are providing a microfinance service to the poor society in Ethiopia on the current period.

**Sampling frame:** This study has used a sample of 11 (26.82 % of the population) MFIs which are: - ACSI (Amahar credit and saving institution) OCSSCO (Oromia credit and saving S.C), ADCSI (Addis credit and saving institution), Agar, Vision, Wassa, Bussa Gonofa, Dynamic, Peace, Harbum and AVFS (Africa Village Financial Services), from the total population of 41 MFIs in the country. The criteria for choosing among the MFIs were based on the availability and quality of data for the time period of 14 years (2008-2022). Therefore, based on the sample size and the time coverage, the sample consists of 154 observations. The study were anticipated more of by consisting secondary data by means of annual reports of the respective MFIs from Association of Micro finance Institutions in Ethiopia (AEMFI), Ministry of Finance and development (MoFED).

**Sample:** It is the portion of the study population and used when addressing the total population in the study is not possible. Inclusive sample refers to a sample that includes all members of the population being studied, ensuring representation from every subgroup or category. This type of sample aims to provide a comprehensive and accurate representation of the population. Exclusive sample, on the other hand, refers to a sample that excludes certain members of the population being studied. This approach may be used when certain subgroups or categories are intentionally excluded due to specific research objectives or limitations. The exclusion of certain members allows for a more focused analysis or investigation of a particular aspect within the population. But in this case, since the number of micro finance institutions in the country is small, the study was assume the data of all micro finance institutions without taking sample (inclusive sample). There was no need of taking sample from the frame. Therefore, the sampling frame and the sample is the same. According to Brooks (2008, p 105), while there is no definitive answer for an appropriate sample size for

model specification, it should be noted that most testing procedures in econometrics rely on asymptotic theory. This theory says that as the sample size approaches to the population, the results from the sample estimates are more appropriate for generalizing to the general population. Thus in this case the sample size is almost equal to the population which was unable to make appropriate generalization to the overall population.

**Table 3.1:List of sampled Ethiopian microfinance institution**

<b>CODE</b>	<b>NAME OF MFIS</b>	<b>OPERATION START DATE</b>	<b>SECTOR</b>
1	ACSI	1996 G.C	MFI
2	OCSSCO	1996 G.C	MFI
3	ADCSI	1996 G.C	MFI
4	Agar	2003 G.C.	MFI
5	Vision	1998 G.C.	MFI
6	Wassa	1999 G.C.	MFI
7	Buusa Gonofa	1998 G.C.	MFI
8	Dynamic	2008 G.C.	MFI
9	Peace	1998 G.C.	MFI
10	Harbu	2004 G.C.	MFI
11	AVFS	1997 G.C.	MFI

**Source:** Author's Own Compilation Using Data from AEMFIs

### **3.6. Type and Source of Data**

In order to carry out any research activity; information should be gathered from proper sources. As per Kothari (2004), researchers should keep in mind two types of data those are, primary and secondary data. The primary data are those which are collected for the first time, and thus happen to be original in nature. Secondary data, on the other hand, are those that have already been collected by someone. This study was used secondary data because it allows the researcher to conduct panel data. Secondary data refers to descriptions or summaries by other people, other than the original researcher. They are accounts of events which were created well after the actual event occurred. Secondary sources are based on primary sources. By assessing, repackaging and distributing information, secondary sources make the information more accessible. The sources of data for this research was almost

secondary sources, The secondary data which were used to analyse MFIs-specific variables were collected from AEMFI annual report and to analyse external-specific variables were collected from MoFED with documentary survey.

### **3.7. Method of Data Collection**

Data was collected from NBE, Association of Ethiopian Microfinance Institutions (AEMFI) Bulletin and World Bank from the year 2008 to 2022 using document analysis.

The procedure of collecting secondary data was involved using a secondary data collection schedule which sourced data from the annual MFIs reports from the sampled 11 MFIs in Ethiopia. This is a quantitative study in nature was included data collected on the levels of non-performing loans, loan loss provision, cost of loan, credit to deposit ratio and ROA of the 11 microfinance institutions in Ethiopia. The researcher was visited the Association of Ethiopian Microfinance Institutions (AEMFI) website and collected the secondary data using an appropriate (financial statements) data collection sheet. This data was obtained from NBE MFIs annual published financial statements for the purpose of obtaining the levels of delinquent loans, and analyse financial performance of the microfinance institutions.

In order for the study to be comprehensive enough, secondary data for eleven years from 2008 to 2022 was collected the published financial statement of the selected 11 MFIs in Ethiopia. The data designed to be gathered from panel data in nature.

### **3.8. Data Analysis and Technique**

The collected data regressed by panel least square method and interpret with the help of descriptive statistics including standard deviation, mean, minimum, maximum and inferential statistics which is multiple regression analysis (significant test). To conduct this, the researcher use E-view 10 software (The E-views software were selected following its ability to help researchers to analyze research easily and efficiently (Brooks, 2008). Moreover, the E-views software has a range of advanced tool for panel analysis that a researcher needs to organize and manage their data and then obtain and analyze statistical results).

### **3.9. Variable definition and Measurements**

This section explains the variables used as dependent and independent (explanatory) variables in this study. The definitions/measurements used for these variables are described and summarized under the following table.

#### **A. Dependent Variable**

Return on Asset (ROA) measures how well the institution uses all its assets. It is also an overall measure of profitability which reflects both the profit margin and the efficiency of the institutions (AEMFI, 2013). Return on Asset (ROA) was applied as the dependent variables because the Microfinance Financial Reporting Standards recommends the use of ROA and ROE as measures of profitability rather than financial self-sufficiency (FSS) and operational self-sufficiency (OSS) (Muriu, 2011). ROA may be biased due to off balance-sheet items; It can however be argued that such activities may be negligible in MFIs. The ROA reflects the ability of MFI's management to generate profits from the MFI's assets. It shows the profits earned per birr of assets and indicates how effectively the MFIs assets are managed to generate revenues. In Banks and other commercial institutions, the most common measure of profitability is return on asset (ROA) for instance (Abate, 2012), (Sima, 2013). According to yonas, (2012) which is done in the banking sector profitability, using return on equity has its own limitation than using return on asset. Among the limitation the study point out that, timing problem (it is believed that Managers should be forward looking but ROE is precisely the opposite: Because they focused on a single period. The risk period, ROE will not tell a company or a firm about what risks a company has taken to generate it. The Value period ROE measures the return on shareholders' investment only by using Book Value of shareholders equity not the market value. Therefore based on the above rationality this study was used ROA as the proxy for financial performance.

Return on Asset =  $\frac{\text{Net Profit After tax}}{\text{Average Total Assets}}$

## **B. Independent Variable**

To measure the predictor variables of financial performance of MFIs in Ethiopia, six measures were used as independent variables which were extracted from different studies. The variables namely, Non-performing Loans, Loan loss provision, Cost per loan asset, Credit to deposit ratio, Capital Adequacy and Firm Size. The existing literature provides evidence that suggests a strong association between financial performance and several MFIS specific variables.

**Non-performing Loans (NPL):** Non-performing loans means loans & advances whose credit quality has deteriorated such that full collection of principal and/or interest in accordance with the contractual repayment term of the loan or advance is in question (NBE directive No SBB/43/2008). The rise of non-performing loan portfolios in banks significantly

contributed to financial distress in the banking sector. Non-performing loans are the main contributor to liquidity risk, which exposes banks to insufficient funds for operations. As loans & advances are the major portion of bank's asset, when they become non-performing, it will affect both profitability and liquidity of the bank.

For the purpose of this study, the proxy for non-performing loans is the share of non-performing loans on total volume of loans & advances. Based on prior studies, it is expected that there is a negative relationship between non-performing loans and liquidity of the bank and as a result the following hypothesis is drawn. The share of non-performing loans in the total volume of loans & advances has negative and significant impact on MFIs liquidity.

$$\text{NPL Ratio} = \text{NPLs} / \text{Gross Loan}$$

**Loan loss provision (LLP)** is that cost allocated for unrecovered debts and loan instalments. LLP covers significant loan losses like customer defaults and bad loans. Financial institutions with anticipation of high equity losses may give higher provisions to loan loss in order to minimize returns fluctuations and build up their solvency (Ahmad, Takeda & Thomas, 2010).

A study by Mendoza and Rivera (2017) conducted a secondary data based on quantitative approach of 576 rural banks on the relationship between loan loss provision ratio proliferation and financial performance. The study observed loan loss provision ratio proliferation negatively affected financial performance of financial firms. The authors advised much importance be placed on the lender's role in ensuring good decisions relating to the granting of loans in order to minimize credit risk.

Study by Muriithi, Waweru and Muturi (2016) aimed at assessing the effect of credit risk on financial performance of 43 commercial banks in Kenya for a period between 2005 and 2014. Credit risk was measured by capital to risk weighted assets, loan and advances ratios, assets quality and loan loss provision while financial performance was computed by ROE. Using panel data technique, the study indicated that credit risk has a negative and significant relationship with bank profitability, further the study showed poor asset quality to total asset relates to poor bank performance both in short and long run.

$$\text{LLP ratio} = (\text{LLP}) / (\text{LA})$$

**Cost per loan asset (CLA)** is average cost per loan disbursed to borrowers and is denoted by dividing total operating costs by total loans amounts. There are mixed results from the empirical studies on the effect of cost per loan asset (CLA) on financial institution profitability. Using pooled data for 14 commercial banks in Nepal, Bhattarai (2016) examined the effect of NPLs on the profitability of commercial banks for the period 2010 to 2015. NPL was measured by NPLR and cost per loan asset ratio, performance on the other hand was measured by ROA and ROE, while firm size, GDP growth rate and inflation rate formed the control variables.

Using panel data estimation techniques, the study indicated NPL has a negative effect measured by ROA whereas NPLs has a positive effect measured by shareholders returns-ROE. Moreover, cost per loan asset has a positive significant association with bank profitability as measured by ROA. However, this study was carried in Nepalese context with a varied regulatory, cultural and economics set up; the current study will use ROA to measure performance of MFIs in Ethiopia.

A study to investigate on the impacts of credit risk management on the financial performance of commercial banks in Kenya by cost per loan asset (CLA) and capital adequacy ratio (CAR) influence profitability measured by ROA. Using least square regression technique, the study findings established that CRM measured by default rate, cost per loan asset and capital adequacy ratios have significant positive effect on profitability of Nigerian banks. Musyoki and Kadubo (2012), ten banks were sampled for a period of 7 years (2000-2006). Default rate, bad debt cost and cost per loan asset were used as proxies to CRM, whereas profitability was computed by ROA .Using data techniques, the results revealed that all the parameters (default rate, bad debt cost and cost per loan asset) have statistically and negative impact on financial performance of banks with default rate being major predictor of banks financial performance.

**CPLA ratio = Operating cost during period/Total no. of loan disbursed during period**

**Credit to deposit ratio (CDR)** is used frequently as statistical way to measure liquidity in a financial institution. A study by Patil (2018) interested with audit risk on public and private banks performance used panel data of 40 commercial banks (24 public and 16 private) for a period of 16 years (2000-2015). Gross non-performing asset ratio, loan loss allowance to total advances, credit to deposit ratio and loan loss advances to assets were the proxy for credit

risk whereas deposits and bank size measured by natural logarithm of assets formed the control variables. ROA, ROE, and NIM were used for measure performance.

Using data technique, the study revealed a positive and significant relationship between loan loss allowance and ROE, ROA and NIM. Similarly, credit to deposit ratio positively influenced the banks performance measured in all the parameters. However, loan loss allowance to non-performing assets inversely and significantly influences all the 3 performance indicators.

$$\text{CDR} = \text{Total advances} / \text{Total deposits} * 100\%$$

**Firm Size** refers to the overall scale or magnitude of a company's operations, usually measured by factors such as revenue, market share, and number of employees or assets under management. It indicates the capacity and reach of a firm in terms of its ability to produce goods or services, employ people, generate revenue, and compete within its industry.

**Capital Adequacy** refers to the financial condition and strength of a company in terms of its ability to meet its financial obligations and withstand potential losses or risks. It measures the adequacy of capital or funds held by a firm to cover potential losses and support its on-going operations. Capital adequacy ratios are commonly used to assess a company's ability to absorb losses and maintain financial stability, particularly in the banking and financial industries, where regulatory requirements are in place to ensure institutions have sufficient capital to withstand economic downturns or financial shocks.

### **3.10. Method of Data Analysis**

Data analysis is the mathematical treatment of quantitative and/or qualitative data so as to obtain the desired statistical measurements. According to Zikmund et al. (2010), data analysis refers to the application of reasoning to understand the data that has been gathered with the aim of determining cons investigation. It is extracting significant variables and detecting anomalies and testing any assumptions (Kombo & Tromp, 2009).

Data analysis procedures was included; determination of descriptive statistics, statistical modelling and statistical inference. Collectively, these statistical procedures was enable the analyst to establish the various characteristics of data, and the relationships between variables so as to be able develop statistically significant relationship and forecasting models.

Essentially, this was culminates in drawing of valid conclusions and meaningful recommendations.

Data collected was cleaned, coded and analysed through the aid of E-views 10 to produce data output for interpretation. Specifically, the researcher was used descriptive statistics to determine non-performing loan ratio, loan loss provision ratio, cost to asset ratio and credit to deposit ratio. The study was also use of regression analysis and correlation to determine the effect of NPLs on the financial performance of MFIs in Ethiopia. In order to conduct the regression analysis, the following model was instrumental. Data realized was presented in form of graphs and tables to ease understanding.

**Table 3.2: Summary of explanatory variables and their expected effect on Dependent variables**

Variable	Symbol	Measurement	Formula	Expected Effect
Non-Performing Loan	NPL	The share of Non-performing loans on total volume of loans	$NPL/TL$	Negative
Loan Loss Provision	LLP	The cost allocated for unrecovered debts and loan instalments.	$LLP/LA$	Negative
Cost per Loan Asset	CPL	The average cost per loan disbursed to borrowers	$Op.cost/Total\ no.of\ loan$	Positive
Credit to Deposit Ratio	CDR	To measure liquidity in a financial institution.	$Total\ advances/Total\ deposits*100\%$	Positive
Capital adequacy	CA	Total equity capital over total debt capital	$EC/DC$	Positive
Firm size	FS	Natural logarism of total asset	$Log\ of\ total\ asset$	Positive
Return on Asset	ROA	Net Income per Average Assets	$NI/TA$	

### 3.11. Model Specification

This section covers the operational panel fixed regression model (multiple regression models) that was used in the study. The multiple regression model used for this study to determine the factors affecting the financial performance of MFIs in Ethiopia is explained as follows. The

model is adopted from different studies conducted on the same area. The researcher was used Return on assets (ROA) (dependant variable) as a measure of MFIs profit performance and four predictor (Independent variables) will be chosen to be analysed.

Those chosen variables are Non-performing loan ratio, loan loss provision ratio, cost per asset; credit to deposit ratio, capital adequacy, and firm size were forming the independent variables. To conduct the regression analysis the following model will be conducted;

$$ROA_{it} = \beta_0 + \beta_1 * NPL_{it} + \beta_2 * LLP_{it} + \beta_3 * CPL_{it} + \beta_4 * CDR_{it} + \beta_5 * CA_{it} + \beta_6 * SIZE_{it} + \mu_{it}$$

Where  $\beta_1$  to  $\beta_6$  are the coefficients of the variables and  $\mu_{it}$  is the random error term.

**$\beta_1 - \beta_6$**  = Beta regression co-efficient of variables; measured the rate of change of dependent variable as a function of changes in the independent variable.

$\beta_0$  ; stands for the intercept term which varies across MFIs but constant over time

$NPL_{it}$ : stands for Nonperforming Loan for MFI  $i$  at time  $t$

$LLP_{it}$  : stands for Loan Loss Provision for MFI  $i$  at time  $t$

$CPL_{it}$  : stands for Cost per Loan Asset for MFI  $i$  at time  $t$

$CDR_{it}$  : stands for Credit to Deposit Ratio for MFI  $i$  at time  $t$

$CA_{it}$  : stands for Capital adequacy for MFI  $i$  at time  $t$

$SIZE_{it}$ : stands for size of micro finance for MFI  $i$  at time  $t$

$i$ =bank and  $t$ =time.

$\epsilon$  – Error term reflecting other factors that influence financial performance and are unexplained by the variables above.

# CHAPTER FOUR

## RESULT AND DISCUSSIONS

### 4.1. Introduction

Based on the potential of the researcher’s best effort, important theoretical and empirical literature relating to the topic were reviewed and used to identify knowledge gap on the study area. To meet the broad objective of the research and to test research hypotheses and the research design used also discussed in the preceding chapter. This chapter analyzes and presents the effect of loan delinquency on financial performance of 11 MFIs using the annual balanced panel data, where all the variables were observed for each cross-section and each time period. The study has a time series segment spanning from the period 2008 up to 2022 and a cross section segment which considered 11MFIs in Ethiopia. The results are presented in the form of summary tables and figure. Descriptive statistics, Correlation and Regression analysis are used to analyses the data to achieve the research objective and the findings were discussed.

### 4.2. Descriptive Statistics

This section presents the descriptive statistics of dependent and independent variables used in the study for the sampled microfinance institutions. The dependent variables used in this study were ROA while the independent variables were none performing loan, loan loss provision ratio, cost per asset ratio, credit to deposit ratio, capital adequacy and firm size. Table 4.1 demonstrates the mean, maximum and minimum values and standard deviation of the dependent and independent variables over the study period.

**Table4.1: Summary of descriptive statistics**

	ROA	NPL	LLP	CPL	CDR	CA	FS
Mean	0.0391	0.0061	3.1683	3.8845	5.1443	5.0382	4.2294
Maximum	0.0953	0.0572	11.875	11.875	8.2933	7.3849	7.3854
Minimum	0.0053	0.0012	1.1046	1.1046	1.1805	1.0556	0.2455
Std. Dev.	0.0275	0.0089	2.5401	2.5747	2.0796	2.2342	2.0258
Observations	154	154	154	154	154	154	154

Source: computed from E-views 10 results (2023)

To interpret the mean values of your independent variables and dependent variable, it is

important to consider the context. Return on Asset (ROA) - 0.0391: The mean value of the return on asset indicates that, on average, the microfinance institutions in Ethiopia are generating a return of 0.0391 for every unit of their assets.

This suggests that the institutions are able to efficiently utilize their assets to generate profits. Non-performing Loan (NPL) - 0.0061: The mean value of the non-performing loan indicates that, on average, the microfinance institutions in Ethiopia have a non-performing loan ratio of 0.0061. This suggests that a small portion of the loan portfolio is delinquent or defaulted, which implies some level of credit risk and potential financial losses.

Loan Loss Provision Ratio - 3.168344: The mean value of the loan loss provision ratio suggests that, on average, the microfinance institutions in Ethiopia set aside 3.1683 units of funds for every unit of loans issued. This indicates that the institutions are proactive in managing credit risk by allocating appropriate provisions for potential loan losses.

Cost per Asset Ratio - 3.8845: The mean value of the cost per asset ratio suggests that, on average, the microfinance institutions in Ethiopia incur 3.8845 units of costs for every unit of their assets. This ratio reflects the efficiency of cost management, where lower values indicate more efficient utilization of resources.

Credit to Deposit Ratio - 5.1443: The mean value of the credit to deposit ratio suggests that, on average, the microfinance institutions in Ethiopia extend credit of 5.1443 units for every unit of deposits held. This ratio reflects the level of lending activity compared to the deposit base, with higher values suggesting greater reliance on loans for funding.

Capital Adequacy - 0.0382: The mean value of the capital adequacy ratio indicates that, on average, the microfinance institutions in Ethiopia have a capital adequacy of 0.0382. This ratio measures the institutions' ability to absorb potential losses, with higher values indicating greater financial stability and resilience.

Firm Size - 0.2294: The mean value of the firm size suggests that, on average, the microfinance institutions in Ethiopia have a size of 0.2294 units. This variable represents the scale or magnitude of the institutions, where higher values indicate larger-sized institutions.

### **4.3. Testing OLS Assumptions**

In this part of the research paper, the linearity of the parameter is assumed since the model

applies linear ordinary least square (OLS). The objective of the model is to predict the strength and direction of association among the dependent and independent variables. Thus, in order to maintain the validity and robustness of the regression result of the research in CLRM, it is better to satisfy basic econometric assumption of CLRM. When these assumptions are satisfied, it is considered as all available information is used in the model. However, if these assumptions are violated, there will be data that left out of the model (Brooks, 2008).

Before going further in to panel data econometric procedures, diagnostic tests were undertaken to ensure that the assumptions of classical linear regression model were fulfilled or not, the coefficient estimators of both  $\alpha$  (constant term) and  $\beta$  (independent variables) that are determined by ordinary least square (OLS) have a number of desirable properties and usually known as Best Linear Unbiased Estimators (BLUE). Hence, the following sections discuss results of the diagnostic tests (i.e., normality, autocorrelation, multicollinearity, heteroscedasticity) that were conducted to ensure whether the data fits the basic assumptions of classical linear regression model or not.

#### **4.3.1. Test for Normality**

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. Therefore, since the constant term (i.e.  $\alpha$ ) was included in the regression equation, the average value of the error term in this study was expected to be zero. The Classical Linear Regression Model (CLRM) assumes that the error term is normally distributed with the mean of error being zero as positive error will offset the negative error. According to (Brooks, 2008), in order to conduct single or joint hypothesis tests about the model parameter, the normality assumption ( $u_t \sim N(0, \sigma^2)$ ) (i.e. the errors are normally distributed) must be fulfilled. In this study, the normality of the data was checked with the popular Jarque-Bera test statistic. If the residuals are normally distributed, the Jarque-Bera statistic would not be significant at 5 percent significant level meaning disturbance to be normally distributed around the mean. This means that the  $p$ -value given at the bottom of the normality test screen should be bigger than 0.05 to not reject the null hypothesis of normality at 5 percent significant level. Jarque-Bera also formalized this by testing the residuals for normality and testing whether the coefficient of skewedness and kurtosis are

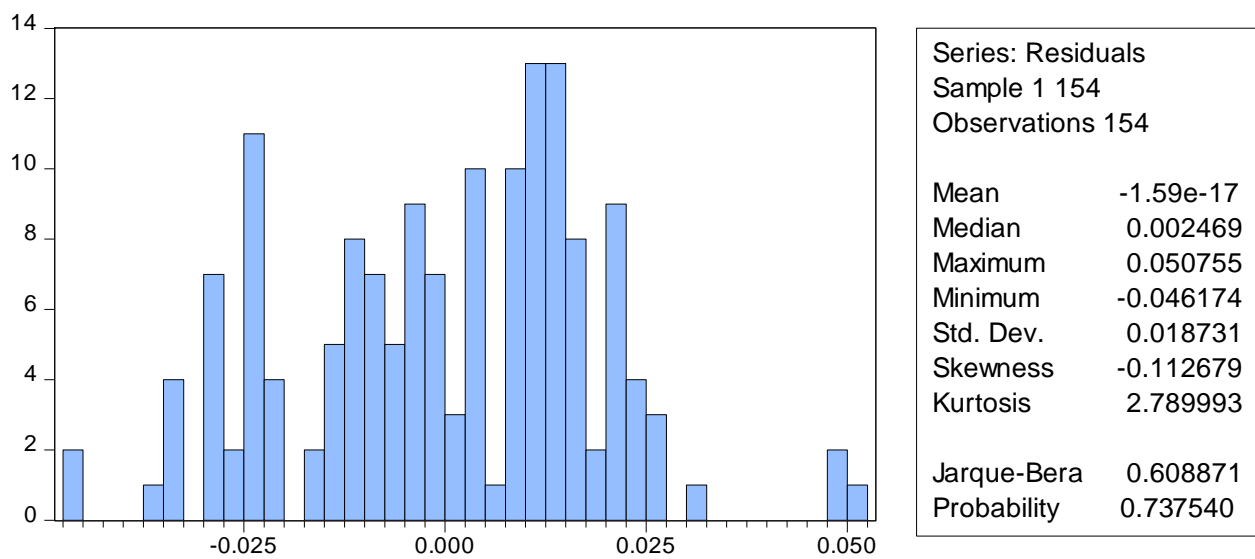
close to zero and three respectively. The hypotheses for the normality test were formulated as follow:

H<sub>0</sub>: Error term is normally distributed

H<sub>1</sub>: Error term is not normally distributed

Decision Rule: Reject H<sub>0</sub>, if P-value less than significant level 0.05. Otherwise, do not reject.

**Figure 4.1: Normality test for residuals of ROA model**



Source: Computed from E-views 10 result (2023)

The normality test result of ROA model in figure 4.1 above shows, the histogram was bell-shaped and the Jarque -Bera statistic has a P-value of (0.737) implies that the p-value for the Jarque-Bera test for this models is greater than 0.05. So, the result indicates that the errors were normally distributed and there was no problem of normality on the LRQ model. Based on the statistical result, the study failed to reject the null hypothesis of normality at the 5 percent significance level.

#### 4.3.2. Test for Heteroscedasticity; $\text{var}(ut) = \sigma^2 < \infty$

Among the OLS assumptions, one of the diagnostic tests conducted in this study is heteroscedasticity test. This theoretically expressed as by Brooks (2008, p.133) ‘ $\text{var}(ut) = \sigma^2$ ’; it has been assumed that the variance of the errors is constant,  $\sigma^2$ . In the classical linear

regression model, one of the basic assumptions is Homoscedasticity assumption that states as the probability distribution of the disturbance term remains same for all observations. That is the variance of each  $u_t$  is the same for all values of the explanatory variable. However, if the disturbance terms do not have the same variance, this condition of non-constant variance or non-homogeneity of variance is known as heteroscedasticity. Accordingly, in order to detect the heteroscedasticity problems, Breusch-Pagan test was utilized in this study. This test states that if the p-value is significant at 95 confidence interval, the data has Heteroscedasticity problem, whereas if the value is insignificant (greater than 0.05), the data has no Heteroscedasticity problem. It is hypothesized that as follows;

Ho: There is no Heteroscedasticity problem

Ha: There is Heteroscedasticity problem

Decision Rule: Reject  $H_0$ , if P-value less than significant level 0.05. Otherwise, do not reject.

**Table 4.2: Heteroscedasticity test for ROA**

Heteroskedasticity Test: ARCH			p-value
F-statistic	0.368017	Prob. F(1,151)	0.5450
Obs*R-squared	0.371985	Prob. Chi-Square(1)	0.5419

Source: computed from E-views 10 results (2023)

Accordingly, table 2 above shows that, both the F-statistic and Chi-square tests give the same conclusion that there was no significant evidence for the presence of Heteroscedasticity in LRQ model. Since the p-values in all of the cases were above 0.05, the null hypothesis of there is no Heteroscedasticity problem is failed to reject at 5 percent significant level.

#### **4.3.3. Test for Auto correlation; $cov(u_i, u_j) = 0$ for $i = j$**

The third assumption made for the CLRM's disturbance terms is that the covariance between the error terms over time is zero. In other words, it is assumed that the errors are uncorrelated with one another. If the errors are correlated with one another, it would be stated that they are 'auto-correlated' or that they are 'serially correlated. According to (Brooks, 2008), when the error term for any observation is related to the error term of other observation, it indicates that autocorrelation problem exist in the model. In the case of autocorrelation problem, the

estimated parameters can still remain unbiased and consistent, but it is inefficient. The result of t-test, F-test or the confidence interval will become invalid due to the variances of estimators tend to be underestimated or overestimated. Due to the invalid hypothesis testing, it may lead to misleading results on the significance of parameters in the model. Breusch-Godfrey Serial Correlation LM Test was used in this study to detect the autocorrelation problem. It is hypothesized that as follows;

Ho: no serial correlation

H1: presence of serial correlation

Decision Rule: Reject  $H_0$ , if P-value less than significant level 0.05. Otherwise, do not reject

**Table 4.3: Test for serial correlation of ROA model**

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.494339	Prob. F(100,47)	0.0632
Obs*R-squared	117.1530	Prob. Chi-Square(100)	0.1158

Source: computed from E-views 10 results (2023)

As it can be seen from the above tables 3, the P-value of both F-statistic and Chi-Square for ROA model were (0.0632) and (0.1158) respectively, which were greater than the significance level of 5 percent. Hence, the null hypothesis of no serial correlation is failed to reject at 5 percent of significant level, the result supports the absence of serial correlation in this model. Therefore, it can be concluded that, the covariance between residuals is zero and absence of serial correlation problem was found conclusively from the LM tests.

#### 4.3.4 Correlation Analysis among Variables

According to (Brooks, 2008), Correlation between two variables measures the degree of linear association between them. To find the association of the independent variables with the dependent variable Pearson product moment of correlation coefficient was used. Values of the correlation coefficient between two variables are always ranged from positive one to negative one. A correlation coefficient of positive one indicates that a perfect positive association between the two variables; while a correlation coefficient of negative one indicates that a perfect negative association between the two variables. A correlation coefficient of zero, on the other hand, indicates that there is no linear relationship between the two variables. As noted in (Brooks, 2008), if it is stated that Y and X are correlated, it means that Y and X are being treated in a completely symmetrical way. Thus, it is not implied that

changes in X cause changes in Y, or indeed that changes in Y cause changes in X rather, it is simply stated that there is evidence for a linear relationship between the two variables, and that movement in the two variables are on average related to an extent given by the correlation coefficient.

The following tables shows the result of correlation analysis to determine the relationship between dependent variable (ROA) and Non-performing loan ratio, loan loss provision ratio, cost per asset, credit to deposit ratio, capital adequacy, and firm size.

**Table 4.4: Correlation matrix of Variables**

	ROA	NPL	LLP	CPL	CDR	CA1	FS
ROA	1						
NPL	-0.0666	1					
LLP	-0.5280	-0.1483	1				
CPL	-0.2261	-0.1670	0.47647	1			
CDR	-0.1592	0.0485	-0.5004	-0.1723	1		
CA1	0.5746	0.1614	-0.7625	-0.3107	0.6863	1	
FS	0.4165	0.0722	-0.4570	-0.2476	0.4844	0.4854	1

Source: Computed from E-views 10 result (2023)

Based on the correlation coefficient values provided, here is the interpretation of each relationship between ROA and the independent variables:

Non-performing loan (-0.0666): There is a weak negative relationship between ROA and non-performing loans. This suggests that as the percentage of non-performing loans increases, the financial performance of microfinance institutions, as measured by ROA, slightly decreases.

Loan loss provision ratio (-0.52800): There is a moderate negative relationship between ROA and the loan loss provision ratio. This implies that as the loan loss provision ratio increases, indicating higher provisions for potential loan losses, the financial performance of microfinance institutions, as measured by ROA, tends to decrease.

Cost per asset ratio (-0.2261): There is a weak negative relationship between ROA and the cost per asset ratio. This indicates that as the cost per asset ratio increases, implying higher operating expenses relative to the total assets, the financial performance of microfinance

institutions, as measured by ROA, slightly decreases.

Credit to deposit ratio (-0.1592): There is a weak negative relationship between ROA and the credit to deposit ratio. This suggests that as the credit to deposit ratio increases, indicating higher loan portfolio relative to deposits, the financial performance of microfinance institutions, as measured by ROA, slightly decreases.

Capital adequacy (0.5746): There is a moderate positive relationship between ROA and capital adequacy. This implies that as the level of capital adequacy increases, indicating a better ability to absorb potential losses, the financial performance of microfinance institutions, as measured by ROA, tends to improve.

Firm size (0.4165): There is a moderate positive relationship between ROA and firm size. This suggests that as the firm size increases, implying larger scale operations, the financial performance of microfinance institutions, as measured by ROA, tends to improve.

It is important to note that correlation coefficients only measure the linear relationship between variables and do not imply causation. Further analysis and other factors should be considered to establish a more comprehensive understanding of the relationship between ROA and the independent variables.

The result of the above correlation matrix shows that the highest correlation coefficient was (-0.7625) which is between loan loss provision and capital adequacy Margaritis (2010), and Hair, (2006) argued that correlation coefficient below 0.9 may not cause serious multicollinearity problem, it is conclude that there was no serious of multicollinearity problem in this study and adding or removing a variable from a regression equation would not cause the values of the coefficients on the other variables to change

#### **4.4. Results of Regression Analysis**

Regression analysis is a statistical technique that aims to understand the relationship between a dependent variable and one or more independent variables. It involves fitting a regression model that best represents the data and then makes predictions or estimates about the dependent variable based on the values of the independent variables. The primary goal of regression analysis is to uncover the nature and strength of the relationship between variables, allowing researchers to explore cause-and-effect relationships, make predictions, and

evaluate the impact of certain factors. By analyzing the regression coefficients and evaluating the statistical significance, researchers can draw conclusions about the relationships, identify influential variables, and assess the model's predictive power.

<b>Table 4.5: Regression results</b>				
Dependent Variable: ROA				
Method: Least Squares				
Date: 12/29/23 Time: 22:13				
Sample: 1 154				
Included observations: 154				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
NPL	-0.614552	0.177594	-3.460434	0.0007
LLP	-0.001620	0.001030	-1.572736	0.1179
CPL	0.000157	0.000693	0.226427	0.8212
CDR	-0.007161	0.001061	-6.748822	0.0000
CA	0.009098	0.001288	7.061950	0.0000
FS	0.003678	0.000914	4.024155	0.0001
C	0.022893	0.008717	2.626280	0.0095
R-squared				
R-squared		0.538759	Mean dependent var	0.039160
Adjusted R-squared		0.519932	S.D. dependent var	0.027580
S.E. of regression		0.019109	Akaike info criterion	-5.032904
Sum squared resid		0.053679	Schwarz criterion	-4.894861
Log likelihood		394.5336	Hannan-Quinn criter.	-4.976832
F-statistic		28.61752	Durbin-Watson stat	1.371079
Prob(F-statistic)		0.000000		

*The Analysis made based on 1(\*\*\*), 5(\*\*) & 10(\*) percent significant level.*

Source: Computed from E-views 10 result (2023)

The estimation result of the OLS model used in this study was presented in table 4 above. R-squared was measured the goodness of fit of the explanatory variables in explaining the variations in financial performance of microfinance institutions measured by ROA. As shown in the table above, R-squared value was 53.87. The result indicates that 53.87 percent variation in the dependent variable was explained by the explanatory variables in the model.

That means the explanatory variables the 6 independent variables with regression coefficient are None performing loan, loan loss provision ratio, cost per asset ratio, credit to deposit ratio,

capital adequacy and firm size are jointly explain about 53.87 percent of the variation in the return on asset. The remaining 47.13 percent of the variation in the financial performance (as measured by return on asset) explained by other variables which are not included in the model.

For panel data R2 greater than 20 percent is still large enough for reliable conclusion (Cameron, 2009 and Hsiao, 2009) cited in (Nyamsogoro, 2010). Since the R2 and Adjusted-R2 of the model was more than 20 percent, these variables jointly have more explanatory power of the variation in the financial performance of microfinance institutions in the study period. From table 8 above, the researcher found the following estimated regression equation;

$$\text{ROA} = -0.6145*\text{NPL} - 0.0016*\text{LLP} + 0.0001*\text{CPL} - 0.0071*\text{CDR} + 0.0090*\text{CA} + 0.0036*\text{FS} + 0.0228$$

Beside this, F- statistics (28.6175) which is used to test the overall significance of the model was presented, and null hypothesis can be clearly rejected at 1 percent level of significant, since the p-value was (0.0000) which was sufficiently low, indicates the reliability and validity of the model at 1 percent level of significance.

To give an interpretation of the mean value for each variable, we would need information on the range or distribution of the variables. However, assuming that the variables are continuous and normally distributed, we can provide a general interpretation. The given equation shows the relationship between Return on Assets (ROA) and various independent variables. The coefficients before each variable indicate the impact of that variable on ROA.

Nonperforming loan (NPL) is statistically significant and has a negative coefficient of -0.6145. This suggests that an increase in nonperforming loans will lead to a decrease in ROA.

Loan loss provision ratio (LLP) is not statistically significant and has a coefficient of -0.0016. This implies that changes in the loan loss provision ratio do not have a significant impact on ROA.

Cost per asset ratio (CPL) is also not statistically significant and has a coefficient of 0.0001. Therefore, changes in the cost per asset ratio are not likely to have a significant effect on ROA.

Credit to deposit ratio (CDR) is statistically significant and has a negative coefficient of -0.0071. This suggests that a higher credit to deposit ratio is associated with a decrease in

ROA.

Capital adequacy (CA) is statistically significant and has a positive coefficient of 0.0090. This indicates that higher capital adequacy is associated with an increase in ROA.

Firm size (FS) is also statistically significant and has a positive coefficient of 0.0036. This suggests that larger firms tend to have higher ROA.

Overall, the statistically significant variables of nonperforming loan, credit to deposit ratio, capital adequacy, and firm size have significant impacts on ROA. These findings can help researchers or analysts understand the factors that affect ROA and can guide decision-making in managing a company's financial performance.

#### **4.5 .Discussion of Results**

Based on the given regression results, several variables have been found to be statistically significant in determining the return on assets (ROA) of the entity in question. Nonperforming loan (NPL), credit to deposit ratio (CDR), capital adequacy (CA), and firm size (FS) are all found to be statistically significant variables affecting ROA.

The negative relationship between nonperforming loan and ROA suggests that an increase in nonperforming loans would lower the entity's return on assets. This finding is in line with prior research Boahene, S. H., Dasah, J., & Agyei, S. K. (2012) and theoretical expectations, as nonperforming loans indicate higher credit risk and potential losses for the entity, leading to a decline in profitability. Hence, hypothesis one was accepted.

Similarly, the negative coefficient on credit to deposit ratio indicates that a higher credit to deposit ratio is associated with a lower ROA. This result can be attributed to the higher risk inherent in a higher ratio, as it indicates a greater reliance on credit for funding rather than deposits. Previous study of Kurawa & Garba (2014) has also shown that a higher credit to deposit ratio is associated with increased risk and a potential decline in profitability. Hence H 4 was accepted by researcher.

On the other hand, the positive coefficients on Capital adequacy and Firm Size indicate that higher levels of capital adequacy and firm size are associated with higher ROA. These findings align with prior research (Panta, 2018; Bhattarai, 2016), as larger and well-

capitalized entities tend to have better access to resources and a lower risk of financial distress, resulting in improved profitability. Hence H5 and 6 was accepted by researcher.

In contrast, the loan loss provision ratio (LLP) and cost per asset ratio (CPL) were found to be not statistically significant in determining ROA. This suggests that changes in these variables do not have a significant impact on the entity's return on assets. It is important to note that these results may differ from prior research, as the significance of these variables in determining ROA could be context-specific or subject to variations across different industries or time periods. Hence H2 and 3 were not accepted by researcher.

Overall, the findings of this analysis support prior research and theoretical expectations regarding the impact of nonperforming loans, credit risk, capital adequacy, and firm size on the return on assets of banks or financial institutions. However, the non-significance of LLP and CPL highlights the need for further investigation and consideration of other factors that may influence ROA.

#### 4.6. Summary of Results

**Table 4.6: Summary of Hypothesis**

<b>Relation with ROA</b>	<b>Expected</b>	<b>Actual impact</b>	<b>Decision</b>
<b>Non -Performing Loan</b>	<b>H1: -VE &amp; significant</b>	<b>-VE &amp; significant</b>	<b>Accepted</b>
<b>Lon loss provision ratio</b>	<b>H3: -VE &amp; significant</b>	<b>-VE &amp; insignificant</b>	<b>Not Accepted</b>
<b>Cost per asset ratio</b>	<b>H3: +VE &amp; significant</b>	<b>+VE &amp; insignificant</b>	<b>Not accepted.</b>
<b>Credit to deposit ratio</b>	<b>H4: -VE &amp; significant</b>	<b>-VE &amp; significant</b>	<b>Accepted</b>
<b>Capital Adequacy</b>	<b>H5: +VE &amp; significant</b>	<b>+VE &amp; significant</b>	<b>Accepted</b>
<b>Firm size</b>	<b>H6: +VE &amp; significant</b>	<b>+VE &amp; significant</b>	<b>Accepted</b>

Source: computed from E-views 10 result (2023)

# **CHAPTER FIVE**

## **SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

### **5.1.Introduction**

This chapter presents, summary of findings and conclusions drawn and possible recommendations forwarded. Accordingly, the first section presents the summary of findings, the second section presents conclusions based up on the findings, the third section presents the possible recommendations aimed at achieving good financial performance of private commercial banks and finally the fourth section presents suggested areas of further research.

### **5.2.Summary of Findings**

This study was conducted for the purpose of analysing the effect of loan delinquency on financial performance of 11 MFIs in Ethiopia. In doing so, previous studies on effect of loan delinquency been reviewed and the summary of the studies shows that; liquidity risk was usually expressed as a function of firm related factors and macroeconomic related factors. Empirical results from previous studies conclude that effect of loan delinquency explains a large proportion over the period of 2008-2022.

The study has been adopted explanatory research design and quantitative research approach to realize the stated objective. This study has been taken 11 MFIs currently operating in Ethiopia through purposive sampling method. The secondary data related to mainly obtained from concerned government bodies (national bank of Ethiopia).

Before making regression analysis, the study goes through all diagnostic tests (i.e. normality, heteroscedasticity, autocorrelation and multicollinearity) for the classical linear regression model. The assumptions needed to be fulfilled for OLS were tested; the data was found to be homoscedastic, free of autocorrelation, free of multi-collinearity and normally distributed. Then, the data were analyzed using descriptive statistics and multiple linear regressions to measure the effect of loan delinquency on financial performance quantitatively and the study used E-views 10 software to support the regression analysis.

The regression result indicates that 53.87 percent variation in the dependent variable was explained by the explanatory variables in the model. That means the explanatory variables

(None Performing Loan, Loan Loss Provision Ratio, Cost Per Asset Ratio, Credit To Deposit Ratio, Capital Adequacy And Firm Size) are jointly explain about 53.87 percent of the variation in the financial performance.

The remaining 46.13 percent of the variation in the liquidity risk was explained by other variables which are not included in the model.

The F- statistics (28.5334) which is used to test the overall significance of the model was presented, and null hypothesis can be clearly rejected at 1 percent level of significant, since the p-value was (0.0000) which was sufficiently low, indicates the reliability and validity of the model at 1 percent level of significance. To give an interpretation of the mean value for each variable, we would need information on the range or distribution of the variables. However, assuming that the variables are continuous and normally distributed, we can provide a general interpretation.

The relationship between Return on Assets (ROA) and various independent variables were discussed in this study. The coefficients before each variable indicate the impact of that variable on ROA.

Nonperforming loan (NPL) is statistically significant and has a negative coefficient of - 0.6145. This suggests that an increase in nonperforming loans will lead to a decrease in ROA.

Loan loss provision ratio (LLP) is not statistically significant and has a coefficient of -0.0016. This implies that changes in the loan loss provision ratio do not have a significant impact on ROA.

Cost per asset ratio (CPL) is also not statistically significant and has a coefficient of 0.0001. Therefore, changes in the cost per asset ratio are not likely to have a significant effect on ROA.

Credit to deposit ratio (CDR) is statistically significant and has a negative coefficient of - 0.0071. This suggests that a higher credit to deposit ratio is associated with a decrease in ROA.

Capital adequacy (CA) is statistically significant and has a positive coefficient of 0.0090. This indicates that higher capital adequacy is associated with an increase in ROA.

Firm size (FS) is also statistically significant and has a positive coefficient of 0.0036. This

suggests that larger firms tend to have higher ROA.

Overall, the statistically significant variables of nonperforming loan, credit to deposit ratio, capital adequacy, and firm size have significant impacts on ROA. These findings can help researchers or analysts understand the factors that affect ROA and can guide decision-making in managing a company's financial performance.

### **5.3. Conclusions**

Based on the findings from the descriptive analysis, the researcher can conclude that microfinance institutions were averagely generating positive ROA. Based on the findings from the regression analysis of the model, the researcher concludes that financial performance of microfinance institutions was best explained by the explanatory variables included in the model. Based on the analysis of the effect of loan delinquency on financial performance in Ethiopian microfinance institutions from 2008 to 2022, the following conclusions can be drawn:

**Non-Performing Loan (NPL):** The non-performing loan ratio has a negative and statistically significant relationship with profitability. This indicates that a higher NPL ratio increases liquidity risk while reducing the financial performance. Hence, it is crucial for microfinance institutions to effectively manage their loan portfolios, reduce default rates, and improve asset quality to mitigate loan delinquency.

**Loan loss provision ratio:** The Loan loss provision ratio does not have a statistically significant impact on profitability. This implies that changes in the interest rate charged by microfinance institutions do not influence their ROA directly. However, it should be noted that interest rate fluctuations can indirectly impact financial performance through their effects on borrower behaviour and loan repayment capability.

**Cost per asset ratio:** The cost of fund (Cost per asset ratio) does not have a statistically significant impact on profitability. This implies that changes in cost charged by microfinance institutions do not influence their ROA directly.

**Credit to deposit ratio:** Credit to deposit ratio has a negative and statistically significant relationship with ROA. The negative coefficient on credit to deposit ratio (CDR) is in line with prior research. A higher CDR indicates a greater reliance on credit for funding and is associated with increased risk and potentially lower profitability. This result is consistent

with previous studies that have also found a negative relationship between CDR and ROA.

Capital Adequacy Ratio (CAR): The capital adequacy ratio has a positive and statistically significant impact on ROA. This suggests that higher capitalization levels can help to improve profitability in microfinance institutions. Therefore, it is recommended for microfinance institutions to maintain sufficient capital to enhance their profitability position.

Firm size has a positive and statistically significant relationship with financial performance. Higher firm size increases profitability for microfinance institutions. Therefore, it is recommended for these institutions to attract stable and diverse sources of deposits to strengthen their profitability. The return on asset has a positive and statistically significant impact on firm size and capital adequacy. Therefore, microfinance institutions should focus on improving their profitability by enhancing operational efficiency and diversifying revenue sources to mitigate loan delinquency.

#### **5.4.Recommendations**

Based on the regression coefficients and statistical significance of the independent variables, the following recommendations can be made regarding the effect of loan delinquency on financial performance in Ethiopian microfinance institutions: The findings from the regression analysis align with prior research on the determinants of return on assets (ROA) in the entity in question.

The negative relationship between nonperforming loans (NPL) and ROA is consistent with theoretical expectations, as NPLs indicate higher credit risk and potential losses. This finding is supported by previous studies that have also shown a negative association between NPL and profitability. The MFIs should work on minimizing the nonperforming loans in order to improve the profitability.

Similarly, the negative coefficient on credit to deposit ratio (CDR) is in line with prior research. A higher CDR indicates a greater reliance on credit for funding and is associated with increased risk and potentially lower profitability. This result is consistent with previous studies that have also found a negative relationship between CDR and ROA. The MFIs should work on minimizing the credit to deposit ratio in order to improve the profitability.

The positive coefficients on capital adequacy (CA) and firm size (FS) are also in line with prior research. Larger and well-capitalized entities often have better access to resources and are more resilient to financial distress, leading to improved profitability. These findings are consistent with prior studies that have found a positive association between CA, FS, and ROA. The MFIs should work on maximizing the capital adequacy (CA) and firm size (FS) in order to improve the profitability.

In contrast, the loan loss provision ratio (LLP) and cost per asset ratio (CPL) were found to be not statistically significant in determining ROA. These results may differ from prior research, suggesting that the significance of these variables in determining ROA could be context-specific or subject to variations across different industries or time periods.

## **5.6. Based On The Research Findings, The Following Recommendations**

### **Can Be Made:**

1. Focus on reducing nonperforming loans (NPL): Given the negative relationship between NPL and ROA, it is important for the entity to prioritize measures that can effectively manage and reduce NPLs. This can include improving credit risk assessment and monitoring practices, implementing stricter loan underwriting standards, and actively managing nonperforming assets.
2. Control credit to deposit ratio (CDR): The negative coefficient on CDR suggests that a higher reliance on credit for funding can negatively impact profitability. It is recommended for the entity to carefully manage its CDR, ensuring that it is within acceptable limits to mitigate the associated risks. This can involve diversifying funding sources, optimizing deposit mobilization strategies, and maintaining prudent credit portfolio management practices.
3. Strengthen capital adequacy and increase firm size: The positive coefficients on capital adequacy (CA) and firm size (FS) indicate their positive influence on ROA. It is advisable for the entity to focus on maintaining or increasing its capital adequacy ratio, which can be achieved through capital injections, improved earnings retention, or strategic partnerships. Additionally, efforts should be made to expand the entity's business operations to enhance firm size, as this can contribute to better access to resources and improved profitability.
4. Context-specific analysis of loan loss provision ratio (LLP) and cost per asset ratio (CPL):

The insignificance of LLP and CPL in determining ROA suggests that their impact may vary in different contexts or industries. Further studies are recommended to explore the specific factors that contribute to the variability of their relationship with ROA in the entity in question. This can involve analyzing industry-specific dynamics, time period variations, or specific management practices that may influence the significance of these variables.

Overall, these recommendations highlight the importance of effectively managing nonperforming loans, controlling credit to deposit ratio, strengthening capital adequacy, and considering the context-specific nature of loan loss provision ratio and cost per asset ratio in order to improve return on assets for the entity in question.

### **5.7.Suggestions for Further Research**

This study was not an end to itself. There are many issues that arise from the findings and may require further research in order to address them. For instance a future study can be carried out to establish the other factors that can explain 46.13 percent variation in the Loan delinquency regression model. And this study identifies only limited organization specific variables related MFIs of Ethiopia. Researchers can conduct further study by including more organization specific, industry specific and macroeconomic variables that affect the Loan delinquency of MFIs in Ethiopia. And they can be carried out by increasing the sample size by incorporating more MFIs. This same study may be replicated later in order to find out if the situation remain the same or there will be substantial changes. The future researchers can conduct at Africa and international level MFIs.

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## Appendix- Research Output

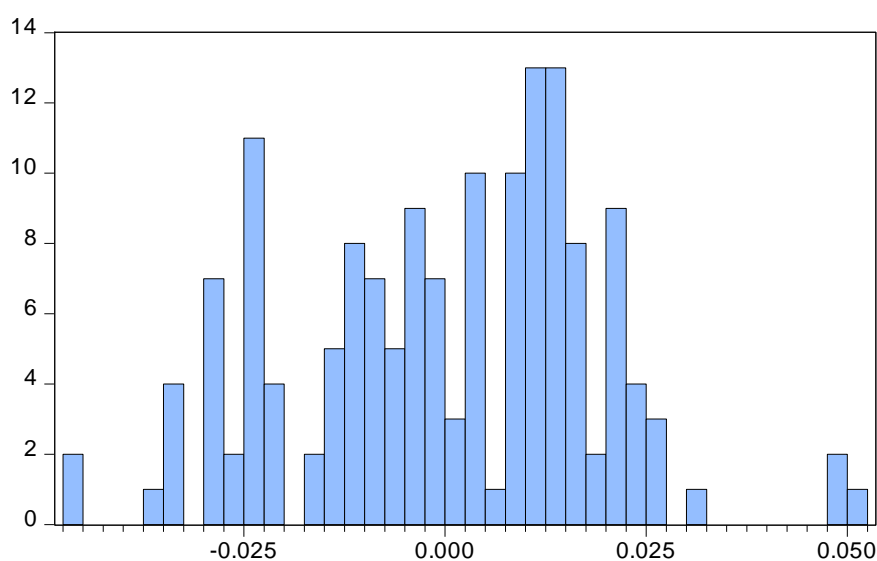
Dependent Variable: ROA  
 Method: Least Squares  
 Date: 12/29/23 Time: 22:13  
 Sample: 1 154  
 Included observations: 154

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NPL	-0.614552	0.177594	-3.460434	0.0007
LLP	-0.001620	0.001030	-1.572736	0.1179
CPL	0.000157	0.000693	0.226427	0.8212
CDR	-0.007161	0.001061	-6.748822	0.0000
CA	0.009098	0.001288	7.061950	0.0000
FS	0.003678	0.000914	4.024155	0.0001
C	0.022893	0.008717	2.626280	0.0095

R-squared	0.538759	Mean dependent var	0.039160
Adjusted R-squared	0.519932	S.D. dependent var	0.027580
S.E. of regression	0.019109	Akaike info criterion	-5.032904
Sum squared resid	0.053679	Schwarz criterion	-4.894861
Log likelihood	394.5336	Hannan-Quinn criter.	-4.976832
F-statistic	28.61752	Durbin-Watson stat	1.371079
Prob(F-statistic)	0.000000		

### OLS Assumptions



Series: Residuals	
Sample 1 154	
Observations 154	
Mean	-1.59e-17
Median	0.002469
Maximum	0.050755
Minimum	-0.046174
Std. Dev.	0.018731
Skewness	-0.112679
Kurtosis	2.789993
Jarque-Bera	0.608871
Probability	0.737540

### Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.494339	Prob. F(100,47)	0.0632
Obs*R-squared	117.1530	Prob. Chi-Square(100)	0.1158

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 12/29/23 Time: 02:59

Sample: 1 154

Included observations: 154

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BD	0.000726	0.001774	0.409366	0.6841
BS	-0.000192	0.001575	-0.121800	0.9036
CDR	0.000803	0.001633	0.491663	0.6252
CPL	-0.002623	0.001627	-1.611769	0.1137
LLP	0.002427	0.001763	1.376701	0.1751
NPL	-0.523725	0.309805	-1.690497	0.0976
C	-0.000461	0.008822	-0.052234	0.9586
RESID(-1)	0.304349	0.143730	2.117508	0.0395
RESID(-2)	0.231318	0.152166	1.520168	0.1352
RESID(-3)	0.000353	0.146250	0.002414	0.9981
RESID(-4)	-0.123871	0.147770	-0.838269	0.4061
RESID(-5)	-0.154056	0.149775	-1.028581	0.3089
RESID(-6)	0.104631	0.152826	0.684641	0.4969
RESID(-7)	-0.121261	0.148390	-0.817175	0.4180
RESID(-8)	-0.071375	0.153944	-0.463643	0.6450
RESID(-9)	0.123014	0.156690	0.785080	0.4363
RESID(-10)	0.017950	0.154563	0.116131	0.9080
RESID(-11)	-0.072030	0.151317	-0.476023	0.6363
RESID(-12)	-0.032355	0.163644	-0.197713	0.8441
RESID(-13)	-0.035345	0.162448	-0.217579	0.8287
RESID(-14)	0.104352	0.163103	0.639793	0.5254
RESID(-15)	-0.213483	0.160183	-1.332750	0.1890
RESID(-16)	-0.037592	0.160773	-0.233823	0.8161
RESID(-17)	-0.034311	0.154835	-0.221594	0.8256
RESID(-18)	0.003884	0.154401	0.025152	0.9800
RESID(-19)	-0.103893	0.161472	-0.643411	0.5231
RESID(-20)	0.213359	0.151888	1.404715	0.1667
RESID(-21)	-0.142168	0.167746	-0.847518	0.4010

RESID(-22)	-0.111405	0.175037	-0.636467	0.5276
RESID(-23)	-0.395252	0.175676	-2.249900	0.0292
RESID(-24)	0.084647	0.176401	0.479858	0.6336
RESID(-25)	0.054010	0.177761	0.303833	0.7626
RESID(-26)	-0.018838	0.174014	-0.108256	0.9143
RESID(-27)	-0.193788	0.178935	-1.083009	0.2843
RESID(-28)	-0.078503	0.173748	-0.451821	0.6535
RESID(-29)	-0.071878	0.175451	-0.409677	0.6839
RESID(-30)	-0.158920	0.177400	-0.895828	0.3749
RESID(-31)	-0.246606	0.178172	-1.384093	0.1729
RESID(-32)	0.043263	0.188395	0.229639	0.8194
RESID(-33)	-0.013023	0.172167	-0.075643	0.9400
RESID(-34)	0.524077	0.182259	2.875442	0.0060
RESID(-35)	-0.409132	0.194730	-2.101020	0.0410
RESID(-36)	-0.300817	0.213780	-1.407132	0.1660
RESID(-37)	0.191401	0.215158	0.889582	0.3782
RESID(-38)	-0.151754	0.209448	-0.724544	0.4723
RESID(-39)	0.172623	0.210781	0.818969	0.4169
RESID(-40)	-0.332639	0.212495	-1.565400	0.1242
RESID(-41)	-0.086548	0.212129	-0.407997	0.6851
RESID(-42)	0.154854	0.230271	0.672485	0.5046
RESID(-43)	0.136591	0.211483	0.645871	0.5215
RESID(-44)	-0.023057	0.219630	-0.104982	0.9168
RESID(-45)	0.012468	0.222723	0.055982	0.9556
RESID(-46)	-0.332795	0.230417	-1.444318	0.1553
RESID(-47)	0.191973	0.235987	0.813489	0.4200
RESID(-48)	-0.448370	0.255602	-1.754173	0.0859
RESID(-49)	0.038730	0.227509	0.170233	0.8656
RESID(-50)	0.105372	0.243256	0.433173	0.6669
RESID(-51)	0.472988	0.236812	1.997310	0.0516
RESID(-52)	-0.163022	0.248681	-0.655548	0.5153
RESID(-53)	-0.484568	0.247359	-1.958968	0.0561
RESID(-54)	-0.398961	0.260942	-1.528925	0.1330
RESID(-55)	0.302672	0.259334	1.167113	0.2491
RESID(-56)	-0.061297	0.254397	-0.240951	0.8106
RESID(-57)	0.152736	0.256113	0.596362	0.5538
RESID(-58)	-0.230241	0.259111	-0.888580	0.3788
RESID(-59)	-0.211952	0.265583	-0.798063	0.4288
RESID(-60)	0.192281	0.274351	0.700856	0.4868
RESID(-61)	-0.097726	0.276004	-0.354074	0.7249
RESID(-62)	0.001113	0.263654	0.004223	0.9966
RESID(-63)	-0.134461	0.260373	-0.516417	0.6080
RESID(-64)	-0.020570	0.272057	-0.075610	0.9401
RESID(-65)	0.329323	0.267910	1.229230	0.2251

RESID(-66)	0.012097	0.256550	0.047153	0.9626
RESID(-67)	-0.023506	0.244871	-0.095995	0.9239
RESID(-68)	-0.192495	0.247499	-0.777762	0.4406
RESID(-69)	0.026335	0.257800	0.102155	0.9191
RESID(-70)	0.209539	0.258875	0.809423	0.4224
RESID(-71)	-0.375887	0.258729	-1.452820	0.1529
RESID(-72)	0.135272	0.265386	0.509718	0.6126
RESID(-73)	0.036107	0.280362	0.128786	0.8981
RESID(-74)	0.192074	0.289346	0.663822	0.5100
RESID(-75)	0.201998	0.294528	0.685837	0.4962
RESID(-76)	-0.449730	0.306070	-1.469370	0.1484
RESID(-77)	-0.279809	0.293544	-0.953209	0.3454
RESID(-78)	0.324853	0.285239	1.138880	0.2605
RESID(-79)	-0.230774	0.280803	-0.821835	0.4153
RESID(-80)	0.062936	0.308818	0.203795	0.8394
RESID(-81)	-0.427949	0.308335	-1.387936	0.1717
RESID(-82)	0.508446	0.313912	1.619712	0.1120
RESID(-83)	0.055963	0.329216	0.169990	0.8657
RESID(-84)	-0.771878	0.329346	-2.343667	0.0234
RESID(-85)	0.252661	0.329062	0.767822	0.4464
RESID(-86)	-0.131903	0.323708	-0.407475	0.6855
RESID(-87)	0.203576	0.328193	0.620294	0.5381
RESID(-88)	0.063987	0.332949	0.192184	0.8484
RESID(-89)	-0.584822	0.362044	-1.615331	0.1129
RESID(-90)	0.522223	0.363263	1.437590	0.1572
RESID(-91)	-0.314631	0.344262	-0.913927	0.3654
RESID(-92)	0.472189	0.340793	1.385559	0.1724
RESID(-93)	0.219091	0.331172	0.661562	0.5115
RESID(-94)	-0.758990	0.351201	-2.161126	0.0358
RESID(-95)	0.008007	0.402189	0.019909	0.9842
RESID(-96)	0.449809	0.368621	1.220248	0.2285
RESID(-97)	0.348873	0.378042	0.922841	0.3608
RESID(-98)	-0.094917	0.372235	-0.254991	0.7998
RESID(-99)	-0.732119	0.468393	-1.563043	0.1248
RESID(-100)	0.700235	0.459296	1.524582	0.1341

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R-squared	0.760734	Mean dependent var	-1.59E-17
Adjusted R-squared	0.221112	S.D. dependent var	0.018731
S.E. of regression	0.016531	Akaike info criterion	-5.164381
Sum squared resid	0.012844	Schwarz criterion	-3.054291
Log likelihood	504.6574	Hannan-Quinn criter.	-4.307268
F-statistic	1.409754	Durbin-Watson stat	2.003777
Prob(F-statistic)	0.094008		