SAINT MARY'S UNIVERSITY SCHOOL OF POST GRADUATE STUDIES IN ACCOUNTING AND FINANCE

DETERMINANTS OF FINANCIAL SUSTAINABILITY OF MICROFINANCE INSTITUTIONS IN ETHIOPIA

BY

ABDISA WONDIMU

MAY, 2022

ADDIS ABABA, ETHIOPIA

DETERMINANTS OF FINANCIAL SUSTAINABILITY OF MICROFINANCE INSTITUTIONS IN ETHIOPIA

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Declaration

I, **Abdisa Wondimu**, the undersigned, declare that this thesis entitled: "**Determinants of Financial Sustainability of Microfinance Institutions in Ethiopia**" is my original work. I have undertaken the research work independently with the guidance and support of the research advisor. This study has not been submitted for any degree or diploma program in this or any other institution and all sources of materials used for the thesis have been duly acknowledged.

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Acronyms

ACCION - American for Community Cooperation in other Nations

AEMFI - Association of Ethiopian Microfinance Institutions

BLUE - Best Linear Unbiased Estimators

CAR - Capital Adequacy Ratio

CDA - Committee of Donor Agencies

CGAP - Consultative Group to Assist the Poor

DER - Debt to Equity Ratio

FSS - Financial Self Sufficiency GDP Growth Domestic Product

GDP - Real GDP growth rate

GLP- Gross Loan Portfolio

INF - Inflation

LR - Liquidity ratio

MDG - Millennium Development and Growth

MFIs - Microfinance institutions MIX Microfinance Information Exchange

MOF- Ministry of Finance and Economic Development

NBE - The National Bank of Ethiopia

NGO - Non-Governmental Organizations

NPM - Net Profit Margin

OER - Operating Expense Ratio

PYR - Portfolio Yield ratio

SWTEST - Shapiro Wilk test

VIF - Variance Inflation Factor

Abstract

The purpose of this study was to empirically examine the Determinants of financial sustainability of MFI's in Ethiopia. To achieve the intended purpose, this study employed the explanatory research design. Financial self-sufficiency was used as the performance measure. The study used nineteen microfinance institutions' secondary sources of data over the period 2011-2020. Random effect model results were used and presented based on the test of fixed and random effect model after testing the Hausman tests which lead us to select random effect than after testing the Breusch-Pagan Lagrange multiplier (LM) test which indicated not to use simple ordinary least square (OLS). The classical linear regression model assumptions required to be fulfilled for OLS were also tested and the model was found fit for the purpose. The results found in the study revealed that operating expense ratio (OER) has a negative impact on the financial self-sufficiency while debt to equity ratio (DER), Portfolio Yield ratio (PYR), Capital to asset ratio (CAR), Liquidity ratio (LR), Net profit margin (NPM), Age, GDP growth rate and Inflation (INF) have a positive impact on the financial self-sufficiency on MFIs in Ethiopia. All variables, debt to equity ratio (DER) and operating expense ratio (OER), Portfolio Yield ratio (PYR), and Capital to asset ratio (CAR), have a significant impact on the financial self-sufficiency of MFIs whereas others have insignificant impacts on the financial self-sufficiency. Based on the findings, the study suggests that MFIs should utilize the opportunities of the macroeconomic environment by considering the impacts of macroeconomic factors during designing their strategic plan. Besides, MFIs have to attempt more to enhance their liability and they should develop a strategy that enables them to enhance deposit amounts through mobilizing funds by promoting saving behavior and enhancing credit purchases. the government and policymakers should give due attention to both poverty reduction and the financial sustainability of MFIs by enhancing the commercialization of their operation rather than relying on subsidies by promoting differentiated and diversified saving and loan products in addition to the existing products.

Key Words: Ethiopian MFIs, financial sustainability, self-sufficiency.

CHAPTER ONE

INTRODUCTION

This paper attempts to measure the determinants of the financial sustainability of Ethiopian microfinance institutions. Consequently, this chapter will aim to present the introductory part by dividing it into several parts. In the first part of this chapter, the background of the study is presented, while the background of the Ethiopian microfinance institutions and the problem statement follow next. The aim, the hypothesis, the importance, the scope, and the limitations, as well as the organization of the study, are the themes presented in this part of the chapter.

1.1. Background of the Study

One of the main objectives of financial institutions is to mobilize resources, mainly domestic savings, and channel them to potential investors. This intermediate role of financial institutions takes on different forms in different economic systems. In many parts of the world, microfinance has become an important instrument for fighting poverty. Microfinance is the provision of credit, savings, money transfers, insurance and other financial services to low-income and selfish people. Covering a wide range of financial service providers that differ in legal form, mission and methodology, microfinance institutions offer these financial services to clients who do not have access to typical banks or other formal financial service providers. The goals of microfinance institutions as development organizations are to meet the financial needs of underserved or underserved markets in order to achieve development goals such as creating jobs, reducing poverty, helping existing businesses to grow or diversify their activities, empowering women or others to reach out to marginalized groups. Population groups and encourage the development of new businesses (Ledgerwood, 1999). In short, microfinance institutions are expected to minimize poverty, which is considered the most important development objective (World Bank, 2000).

In Ethiopia, the commercial banking system has been unable to meet the financial needs of poor households because they are not its primary target customers. In addition, the transaction costs and risks of supplying poor households are perceived as too high. In addition, while there are some private banks interested in providing financial services to poor

households, they have not yet developed an adequate lending methodology for micro-lending activities and do not have trained staff to do so.

Microfinance leads to more education, better health, improved diet and nutrition, and greater resilience to disasters for poor families. In addition, it lays a foundation that allows other humanitarian interventions to be effective while providing the economic engine that allows the transition from dependency to sustainability (Asmelash, 2011).

In addition, Aghion and Morduch (2005) noted that the trendy use of microfinance has its roots in the 1970s once Muhammad Younus, an economics professor at Bangladesh University, began to create a little loan of US$27 to a bunch of 42 families as start-up cash below the Grameen Bank project so that they might create things for sale, while not the burdens of high interest under predatory lending. Khandker (2003) Associate in Nursingd Thapa (2007) stated that being an innovative approach aimed at the poor, the microfinance business has become a significant tool for poverty reduction in several components of the world.

Most poor people and small businesses in Sub-Saharan African countries have woefully limited opportunities to do so access deposits and credit facilities and various financial services provided by formal financial institutions (Basu et al, 2004). Lack of access to credit could be a major obstacle to growth within the continent, wherever an outsized majority of households don't have enough collateral to secure a loan. These households rely on each informal sector and cash lenders where they borrow at skyrocketed interest rates or access to credit and therefore investments are simply denied (Muriu, 2011). Despite well-documented evidence of the positive impact of promoting access to finance for disadvantaged segments of the community, several poor people in Africa still stay excluded from the thought financial systems. The potential demand for financial services, significantly micro-credits, in Ethiopia, is huge. However, the present provider of financial services to the poor is extremely limited.

Aside from being a vital component of the financial system, the microfinance sector is also thought to be a financial condition reduction strategy for developing countries (Kyereboah, 2007). The sustainability of MFIs that reach an outsized variety of rural and urban poor who aren't served by the traditional financial institutions, similar to commercial banks, was a key element of the new development strategy of the African nation (Wolday 2000 quoted by Alemayehu, 2008).

There have been growing desires for financial services among the poor communities, particularly from, however, those who were financially constrained and vulnerable and have feasible and promising investment ideas. Whereas reaching the poor is extremely costly, to succeed in its full potential and additionally grow a credible development tool, MFIs should be financially sound, sustainable, and economical from an extended term perspective. Financial viability could be a high and usual measure of viability and offer long-term prospects for MFI operations (Meyer, 2012). Several recognized that the financial viability of an MFI is defined as the ability to hide all of its expenses from its income and to get a margin to finance its growth, and this can be equivalent to profitability in the long run. Being a sustainable and thereby profitable MFI additionally brings discipline to the MFI, it strengthens its operation or holding and usually results in higher quality products.

A variety of studies indicated that sustainable and efficient MFI management should cowl a minimum of all administrative costs, loan losses, and financing costs from operational financial gain at intervals of the organization. However, from the going concern views scholars argued that MFIs should maintain a financial self-direction ratio of 100% so they could cover administrative costs, loan losses, and financing costs from the revenues.

In Ethiopia, improving access to financial services is seen as an important development tool as it helps create jobs for the unemployed and increase their income and consumption for the marginalized population, which would ultimately reduce poverty and help implement it. o Implementation of the five-year transformation and development plan. In general, the flows financial resource that flows from microfinance institutions help to improve the living standards, productive capacity, educational level, health and financial situation of the poor and reduce poverty. Consequently, microfinance contributes significantly to the overall development of the economy.

Consequently, MFIs must strive for good financial and operational performance in order to play an important role in poverty reduction while at the same time achieving their main objectives.

Therefore, the aim of the study was to examine what actually determines the financial sustainability of MFIs in Ethiopia by considering some of the explanatory variables in profitability, financial structures, macroeconomic variables and managerial efficiency.

1.2. Statement of the Problem

The MFI offers cheap economically low income, dynamic borrowers looking for relatively small investment quantities to finance their businesses, control emergencies, collect assets, or glossy consumption (CGAP, 2003). Around the world, bad elders are not taking advantage of formal economic systems. According to Brau and Woller (2004), levels of exclusion range from partial exclusion in developed countries to complete or near-total exclusion in less developed countries. Within the beyond a decade, the economic government in maximum growing and transformation economies have given extra emphasis to carry formal economic offers to the vast number of villains in the world who are currently lacking okay, okay of entry to or are excluded from formal economic offerings (CGAP, 2012). These debtors frequently lack credit score histories, collateral, or both, and thus, do not have to get the right of entry to financing from notion industrial banks. The applications of microfinance in various countries participate on a large scale position in active the lives of horrible human beings through smoothing their consumption. Empirical evidence establishes that children under the age of 15 correspond to one-hundredth of the population in growing nations have to get the right of entry to mainstream economic offerings (Tilahun, 2013).

To acquire its high objective, which is alleviating poverty, MFI ought to be equipped to provide economic offerings sustainably. To be sustainable, MFIs must generate sufficient revenue to cover their economic costs, operating costs, and provisions for loan losses. An MFI that works closer to sustainability on market standards is not always ideal for a good financial institution, other than the clientele it serves. Hence, it's going to face a venture that a formal financial institution faces in attaining its objectives (Hartung, 2007cited Yonas, 2012).

One of the major problems MFI's face is the manner to acquire sustainability, financially and operationally. Today, numerous key gamers in the commercial enterprise use sustainability in live performance with Centre standards to assess the economic and operational overall performance of MFIs except to attain and effect measures. Consequently, the issue of the sustainability of MFIs has attracted the attention of many researchers and academicians to goal locating the determinants of sustainability of MFIs (Yaron, 1992 cited in Sileshi, 2015). In addition to economic elements, the sustainability of MFIs is extraordinarily tormented by the national and global economy. Regulation, political stability, geographical coverage, creation of microfinance institutions, and exceptional non-economic elements (Kimando, et al., 2012). The Research was carried out to decide elements affecting the economic

sustainability and cost-performance of MFIs' mistreatment of the reach and sophistication of MFIs in many countries (Cull et al., 2007) and (Christen et al., 1995). These outstanding academic arguments on the use of MFI sustainability elements relate to the funding structure of MFIs (inclusive of size, capital to asset ratio, debt to fairness ratio, deposit to Loan ratio, gross Loan portfolio to general asset, and others), institutional traits or scale of MFIs (experience/age of MFI, variety of employees and lots of others), their achieving ability indicators (Number of lively debtors, gross Loan portfolio) and macroeconomic variables (inclusive of charge of inflation and actual cost increase).

Studies carried out in the regions of microfinance institutions in Ethiopia are restrained and focused on the overall performance of the MFIs. Whereas, completely more than one research was carried out regarding the economic sustainability of Ethiopian MFIs with constrained informative elements. Some research was carried out to work out elements affecting the economic sustainability of MFIs mistreatment giants and evolved MFIs in various nations. The quantity of the importance of these elements in affecting the economic sustainability of MFIs, however, varies with research (Cull et al., 2007 & name et al., 1995).

While studies conducted by Kereta (2007), Kidane (2007), Duressa (2009), Ejigu (2009), Asnakew (2012), Yirsaw (2008), Tamene (2012), and Yenesew (2014) are worth mentioning, to the best of my knowledge most of these studies focused on limited internal characteristics and did not adequately (if not at all) consider the influence of subsidies, deposit mobilization, gender, and economic growth which has rigorously been investigated in many studies in the global microfinance industry. Mubarek (2006) studied the sustainability of Ethiopian microfinance institutions and found that MFIs have not achieved the level of financial self-sustainability. For instance, Kindie (2012) tried to identify factors affecting the financial sustainability of MFIs in Ethiopia, but his study did not show clearly and used only five years of data of selected MFIs over the period 2002-2010 and failed to consider macroeconomic variables.

Some recent studies such as those by Hossain (2016) and Tilahun (2013), reveal that OER has a positive insignificant effect on FS, these results are inconsistent with Silashi (2015) and Kirubel (2018) revealed that OER has a positive significant effect on FS of MFIs. A study was done by Tilahun (2013), also found that DER has a negative and significant effect on FS, which is contradictory to other researchers indicated above on the significance level.

Silashi (2015) regarding macroeconomic variables made a study from secondary data that found that inflation has a positive and insignificant effect on the dependent variable FS, this finding was contradictory to that of Kirubel (2018) and Khathomi (2017) which revealed inflation has a negative and significant effect on FS. His study result was also inconsistent with others considering Deposit loan ratio variables. The study made by Hossain (2016) found that CAR has a negative and significant effect on FS, which is inconsistent with Kirubel's (2018) explanation that CAR has a positive significant effect on FS.

The researcher finally believes that those studies didn't provide such a stress and convincing findings on the determinants of financial sustainability and didn't consider the consequences of macroeconomic factors like Inflation and a few necessary informative variables. Therefore, determinant factors of financial sustainability of Microfinance institutions in Ethiopia have roots within the existing literature, however, as so much as my information is concerned it desires additional research and explanation, particularly in the Ethiopian case as a result of the empirical literature shows the problem is completed with limited explanatory variables and more centered on the performance of the MFIs with descriptive statistics. Hence, to bridge the gap within the previous research and to attain convincing results this study can commit to identifying the key variables and create a comprehensive and detailed analysis of determinants of financial sustainability of MFIs in Ethiopia by considering further informative variables concerning Profitability, financing structures, macroeconomic variables, and Management efficiency indicators variables corresponding to financial leverage ratio (DER), operating expense ratio (OER), Portfolio Yield ratio (PYR), Capital to asset ratio (CAR), Liquidity ratio (LR), net profit margin(NPM), and inflation.

Therefore, this study aims to fill the above-named information gaps, bridge the previous researches gap, and make convincing results by mistreatment of the most important firm internal variables that weren't enclosed in most of the empirical studies like Liquidation ratio (LR), Age of MFI'S (AGE), net profit margin (NPM), and Portfolio Yield variables (PYR) added to the variables corresponding to Debt to Equity (DER), operating expense (OER), Capital to the asset (CAR), GDP rate of growth (GDP), and inflation (INF), thereafter the study makes an attempts a more comprehensive and representative model for financial sustainability and build an indicator to look at the financial performance of microfinance sector.

1.3. Objective of Study

1.3.1. General Objective

The overall objective of this study is to spot the determinants of financial sustainability of Microfinance institutions in Ethiopia.

1.3.2. Specific Objectives

- To examine the effect of Debt to Equity (DER) on the financial sustainability of MFIs in Ethiopia.
- To examine the effect of the Operating Expenses Ratio (OER) on the financial sustainability of MFIs in Ethiopia.
- To analyze the effect of the Portfolio Yield Ratio (PYR) on the financial sustainability of MFIs in Ethiopia.
- To evaluate the effect of the Capital to Assets Ratio (CAR) on the financial sustainability of MFIs in Ethiopia.
- To examine and test the effect of the Liquidity Ratio (LR) on the financial sustainability of MFIs in Ethiopia.
- To analyze the effect of Net Profit Margin (the NPM) on the financial sustainability of MFIs in Ethiopia.
- To evaluate whether Age can affect the financial sustainability of MFIs in Ethiopia.
- To analyze the effects of Inflation on determining the financial sustainability of MFIs in Ethiopia.
- To examine the effects of GDP growth rate on the financial sustainability of MFIs in Ethiopia.

1.4. Hypothesis of Study

In line with the objective described above, the following null hypothesis to be rejected based on the study result and alternate hypothesis statements were formulated based on the review of theories and previous related empirical findings summarized in the literature review chapter.

The subsequent tentative and nevertheless testable statements are going to be tested when the research information is collected.

H_1: Debt to Equity Ratio (DER) has a statistically significant and positive effect on the financial sustainability of MFIs in Ethiopia.

H_2: Operating Expense Ratio (OER) has a statistically significant and negative effect on the financial sustainability of MFIs in Ethiopia.

H_3: Portfolio Yield Ratios (PYR) have a statistically significant and positive effect on the financial sustainability of MFIs in Ethiopia.

H_4: Capital to asset ratio (CAR) has a statistically significant and positive effect on the financial sustainability of MFIs in Ethiopia.

H_5: Liquidity ratios (have LR) have a statistically significant and negative effect on the financial sustainability of MFIs in Ethiopia.

H_6: Net profit margins (NPM) have statistically significant and positive effects on the financial sustainability of MFIs in Ethiopia.

H_7: Age of MFI (AGE) has a statistically significant and positive effect on the financial sustainability of MFIs in Ethiopia.

H_8: Inflation (INF) has a statistically significant and positive effect on the financial sustainability of MFIs in Ethiopia.

H_9: GDP growth rate has a statistically significant and positive effect on the financial sustainability of MFIs in Ethiopia.

1.5. Significance of the Study

In meeting the financial desires of poor people, farmers, households, and micro-entrepreneurial microfinance institutions play a major role. Usually, the financial resource flows out from the microfinance institutions facilitate to enhance the living standard, academic level, health, and financial position of the poor phase of the society and scale back poverty. Hence, microfinance helps in tributary a great deal toward the development of the economy. To realize this expressed mission regularly, MFI's themselves have to be compelled to be financially sustainable. Therefore, this study can help the decision-makers of MFI's to spot the crucial factors for their financial sustainability normally and in specific gives due attention to the factors.

The majority of the Ethiopian population is poor and hence depends on MFIs because of the supply of capital and general finance. Since the study seeks to ascertain factors of sustainability of MFIs, it might provide priceless information to them indirectly, so it would eventually facilitate the MFIs to manage the factors that significantly influence their sustainability.

The financial sustainability of microfinance is in line with the objectives that are to enhance the living commonplace of the poor and promote the mass mobilization of the nation's wealth creation yet as initiate other capable Ethiopians to participate in taking part in their role within the different sectors of the economy. On the opposite hand, the micro-financing effort is presently backed by foreign donor countries and international agencies. That the effective coverage rate and service provision are expected to come up with more help in the short-term whereas sustainable financial resources should be secured internally in the long run. Besides, the govt. and pertinent offices have their disabilities.

In line with the top of it's hoped that the results of this study will:

- Give relevant data to decision-makers (investors, donors, creditors, clients, or government) relating to the financial sustainability of MFIs.
- Provide information to the management of the institutions, Policymakers, and, alternative stakeholders regarding the potential factors that determine financial sustainability.
- Recommend potential recommendations from the finding to stay financial sustainability and improve or revise the prevailing financial structure of the institution.

Furthermore, the results of the study are hoped to serve as a base for any analysis on similar or connected topics.

1.6. Scope of the Study

This study is conducted to spot the determinant factors that affect the financial sustainability of MFIs in Ethiopia. When doing therefore the researcher is limiting himself to some chosen MFI's financial information and variables to compile the mandatory information that helps to create the analysis meaningful.

As a result of being to handle all 41 MFIs in operation within the country, the scope of this study is limited to some selected MFI audited financial data. According to various sources, the microfinance institution and microfinance service don't have an extended history in

Ethiopia and thence the researcher limits the scope solely to the market secondary information of the chosen 19 (46%) microfinance establishments in Ethiopia.

1.7. Limitations of the Study

The essential predicted problem of the has a look at maybe they have a look at in particular considers and makes use of secondary quantitative statistics from 2011 G.C as much as 2020 G.C to check the economic determinants of sustainability of MFIs in Ethiopia. However, it can be extra suitable and stronger, if it becomes supported via way of means of latest statistics and further qualitative elements that affect the sustainability of the microfinance institutions. The researcher doubts that the 2021st annual overall performance document this is posted via way of means of AEMFI won't consist of the latest statistics that is 2020 and 2021, if so, this paper will restrict itself to reading the overall performance until available.

1.8. Organization of the Study

This paper can be prepared as follows: Chapter one incorporates the creation of the observation and the chapter incorporates a literature review. Chapter three offers the study's method at the same time as consequences and dialogue are included in Chapter four. Finally, this paper contained the realization and advice element in Chapter five.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1. Introduction

In this chapter, the theoretical and empirical portions of proof focusing on the determinants of microfinance establishments' economic sustainability are presented. Accordingly, the primary phase describes a universal theoretical evaluation of microfinance concepts. The second phase offers the assessment of empirical research on determinants of economic sustainability of MFIs.

2.2. Theoretical Overview of Microfinance

The theoretical framework, through an assessment of current literature in the microfinance field, functions as a platform for the impending empirical study.

2.2.1. Definition of Microfinance

Different authors and businesses have described Microfinance establishments in one-of-a-kind ways. However, the idea or the means of the definitions is commonly the identical wherein microfinance refers back to the provision of economic offerings; often financial savings and credit score to the terrible and low-profits families that don't have to get right of entry into industrial bank's service. Consultative Group to Assist the Poor (CGAP, 2012) described "*microfinance*" because the provision of formal economic offerings to terrible and low-profits humans, in addition to others who systematically do now no longer enjoy the economic system. As noted, "*Microfinance*" isn't always the simplest presenting several severable merchandises (for consumption, smoothing for enterprise purposes, to fund social obligations, for emergencies, etc.) simplest, however additionally financial savings, cash transfers, and insurance.

The different researchers described approximately MFIs as that it gives economic offerings to terrible humans. The intention of Access to economic offerings for terrible humans is to assist to relieve risks, construct their assets, enhance their profits, and contributing to t improvement of the focal community (Cull et al, 2009). The popularly regarded organization that's Microfinance records exchange (MIX) described microfinance establishments as

numerous economic offerings that concentrate on low-profits customers, mainly women. Since the customers of microfinance establishments have decreased earnings or are terrible and frequently have confined get right of entry to different economic offerings, microfinance merchandise has tend to seller economic quantities than conventional economic offerings. These offerings now no longer simplest offer micro-credit score offerings for the ones who've decreased earnings however additionally consist of loans, financial savings, insurance, and remittances.

Micro-finance is given for numerous purposes, often for micro-company improvement. The variety of services and products provided indicates the fact that the economic desires of people, families, and companies can extrude drastically over time, in particular for folks who stay in poverty and isn't always benefit from the formal bank. Because of those various desires, and due to the industry's awareness of the terrible, microfinance establishments frequently use non-conventional methodologies, including institution lending or different sorts of collateral now no longer hired through the formal economic sector, in particular through banks. According to Robinson, (2001) definition: Microfinance refers to small-scale economic offerings-often credit scores and financial savings-given to folks that are concerned in farms or fish or herds; who paintings in small companies or microenterprises wherein items are produced, recycled, repaired, or sold; who offer offerings; who paintings for wages or commissions; who benefit profits from renting out small quantities of land, vehicles, draft animals, or equipment and tools; and to different people and companies on the nearby stages of growing countries, each rural and urban (Robinson, 2001 p.9).

Ethiopian Proclamation No. 626/2009 defines micro-financing enterprise as "the availability of economic offerings like accepting financial savings, amplifying credit score, drawing and accepting drafts payable, presenting cash switch offerings and others laid out in Article 3(2) of the proclamation.

2.2.2. History of Microfinance

The thoughts and aspirations in the direction of microfinance aren't new. Small, casual financial savings and credit score corporations have labored for hundreds of years throughout the arena, from Ghana to Mexico to India and beyond (Helms, 2006). In Europe, as early because of the fifteenth century, the Catholic Church based pawn stores as an opportunity for usurious moneylenders. These pawn stores unfold at some stage in the city regions in Europe

at some stage in the fifteenth century. Formal credit scores and financial savings establishments for the negative have additionally been around for generations, imparting economic offerings for clients who had been historically disregarded via way of means of industrial banks. The Irish Loan Fund device commenced within side the early 1700s and is an early (and long-lived) example. By the 1840s, this device had approximately three hundred price ranges at some stage in Ireland (Helms, 2006).

On the opposite hand, within the side, the early 1800s, an economic enterprise that turned into a credit score affiliation to serve predominantly farmers in rural regions primarily based totally on cooperative standards turned into based via way of means of Friedrich Wilhelm Raiffeisen in Germany and increased swiftly inside Germany and later because it turned into a success adds to the relaxation of Europe, North America and growing international locations beyond. Ledgerwood (1999) defined the point of interest of those cooperative economic establishments as financial savings mobilization in rural regions that try to educate negative farmers on a way to store cash and make use of it. In the early 1900s, the idea of Raiffeisen started to seem with diversions in elements of rural Latin America (Helms, 2006). Another milestone within side the records of microfinance turned into the hole of the Indonesian People's Credit Bank in 1895 which has become the most important microfinance device in Indonesia (Helms, 2006).

Beginning within side the mid-1980s, the sponsored, focused credit score version supported via way of means of many donors turned into the item of constant criticism, due to the fact maximum packages amassed huge Loan losses and required common recapitalization to hold operating. It has become an increasing number of obtrusive that market-primarily based answers had bored. This caused a brand new method that took into consideration microfinance as a vital part of the general economic device. Emphasis shifted from the speedy disbursement of sponsored loans to goal populations towards the construction of local, sustainable establishments to serve the negative. In the early 1990s, the period" turned into changed via way of means of "microfinance" which blanketed now no longer simplest credit but additionally different economic offerings for negative people (Elia, 2006).

The advent of the time periodic finance observed the achievement of many microcredit packages around the arena anina7, all through the primary Microcredit Summit, 2,900 delegates from 137 international locations representing around 1,500 groups accumulated in Washington, D.C. During that occasion, the start of the worldwide enterprise of microfinance

turned into formally recognized. Since then the point of interest commenced to extrude and circulate from the idea of the foremost welfare, wherein simplest the availability of credit score turned into taken into consideration to be important, to the want of turning into financially sustainable via the availability of a whole variety of economic merchandise and to attain extra people.

2.2.3. History of Microfinance in Ethiopia

The Ethiopian 5-yrs boom and transformation plan (GTP) and the micro and small organization improvement agency (MSEDA) method have given greater emphasis to the saving conduct of families and saving mobilization and that is why all MFIs in Ethiopia provide each obligatory and voluntary savings. The financial overall performance of this area has proven splendid achievements and the world outreach is impressive, in step with AEMFI's 2016 annual report, the Ethiopian MFIs have proven splendid development in phrases of outreach and overall performance, the world outreach or the quantity of lively debtors is three. Nine million wherein out of those debtors 1.7 million had been women (Nesreddin, 2020) the microfinance enterprise has witnessed an extremely good boom for the remaining 10 years. According to current facts from the National Bank of Ethiopia via way of means of the cease of 2019/20, there had been forty-one micro-finance establishments (MFIs) working within side the country. Similarly, their deposit mobilization went up by 6.7 percent to Birr 44.7 billion while their outstanding credit grew by 10.5 percent to Birr 64.9 billion highlighting their rising contribution to poverty alleviation and creating wealth both in rural and urban areas. Their total capital and total asset increased by 17.3 and 10.5 percent to reach Birr 19.4 billion and Birr 92.2 billion, respectively The five largest MFIs consisting of Amhara, Dedebit, Oromiya, Omo, and Addis Credit and Savings institutions, which accounted for 82.6percent of the total capital, 90.1 percent of the savings, 85.9 percent of the credit and 86.3 percent of the total assets of MFIs by the end of 2019/20.

2.2.4. Legal Framework for MFIs

The criminal framework governing Microfinance Institutions (MFIs) in Ethiopia incorporates the Commercial Code of Ethiopia, proclamations issued via way of means of the Government of Ethiopia (GOE) (Proclamation No. 40/1996, and Proclamation No. 147/1998,) and directives issued via way of means of the National Bank of Ethiopia. Microfinance establishments are required to contain as percentage agencies according to the provisions of

Article 304 of the Commercial Code of Ethiopia. The relevant Articles of Proclamation No. 84/1994 coping with the licensing and supervision of banking enterprise and the Commercial Code of Ethiopia additionally offer the wanted criminal framework for incorporation and operation of MFI in addition to their law and supervision via way of means of the National Bank of Ethiopia.

2.2.5. Governance and Framework of MFI Ownership

In Ethiopia, MFIs are to be set up inside the shape of share groups as described in a share company article 304 of the Commercial Code (CC). The Code defines a percentage employer as "an employer whose capital is constant earlier and divided into stocks and whose liabilities are met simplest via way of means of the belongings of the employer." The NBE registers and licenses MFIs upon the latter pleasurable the necessities set via way of means of the MFI Proclamation and directives. A percentage employer might not be set up via way of means of fewer than 5 shareholders (Article 307 CC).

The preliminary capital of ETB 200,000 is needed to shape an MFI. Like within side the different economic offerings sub-sectors, the capital/percentage of MFIs need to be completely owned via way of means Ethiopian nationals and registered as a share company under the legal guidelines and, have their head workplace in Ethiopia (Article 2(3) Proclamation No. 626/2009). Foreigners need to now no longer very own an MFI, completely or in part. Any overseas countrywide or business enterprise completely or in part owned via way of means of overseas nationals might not be allowed to set up an MFI. Open branches or subsidiaries of an overseas micro-financing group in Ethiopia or gather the stocks of an Ethiopian MFI (Article 25 of Proclamation No. 626/2009). This rule is an affirmation of what's visible within side the funding law (Investment Regulation, 2004).

In Ethiopia, the industrial banking gadget couldn't cope with the economic desires of negative families for the very reality that they're now no longer their last goal customers. On the pinnacle of that, the transaction expenses and dangers worried in serving negative families are looked as if would be too excessive. In addition, although there are few personal banks cognitive of imparting economic offerings to negative families, they have got now no longer advanced but appropriate credit score techniques for micro-lending sports and they do now no longer have educated employees for that (Ebdsn, 2004).

2.2.6. Summary of Microfinance Institutions in Ethiopia

The development of MFIs in Ethiopia may be a recent phenomenon far-famed for its rapid climb in line with Ebisa Deribie, et al., (2013) and also the aggressive need to attain an oversized scale geographical location within the country, the dominance of public MFIs, the emphasis on rural households, promoting each credit Associate in Nursing savings products, a powerful concentrate on sustainability and of course it's an Ethiopian owned and junction rectifier sector. Once the proclamation of the Ethiopian government n. 40/1996 of MFI was issued, and this sealed the approach for the establishment of MFIs to offer financial services to the communities who suffered from a scarcity of financial services from formal banks, varied MFIs were lawfully registered and commenced providing microfinance services like different countries and might mobilize savings once registered and legally approved to supervise the activities of MFIs by the NBE (Wolday Amha, Getaneh (2005), in Ethiopia MFI, unfold across urban and rural areas to supply deposits, withdrawals and settle for a draft to the public and manage the microfinance business funds that are allowed by law. The Ethiopian deposit-taking MFIs provide different financial services such as; savings, micro insurance, loan, remittance, and payment similar to collection taxes, pension payments, and different related service charges. As a result, a gradual transition from microcredit to microfinance and eventually to financial inclusion has been ascertained in Ethiopian MFIs (Wolday and Anteneh, 2015).

The five-year Ethiopian Growth and Transformation set up (GTP) and also the small and little Enterprises Development Agency (MSEDA) Strategy have placed a larger emphasis on the saving behavior of households and saving mobilization, and this can be why all MFIs in Ethiopia provide each mandatory and voluntary savings. The financial performance of this sector has shown outstanding achievements and the sector reaching is impressive, in step with AEMFI's 2016 annual report, the Ethiopian MFIs have shown vital progress in terms of awareness and performance, sector awareness or the number of active borrowers is 3.9 million during which of those borrowers 1.7 million were women. The microfinance trade has witnessed tremendous growth over the last 10 years. In keeping with recent information from the national bank of Ethiopia by the end of 2020, there have been 41 microfinance institutions (MFIs) in operation within the country. Similarly, their deposit mobilization went up by 6.7 percent to Birr 44.7 billion while their outstanding credit grew by 10.5 percent to Birr 64.9 billion highlighting their rising contribution to poverty alleviation and creating

wealth both in rural and urban areas. Their total capital and total asset increased by 17.3 and 10.5 percent to reach Birr 19.4 billion and Birr 92.2 billion, respectively The five largest MFIs consisting of Amhara, Dedebit, Oromiya, Omo, and Addis Credit, and Savings institutions, which accounted for 82.6 percent of the total capital, 90.1 percent of the savings, 85.9 percent of the credit and 86.3 percent of the total assets of MFIs by the end of 2019/20.

2.2.7. Microfinance Financing Theories

The theoretical framework is the shape that could keep or help an idea of a study have a look at. It introduces and describes the idea and is the reason why the study's problem is to have a look at what exists. Alan (2008) asserts that theories are formulated to explain, are expecting, and recognize phenomena and in lots of cases, to undertake and expand current understanding, within side the limits of the important bounding assumptions. The theoretical framework needs to reveal the know-how of theories and ideas that can apply to the studies and to relate to the too understanding of the ideas they have a look at you're taking. The choice of an idea has to rely upon its appropriateness, ease of application, and explanatory power. The theoretical framework connects the researcher to current understanding (Orodho, 2003).

Whilst the Modigliani and Miller (M&M) capital shape idea is famous in company finance, its relevance, given the precise nature of microfinance is unfound. The conventional corporation assumed via way of means of the M&M idea is at variance with lending establishments which can be able to attract deposits, consequently, the idea calls for changes for it to healthy lending establishments guided via way of means of the double backside lines (Cohen, 2003) Presents 3 suitable theories hereunder, i.e., the organization idea, the lifestyles cycle idea and the earnings incentive idea.

2.2.7.1. Efficient Structure Theory

The green shape hypothesis, on the alternative hand, posits that banks earn an excessive income due to the fact they're extra green than others. There also are awesome methods inside the Efficient Structure; the X-performance and Scale–performance hypotheses. According to the X-performance method, extra green corporations are extra worthwhile due to their decreased expenses. Such corporations are willing to advantage large marketplace stocks, which might also additionally occur in better ranges of marketplace awareness, however with no causal courting from awareness to profitability (Athanasoglou et al, 2006 mentioned in

Njerl, 2012). The scaling method emphasizes economies of scale in place of variations in control or manufacturing technology. Larger corporations can advantage decrease unit expenses and better income via economies of scale. This makes it viable for huge corporations to gather marketplace stocks, which might also additionally occur in better awareness after which profitability. The Efficiency shape idea assumes that a financial institution's overall performance is prompted via way of means of inner efficiencies and managerial decisions (Njerl, 2012).

2.2.7.2. Life Cycle Theory (LCT)

Fehr & Hishigsuren, (2006) posited that the capital shape of MFIs adjustments with the LCT levels of an MFI. Conditions set via way of means of capital carriers do now no longer permit MFIs to have many choices, consequently, positive MFI increase levels are paying homage to a selected financing shape. The associated price of capital might also additionally restrict MFIs' investment choices. Hoque & Chishty, (2011) concurred via way of means of writing that the LCT explains the financing of MFIs as they evolve into financially sustainable establishments.

Though Hoque & Chishty, (2011) recognized 3 MFI increase degrees the tremendous levels, as mentioned via way of means of Kapper, (2007) are the start-up, enlargement, consolidation, and the combined degree.

In the start-up segment, MFIs are financed via donations and concessionary finances. This is due to the fact it's far too unstable for personal traders (fairness). Since donors need to govern the lending, having fairness within side the MFI could permit them to reap that. Setting up structures and blunt commercial enterprise fashions on the start-up segment constrain. NGOs are maximum a hit on this segment due to the subsidies and offers they receive. The enlargement segment emphasizes the extension of operations as soon as operational demanding situations within side the earlier segment are solved. An excellent commercial enterprise version expands MFI operations and outreach. The enlargement degree introduces fairness via way of means of NGOs and public traders to achieve MFI balance. International Finance Institutions (IFIs) are available to offer seed capital. IFI's' capitals are available-among donor finances and business investment. However, subsidies are nonetheless to be had for MFIs these are smooth loans and offers (Brau & Woller, 2004).

The consolidation degree commercializes the operations of an MFI. MFIs spend money on obtaining sustainability via way of means of formalizing operations via watching laws that permit the appeal of deposits. Deposits increase loaning, however at low prices. The consolidation segment has a creation of business debt within side the investment shape. The balance attained lets in finances to be received from banks (domestic). Foreign finances are used as ensures debt is received via way of means of MFIs within side the neighborhood marketplace. More personal capital can now be sourced. However, the simplest huge MFIs manage to pay for such investment due to the fact they're of low chance, consequently can entice personal traders who're eager on returns. Domestic debt is, now the high supply of financing, as overseas debt has connotations of alternate price chance and capital glide guidelines making it costly. Commercial banks worried about microfinance do now no longer undergo this transition process, eleven though NGOs are maximum in all likelihood to continue this way (Kapper, 2007).

In the combination segment, MFIs input the mainstream economic zone via way of means of becoming microfinance banks. Subsidies and offers are now no longer a part of the financing shape of MFIs, and maximum MFIs are financially sustainable and worthwhile. The integration degree is synonymous with excessive outreach. However, there may be a notion that, as MFIs gather economic sustainability, they will overlook the Centre's negative (Morduch & Haley, 2002; Morduch, 2000). Pro sustainability advocates together with Rhyne, (1998) posit that, because the MFI develops, so are its customers, consequently, at integration degree, the loans granted to customers won't be small anymore. Effectively, there won't be any assignments that go with the flow concerning the dimensions of the loan about sever, is that extra customers get served via way of means of sustainable MFIs.

Despite the recognition of the LCT, proof of it stays scanty, as few paintings have been finished on it. In an attempt to reply to the question: do MFIs expand toward economic sustainability, Bogan, (2012) used past sectional statistics of the pinnacle three hundred MFIs. Results did now no longer help the LCT, however, underscored the significance of capital in figuring out FS. This is due to the fact capital constraints and expenses restrict the enlargement of microfinance. De Sousa-Shields & Frankiewicz, (2004) cited that the shift to personal capital has already begun, and a few MFIs are being discovered completely funded via way of means of personal capital. The authors emphasized that the capacity of an MFI to

live on any degree of the LCT is a characteristic of the capacity to draw the appropriate financing resources.

However, Fehr & Hishigsuren, (2006) word that even as marketplace-orientated financing for MFIs is noticeable, there may be nonetheless proof of non-business financing which opposes the LCT evolution style. Financing programs (e.g., ACCION) linking MFIs with traders and business banks via credit score Enhancement decrease financing expenses for MFIs as they develop into commercially possible entities, consequently, defying the LCT.

2.2.7.3. The Profit Incentive Theory (PIT)

The PIT states that using business investment assets at any level of MFI evolution permits MFIs to fulfill the microfinance promise (Bogan, 2012). The utilization of business investment increases price consciousness, performance, and outreach. In concurrence with the institutionalist paradigm, the PIT seconds that donor investment is restrained in amount, and for that reason, cannot fund microfinance at a mega-scale given the growing call for microfinance. The principle upholds that MFIs pursuing earnings thrive to maximize revenue while minimizing operational charges, which allows you to cowl fees and construct surpluses. MFIs funded with the aid of using presents and subsidies do now no longer reply to income maximization and price minimization pressures, for that reason, choose outreach intensity over performance with the aid of using serving the poorest and rural customers that have greater lending charges (Bogan, 2012; de Aghion & Morduch, 2005).

Evidence of the PIT, as positioned throughout with the aid of using Bogan, (2012), notes the more and more worldwide and inner stress on MFIs to shed-off subsidies and furnish financing. Institutions along with ACCION International have made the front efforts to hyperlink MFIs with fairness financiers, debt financing, in addition to different business investment assets. This has availed a street for MFIs to be seeking independence from presents and subsidies.

2.2.7.4. Theories of Deflation

The deflation principle changed into propounded with the aid of using Fisher (1933). The principle asserts that a lower in inflation quotes brings approximately a decline within side the standard rate level, which finally brings down the enterprise's internet worth, decreased profitability, and for that reason, precipitates bankruptcies in establishments. The cycles

purpose complex disturbances in hobby quotes and a decline within side the price of money. These complex disturbances are defined as each macro and micro forces (outside and inner factors) impacting the extent of over-indebtedness that exists amongst borrowers and/or lenders that could bring about Loan default (Nzuve, 2016). The principle applies to this take a look because it asserts that excessive quotes of inflation will result in excessive financial group sales, excessive profitability and for that reason, higher financial overall performance. Conversely, a lower in quotes of inflation decreases sales and profitability and for that reason, the terrible financial overall performance of the establishments could in the long run result in financial disaster for the industry (Nzuve, 2016).

Another assumption, excessive inflation quotes are related to excessive Loan hobby quotes and excessive income. Bashir (2003) said that the predicted inflation impacts undoubtedly even as unanticipated inflation impacts negatively the profitability of the banks. There is an advantageous affiliation between the predicted inflation and the overall performance of the financial institution because it offers banks the possibility to regulate hobby quotes accordingly, ensuing in sales that multiplied quicker than charges, for that reason implying better earnings and reversing the unanticipated inflation.

Bourke (1989) suggests the advantageous courting among inflation charge and financial institution profitability. Higher inflation quotes result in better Loan quotes, and for this reason, better sales could be generated with the aid of using the group. Inflation has a bad impact on financial institution profitability if wages and different charges (overhead) are developing quicker than the charge of inflation. The anticipation of the inflation charge determines its impact on the banks' profitability. It is advantageous while it's far nicely predicted, as control of the establishments will speedily regulate hobby quotes to cater for such modifications and vice versa.

2.2.7.5. The Institutionalists Approach

Institutionalists' consciousness especially of the financial sustainability of microfinance establishments. The Institutionalists view financial deepening as the principal goal of microfinance establishments. Here financial deepening refers to developing sustainable financial intermediation for the terrible. Institutionalists assert that financial sustainability as measured with the aid of using financial self-sufficiency (profitability) has to accept better precedence with the aid of using all MFIs (Woller, 2010). Their argument comes from the

reality that during maximum instances donor dependence isn't positive and for that reason except an MFI is capable of preserving itself financially it's going to now no longer be capable of serving the customer's within side the lengthy run. Contrary to selling financial sustainability, there may be capacity anxiety that overemphasis on financial self-sustainability may also lead an MFI into shifting far from donor investment objectives. This is called undertaking drift. The Institutionalists would like to look MFIs assembly all their charges from self-generated finances with the opportunity of creating an income without the usage of any outside finances. This is what they could name a sustainable MFI. The Institutionalist's technique is the sustainability of MFIs from the group's factor of view. They argue that the institutional sustainability of an MFI could be attained while the MFI is financially self-sufficient. That is, be capable of performing without subsidy. The emphasis right here is that, for sustainability, MFI has to be capable of cowl its working and financing charges with this system revenue (Brau & Woller, 2014).

2.2.7.6. Liquidity Risk Theory

Halling and Hayden (2012) explain that an MFI ought to outline and pick out the liquidity chance to which it's far uncovered for all criminal entities, branches, and subsidiaries within side the jurisdictions wherein it's far lively. An MFI has to recall the interactions among exposures to investment liquidity chance and marketplace liquidity chance (Jean & Svensson, 2012). MFI that obtains liquidity from capital markets ought to apprehend that those assets can be extra risky than conventional retail deposits. For example, in a share company insituationsons of strain, traders in cash marketplace units can also additionally call for better reimbursement for chance, require rollover at substantially shorter maturities, or refuse to increase financing at all.

Moreover, reliance on the entire functioning and liquidity of financial markets might not be sensible as asset and investment markets can also add dry up in instances of strain (Perera, Skully & Wickramanayake, 2012). Market illiquidity can also additionally make it hard for MFI to elevate its budget via way of means of promoting belongings and for this reason growth they want for investment liquidity. An MFI ought to make sure that belongings are prudently valued and consistent with applicable financial reporting and supervisory standards. An MFI ought to completely think into its chance control the attention that valuations can also additionally go to pot a share company marketplace strain and consider this in assessing the feasibility and effect of asset income in the course of strain on its

liquidity position (Jenkinson, 2010). Microfinance Institutions ought to apprehend and recall the sturdy interactions among liquidity chance and the opposite kinds of the chance to which it's far uncovered Guglielmo, 2010). Various kinds of financial and running risks, which include hobby rate, credit score, operational, criminal, and reputational risks, can also add impact MFI's liquidity profile. Liquidity chance frequently can rise from perceived or real weaknesses, disasters, or troubles within side the control of different chance types. A microfinance organization ought to pick out occasions that might have an effect available in the marketplace and public perceptions approximately its soundness, especially in wholesale markets (Akhtar, 2011). This concept addresses the variable of liquidity as a determinant of the financial sustainability of an MFI.

2.2.8. Measuring Performance of MFIs

There are specific troubles regarding the way to degree the overall performance of microfinance institutions. Zeller and Meyer (2002) indicated that there may be what's called a "Critical Microfinance Triangle "that we want to have a take observe to degree the overall performance of Microfinance institutions. The corners of the triangle constitute outreach to the bad, financial sustainability, and welfare effects.

A) Measuring Outreach to the Poor According to Gumel (2011) the ability of the MFIs to offer splendid financial carrier to a massive quantity of customers, the share of lady participation, the full price of belongings of the institutions, the scale of and the number of branches of the organization, the price of a terrific Loan, the scale of common deposit and credit score and the quantity of financial savings on deposit are taken into consideration as signs of outreach. On the opposite side, Schreiner (2002) shows six frameworks for measuring the outreach of microfinance: depth, the well worth of users, the value to users, breadth, duration, and scope. Similarly, consistent with SEEP, (2005), the outreach of microfinance is measured via way of means of many elements and a number of them are the number of lively customers, the number of lively debtors, and the gross Loan portfolio.

B) ***Sustainability*** Woolcock (1999) described sustainability as a software's capacity to keep in a financially possible manner without getting home or overseas subsidies. In Von Stauffenberg et al. (2003). Sustainability may be described because the organization's shape and motivations to copy transactions and it's far assessed via way of means of the usage of a few financial sustainability signs like financial and running overall performance and running

and financial self-sufficiency ratio. Similarly, in comparing the sustainability of MFIs matters need to be observed: operational self-sufficiency advert financial

Self-sufficiency (Meyer, 2002). Operational self-sufficiency measures the quantity to which financial sales cover the financial cost, running cost, and Loan impairment charge. SEEP (2005), indicates the capacity of MFIs to keep their operation if it gets no further Subsidies and 100% are taken into consideration the breakeven factor of MFIs operation. Whereas, financial self-sufficiency displays the capacity of microfinance to earn sufficient sales to cowl its value via way of means of contemplating changes to running sales and expenses (CGAP, 2003).

C) Impact may be described because of the quantity to which the lifestyles of MFIs customers are modified in phrases of profits and wealth (Conning 1999). It is proper that the goal of the microcredit software is to lessen poverty and to offer financial offerings to the ones who've not gotten entry adequately. Even though it appears of the carrier, there can be an immediate or oblique effect at the residing fashionable of the bad which permits us to degree the overall performance of MFIs.

2.2.9. Financial sustainability

Financial sustainability suggests the cap potential of an MFI to continue to exist within side the lengthy- run through its profits-producing activity, i.e. with no contributions from donors (AEMFI, 2013). As in step with the MIX Market definition, the period of financial sustainability is described as having an operational sustainability degree of 110% or greater, whilst Operational sustainability is described as having an operational self-sufficiency degree of 100% or greater. Financial sustainability refers that the cap potential of a microfinance company to cowl all of its prices on an unsubsidized foundation or without accepting donations. According to the United Nations sustainability is vital to attain a bigger variety of humans on an ongoing foundation (Elia, M.2006). If MFIs continue to be depending on restricted donor investment they may be capable of attaining simplest a restricted variety of humans. Financial sustainability isn't a lead in itself however be the simplest manner to attain a giant scale. To examine the sustainability of an MFI the 2 regarded fixed ratios were developed. These are broadly common and they allow contrast amongst MFIs all around the world. These maximum vital ratios are Operational Self Sufficiency (OSS calculated via way of dividing working profits via way of working expenses) and Financial Self-Sufficiency

(FSS) that's measured via way of dividing adjusted working profits via way of adjusted working expenses. These measurements imply the qualification to which working profits cover working expenses. If the calculated parent is extra than 100%, the organization A share company assessment is taken into consideration to be operationally self-enough. In microfinance, operationally sustainable establishments are capable of cowl their prices via working revenues. On the alternative hand,

The changes attempt to expose how the financial photograph of the MFI could appear on an unsubsidized foundation or loose from the donation. Financial self-sufficiency calls for changes for extraordinary reasons. Financial statements ought to be adjusted to comply with conventional accounting practices, bear in mind inflation, and get rid of the impact of subsidies and in-type donations. FSS indicates how an MFI could appear if the budget has been raised on a business foundation and if offerings or devices have been bought at a marketplace charge and have been now no longer acquired as a donation (Elia, M.2006). Operational self-sustainability is whilst the working profits are enough sufficient to cowl operational prices like salaries, supplies, Loan losses, and different administrative prices. And financial self-sustainability (which he called the excessive fashionable degree) is whilst MFIs also can cowl the prices of budget and different styles of subsidies acquired whilst they're worth marketplace prices (Meyer, 2002). A better ratio (greater than 100%) is indicative of a lengthy-time period of financial sustainability.

2.2.10. Determinants of Financial Sustainability

a) Leverage (Debt to Equity ratio)

The debt to equity ratio is the handiest degree of company leverage and is thought because the driving force of MFI's sustainability and performance. Although keeping the first-rate blend of debt and fairness continues to be the challenge of excessive debate amongst scholars, 3 famous theories are emerged to outline the suitable blend of fairness and debt to decorate‟ go back and perform.

In 1958 Modigliani and Miller posted a seminal painting within side the capital shape wherein they concluded the extensively recognized principle of “capital shape irrelevance” wherein the capital shape is beside the point of a company's overall performance in best capital markets. This view is similarly supported via way of means by Berk & DeMarzo (2007) after they argued that the regulation of 1 fee implied that leverage could now no

longer affect the overall effect. Instead, it best adjusts the allocation of coin flows among debt and fairness, without converting the overall cash flows of the company. The Modigliani and Miller theorem holds authentic a share company the idea of a perfect capital market, in which meat people and companies alternate on the same, no taxes exist and no transaction expenses exist. However, this state of affairs is not likely to take place within side the actual international, especially within side the MFI zone where some of these assumptions cannot behold authentically and are much less straightforward. The primary MM ideas are relevant to MFIs, however, best after accounting for the essential variations in how MFIs and companies operate (Cohen, 2003).

The way wherein sales are generated and the character of law for an MFI are markedly exclusive from that of a company. Consequently, the theoretical belief of the finest capital shape for MFIs‟ to turn out to be solvent and sustainable isn't very nicely described. The problem of providing cash provides any other layer of trouble to the capital shape query for MFIs. Does providing cash create an ethical threat or incentive troubles with recognizing MFI in the direction of sustainability? Thus, within side the context of the MFIs capital shape discussion, one is needed to keep in mind the troubles much like they provide as opposed to concessional Loan debate within side the overseas useful resource literature (Bogan, 2009).

Consistently, worthwhile MFIs with a variety of tangible belongings that may be supplied as collateral for debt may also have a better goal debt ratio. Simply placing an excessive share of constant hobby capital to fairness could suggest that the MFI is extraordinarily indebted and consequently dangerous turning into bankrupt increases. On the opposite hand, extraordinarily, leveraged MFIs may also carry out higher via way of means of playing scale economies, improving their cap potential to enhance profitability (James, 2003). Those MFIs scoring most DER have to be vigilant due to the fact theories recommend that better DER is sure to exert stress on income margin (sustainability and performance).

For the reason of this observe the Financing leverage supposed the diploma to which the MFIs are financed via way of means of debt expressed within side the MFIs stability sheet liability. Myers & Majluf (1984) defined that the pecking order principle shows worthwhile companies choose inner financing over outside financing and subsequently profitability is predicted to have a poor relationship with leverage. Additionally, worthwhile banks may also have higher get entry to outside financing; the want for debt finance may also probably decrease if new investments may be financed from amassed reserves.

Peter Muriu, (2011). Microfinance institutions that employ higher debt in their capital structure are more profitable, and highly leveraged microfinance institutions are more profitable, besides, a higher debt ratio can enhance the rate of return on equity capital during good economic times, Peter Muriu, (2011). Moreover, it also appears that NGO-type microfinance institutions rely more on debt financing relative to other types of microfinance institutions, perhaps because many are not regulated to mobilize deposits.

b) Operating Expense Ratio

The operating cost ratio is described and defined because the ratio of a general operating expense to a first-rate loan portfolio and as a result calculated via way of means of dividing all charges associated with the operation of the MFIs (which include all of the administrative and profits charges, depreciation and board fees) via way of means of the duration common gross portfolio, hobby and provision charges (Wolday, 2013). According to the studies located by Nyamsogoro (2010), the decrease in the ratio, all matters being constant, will suggest performance and the ratio strongly impacts the financial sustainability of microfinance establishments. This suggests that the extra MFIs are green in decreasing working expenses at a given stage of the first-rate loan portfolio, the extra worthwhile they turn out to be and, consequently, keep Financial and operational self-sufficiency and make certain financially sustainable.

c) Capital to Asset Ratio

The capital to asset ratio is an easy degree of solvency for the financial organization. It is used to evaluate an MFI‟s cap potential to satisfy its responsibilities and soak up sudden losses. For the regulated MFIs, there may be a minimal solvency requirement stipulated via way of means of the regulator. The requirement of minimal capital to belongings ratio relies upon an MFI‟s evaluation of its predicted losses and its financial power to soak up such losses. Expected losses should be covered through provisioning under the MFI‟s accounting policies. The capital to asset ratio measures the quantity of capital required to cowl extra sudden losses and make certain that the MFI is nicely capitalized for cap potential shocks. Some creditors or buyers may also stipulate the minimal capital to asset ratio for which they make investments MFIs.

According to the Consultative Group to Assist the Poor (CGAP), MFI has to be challenged to an excellent better capital asset ratio than banks within side the mild dangers and

vulnerability of MFI loan portfolio. They similarly suggest MFIs keep a ratio up to twenty percent in step with the next overall performance-primarily based rest to 12-15 percent. Ethiopian MFIs maintained a median capital to asset ratio of 36%. This is an enormously better, way to contribute donor-fairness to MFIs and the coverage of the authorities which tempts MFIs with social objectives.

d) Liquidity

Liquidity is likewise used to decide the financial fitness of an enterprise or private funding portfolio. Three liquidity ratios are used, for this reason, which includes the modern-day ratio, the short ratio, and the capital ratio (Diamond & Rajan, 2015). When studying the financial fitness of a company there are 4 exclusive corporations of ratios that the analyst will keep in mind. The corporations are liquidity ratios, financial leverage ratios, performance ratios, and profitability ratios. The maximum used liquidity ratios are ratios regarding receivables, inventory, operating capital, modern-day ratio, and acid check ratio (Muranaga & Ohsawa, 2012).

The liquidity of the company is a key determinant of the company's financial sustainability, Liquidity chance may be measured via way of means principal methods: liquidity hole and liquidity ratios (Abor, 2010). The liquidity hole is the distinction between belongings and liabilities at each gift and destiny date. Liquidity is the quantity of capital this is to be had for funding and spending. Capital consists of coins, credit score, and fairness. Most of the capital is credit score instead of coins. That's due to the fact the huge economic establishments that do maximum investments choose the usage of borrowed cash (Jeanne & Svensson, 2012). A observe via way of means of Holmstrom and Tirole (2010) observed a poor and massive courting among the extent of liquidity and financial sustainability. In contrast Bourke, (2011) stated a contrary result, as a result locating a nice courting among liquidity and financial sustainability. Different financial ratios are used to degree the liquidity role of a financial organization however the maximum not unusual place financial ratios used are purchaser deposit to general asset and general loan to purchaser deposits (Abor, 2010).

e) Profitability Ratio

A profitability ratio is a degree of profitability, that's a manner to degree a company's overall performance. Profitability is the ability to make earnings, and earnings are what's left over from earnings earned after you've got deducted all charges and prices associated with income

the earnings. The ratios tested up to now offer beneficial clues as to the effectiveness of a firm's operations, however, the profitability ratios display the blended results of liquidity, asset management, and debt on working results. The Ratios we used to calculate the profitability of the MFIs had been Net earnings Margin, Return on Equity, and Return on asset. The Net Profit Margin suggests the company's capacity to generate an internet take advantage of an increment of the extra one greenback of complete earnings. This ratio measures internet earnings in keeping with overall sales; it's far calculated via way of means of dividing internet earnings via way of means of sales. Net Interest Margin (NIM) is a degree of the distinction among the hobby earnings generated via way of means of banks and the quantity of hobby paid out to their lenders, relative to the quantity in their belongings. It is commonly expressed as a percent of what the financial group earns on loans in a particular term and different belongings minus the hobby paid on borrowed finances divided via way of means of the common quantity of the belongings on which it earned earnings in that term (the common incomes belongings) (Olweny, and Shipho, 2011).

f) The yield on the Loan portfolio (Interest earnings)

The group's hobby costs are on this have a look at represented via way of means of the yield at the gross portfolio (in nominal terms). Yield is the actual gross portfolio yield, a degree of hobby prices confronted via way of means of customers. Because Loan losses aren't netted out of the sales, this degree is meant to seize the ex-ante hobby charge charged via way of means of the lender in place of the ex-put-up hobby charge found out in the portfolio. The hobby costs within side the microfinance enterprise have regularly been the notion of as too high, but some other manner of taking gain of hurdling people. But, as mentioned earlier, microfinance will possibly constantly be surrounded via way of means of better costs than the conventional financial markets because of its better transaction charges in keeping with the Loan. This isn't to say, however, that MFIs have to now no longer try to decrease their hobby costs via way of means of turning into extra green and lowering their charges. The truth that the sustainable MFIs have decreased yields implies a promising discovery; that the sustainable MFIs on this have a look at have now no longer emerged as self-enough because of high-hobby costs and the exploitation of terrible people. The yield at the gross portfolio is calculated via way of means of dividing adjusted financial sales from the Loan portfolio by the adjusted common gross Loan portfolio. This shows the diploma to which the most important belongings of an MFI, the gross Loan portfolio, generate hobby and price earnings.

g) Age of MFI

Based on the study made by Magali (2013) shows that the age of SACCOS affect positively the financial sustainability, implying that sustainability favored the aged SACCOS. This is probably because long-lived SACCOS accumulated enough experience in marketing their financial products and also had the advantage of reduction of costs. This result is in line with Nyamsogoro (2010) who revealed that the age of rural MFIs in Tanzania influence positively the financial sustainability. Similarly, Hartarska et al (2011) found out that the age of MFIs positively influenced the financial sustainability of MFIs worldwide. However, Bogan (2009) found out that the age of MFI negatively influenced the sustainability of MFIs; but the influence was not statistically significant. Moreover, Hermes et al (2008) found out that older MFIs are less efficient, hence they might be less sustainable too.

h) Macroeconomic factors (Inflation Rate)

Inflation is the charge at which the overall stage of expenses for items and offerings is growing inside the financial system over time. Inflation erodes the buying energy of clients due to the fact we purchase fewer items and offerings with every unit of currency. The impact of inflation on financial overall performance relies upon whether or not operation charges will increase at a quicker charge than inflation or vice versa. In this vein, Pasiouras and Kosmidou (2007) said that inflation can also additionally have an advantageous or terrible effect on loan overall performance.

The courting is relying on whether or not the inflation charge is expected or unanticipated. If the inflation charge is expected, banks can regulate hobby costs timely. As a result, the sales grow quicker than charges and therefore report an advantageous effect on profitability. This may have a terrible effect on profitability. Generally, inflation is measured via way of means of calculating the inflation charge of a rate index, the purchaser rate index (CPI). Inflation or CPI is calculated primarily based totally on the charge of extruding in expenses of a hard and fast basket of products and offerings that constitute the expenditure sample of all families in countries. Gwas & Ngambi (2014) additionally examined the impact of macroeconomic signs GDP boom and inflation on the sustainability of MFIs. Although statistically now no longer significant, their result confirmed a terrible effect of inflation and an advantageous effect of GDP boom on the sustainability of MFIs. They mentioned that the terrible effect of inflation on sustainability indicated that compensation stages are commonly vulnerable and coffee within side the presence of better inflation charge.

i) Macroeconomic factors (GDP growth rate)

Gross domestic product (GDP) is the most commonly used macroeconomic indicator. It refers to the income generated by output and production in a country's economy during a period. GDP growth is used as a proxy measure for GDP to measure the macroeconomic condition. GDP growth is defined as the annual change in the GDP. It reflects the state of the economic cycle. GDP growth is expected to have an effect on the supply and demand for loans and deposits. When the economy boomed, demand for credit or loans increased as well as the quality of the assets. Banks can generate higher profits. As the economy slows down, the GDP growth is slowing down too. The lending tends to decrease. Therefore, during the boom, the demand for credit is high compared to the recession (Athanasoglou et al., 2005).

Bourke (1989) presents evidence that economic growth if particularly, associated with entry barriers to the banking market, would potentially lift banks' profits. In addition, banks are associated with higher default risk and provisions cost tend to be higher, hence reducing bank profitability. In short, GDP growth can be served as an indicator of the demand for banking services. GDP growth is included as a variable that influences bank profitability (Kosmidou et al. 2006; Pasiouras and Kosmidou, 2007; Heffernan and Fu, 2008).

2.3. Empirical Literature

This phase of opinions research was formerly achieved on determinants of financial sustainability of microfinance institutions. Rhyne (2012) states that thru using a scientific method to preceding scholarly paintings, literature evaluation permits a researcher to vicinity his studies paintings into a highbrow and historic context, that is, it permits the researcher to claim why his studies matter.

2.3.1. Studies in World Wide Context

Several studies were carried out to decide the troubles affecting the financial and operational sustainability of MFIs in special countries. However, the extent of the importance of those elements in distressing the financial sustainability of MFIs varies with research and countries. While a number of the determinants are determined to be considered in a single U. S. A. or economic system or MFI, they'll now no longer be considered for others (Cull et al., 2007; Woller & Shcreiner, 2002; Christian et al., 1995). Many research undertaken around the sector underlined the significance of financing shape or investment assets for sustainability. Studies made with the aid of using Sekabira (2013) hypothesized that offers and money owed

erode sustainability while percentage capital and belongings enhance it and determined the identical result as anticipated. He argued that authority's coverage has to restrict MFI's getting admission to offers and money owed.

Nduba (2018) tested the financial sustainability of microfinance within side the Democratic Republic of Congo. The look at hired a descriptive studies layout with the aid of using inspecting the consequences of Loan overall performance, outreach, and financial shape within side the financial sustainability of MFIs within the Republic of Congo. The look used quantitative and qualitative statistics for evaluation. An evaluation achieved on linear regression indicated that Loan overall performance statistically appreciably anticipated the sustainability of MFIs, financial shape statistically appreciably anticipated the financial sustainability of MFIs, and outreach statistically anticipated the financial sustainability of MFIs.

Dinah (2016) studied the determinants of financial sustainability of microfinance in Kenya with the aid of using a descriptive survey study layout. The look sought to discover the effect of liquidity level, operational expense, Profitability, and leverage of the institution, on the financial sustainability of MFIs. The look additionally concluded that there may be a superb court between liquidity and financial sustainability. This means that the financial sustainability of the MFIs in Kenya is notably depending on the extent of the institution's liquidity. The look additionally concluded that financial overall performance changed however insignificantly related to financial sustainability. The look at additionally concluded a superb courting among financial overall performance and financial sustainability. There is likewise a poor courting between capital adequacy and financial sustainability which means that better debt to fairness ratio ends in bad financial sustainability. Leverage is likewise terrible and appreciably associated with financial sustainability. A bad capitalization plan earlier than starting to search for new shareholders influences the sustainability of MFIs. Poor control of debt finances can for this reason affect the sustainability of the MFIs.

Similarly, the look made with the aid of using Ann Kathomi (2017) in Kenya trusted number one and secondary statistics, this look concluded that modifications in lending hobby prices with the aid of using the authorities affect the sustainability of MFIs in Nairobi County. The look concluded that inflation on MFIs sustainability indicated that lending ranges are generally susceptible and occasional within side the presence of better inflation prices. The

look in addition concluded that the top rate or cut-price in forex affects the overseas capital as a result the sustainability of MFIs.

Anand (2012) studied elements affecting the Financial Sustainability of Microfinance Institutions in India and Bangladesh, and sooner or later suggest an extra complete and consultant version for financial sustainability and created an index to take a look at the financial overall performance of the microfinance sector. The study is analytical and empirical and uses secondary statistics. Regression evaluation is achieved for every Indian MFIs and Bangladesh MFIs for statistics of five years i.e. from 2005-06 to 2009-10. They look determined that the Number of Active Borrowers, Capital/Assets ratio, Yield, and Operating Expense appreciably affect the based variable OSS in India as their p-values are much less than the extent of importance (0.05) for Indian MFIs. PAR>30 days, Operating Expense and Capital Assets ratio have values much less than the extent of importance (0.05) for Bangladesh. Therefore, the null hypotheses are rejected and it could be concluded that those signs appreciably affect financial sustainability.

Hussein et.al, (2016) economic sustainability of microfinance establishments of Bangladesh. The examination used unbalanced panel facts set of a hundred forty-five observations from 29 MFIs over the period2008-2012 in Bangladesh. Among the 29 MFIs, the most effective 4 MFIs have observed much less than 100% FSS. The examined observed that the capital Assets Ratio has a terrible courting with the economic sustainability of MFIs and is statistically tremendous. Capital Adequacy‘s terrible coefficient suggests that the bigger MFI is, fairness-financed, compared to different assets of finance, leads now no longer to develop in its sustainability. The working price has an exceedingly terrible and statistically tremendous courting with the sustainability of MFIs. Thus, the result g proof that an increase (decrease) in working costs to serve loans reduces (increases) MFIs sustainability.

Studies had been performed to explain whether or not the capital shape determines the sustainability of microfinance establishments. Kyereboah (2007) observed that noticeably leveraged microfinance establishments have a better cap potential to address ethical dangers and destructive choices than their opposite numbers with decreased leverage ratios. This states that excessive leverage and profitability are undoubtedly correlated. Bogan et al. (2007 conducted a study to ascertain whether capital structure affects the financial sustainability of an MFI. They observed that microfinance establishments' capital shape changed with their economic concerning the examination through Nyamsogoro (2010) shows that there may be

an effective correlation coefficient between the capital shape and economic sustainability of microfinance establishments. This examination additionally observed that decreasing the working price ratio all matters being constant, will mean performance and the ratio strongly impacts the economic sustainability of microfinance establishments. This shows that the greater MFIs are green in decreasing working fees at a given stage of the remarkable Loan portfolio, the greater worthwhile they turn out to be and therefore, preserve economic and operational self-sufficiency and make sure financially sustainable. Similarly, the findings of Mohd et al. (2014) made at the MFIs of Bangladesh, advocate that the working price ratio has a terrible impact on the economic self-sufficiency and operational self-sufficiency of MFIs and therefore the sustainability.

Burki, et, al. (2018) examine economic sustainability and microfinance establishments from a rising marketplace and estimate the determinants affecting the economic Sustainability of Microfinance Institutions(MFIs) running in Pakistan primarily based totally on facts accumulated from 25 Microfinance Institutions' annual reviews from 2008-2015. The examined observed that financing charges, outreach, and the percentage of woman debtors notably give to explain the economic sustainability of MFIs. These are important determinants for assuaging poverty in Pakistan and accomplishing sound economic sustainability and survivorship of MFIs.

Gwas & Ngambi (2014) additionally examined the impact of macroeconomic signs on GDP boom and inflation on the sustainability of MFIs. Although statistically now no longer tremendous, their result confirmed terrible the effect of inflation and the effective effect of the GDP boom on the sustainability of MFIs. They mentioned that the terrible effect of inflation on sustainability indicated that reimbursement stages are typically susceptible and occasional within side the presence of better inflation rates.

2.3.2. Studies in the Ethiopian Context

Empirical research had been performed in Ethiopian relation to the microfinance industry, although, the topics, scopes, comprehensiveness, and intensity are varied. As mentioned by Woldeyes (2012) in Silashi (2015) the examination of sustainability has flourished because rest has been given to the long-time period thing of microfinance which may be big in growing international locations effective if lending to the terrible is tested to be sustainable. The sections under offer the empirical effects of the determinants of economic sustainability found from numerous research.

Melkamu (2012) on figuring out elements for operational and economic self-sufficiency of Ethiopian MFIs, the examine taken into consideration Yield, length, employees productiveness ratio, debt to fairness ratio, price in line with the borrower, common loan in line with borrower and age of MFIs as explanatory variables for the OSS. Yield, price in line with the borrower, liquidity ratio, a wide variety of energetic debtors, operational price ratio, and age because the figuring out elements for FSS of MFIs in Ethiopia. The examine observed that the common Loan stability in line with the borrower, length of MFI, price in line with the borrower, and yield on gross loan portfolio impacts the operational sustainability of Ethiopian MFIs notably and price in line with the borrower, a wide variety of energetic debtors and yield on gross loan portfolio effects on their economic self-sufficiency

Sileshi, (2015) assessed the tremendous determinants of economic and operational sustainability of Ethiopian microfinance establishments from secondary facts of thirteen decided on MFIs 10 years' facts which have been audited from the 12 months 2003 to the 12 months 2012; a couple of regression fashions had been employed.

The researcher observed that supply to asset ratio, GDP boom rate, price in line with the borrower, deposit to loan ratio, and the gross Loan portfolio are statistically tremendous variables in figuring out economic self-sufficiency. Similarly, the examiner observed that going back on the asset, age, price in line with the borrower, portfolio at danger, and working price ratio is statistically tremendous predictors in figuring out the economic self-sufficiency of Ethiopian microfinance establishments. Considering macroeconomic variables the examine observed that inflation has an effective and insignificant impact on the structured variable FSS, this location changed into contradictory to that of Kirubel (2018) and Khathomi (2017) who found out inflation has a terrible and tremendous impact on FSS.

Kindie's (2012) examination is primarily based totally on a quantitative studies method the use of balanced panel facts set of 126 observations from 14 MFIs throughout 2002-2throughoutf a multivariate regression version referred to as regular least square, the examiner observed that microfinance breadth of outreach, the intensity of outreach; dependency ratio, and cost in line with borrower have an effect financial sustainability of microfinance establishments in Ethiopia. However, the microfinance capital shape and body of worker's productiveness have a mere effect on the economic sustainability of MFIs in Ethiopia for the examined periods. Examine did now no longer displays the element of things that affect financial sustainability.

Abebaw (2014) studied the financial performance of microfinance institutions from 9 years of secondary data of thirteen elite MFIs in Ethiopia. The study used the OLS estimation methodology to measure the result of internal and external determinants of financial performance in terms of return on assets. The study finding showed that the Age of microfinance institutions incorporates a positive however statistically insignificant effect on their financial performance. Operational efficiency, GDP, and size of MFIs affect financial performance significantly. The opposite informative variables are Portfolio at risk>30, gear ratio, capital to asset ratio and Market concentration affected negatively and insignificantly.

Tilahun (2013) examined factors that verify east African MFIs together with Ethiopian microfinance institutions' financial sustainability. The study applied binary probit and ordered probit regression models and used unbalanced panel information collected from 23 microfinance institutions (MFIs) in east Africa from the period 2004 to 2009, the regression results reveal that MFIs' financial sustainability is absolutely and significantly driven by loans intensity and size. However, management inefficiency and portfolio at risk have a negative and vital impact on financial sustainability.

Sima (2013) in his study examined internal and external factors affecting the profit of Microfinance institutions in Ethiopia together with a completion of 13 microfinance institutions covering the period of 2003-to 2010. The investigator uses quantitative analysis chiefly documentary analysis. The result of the syndicates that the Age of microfinance institutions incorporates a positive and statistically vital result on their profitability. However, Operational potency and portfolio quality have a negative and statistically significant effect. However, capital adequacy, size, and GDP are found to be statistically insignificant variables.

Abiyu (2016) conducted a study to look at the factors that associate which affect the financial sustainability of MFIs in Ethiopia. The study relies on a quantitative analysis approach with an explanatory research style exploitation panel information fixed regression because of the main data analysis technique. The study is based on 11years of secondary data from 2004 to 2014 for 15 chosen MFIs in Ethiopia. The study found that MFIs in Ethiopia don't seem to be the financially sustainable and identified breadth of stretch and deposit to loan ratio considerably affect the financial sustainability of MFIs in Ethiopia. On the opposite hand, inflation and operating expense ratio are significant and negative relationship with financial sustainability. Similarly, the study created by Kirubel (2018) employing a similar

methodology with identical instructive variables reveals precisely similar finding results thereto of Abiyu for all the explanatory variables.

Solomon et.al (2019) published a piece of writing that investigated the performance of MFIs and their determinants by exploiting unbalanced panel information (2000–2017) from Ethiopia. The results indicate that supported different financial performance metrics, the MFIs in Ethiopia have smart performance compared with those of the 10 biggest economies in sub-Saharan Africa. The results show that asset holding and the yield on the gross portfolio have a positive and vital result on the social and financial performances of MFIs in Ethiopia.

2.4. Summary and Knowledge Gap

Studies conducted within the areas of microfinance institutions in Ethiopia are restricted and primarily targeted at the performance of the MFIs. Whereas, only a couple of studies are conducted concerning the financial sustainability of Ethiopian MFIs with limited explanatory factors. Similarly, several studies have been conducted to determine factors affecting the financial sustainability of MFIs mistreatment giant and developed MFIs in numerous countries. The extent of the significance of those factors in influencing the financial sustainability of MFIs still varies with studies (Cull et al., 2007 & name et al., 1995).

Various recent studies correspond to Hossainet. Al (2016) and Tilahun (2013) reveal that the operating expense ratio incorporates a positive, however not vital impact on FSS, these results are inconsistent with Silashi (2015) and Kirubel (2018) discovered that OER has a negative significant effect on FSS of Ethiopian MFIs. A study done by Tilahun (2013) conjointly found that DER has a negative and significant effect on FSS that is against what different researchers indicated on top of a significance level. sima (2013) found that GDP rate of growth is an insignificant predictor of financial performance, this finding was inconsistent with Abebaw (2014) and Kirubel (2018).

Silashi (2015) regarding macroeconomic variables created a study from secondary information and located that inflation incorporates a positive, however insignificant effect on the variable quantity FSS, this finding was contradictory thereto of Kirubel (2018) and Khathomi (2017) that discovered inflation has a negative and significant effect on FSS.

The study made by Dinah (2016) and Hossain (2016) found that CAR has a negative and significant effect on FSS which is inconsistence with Kirubael (2018) explained that CAR has a positive significant effect on FSS. Kindie (2012), tried to spot factors affecting the

financial property of MFIs in Ethiopia, but his study didn't show visibly and used solely 5 years of information of chosen MFIs over the amount 2002-to 2010 and did not contemplate macroeconomic variables.

whereas studies conducted by Yenesew (2014), Ayenew (2019), Abebaw (2014), Asnakew, (2012), Tamene (2012), and Sima (2013) are worth observing, to the most effective of my knowledge most of those studies targeted on restricted internal characteristics and did not sufficiently (if not at all) consider the influence of profitability, financing structures, macroeconomic variables, and management potency indicators variables that has severely been investigated in several studies within the international microfinance industry.

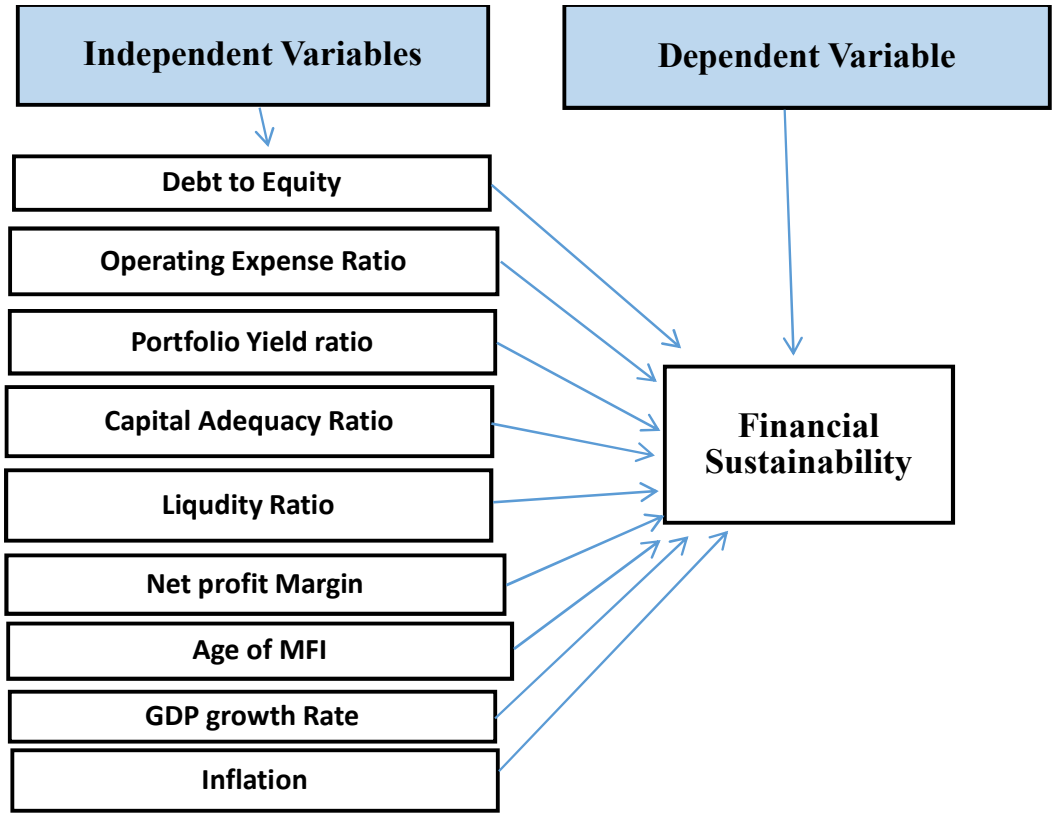
The investigator finally believes that those studies didn't offer such stress and convincing findings on the determinants of financial sustainability and did not contemplate the results of net profit margin (NPM), Portfolio Yield variables (PY). In addition, there have been inconsistent findings on macroeconomic factors, Debt to Equity Ratio, operating expense ratio, Capital asset ratio, and variables. The determinants for financial sustainability of Microfinance institutions have backgrounds within the existing pieces of literature, however as way as my information is concerned it desires additional analysis and explanation, particularly in the Ethiopian case a result because the empirical literature displays the matter is completed with limited explanatory variables and additional targeted on the performance of the MFIs with descriptive statistics.

Therefore, this study aims to fill the above-mentioned knowledge gaps, bridge the previous researches gap, and make convincing results by mistreatment of the most important firm internal variables that weren't enclosed in most of the empirical studies like Liquidation ratio (LR), Age of MFI'S (AGE), net profit margin (NPM), and Portfolio Yield variables (PYR) added to the variables corresponding to Debt to Equity (DER), operating expense (OER), Capital to the asset (CAR), GDP rate of growth (GDP), and inflation (INF), thereafter the study makes an attempts a more comprehensive and representative model for financial sustainability and build an indicator to look at the financial performance of microfinance sector.

2.5. Conceptual Framework

Young (2009) defines conceptual framework as delineated representations that show the connection between dependent and freelance variables. It's developed from the review of literature mentioned at the top that shows the relationship between the MFI's financial sustainability and therefore the influences of variables employed in this study. Accordingly, different proof instructed that the financial sustainability of economic establishments specifically MFIs is littered with internal and external factors. This study used each internal and external determinant of MFI's financial sustainability. The interior determinants of MFI's financial sustainability embody Debt to equity (DER), operational expense (OER), portfolio yield (PYR), capital to asset (CAR), liquidity ratio, net profits margin (NPM), and Age (AGE) whereas the external determinants for MFIs financial sustainability embody the GDP and inflation (INF) rate within the country. The study aimed to spot to what extent these variables will verify the financial sustainability of MFIs in Ethiopia.

Figure 1: Diagram of conceptual framework



Source: Own Model 2022

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

This explicit chapter of the study can begin with the outline of the research sort, and approach (design), followed by describing the target population, sample size and sampling technique, source of information, and methods of collection. Finally, the definition of variables, model specification, and data analysis tools are going to be presented.

3.2. Research Approach

The study was employing a quantitative research approach because the literature on research methodology shows quantitative research approach tends to assume that there's a cause and effect relationship between far-famed variables of interest. In line with this, quantitative research tests the paper established relationship between variables victimization sample information with the intention of statistics to statistical generalization.

Therefore, the ordinary least square (OLS) technique particularly multiple regression models are going to be used to assess the significant determinants of financial sustainability of MFIs in Ethiopia. The financial self-sufficiency ratio is employed because the dependent variable is to measure the self-sufficiency (sustainability) of microfinance establishments in Ethiopia. The researcher is already extracted numerous predictors or instructive and independent variables from different studies to measure the financial sustainability of MFIs in Ethiopia.

Accordingly, Nine predictor /independent or explanatory variables, namely; Debt to Equity ratio (DER), Operating Expense ratio (OER), Portfolio Yield ratio (PYR), Capital to Asset ratio (CAR), liquidity ratio (LR), Net Profit Margin (NPM), Age (AGE), Real GDP growth rate (GDP), and Inflation (INF), Were assessed within the model to measure and predict the financial sustainability of MFIs in Ethiopia.

3.3. Research Type and Design

The objective of this study is to assess the determinants of financial sustainability of MFIs in Ethiopia, by taking financial sustainability because of the dependent variable. Hence, to assess financial sustainability, this study is quantitative research by its nature. The explanatory research design with panel information was used to research the ensuing estimates and to properly address the hypothesized research questions. As expressed by Melkamu (2012) using an explanatory research design, is believed to own 3 advantages: first, it shows individual-level changes within the variables, second, it establishes the time order of variables, and third, it will shows how the relationship emerges between variables.

Furthermore, as stated by numerous researchers and scholars, quantitative panel data is taken into account as additional informative, has more variability, with less dimensionality among variables, more degrees of freedom, and thus additional efficiency. Moreover, the continual cross-section of observations with a spread of years could be a higher suited to study the dynamics of modification of variables and observe and measure impacts that are simply troublesome to be observed in pure cross-section or pure time-series data.

3.4. Target Population

In line with the recent data from the NBE website, there are 41 microfinance institutions in operation in the country by the end of the year 2019/20. Accordingly, the target population thought of by the researcher is all the 41 microfinance institutions authorized NBE that were providing the microfinance service to the target cluster by the end of the year 2019/20.

3.5. Sample Size and Sampling Design

The researcher believes that assembling data from every MFI is expensive and time-consuming. The standard of wide data could affect the effectiveness of the research findings. Hence, the sample size is judged based on the institution's loan portfolio. The Ethiopian MFIs are classified into 3 basic categories based on their portfolio size small, medium, and huge (AEMFI 12th bulletin). Additionally, the researcher used his own judgment to select the appropriate sample of 19 microfinance institutions out of the whole population of MFIs based on the Purposive sampling technique by considering the dimensions of an institution's loan portfolio. Accordingly, the study enclosed 19 MFIs for 10 years of information that was audited for the year 2011 to 2019/20 and published within the AEMFI annual report.

Therefore, this provides a complete of 190 (19MFIs 10*190 years) observations, which is indeed enough to do a multiple regression within which a minimum of 95 observations is suggested by Brooks (2008).

Table 1: List of Sample MFIs and their several Gross Loan Portfolios as of June 30, 2020

(In Thousands of Birr)

NO	Gross Loan Portiflo	Abbr. Name	Gross Loan Portiflo	Total Asset
1	Amhara credit and savings inst.	ACSI	22,219,065.10	33,537,518.50
2	Oromiya credit and savings inst.	OCSSCO	11,690,246.60	14,390,759.70
3	Omo credit and savings inst.	OMO	7,231,704.00	9,096,487.10
4	Addis credit &savings inst.	ADCSI	4,715,622.80	6,651,403.50
5	Specialized financing& prom. inst.	SFPI	432,230.30	534,333.20
6	Wisdom micro-financing inst.	VFMFI	1,840,400.70	2,287,132.70
7	Sidama micro-financing inst.	SMFI	312,923.30	401,964.50
8	Buussa Gonof.micro-financing inst.	MGMF	604,557.00	829,015.00
9	PEACE micro-financing inst.	PEACE	289,069.00	371,898.50
10	Eshet micro-financing inst.	EMFI	65,942.10	85,022.10
11	Wassassa micro-financing inst.	WMMFI'	686,655.20	894,426.80
12	Agar micro-financing inst.	AGGAR	286,547.20	672,609.20
13	Harbu Micro-financing inst.	HMFI	228,026.40	286,985.50
14	African village financial serv.	AVFS	7,405.40	21,648.60
15	Sha.Idi.ye.Ag. micro-financing inst.	SIAMFI	67,010.60	93,711.10
16	Metemamen micro-financing inst.	MMFI	322,626.40	408,082.90
17	Leta micro-financing inst.	ONE	1,226.10	4,883.60
18	Digaf micro-financing inst.	DMFI	420.80	1,217.60
19	Lefayda credit & saving inst.	LCSI	21,111.50	40,459.70
Total Gross LP and Total Asset for sample MFIs			**51,022,790.50**	**70,609,559.80**
Total Gross LP and Total Asset for total Population			**58,722,261.10**	**92,200,086.40**
Total Gross LP and Total Asset Contribution of sample MFIs			87%	77%

Source: The Author's compilation from empirical literature, 2022

3.6. Source of Data and Methods of Data Collection

To hold out any research activity; information should be gathered from proper sources. The source of information for this research was nearly secondary sources. To examine the determinants of the financial sustainability of microfinance institutions in Ethiopia, the researcher is predicted to gather and use secondary data from various sources. Accordingly, the secondary data specific to MFIs were taken from the national bank of Ethiopia. Whereas, the data regarding the macroeconomic factors were additionally collected from the national bank of Ethiopia (NBE), the combined market, and also the website of the World Bank. To enhance the standard of econometric estimates and to preserve consistency, solely the most

accessible MFIs' audited data and revealed or unpublished within the NBE report were collected from the fiscal years 2011 to 2020 (balanced panel data) effectively constituting 10 years of data.

3.7. Data Analysis Method

The appropriate apparatus to be used for analyzing this panel data will be either STATA 14 or SPSS software. Therefore, the collected panel data will be analyzed by using descriptive statistics, correlations, and multiple linear regression analysis. Descriptive statistics (mean values and standard deviations, minimum and maximum) are expected to analyze the general trends of the data from 2011 to 2019/20 based on the sector sample of 19 MFIs and correlation will examine the relationship between the dependent variable and explanatory variables. A multiple linear regression model will be used to determine the relative importance of each independent variable in influencing financial sustainability.

3.8. Variable Descriptions

The study aimed to assess the significant determinants of the financial sustainability of MFIs in Ethiopia. The financial self-sufficiency ratio is employed because the dependent variable to measure the sustainability of microfinance institutions in Ethiopia. The researcher is already extracted various predictors or explanatory and independent variables from different studies to measure the financial sustainability of MFIs in Ethiopia. Accordingly, nine explanatory variables, namely; Debt to Equity ratio (DER), Operating Expense ratio (OER), Portfolio Yield ratio (PYR), Capital to Asset ratio (CAR), liquidity ratio (LR), Net Profit Margin (NPM), Age (AGE), Real GDP growth rate (GDP), and Inflation (INF), Were assessed within the model to measure and predict the financial sustainability of MFIs in Ethiopia.

3.8.1. Dependent Variable

- **Financial Sustainability**

This ratio shows the ability of the MFI to cover its adjusted expenses from adjusted revenues excluding grants. Financial sustainability indicates whether enough revenue is earned to cover all the operating, financial, and loan loss expenses. A better ratio of more than 100% is indicative of long-term financial sustainability. The paper used financial self-sufficiency as a proxy for financial sustainability.

Financial sustainability ratio = Adjusted financial revenue / Adjusted total expense.

3.8.2. Explanatory Variables

a. Debt to Equity ratio (DER)

It is calculated by dividing total liabilities by total equity. Total liabilities include all the MFI owes to others, including deposits, borrowings, accounts payable, and other liabilities. The Modigliani and Miller theorem holds authentic a share company the idea of a perfect capital market, in which meat people and companies alternate on the same, no taxes exist and no transaction expenses exist. However, this state of affairs is not likely to take place within side the actual international, especially within side the MFI zone where some of these assumptions cannot behold authentically and are much less straightforward.

The primary MM ideas are relevant to MFIs, however, best after accounting for the essential variations in how MFIs and companies operate (Cohen, 2003). This ratio measures the safety cushion the institution has to absorb losses before creditors are at risk.

Debt to equity = Total Debt/ Total Equity

b. Operating Expense Ratio (OER)

This ratio provides an indicator of the overall efficiency of a lending institution and it is also commonly referred to as the efficiency ratio. It measures the institutional cost of delivering loan services. It is regularly assumed that the lower the operating expense ratio, the higher the efficiency of an institution.

The operating cost ratio is described and defined because the ratio of a general operating expense to a first-rate loan portfolio and as a result calculated via way of means of dividing all charges associated with the operation of the MFIs (which include all of the administrative and profits charges, depreciation and board fees) via way of means of the duration common gross portfolio, hobby and provision charges (Wolday, 2013).

Operating expense ratio = Adjusted operating expense /Adjusted average gross loan portfolio

c. Portfolio Yield Ratio (PYR)

This ratio indicates the degree to which the largest assets of an MFI, the gross loan portfolio, generate interest and fee income. The group's interest rates are in this study represented by the yield on the gross portfolio (in nominal terms). Yield is the real gross portfolio yield, a measure of interest charges faced by customers. Because loan losses are not netted out of the revenues, this measure is intended to capture the ex-ante interest rate charged by the lender rather than the ex-post interest rate realized on the portfolio. The fact that the sustainable MFIs have lower yields implies a promising discovery; that the sustainable MFIs in this study have not become self-sufficient due to high-interest rates and the exploitation of poor people. The yield on the gross portfolio is calculated by dividing adjusted financial revenue from the loan portfolio by the adjusted average gross loan portfolio. This indicates the degree to which the largest assets of MFI, the gross loan portfolio, generate interest and fee income.

The yield on gross portfolio = Adjusted financial revenue from GLP/ Adjusted average GLP

d. Capital to Asset Ratio (CAR)

This ratio measures the degree to which MFI has financed its total assets from equity. The higher the equity proportion, the more the capacity of the MFI to absorb losses before the assets become inadequate to satisfy debt holders' claims. According to the Consultative Group to Assist the Poor (CGAP), MFI has to be challenged to an excellent better capital asset ratio than banks within side the mild dangers and vulnerability of MFI loan portfolio. They similarly suggest MFIs keep a ratio up to twenty percent in step with the next overall performance-primarily based rest to 12-15 percent.

Adjusted capital to assets ratio = Adjusted total equity to Adjusted total assets

e. Liquidity Ratio (LR)

Liquidity ratios are a measure of a company's ability to pay its current liabilities. Liquidity metrics determine how quickly a company can convert assets and use them to pay fees. The higher the ratio, the easier it is to pay off debt and avoid defaults. It indicates what percentage of the volatile funding of the MFI is tied up in illiquid loans.

The ratio reflects the proportion of the customers' deposits that have been given out in the form of loans. Therefore, the higher this ratio the less liquid the bank is and interpreted inversely. The liquidity of the company is a key determinant of the company's financial sustainability, Liquidity chance may be measured via way of means principal methods: liquidity hole and liquidity ratios (Abor, 2010).

Liquidity ratio = current assets to its current liabilities

f. Net Profit Margin

The Net Profit Margin shows the company's ability to generate a net profit from an increment of the additional one dollar of a total income. The ratios examined thus far provide useful clues as to the effectiveness of a firm's operations, but the profitability ratios show the combined effects of liquidity, asset management, and debt on operating results. The Ratios we used to calculate the profitability of the MFIs were Net profit Margin, Return on Equity, and Return on asset. This ratio measures net income per total revenue; it is calculated by dividing net income by revenue.

g. Age of an MFI

MFI's sustainability could also be related to the age of MFI, the age refers to the period that an MFI has been Operation it's in initial inception.

h. Inflation Rate

It is a sustained increase in the general price level of goods and services in the economy over a while. When the price level rises, each unit of currency buys fewer goods and services.

Gwas & Ngambi (2014) also tested the influence of macroeconomic indicators GDP growth and inflation on the sustainability of MFIs. Although statistically not significant, their result showed a negative impact of inflation and a positive impact of GDP growth on the sustainability of MFIs. They noted that the negative impact of inflation on sustainability indicated that repayment levels are usually weak and low in the presence of higher inflation rates.

i. GDP Growth

It is defined as the annual change of the GDP (economic growth). GDP growth is expected to have an effect on the supply and demand for loans and deposits. In short, GDP growth can be served as an indicator of the demand for financing services. GDP growth is used as a proxy measure for GDP to measure the macroeconomic condition. It reflects the state of the economic cycle.

When the economy booms, demand for credit or loans increases as well as the quality of assets. Banks can generate higher profits. As the economy shows slows, the GDP growth is slowing down too. The lending tends to decrease. Therefore, during the boom, the demand for credit is high compared to the recession (Athanasoglou et al., 2005). Bourke (1989) presents evidence that economic growth, if particularly, associated with entry barriers to the banking market, would potentially lift banks' profits.

The following table summarizes the name, description of the independent variables, the variable names, variable measurements to be used in the regression model, and the researcher's expected effect of the independent variables on the dependent variable used in the research.

Table 2: Summary of variables in the study and their expected impact/sign

Categories	Variables Name	Variables Symbol	Measurement ratio to be used	Expected sign	Literatures
Dependent Variables	Financial Self suficiency	FSS	Adjusted Revenue / Adjusted expense		Abiyu(2016), Silashi (2015),Tilahun (2013), Melkamu (2012 & Kinde (2012)
Independent Variables	Debt to Equity ratio	DER	Adjusted total Liabilty/ Adjusted Equity	-	Buzayehu (2019), ,Silashi (2015),Tilahun (2013), Anand (2012),
	Operating expense ratio	OER	Operating Expense/ Gross loan	-	Kirubel (2018), Hossain (2016), Silashi (2015), Abiyu (2016) & Tilahun (2013)
	Portfolio Yield ratio	PYR	Total financial revenue from loan portfolio /adjusted average gross loan portifolio	+	Melkamu (2012, Anand (2012)
	Capital to Asset	CAR	Total capital/Average total asset	+	Abebaw (2014), Hossain (2016), Kirubel (2018)
	Liquidity ratio	LR	Current Asset/current liability	-	Nyamsogoro (2010)
	Net Profit Margin	NPM	Net income /Total Revenue.	+	Dinah (2016)
	Age	AGE	Age of MFI	+	Magali (2013), Nyamsogoro (2010),
	Inflation	INF	The inflation rate of the country	-	Buzayehu (2019), Kirubel (2018) , Khathomi (2017) ,Abiyu (2016),
	Real GDP growth rate	GDP	GDP growth rate of the country	+	Kirubel (2018), Khathomi (2017), Abiyu (2016)

Source: The Author's compilation from empirical literature, 2022

3.9. Model Specification

The researcher formulates an econometric model which is a representation of the basic features of an economic phenomenon to achieve the broad research objective. It is an abstraction of the real world. The specification of a model is based on the available information relevant to the study in question. This is to say that the economic model formulation is dependent on available and accessible information on the study as supported in standard theory and other major important empirical works, or else, the models would be theoretical.

This study tried to find the determinants of financial sustainability of Ethiopian MFIs by taking financial self-sufficiency as a proxy for the financial sustainability of MFIs for the period covering 2011-2020 by using balanced panel data. The paper specifies the model based on nine predictor variables Debt to Equity ratio (DER), Operating expense ratio (OER), Portfolio Yield ratio (PYR), Capital to asset ratio (CAR), liquidity ratio (LR), net profit margin (NPM), Age (AGE), Real GDP growth rate (GDP), and Inflation (INF).

The panel data model adopted from different studies conducted in a similar area as the baseline model used by other researchers Gemechu (2016) and Buzayehu (2019) were used:

$Yit = \beta o + \beta Xit + \mu it$---------- (1)

Where:

Y-it - dependent variable

βo- constant coefficient

β – Regression coefficient

X-it- independent variable

μ-it – error term

i – The number of units

t – The number of times

Based on the baseline model explained above, the researcher developed multiple linear regression models to measure the financial sustainability of MFIs. Multiple linear regressions provide a rich and flexible framework that suits the needs of many analysts and has been used

in similar studies, including those carried out by Sileshi (2015), Abebaw (2014), and Buzayehu (2019). The multiple regression model adopted from different studies conducted in the same area to examine the determinants for financial sustainability of MFIs in Ethiopia is explained as follows.

$$FSSit = \beta oi + \beta 1 * DERit + \beta 2 * OERit + \beta 3 * CARit + \beta 4 * PYRit + \beta 5 * LR + \beta 6 * NPMit + \beta 7 * AGEit + \beta 8 * INFit + \beta 9 * GDPit + \mu it.$$

Where β1 to β9 are the coefficients of the variables and μit is the random error term.

Boi; stands for the intercept term which varies across MFIs but is constant over time

DERit: stands for debt to equity ratio of MFI I at time t,

OERit: stands for operating expense ratio of MFI I at time t,

CARit stands for capital to asset ratio MFI I at time t,

PYRit stands for Portfolio Yield ratio of MFI I at time t,

NPMit stands for the net profit margin of MFI I at the time t,

LRit stands for the liquidity ratio of MFI I at the time t,

AGEit stands for the Age of MFI I at the time t,

INFit stands for Inflation rate assigned to MFI I at time t.

GDPit: stands for GDP growth rate of Ethiopia assigned to MFI I at time t.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1. Introduction

This chapter deals with the analysis and presentation of the results of the study on the financial sustainability of microfinance institutions in Ethiopia. Data collected from NBEs were analyzed using STATA 14.0 and SPSS software. Descriptive statistics and correlation analysis were discussed, followed by the diagnostic tests required to satisfy the assumptions of the classical linear regression models. Then the data analysis and discussion of the main results of the regression analysis using the supporting theoretical framework and empirical evidence were presented.

4.2. Summary

The importance of the financial sustainability of MFIs could be assessed based on the specific variables of the institution and the macroeconomic levels of the economy. The study aims to identify the determining factors for the financial sustainability of Ethiopian microfinance institutions. Determines the impact of Debt to equity (DER), operational expense (OER), portfolio yield (PYR), capital to asset (CAR), liquidity ratio (LR), net profits margin (NPM), and Age (AGE), GDP and inflation (INF) variables of the financial sustainability of MFIs in Ethiopia.

This study used data from 19 Ethiopian microfinance institutions collected by the National Banks of Ethiopia for the period 2011-2020. To achieve its intended purpose, the study used a fixed-effects regression model on nine variables that were both macroeconomic and macroeconomic nature were microfinance. Specific variables with the software STATA 14.0.

Data were analyzed using descriptive statistics, correlation matrix analysis, inferential statistics, and multiple regression models. To present the results of the OLS regression model, the classical linear regression model (CLRM) assumption was employed; the data was found to be normally distributed, free from multicollinearity and heteroscedastic problems model. The Hausman test was also tested to select the appropriate model. Finally; the results of the regression of the fixed effects model were discussed.

4.3. Descriptive statistics

This section presents the descriptive statistics of dependent and independent variables used in the study of selected Microfinance Institutions. The dependent variables used in the study were FSS while the independent variables were Debt to Equity Ratio (DER), Operating expense ratio (OER), Capital to asset ratio (CAR), Net profit Margin (NPM), Portfolio Yield ratio (PYR) Inflation rate and GDP growth rate. Thus, the total observations for each dependent and explanatory variable were 190 from 10 years of 19 Microfinance Institutions with balanced panel data. Table 4.1 demonstrates the mean, standard deviation, minimum and maximum values for the dependent and independent variables for sample MFIs over the year 2011 to 2020.

Table 3: Descriptive Summary of Dependent and Independent Variables

```
. summarize FSS DER OER PYR CAR LR GDP INF AGE NPM
```

Variable	Obs	Mean	Std. Dev.	Min	Max
FSS	190	1.835295	1.143331	-2.655157	5.641455
DER	190	2.099309	2.719759	-19.19731	18.0957
OER	190	.4395116	.9716319	.0764198	9.631409
PYR	190	.3798117	.2440498	-1.576407	1.123072
CAR	190	.2556877	.1594164	-.6404128	.8687249
LR	190	1.752805	.8269713	.9132913	9.32554
GDP	190	.0916	.0149941	.061	.114
INF	190	.1457	.0771123	.074	.341
AGE	190	16.92105	4.372724	6	24
NPM	190	-.89829	10.47863	-141.875	1.604172

Source: STATA Output from NBE Data, 2022

The study disclosed the performance of the dependent variable, FSS of MFIs which is indicated in table 3, which is measured by the Adjusted Revenue divided by the total expense and contains a mean value of 1.83 (183%) throughout the study period 2011-2020. Additionally, the standard deviations, the maximum and minimum values of MFIs' are 1.14, 5.64, and -2.65 respectively. This shows that the MFIs enclosed within the sample for the study period earned on average 1.83 cents in each one-birr investment they created on their financial gain and the profitable MFIs earned 5.64 of income after adjustment for one birr of adjusted expense they created on income. On the contrary, not profitable MFIs lost 2.65 for one-birr investment expense made on the income of the firm. This clearly illustrates the disparity in rates of return earned by MFIs.

Given the international requirement of an FSS ratio of 100%, the mean score of 183% indicated that most of the Ethiopian MFIs are financially self-sufficient. It is convenient for

these MFIs, with an FSS ratio above 100%, to cover all costs and to operate without ongoing subsidies. In this case, equity will increase by profit which would be made, enabling them to pay dividends to shareholders and helping them to invest in other profitable projects.

During the study period from the sample MFIs, the most successful MFIs attained FSS is ONE scoring an average self-sufficiency level of 564% followed by SFPI MFI scoring an average self-sufficiency level of 466% the next is PEACE scoring 419%, SFPI scoring 409%, PEACE scoring 399%, followed OCSSCO scoring 377% and ADDIS also successful MFIs by scoring 338%. However, the remaining ten MFIs still failed to attain financial sustainability. On the other hand, the most successful MFI with a maximum score of 366 % is SFPI Microfinance which could minimize the need for subsidies and concessional loans of low-interest rates from donors. The worst MFI with a minimum score of -266 % is DIGAF Microfinance Institution.

The standard deviation (183%) found in this study was very high compared to related results around the world and related studies in Ethiopia. For example, in Nasreddin's (2020) study, MFI rates had a standard deviation of just over 85%. A Higher standard deviation is a good indication that most observations are centered on the mean. This higher standard deviation indicates that there are large disparities among Ethiopian MFIs in terms of achieving financial sustainability.

The same source indicated that MFIs operational in eastern African and southern African regions had a mean score of an FSS ratio of 99.1% and 97.6% severally and indicating that they're out-performing Ethiopian MFIs. However, on average none of the MFIs in these regions are financially self-sufficient as their mean score was marginally below 100%. A comparison of the FSS ratio of Ethiopian MFIs with the FSS ratio of MFIs across the African continent, as shown by Mix Market (2011), showed that the average HSS ratio of African MFIs was 98%, slightly above the average score of Ethiopian MFI.

Table 3 also indicated the descriptive statistics of independent variables that affect the financial sustainability level of Ethiopian Microfinance Institutions. The first one is the Debt to equity ratio. Regard Debt to equity ratio implies an average value of 2.09 and a maximum value of 18.09 and -19.19 as a minimum value. Means as per the mean value of this variable 2.09 indicate MFIs in Ethiopia are leveraged on average than financed through equity capital because the AEMFIs suggested standard of debt to equity is 1.5.

On the other side, the minimum gearing ratio (debt to equity) indicated in this table is -19.19. The Debt to Equity ratio cannot give us a negative result unless the existing capital is offset with the loss of the period, which results in further liability. However, the maximum value for this variable is 18.09 which indicates that debt financing is more considered instead of having a proportional financing structure, therefore highly leveraged. The Standard deviation of the gearing ratio is 2.71 this clearly illustrates the disparity of this ratio among MFIs.

The operating expense ratio is measured by operating expense over the gross loan portfolio of MFIs. The average operating efficiency of selected MFIs was 43% indicating that on average they are incurring 0.43 cents in operating expense for each birr in the gross loan portfolio. Some highly efficient institutions ADDIS incur operating expenses of 0.076 cents for each birr in the gross loan portfolio. On the other hand, inefficient institutions in the industry which as DIGAF Microfinance incur an operating expense of 9.63 cents for each birr on their gross loan portfolio. The standard deviation showed 0.971% implying a large variation in terms of operational efficiency (operating expense management). Here, the result indicated that the most efficient MFIs have a low operating expense ratio. According to the Micro rate (2014), leading MFIs in Africa have an efficiency ratio below 10% these days. Therefore, the operational expense of Ethiopian MFIs affirms that the institutions are inefficient.

Portfolio yield shows how much, on average an MFI receives in interest payments on its loans. The average portfolio yield for Ethiopian MFIs is 0.37%, the Maximum mean is 1.12% in ONE and the Minimum mean is -1.57 percent which is in DIGAF. There is also great variation in PYR among Ethiopian MFIs as the standard deviation result shows 0.24 percent below the mean value. According to the Micro rate (2014), globally MFIs achieved an average PYR of 27.6%. Thus, it proves that Ethiopian MFIs are in a good state in this regard.

For the Capital, asset ratio variable the mean is 0.255% and the maximum value shows 0.86%. This result indicates that above the minimum requirement which is set by CGAP, micro finance institutions should be subject to even higher adequacy capital to asset ratio to safeguard their portfolio and advises to maintain ratios approaching 20%, AEMFI. The capital asset ratio average value results suggest that about 0.255% of the total assets of the sample MFIs were financed by shareholders' funds while the remaining 74.15% were financed by deposit liabilities.

The maximum and minimum values of the liquidity are 9.32% and 0.91% respectively with a standard deviation of 8.26, which shows the higher disparity of MFI liquidity. Thus, it can be concluded that Ethiopian MFIs on average have a higher amount of volatile deposits tied up with illiquid loans, having a ratio that is too high which puts the MFIs at high liquidity risk.

The mean value of GDP is found to be 9%. Throughout the period this study covered from the year 2011 to 2020, Ethiopia recorded a double digit of 11.4% the maximum growth rate of real GDP whereas a minimum was a negative 6.1%. Mean values and standard deviations of 9 and 1.4% were also recorded in the country respectively. This indicates that there was a variation in the real GDP growth rate towards its mean.

The other variable was the inflation rate which recorded 34.10% and 7.4% of maximum and minimum respectively whereas the mean value and standard deviation of the inflation rate were 14.57% and 7.7% respectively which indicates the average inflation rate of the country during the study period. The maximum score of 34.1% in 2012 created a negative effect on the financial sustainability of MFIs in Ethiopia. The 7.7 % of standard deviation was a high variation and this show that the inflation rate was not stable during the study period in Ethiopia.

Finally, Table 3 indicated the descriptive statistics of independent variables that affect the financial sustainability level of Ethiopian Microfinance Institutions. Regarding, The Net Profit Margin shows the company's ability to generate a net profit from an increment of the additional one dollar of a total income. The average Net Profit Margin (NPM) of Ethiopian MFIs is -0.89% for the study period which means that they generate -0.89 cents of profits from an additional one Birr of income. The maximum mean is 1.60% which is located in DIGAF and the worst mean is in ONE -141.87% which means that they lose 0.049cents for each Birr of their income. There is great variation in NPM among Ethiopian MFIs as the standard deviation result shows 10.47 percent below the mean value. The mean values for each variable in the study for the study period are summarized in Table 4.2 below.

Table 4: Annual mean values for all variables in the study

YRS	FSS	DER	OER	PYR	CAR	LR	GDP	INF	AGE	NPM
2011	2.09	1.38	0.33	0.44	0.29	2.09	0.11	0.18	12.42	0.00
2012	1.96	2.52	0.36	0.41	0.27	1.79	0.09	0.34	13.42	(0.09)
2013	2.10	2.01	0.45	0.44	0.29	1.68	0.10	0.14	14.42	(0.07)
2014	1.95	1.82	0.33	0.32	0.24	1.85	0.10	0.08	15.42	0.31
2015	2.22	2.10	0.32	0.44	0.31	1.70	0.10	0.08	16.42	0.04
2016	1.91	1.96	0.51	0.41	0.30	2.12	0.08	0.10	17.42	(0.24)
2017	1.87	2.34	0.52	0.37	0.26	1.91	0.10	0.07	18.42	(0.58)
2018	1.65	1.30	0.76	0.41	0.25	1.60	0.08	0.15	19.42	(0.19)
2019	1.35	3.11	0.36	0.29	0.18	1.41	0.09	0.13	20.42	(0.50)
2020	1.24	2.44	0.47	0.28	0.18	1.38	0.06	0.20	21.42	(7.68)
Grand Total	1.84	2.10	0.44	0.38	0.26	1.75	0.09	0.15	16.92	(0.90)

Source: Author's computation from secondary data 2022

As proven from the above table, on average the Ethiopian MFIs fulfilled the financial sustainability stage in the years 2011 and 2015 by registering the implied FSS value of 209 % and 222% respectively. The graphical illustration of every year's economic sustainability means values appear the following.

4.4. Correlation Analysis

The correlation coefficient is a way to index the degree to which two or more variables are associated with or related to each other (Brooks, 2008). Thus, it does not imply that changes in x cause changes in y, or vice versa. Rather, it is simply stated that there is evidence for a linear relationship between the two variables and that movements in the two are on average related to an extent given by the correlation coefficient. The correlation coefficient between two variables ranges from negative 1 to positive 1. A correlation coefficient of 0, on the other hand, indicates that there is no linear relationship between the two variables.

Table 5: Correlation Matrix for Ethiopian MFIs

```
. cor FSS DER OER PYR CAR LR GDP INF AGE NPM
(obs=190)
```

	FSS	DER	OER	PYR	CAR	LR	GDP	INF	AGE	NPM
FSS	1.0000									
DER	-0.0672	1.0000								
OER	-0.3811	-0.0674	1.0000							
PYR	0.6585	-0.2213	0.1190	1.0000						
CAR	0.7633	-0.2564	-0.1749	0.8847	1.0000					
LR	-0.0590	-0.2594	0.2482	0.1429	0.0650	1.0000				
GDP	0.2008	-0.0451	-0.0702	0.1127	0.1444	0.1516	1.0000			
INF	-0.0370	0.0308	-0.0123	0.0137	-0.0333	-0.0372	-0.3034	1.0000		
AGE	0.0590	0.1036	-0.2677	-0.1740	-0.0852	-0.2462	-0.4569	-0.1921	1.0000	
NPM	0.2068	-0.1764	-0.2831	0.1107	0.1624	-0.0016	0.1534	-0.0480	0.0561	1.0000

Source: STATA Output from NBE Data, 2022

In Table 5, the outcome of OER and DER was negatively correlated with FSS, suggesting that the more exposed MFIs are to spending and debt, the lower their financial sustainability. This result for DER supports the pecking order theory, which looks at the most profitable institutions that have an internal source of funding, eliminating the need to seek more borrowable funds from the outside party. The NPM and PYR have a close relationship with FSS. The other GDP growth rate and CAR have a positive relationship with FSS. The inflation rate had a very weak relationship with financial sustainability. Regarding FSS, NPM, PYR, GDP growth, inflation, and CAR have a positive relationship with FSS, while OER and DER have a negative relationship with financial sustainability.

4.5. Results of Diagnostic Tests

The researcher conducted diagnostic tests to guard against the possibility of obtaining and interpreting spurious regression results. Every estimator of the model should have to meet the OLS assumptions before the estimation is carried out. If the estimators of the model satisfy the OLS assumptions it is possible to say the estimators are BLUE (Best Linear Unbiased Estimators). The estimators of a model should satisfy all OLS assumptions (Brooks, 2008). Accordingly, appropriate diagnostic tests for each OLS assumption were conducted.

4.5.1. Linear relationship

The model is approximately linear. This is slightly different from simple linear regression because we have multiple explanatory variables. This time we want the outcome variable to have an approximately linear relationship with each of the explanatory variables, taking into account the other explanatory variables in the model.

Multiple regressions can accurately estimate the relationship between dependent and independent variables when the relationship is linear. The possibility of nonlinear relationships is high in the social sciences; therefore, it is essential to examine the linearity of the analyses. When the relationship between the independent variables and the dependent variable is nonlinear, the results of the regression analysis underestimate the true relationship.

4.5.2. Mean Values of Errors

The other assumption required to test the linear regression model is the mean of the errors, which are expected to be zero. The mean of the errors was tested by including a constant term in the regression model. Namely, if a constant term were included in the regression model equation, this assumption would not be violated. Therefore, the study included a constant term in the regression equation (Brooks, 2008 Gujarati, 2003). Since the constant term (i.e.me. β) was included in the regression equation and the mean value of the error term in this study is expected to be zero.

4.5.3. Heteroscedasticity Test

According to Brooks (2008), heteroscedasticity means that error terms do not have a constant variance. If heteroscedasticity occurs, the estimators of the ordinary least square method are inefficient and hypothesis testing is no longer reliable or valid as it will underestimate the variances and standard errors. There are several tests to detect the Heteroscedasticity problem, which are Park Test, Gletjer Test, Breusch-Pagan/ Cook-Weisberg test, Godfrey Test, White's Test, and Autoregressive Conditional Heteroscedasticity (ARCH) test. In this case, the study chose to use Breusch-Pagan/ Cook-Weisberg test for heteroskedasticity.

H0= There is no Heteroscedasticity (the error terms are Homoscedastic)

H1=There is Heteroscedasticity

Figure 2: Heteroscedasticity test for the Model

```
. hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of FSS

         chi2(1)      =     3.70
         Prob > chi2  =   0.0543

.
```

Source: STATA Output from NBE Data, 2022

Consistent with Figure 2 above, the results of the heteroscedasticity test in the model output, the Breusch-Pegan test statistic yield p-values greater than 0.05. Therefore, the absence of heteroscedasticity was confirmed. And there is no evidence to reject the null hypothesis.

4.5.4. Normality Test

The normality test is used to check the distribution pattern of the data (Holland and Campbell, 2005). In practice, non-normal data affect estimates of certain parameters that might differ from zero as being statistically significant, when in fact they are not (type I error). In the case of this study, the researcher used the skew kurtosis test for normal data and the normal distribution of the residual of the dependent variable. The p-value is based on the assumption that the distribution is normal. The test hypothesis is:

Ho: Normally Distributed residuals

H1: Non-Normal Distribution of residuals.

Table 6: Normality test for the Model

```
. predict r, residual

. sktest r

                    Skewness/Kurtosis tests for Normality
                                                      ------- joint -------
    Variable |        Obs  Pr(Skewness)  Pr(Kurtosis) adj chi2(2)    Prob>chi2
-------------+---------------------------------------------------------------
           r |        190      0.0266        0.2739        5.94          0.0513

.
```

Source: STATA Output from NBE Data, 2022

In Test Table 6, the P-value of the model is 10.1 percent and 5.13 percent for the Swilk and Sk tests, respectively, indicating that it is greater than the P-value of 5%, and so we reject the null hypothesis that the residuals are normally distributed. The normality of the residuals can also be displayed using plots that help us to check the normality of the residuals: kdensity and qnorm.

An important assumption for the multiple regression models is that independent variables are not perfectly multicollinear. One regressor should not be a linear function of another. When multicollinearity is present standard errors may be inflated. Stata will drop one of the variables to avoid a division by zero in the OLS procedure (see Stock and Watson, 2003, chapter 5).

The study tested for multicollinearity between independent variables. Multicollinearity exists when one or more explanatory variables are highly linearly related to each other. When multicollinearity exists in a linear functional relationship between two or more independent variables, it can significantly affect the estimation of the coefficients of the variables. Multicollinearity may cause the variances and standard errors of the estimates to increase and the t-scores to decrease. However, multicollinearity does not cause bias in the estimate and the overall fit of the equation (Studenmund, 2011). If the R is high in absolute value, then the two variables are quite correlated and multicollinearity is a potential problem.

The study tested for multicollinearity using the Variance Inflation Factor (VIF) which quantifies the severity of multicollinearity in OLS. It provides an index that measures how much the variance (the square of the estimate's standard deviation) of an estimated coefficient of regression is increased due to collinearity. According to Myers (1990) VIF less than 1 and greater than 10 is a cause of concern. If the VIF value lies between1-10, then there is no multicollinearity. If the VIF is < 1 or > 10, then there is multicollinearity.

Table 7: Multicollinearity Test using Variance Inflation Factor

```
. vif
    Variable |       VIF       1/VIF
-------------+----------------------
         CAR |      7.80    0.128265
         PYR |      7.51    0.133098
         OER |      2.01    0.498405
         AGE |      1.80    0.555089
         GDP |      1.77    0.564552
         INF |      1.37    0.728316
         DER |      1.21    0.826747
          LR |      1.19    0.840562
         NPM |      1.19    0.842232
-------------+----------------------
    Mean VIF |      2.87
```

Source: STATA Output from NBE Data, 2022

Based on Table 7 depicted the outcome of the test and shows that there is no multicollinearity problem since VIF is less than 10 and 1/VIF (Tolerance) is greater than 0.1. Their coefficients output, collinearity statistics, and obtained VIF values of CAR, PYR, OER, AGE, GDP, INF, DER, LP, and NPM are 7.80, 7.51, 2.01, 1.80, 1.77, 1.37, 1.21, 1.19 and 1.19 respectively, which implies that the mean values of VIF obtained are 2.87 which found between 1 and 10. It was, therefore, concluded that there were no multicollinearity symptoms.

4.5.5. Hausman Test

The other issue is choosing whether the single effect is considered fixed or random. The objective of running the Hausman test was to determine the appropriate model to use. A common practice in finance is to choose between the two approaches by performing a Hausman test. This test was performed through the STATA 14.0 version running the Hausman specification test at a 5% level of significance enabling to choose the researcher between fixed effect and random effect. Brooks (2008) according to this test:

H0: Random effect model is appropriate

H1: Fixed effect model is appropriate

If the test statistic is significant, then reject the null hypothesis; in any other case accept the opportunity hypothesis. Accordingly, the observation did the Hausman test that is shown the Table 4.7 and Table 4.8 Based on the suggested outcome, it's far retained the null hypothesis that the Random impact model is suitable. Hence, we will conclude that the random effects are appropriate for each model.

Following the Hausman test and once we tend to identify the appropriateness of the random effect model the LM test was followed to decide between a random effect regression and a simple OLS 60 regression. The null hypothesis in the Breusch-Pagan Lagrange multiplier (LM) test is that variances across entities are zero. This is, no significant difference across units (i.e. no panel effect) (Breusch, Pagan, 1980). Therefore, based on the results in tables 8 & 9, we did not reject the null and conclude that random effects aren't appropriate. This is, no proof of significant differences across FSS, therefore simple OLS regression was chosen.

Table 8: Hausman Test- Fixed or Random Effect Model

```
. qui xtreg FSS DER OER PYR CAR LR GDP INF AGE NPM, fe

. estimates store fe

. qui xtreg FSS DER OER PYR CAR LR GDP INF AGE NPM, re

. estimates store re

. hausman re fe

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |       re           fe       Difference          S.E.
-------------+------------------------------------------------------------
         DER |    .0346701     .034218       .0004521           .
         OER |   -.2267225    -.1992716      -.0274509           .
         PYR |    1.268704    1.246283       .0224213           .
         CAR |    3.761303    3.750151       .0111523           .
          LR |    .0464322    .0502406      -.0038084           .
         GDP |    6.482746     2.16184       4.320906           .
         INF |    .0421213    -.4990914      .5412126           .
         AGE |    .0042149     -.022797      .0270119           .
         NPM |    .0020402    .0022716      -.0002313           .
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(9) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =         5.52
                Prob>chi2 =       0.7871
                (V_b-V_B is not positive definite)
```

Source: STATA Output from NBE Data, 2022

Table 9: Testing for Random Effects: Breusch-Pagan Lagrange multiplier (LM) for Model 1

```
. qui xtreg FSS DER OER PYR CAR LR GDP INF AGE NPM, re

. xttest0

Breusch and Pagan Lagrangian multiplier test for random effects

        FSS[MFI,t] = Xb + u[MFI] + e[MFI,t]

        Estimated results:
                         |       Var     sd = sqrt(Var)
                ---------+------------------------------
                     FSS |    1.307205        1.143331
                       e |    .2099764        .4582318
                       u |      .23596        .4857571

        Test:   Var(u) = 0
                                  chibar2(01) =   160.21
                              Prob > chibar2 =   0.0000
```

Source: STATA Output from NBE Data, 2022

4.6. Results of Regression Analysis

This section presents the result of the mounted impact regression output. The regression results have their implications and therefore beta indicates each variable' level of influence on the dependent variables, which can have a coefficient of negative or positive. The p-Value indicates at what proportion each variable is significant, and also the R-squared value indicates the explanatory power of the model. The empirical model to spot the determinants of financial sustainability of Microfinance institutions in Ethiopia was estimated as follows.

$$FSSit = \beta oi + \beta 1 * DERit + \beta 2 * OERit + \beta 3 * CARit + \beta 4 * PYRit + \beta 5 * LR + \beta 6 * NPMit + \beta 7 * AGEit + \beta 8 * INFit + \beta 9 * GDPit + \mu it.$$

Where β1 to β9 are the coefficients of the variables and μit is the random error term.

Boi; stands for the intercept term which varies across MFIs but is constant over time
DERit: stands for debt to equity ratio of MFI I at time t,
OERit: stands for operating expense ratio of MFI I at time t,
CARit stands for capital to asset ratio MFI I at time t,
PYRit stands for Portfolio Yield ratio of MFI I at time t,
NPMit stands for the net profit margin of MFI I at the time t,
LRit stands for the liquidity ratio of MFI I at the time t,
AGEit stands for the Age of MFI I at the time t,
INFit stands for Inflation rate assigned to MFI I at time t.
GDPit: stands for GDP growth rate of Ethiopia assigned to MFI I at time t.

Table 10: Regression result between FSS and explanatory variables for the model

```
. xtreg FSS DER OER PYR CAR LR GDP INF AGE NPM, re

Random-effects GLS regression                   Number of obs     =       190
Group variable: MFI                             Number of groups  =        19

R-sq:                                           Obs per group:
     within  = 0.7254                                         min =        10
     between = 0.5985                                         avg =      10.0
     overall = 0.6627                                         max =        10

                                                Wald chi2(9)      =    453.76
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =    0.0000

------------------------------------------------------------------------------
         FSS |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         DER |   .0346701   .0150757     2.30   0.021      .0051222    .064218
         OER |  -.2267225   .0656433    -3.45   0.001     -.3553809   -.0980641
         PYR |   1.268704   .4329028     2.93   0.003      .4202306    2.117178
         CAR |   3.761303   .7521197     5.00   0.000      2.287175     5.23543
          LR |   .0464322   .0488701     0.95   0.342     -.0493514    .1422158
         GDP |   6.482746   4.124876     1.57   0.116     -1.601862    14.56735
         INF |   .0421213   .6384445     0.07   0.947     -1.209207    1.293449
         AGE |   .0042149   .0207717     0.20   0.839      -.036497    .0449268
         NPM |   .0020402   .0038721     0.53   0.598     -.0055489    .0096293
       _cons |  -.3322597   .8035071    -0.41   0.679     -1.907105    1.242585
-------------+----------------------------------------------------------------
     sigma_u |   .48575714
     sigma_e |   .45823182
         rho |   .52913375   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Source: STATA Output from NBE Data, 2022

Accordingly, the estimation results of the panel regression model utilized in this study are presented in the table above. The R- square for the regression output is 72.54 percent. R square could be a measure that denotes how analyzed data are almost about the most effective line of fit. It's also mentioned as the coefficient of determination (Kothari, 2004).

The value of the R-square implies that there is a good relationship between dependent and independent variables, where all chosen independent variables are, Debt to equity ratio, operating expense ratio, Portfolio Yield ratio, Capital to asset ratio, liquidity ratio, Real GDP growth rate, Inflation, Age and net profit Margin will explain, about 72.54 percent of the MFI's financial sustainability as measured by FSS. The remaining 27.46 percent of the changes within the FSS model are explained by different factors that don't seem to be enclosed and considered in the study. For panel data, R-squared greater than 20 percent is still massive enough for reliable conclusions (Buzayehu, 2019 cited in Nesradin, 2020).

The regression result shows that the estimated results of the regression analysis are good. Thus, collectively these variables are the most effective enough in explaining the changes within the financial sustainability of the Ethiopian Microfinance institutions measured by FSS because the R-square is about 72.54 percent. The null hypothesis of the F-statistic (the overall test of significance) that the R-squared is adequate to zero was rejected at 1 percent as the p-value is quite low. A P-value of 0.0000 indicates strong statistical significance, which enhanced the reliability and validity of the model.

A. Debt to Equity ratio (DER)

Debt to equity ratio (Leverage) is a common metric used to evaluate a firm's leverage, or in other words, its reliance on debt as a source of funding. Debt to equity is a significant positive predictor variable for determining financial self-sufficiency. The ratio showed a positive coefficient (0.0346) and it is a statistically significant variable (P-value 0.021). This implies that for the study period (2011-2020) there is a significant Impact of leverage (debt to equity ratio) on financial sustainability. This positive outcome implies that for financial institutions such as MFIs, the importance of the savings mobilized in the form of institutions' liabilities for providing borrowing funds to expand their lending is very important, prompting them to borrow large amounts of Interest income for their operations (Financial performance). This result is consistent with Dissanayake (2012) and Muriu (2011) that leveraged MFIs are more sustainable that is perhaps more debt relative to equity is used to finance microfinance activities and that long-term borrowings impact positively on financial performance by accelerating MFIs growth than it would have been without debt financing. MFIs that employ higher debt in their capital structure are more profitable, and highly leveraged microfinance institutions are more profitable, Peter Muriu, (2011). Besides, a higher debt ratio can enhance the rate of return on equity capital during good economic times, Peter Muriu, (2011). The result by Kirubel (2018) and Sileshi (2015) showed contradicted results indicating that less leveraged MFIs have better financial self-sufficiency. Therefore, based on the regression result from the study, there is no reason to reject the null hypothesis which was formulated to show the positive impact of debt to equity (Leverage) on the financial self-sufficiency of MFIs in Ethiopia.

Although the regression result indicated a positive relationship between debt equity ratio and financial sustainability, the coefficient correlation showed a negative relationship between them. This result should be justified.

B. Operating expense ratio (OER)

The regression result for the operating expense ratio indicates a negative impact and is significant for determining the financial self-sufficiency of an MFI in Ethiopia. The ratio confirmed a negative coefficient (-.2267) and it is a statistically significant variable at 1 percent (P-value 0.001). The reaction of financial self-sufficiency to the operating expense ratio could be very elastic, that is a 1 unit boom in operating rate leads to a 0.2267 unit decrease in financial self-sufficiency. This suggests that the greater MFIs are efficient in reducing operating expenses at a given degree of the outstanding loan portfolio, the more profitable they turn out to be and therefore, maintain financial self-sufficiency and make certain financially sustainable. This finding is consistent with Kirubel (2018), Abiyu (2016), and Sileshi (2015) that shows operational expense ratio has a negative significant relationship with the FSS of MFIs.

Based on the regression result, the researcher, therefore, failed to reject the null hypothesis that there is a significant impact of a microfinance institution's operating expense ratio on financial self-sufficiency. This suggests that the more efficient MFIs are in reducing operating costs at a given level of the outstanding loan portfolio, the more profitable they become, thereby maintaining their financial independence and ensuring financial sustainability. The finding of this variable by another study also suggested that there is a significant negative correlation with financial self-sufficiency.

C. Portfolio Yield ratio (PYR)

It is the primary indicator of an institution's ability to generate revenue to cover its financial and operating expenses. The portfolio yield shows how much, on average, the MFI receives in interest payments on its loans. The result shows a positive impact of the portfolio yield ratio on the sustainability of MFIs with a coefficient level of 1.2687 and statistically significant at a significance level of 1% (P-value 0.003), i.e. the null hypothesis that the portfolio yield ratio in Ethiopia has a positive impact on the financial sustainability of Ethiopian MFIs and conclude that the portfolio yield ratio significantly affects the financial sustainability of MFIs. Gross Portfolio yield measures the company's ability to generate cash that could increase borrowable funds and thereby social performance. The study result was supported by (Melkamu, 2012 and Solomon. et al, 2019). In fact; previous studies have also found similar results (Assefa. et al, .2013; Cull et al., 2007).

D. Capital to Asset (CAR)

The capital to asset ratio (CAR) coefficient is positive (3.7613) and statistically significant at 5 percent. This confirms that the capital strength of Ethiopian MFIs has a positive impact on financial sustainability for the period under review holding all other variables constant, a one-unit increase in CAR results in an increase in FSS of almost 3.7613 Birr. Therefore, the null hypothesis that the capital adequacy ratio is a significant positive effect on the financial sustainability of MFIs in Ethiopia is failed to reject. The study results support the theory that well-capitalized MFIs are more flexible in dealing with unexpected loss problems and credit risk, leading to better chances of financial performance. The result of this study is similar to the findings of Sima (2013) but inconsistent with the finding of Hussein. ET. al., (2016) and Muriu (2011).

E. liquidity ratio

The regression results showed that the coefficient of the liquidity ratio variable is 0.046, indicating that while the liquidity ratio has a positive effect on financial self-sufficiency, it is not statistically insignificant in the model and has no clear impact on the financial self-sufficiency of MFIs in Ethiopia. The ratio reflects the proportion of the customers' deposits that have been given out in the form of loans. Therefore, the higher this ratio the less liquid the MFI'S is and interpreted inversely. The result of this study is similar to the findings of Nesreddin (2020) and Perera, H.S.C., KJM, 2021, 10 (02) Hence, it can be concluded that the risk coverage ratio does not affect when determining the financial sustainability. Although the regression result indicated a positive relationship between liquidity ratio and financial sustainability, the coefficient correlation showed a negative relationship between them. This result should be justified.

F. The Net Profit Margin (NPM)

Demonstrates the company's ability to generate a net profit from an additional increase in total dollar sales. This ratio measures net income per total revenue; It is calculated by dividing net profit by revenue. Consequently, the study result shows that the net profit margin coefficient is positive (0.002), indicating that when MFIs earn 1 cent of their net profit margin, an MFI's FSS increases by 0.002 percent and is statistically insignificant even at 5 percent (P-value 0.598). Therefore, the null hypothesis is rejected.

G. Age of MFI

The regression results showed that the coefficient of the Age of MFI variable is 0.004, indicating that while the Age of MFI has a positive effect on the financial self-sufficiency, it is not statistically insignificant in the model and has no clear impact on the financial self-sufficiency of MFIs in Ethiopia. Based on the study made by Magali (2013) shows that the age of SACCOS affect positively the financial sustainability, implying that sustainability favored the aged SACCOS. This is probably because long-lived SACCOS accumulated enough experience in marketing their financial products and also had the advantage of reduction of costs. This result is in line with Nyamsogoro (2010) who revealed that the age of rural MFIs in Tanzania influence positively the financial sustainability. Similarly, Hartarska et al (2011) found out that the age of MFIs positively influenced the financial sustainability of MFIs worldwide. However, Bogan (2009) found out that the age of MFI negatively influenced the sustainability of MFIs; but the influence was not statistically significant. Moreover, Hermes et al (2008) found out that older MFIs are less efficient, hence they might be less sustainable too.

H. Real GDP growth rate

It is widely accepted that a stable macroeconomic environment is necessary for the viability of MFIs. In this study, the influence of macroeconomic variables (GDP growth rate) on the sustainability of MFIs was tested. The result shows a positive influence of GDP growth on the sustainability of MFIs with a coefficient level of 6.4827 and statistically insignificant at a significance level of 5% (P-value 0.116). Therefore, the null hypothesis that the GDP growth rate in Ethiopia positively and significantly affects the sustainability of Ethiopian MFIs is rejected. This is because, as is hypothesized, an improvement in macroeconomic performance increases overall income levels and business performance, which ultimately improves customer solvency, maintains an adequate supply of credit deposits, and thus improves the viability of MFIs. Therefore, the null hypothesis is rejected as GDP growth is positively related to the financial sustainability of Ethiopian MFIs. The study result is consistent with Sileshi (2015) and Buzayehu (2019). However, Abebaw (2014) shows highly contradictory results that a negative coefficient of -0.005 but it was statistically insignificant at 5 percent (P-value 0.09) indicating that growth in economic conditions measured in terms of real GDP growth did not affect the financial performance of Ethiopian MFIs for the study period, despite the country's continuous economic growth, MFIs in Ethiopia were not profitable

because they are established for minimizing poverty as the main goal or social orientation than profit Maximization.

I. Inflation (INF)

The above regression results showed that the coefficient of the inflation variable is 0.0421, indicating that while inflation has a positive effect on financial self-sufficiency, it is not statistically insignificant in the model and has no clear impact on the financial self-sufficiency of MFIs in Ethiopia. The positive result implies that an increase in inflation in Ethiopia would support the financial performance of institutions due to the ability and skill of MFI managers to accurately predict inflation levels. That's why; researcher failed to reject the null hypothesis that inflation hurts the FSS of Ethiopian MFIs. Clients of MFIs that have taken out loans for business purposes can easily pass rate increases on to their clients to keep their repayment rate unchanged. The study result was supported by Sileshi (2015) and contradicts Kirubel (2018) and Kathomi (2017). This study further believed that the insignificant effect of inflation may point to the fact that MFIs' regulations and policies adopted by the government may play an important part in creating a favorable environment for the sector to resist the influence of inflation. Although the regression result indicated a positive relationship between Inflation and financial sustainability, the coefficient correlation showed a negative relationship between them. This result should be justified.

4.7. Summary of Regression Result

Table 11: Summary of regression results from the FSS regression model

Explanatory Variables Name	Variables Symbol	Null Hypothesis	Actual Reg. Result	Statistical Significance test	Status Of Null Hypothesis
Debt to Equity ratio	DER	+	+	significant at 5%	Failed to reject
Operating expense ratio	OER	-	-	significant at 5%	Failed to reject
Portfolio Yield ratio	PYR	+	+	significant at 5%	Failed to reject
Capital to Asset	CAR	+	+	significant at 5%	Failed to reject
liquidity ratio	LR	-	+	Insignificant at 5%	Reject
Real GDP growth rate	GDP	+	+	Insignificant at 5%	Reject
Inflation	INF	+	+	Insignificant at 5%	Failed to reject
Age	AGE	+	+	Insignificant at 5%	Reject
The Net Profit Margin	NPM	+	+	Insignificant at 5%	Reject

Source: The Author's compilation, 2022

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This chapter deals with the summary of the main findings, conclusions, recommendations, and future research directions provided based on the study results. Therefore, this chapter is divided into four subsections. The first section presented the summary; the second and third sections presented the conclusions and recommendations, while the last section suggested a further research direction.

5.2. Conclusions

This study aimed to examine the main factors influencing the financial sustainability of Ethiopian microfinance institutions and to measure the extent to which these factors influence the financial sustainability of MFIs.

The mean values, the maximum values, the minimum values, and the standard deviations MFIs' FSS observed respectively. This clearly illustrates the disparity in rates of return earned by MFIs. Given the international requirement of an FSS ratio of 100%, the mean score indicated that most of the Ethiopian MFIs are not financially self-sufficient. This higher standard deviation indicates that there are large disparities among Ethiopian MFIs in terms of achieving financial sustainability.

The first variable is the impact of debt to equity (Leverage) on the financial self-sufficiency of MFIs in Ethiopia. Leverage is a significant positive predictor variable for determining financial self-sufficiency. This implies that for the study period (2011-2020) there is a significant Impact of leverage (debt to equity ratio) on financial sustainability. Therefore, based on the regression result from the study, there is no reason to reject the null hypothesis which was formulated to show the negative impact of debt to equity (Leverage) on the financial self-sufficiency of MFIs in Ethiopia.

The second variable's regression result is that the operating expense ratio indicates a negative impact and is significant for determining the financial self-sufficiency of an MFI in Ethiopia. This suggests that the greater MFIs are efficient in reducing operating expenses at a given degree of the outstanding loan portfolio, the more profitable they turn out to be and therefore,

maintain financial self-sufficiency and make certain financially sustainable. This suggests that the more efficient MFIs are in reducing operating costs at a given level of the outstanding loan portfolio, the more profitable they become, thereby maintaining their financial independence and ensuring financial sustainability.

The other finding is the impact of portfolio yield ratio (PYR) on the sustainability of MFIs result shows a positive impact of the portfolio yield ratio (PYR) on the sustainability of MFIs statistically significant i.e. the null hypothesis that the portfolio yield ratio in Ethiopia has a positive impact on the financial sustainability of Ethiopian MFIs and conclude that the portfolio yield ratio significantly affects the financial sustainability of MFIs. Gross Portfolio yield measures the company's ability to generate cash that could increase borrowable funds and thereby social performance.

Finally, The study investigated the impact of the capital to asset on the financial sustainability of MFI in Ethiopia has a positive impact on financial sustainability for the period under review holding all other variables constant, a one-unit increase in CAR results in an increase in FSS. Therefore, the null hypothesis that the capital adequacy ratio is a significant positive effect on the financial sustainability of MFIs in Ethiopia is failed to reject.

Generally, this study tries to examine the impacts of macroeconomic variables on the financial self-sufficiency of MFIs in Ethiopia, regression results show how financial Sustainability responds to changes in (DER), operating expense ratio (OER), Liquidity ratio (LR), Capital to asset ratio (CAR), net profit margin (NPM), Portfolio Yield ratio (PYR) and inflation.

Accordingly, operating expense ratio (OER) has a negative impact on the financial self-sufficiency while debt to equity ratio (DER), Portfolio Yield ratio (PYR), Capital to asset ratio (CAR), Liquidity ratio (LR), Net profit margin (NPM), Age, GDP growth rate and Inflation (INF) have a positive impact on the financial self-sufficiency on MFIs in Ethiopia. All variables, debt to equity ratio (DER), operating expense ratio (OER), Portfolio Yield ratio (PYR), and Capital to asset ratio (CAR), have a significant impact on the financial self-sufficiency of MFIs. However, the Liquidity ratio (LR), Net profit margin (NPM), Age, GDP growth rate, and Inflation (INF) have an insignificant negative and positive impact on the financial self-sufficiency of MFIs.

5.3. Recommendations

The lower ratio indicates more efficiency and the higher ratio means weak management efficiency, as has been expected the regression result shows a negative coefficient, which means that as the ratio decreases the financial sustainability of MFI will rise and vice versa. Macroeconomic factors, economic growth, and the presence of inflations are important key drivers of financial sustainability in Ethiopian MFIs.

MFIs should utilize the opportunities of the macroeconomic environment by considering the impacts of macroeconomic (GDP and Inflation) factors during designing their strategic plan because improved macroeconomic performance raises overall income level which ultimately improves clients' repayment ability improve their profitability and hence the sustainability of MFIs.

In the study, the Debt to Equity ratio has been found a positive influence on financial sustainability. This indicates that increasing the debt to equity ratio enables MFI's wealth to be more profitable. Therefore, MFIs have to attempt more to enhance their liability and they should develop a strategy that enables them to enhance deposit amounts through mobilizing funds by promoting saving behavior and enhancing credit purchases.

The MFIs were also advised to increase the number of borrowers, and breadth of outreach through both retaining the existing and recruiting new clients so that they could increase the volume of sales or loan disbursement. However, selling a high volume of loans alone may not guarantee financial sustainability. It should be accompanied by effective follow-ups to ensure a higher repayment rate, maximize the realized interest income to raise their profit margins, and do their best to operate at a relatively lower operating cost per borrower. Meaning the government and policymakers should give due attention to both poverty reduction and the financial sustainability of MFIs by enhancing the commercialization of their operation rather than relying on subsidies by promoting differentiated and diversified saving and loan products in addition to the existing products.

5.4. Future Research Direction

The study is limited to the quantitative aspect only; it does not include qualitative factors for the determinants of the financial sustainability of MFIs in Ethiopia. Therefore, the researcher recommends future researchers conduct a detailed study that considers other determining factors such as political factors, geographic factors, customer churn rate, human resource sustainability, and even other economic factors for the sustainability of Ethiopian MFIs.

Additionally, to the best of the researcher's knowledge, no study examines and considers other aspects of sustainability issues, such as institutional sustainability, operational sustainability, human resource sustainability, and customer sustainability. Therefore, future studies should address the impact of these issues on financial institutions.

REFERENCES

Abebaw Y. (2014*) "Determinants of Financial Performance: Study on Selected Micro Finance Institutions in Ethiopia"* MSc thesis, Jimma University, school of graduate studies.

Abiyu B. (2016) "*Determinants of Financial Sustainability of Microfinance Institutions in Ethiopia*", *Msc thesis, Saint Marry University.*

Alemayehu Y. (2008) *''the Performance of Micro Finance Institutions in Ethiopia: A Case of SixMicrofinance Institutions"* MSc Thesis Addis Ababa University, Ethiopia.

The MIT Press. Anand, *"Financial Sustainability of Microfinance Institutions (MFIs) of Bangladesh"ISSN2225*- 0565 (Online) Vol.6, No.6, 2016.

Assefa, Esubalew, Niels Hermes, and Aljar Meesters. 2013. "*Competition and the Performance of Microfinance Institutions". Applied Financial Economics 23: 767–82*

AEMFI 2016 annual report.

Basu, J.C., and Woller, G. (2004). *Microfinance a Comprehensive Review of Existing Literature Journal of Entrepreneurial Finance and Business Ventures* Vol. 9 (No.1), pp. 1-26.

Buzayehu. A (2019),*'' The Impacts of Macroeconomic and Bank Specific Variables on Financial Performance of Commercial Banks in Ethiopia"* 'MSc Thesis, Jimma University. International Journal of Commerce and Finance, Vol. 6, Issue 2, 2020, 198-206.

Bourke, P. (2011). *"Concentration and other Determinants of Bank profitability in Europe, North America and Australia" Journal of Banking and Finance, 5 (2), 1822.*

P. Bourke (1989) *"Concentration and other determinants of bank profitability in Europe, North America, and Australia"* Journal of Banking & Finance Volume 13, Issue 1, March 1989, Pages 65-9.

Brooks, C. (2008). *Introductory Econometrics for Finance, New York, Cambridge University Press.*

CGAP, (2003*) Microfinance Consensus Guidelines: Guiding Principles on Regulation and Supervision of Microfinance. Consultative Group to Assist the Poor (CGAP).*

CGAP. (2012) *A Guide to Regulation and Supervision of Microfinance Consensus Guidelines. Consultative Group to Assist the Poor. Washington, Dc.*

Christen, P., Rhyne, E., Vogel, R. and McKean, C.1995. *"Maximizing the outreach of microenterprise Finance".*

Dinah. N. (2016) *"Determinants of Financial Sustainability of Microfinance Institutions in Kenya", MBA thesis in Finance of Jomo Kenyatta University of Agriculture and Technology*.

Dissanayake. (2012). *"The Determinants of Operational Self Sufficiency: An Empirical Analysis of SriLankan Microfinance Institutions"*, *University of Kelaniya.*

Deribie, G. N. (2013, January). *Filling the Breach: Microfinance. Journal of Business and Economic Management.*

Helms, B. (2006) *access for all, building inclusive financial system The International Bank for Reconstruction and Development*. The World Bank, Washington, DC 20433. Allen, S. R., & Helms, M. M. (2006). *Linking Strategic Practices and Organizational Performance to Porter's Generic Strategies. Business Process Management Journal,* 12, 433-454.

Jenkinson, N. (2010).*Strengthening regimes for controlling liquidity risk, Euro Money Conference on Liquidity and Funding Risk Management, Bank of England London*, 9, 16-28.

Kimando, N. (2012*). Factors Influencing the Sustainability of Micro-Finance Institutions in Muranga,* International Journal of Management and Commerce Innovations.

Kereta, B. B. (2007). Outreach and Financial Performance: *Analysis of Microfinance Institutions in Ethiopia,*

Kyereboah, C. A. (2007). *"The impact of capital structure on the performance of microfinance Institutions"*. The Journal of Risk Finance, 8:1, 56-71.

Kindie B.A. (2012*) "Financial sustainability of microfinance institutions (MFIs) in Ethiopia", European Journal of Business and Management*, Vol.4 No.15 PP: 1-11

Kirubel B (2018) *"Determinants of Financial Sustainability of Microfinance Institutions in Ethiopia "*, *MSc thesis, Saint Marry University.*

Kipesha, E., & Zhang, X. (2013). *Sustainability, Profitability, and Outreach Tradeoffs: Evidence from MFIs in East Africa.* European Journal of Business and Management, 5 (8), 136.

Kothari, C.R. (2004).Research Methods. *Quantitative Techniques. New Delhi New Age International Publisher.*

Ledgerwood, J. 1999. *"Microfinance handbook: An institutional and financial perspective. "The World Bank publications, USA. World Bank, 2000"*

Melkamu, W. (2012), "*Determinants of Operational and Financial Self-Sufficiency: An Empirical Evidence of Ethiopian Microfinance Institutions"*. Thesis.

Myers, R.H. (1990) *Classical and modern regression with applications*. PWS-Kent Publishing, Boston.

MIX MARKET. (2020). www, mix market.org.

Mix Market. (2011). *Sub-Saharan Africa Microfinance: Analysis and Benchmarking Report*

Muhammad Y. (1999),*" Banker to the Poor", Micro-Lending and the Battle against World Poverty, New York, Public Affairs.*

Morduch.2005. "*Smart Subsidies for Sustainable Microfinance: Finance for the Poor." Quarterly Newsletter of the Focal Point for Microfinance, 6, 1-7.*

Morduch, J., Haley, B., & Robert, F. 2002. *"Analysis of the Effects of Microfinance on Poverty Reduction."*

Mazlan, et al. (2014*). "Determinants of financial sustainability of microfinance institution in Bangladesh". International Journal of Economics and Finance.*

Mohd. Abdur Rahman & Ahmad Rizal Mazlan, (2014). *Determinants of Financial Sustainability of Microfinance Institutions in Bangladesh. International Journal of Economics and Finance*, Vol. 6 (No.9).

Muriu, P. W (2011). *''Determinants of financial sustainability of deposit taking Microfinance Institutions,* '' Unpublished paper. Birmingham Business School.

Muriu, P. (2011), *"Microfinance Profitability: Does finance choice matter?" Birmingham Business School, University of Birmingham,* May 2011.

Muranaga, J., & Ohsawa, M. (2012). "*Measurement of liquidity risk in the context of market risk"*

Nasreddin Abdulhakim (2020) ‘*'Determinants of Financial Sustainability of Microfinance Institutions in Ethiopia''*

Nyamsogoro, G. D. (2010) *"Financial sustainability of rural microfinance institutions in Tanzania", Ph.D. thesis, University of Greenwich, Australia.*

NBE (2020) Annual Report. NBE secondary data, *Audited financial statements from* 2011-2020

Ongore, O.K. and Gemechu, B. (2013) *"Determinants of Financial Performance of Commercial Banks in Kenya"*, International Journal of Economics and Financial Issues, Vol. 3, No. 1, 2013, pp.237- 252 ISSN: 2146-4138.

Orodho, A. J. (2003). *Essentials of Educational and Social Science Research Method.* Nairobi: Masola Publishers.

Perera, H.S.C. (2021) *'Determinants of Financial Sustainability of the Microfinance Institutions in Sri Lanka''* Kelaniya Journal of Management | 2021 | Vol. 10 | Issue 02 | Page 91

Robinson, M. (2001) *"The microfinance revolution: sustainable banking for the poor",* Washington, DC: The World Bank.

Schreiner, M. (2002). Aspects of Outreach: *A Framework for Discussion of the Social Benefits of Microfinance, Journal of International Development.*

Sileshi. M. (2015). *''Determinants of financial and operational sustainability of Ethiopian Microfinance institutions''*, *Addis Ababa University, MSc thesis.*

Sima, G. (2013) *"Determinants of Profitability: An Empirical Study on Ethiopian,* MFIs", MSc thesis, Addis Ababa University.

Solomon B, Hitoshi K and Masahiro S (2019), Article on *"Performance of Microfinance Institutions in Ethiopia" Integrating Financial and Social Metrics.*

STATA 14.0 software Manuals.

Thapa, B., Chalmers, J., Taylor, W. and Conroy, J. (1992), *"Banking with the poor, report and Recommendations prepared by lending Asian banks and non-governmental organizations", Brisbane, Australia.*

Tehulu. T (2013). *''Determinants of Financial Sustainability of Microfinance institution in East Africa''* European Journal of Business and Management www.iiste.org ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online) Vol.5, No.17, 2013 (Assistant Professor, Department of Accounting and Finance, College of Business & Economics, Bahir Dar University, P.O.Box 79, Bahir Dar, Ethiopia E-mail: tilahuntehulu@yahoo.com, Alternative E-mail: tilahuntehulug@gmail.com)

Van Tassel, E. 1999. *Group lending under asymmetric information. Journal of Development Economics*, 60, issue 1, p. 3-25.

Von Stauffenberg, D., Abate, F., &Bruett, T. (2003). *Definitions of Selected Financial Terms Ratios and Adjustments for Microfinance, Micro Banking Bulletin,* (8), 3-15.

Vicki Bogan (2009). "Microfinance Institutions: Does Capital Structure Matter" Capital Structure and Sustainability: An Empirical Study of Microfinance Institutions - Review of Economics and Statistics.

Woller, G. (2000), *"Reassessing the financial viability of village banking: Past performance and future prospects"*, Micro Banking Bulletin, Microfinance Information Exchange (MIX).

Woller, G. and Schreiner, M. (2002), "*Poverty lending, financial self-sufficiency, and the six aspects of outreach", working paper, Washington, DC, USA.*

Gary M. Woller & Kerk Phillips (201) *"Fiscal decentralization and IDC economic growth: An empirical investigation" Institute of Public Management, Brigham Young University, The Journal of Development Studies Volume 34, 1998 - Issue 4.*

Wolday Amha and Anteneh Kifle (2013*). Performance Analysis Report Bulletin* 9. AEMFI.

Wolday Amha, A. K. (2014). *Ethiopian Microfinance Institutions Performance Analysis Report.* Addis Ababa, Association of Ethiopian Microfinance Institutions (AEMFI).

Wolday Amha. (2000). *Networking Microfinance Activities in Ethiopia: Challenges and Prospects. Addis Ababa, Ethiopia: AEMFI.*

Yenesew, A. (2014). *"Determinants of Financial Performance: A Study on Selected Microfinance Institutions in Ethiopia", MSc Thesis. Addis Ababa University.*

Yaron, J. (1992). *"Successful rural finance institutions", World Bank discussion paper (No. 150,)*

Yirsaw, A. (2008). *The performance of Micro Finance Institutions in Ethiopia: A case of Six Microfinance Institutions, MSc Thesis, Addis Ababa University*.

Yonas. N (2012)" *Determinants of Financial Sustainability of Ethiopian Microfinance Institutions," MSc thesis in Addis Ababa University*, *Addis Ababa, Ethiopia.*

Zeller, M. & Meyer R. L (Eds.) (2002). Triangle of Microfinance: *Financial Sustainability, Outreach, and Impact, International Food Policy Research Institute Washington, D.C.*

Links Used for this study

https://www.researchgate.net/publication/241896162_Capital_Structure_and_Sustainability_An_Empirical_Study_of_Microfinance_Institutions

https://doi.org/10.1016/j.econmod.2020.07.006

https://doi.org/10.1108/14637150610678069

https://doi.org/10.1080/23311975.2021.1956065

https://www.findevgateway.org/sites/default/files/publications/files/mfg-en-case-study-a-review-of-ethiopian-microfinance-institutions-and-their-role-in-poverty-reduction-a-case-study-on-amhara-credit-and-saving-institution-acsi-jan-2011.pdf

https://core.ac.uk/download/pdf/234624875.pdf

https://www.google.com/search?q=history+and+development+of+mfis+-+world+bank&sxsrf=APq-WBsmdnKXezGeW9BLMqCRMOonQHO1Q A%3A1649504266843&ei=CnBRYtWGM9GhkwWmo4K4Ag&oq=History+and+Development+of+MFIs+-+world&gs_lcp=Cgdnd3Mtd2l6EAEYADIFCCEQoAEyBQghEKABOgcIABBHELADOggIIRAWEB0QHjoHCCEQChCgAToECCEQFUoECEEYAEoECEYYAFDbBVimJ2DkMGgBcAF4AIABqAOIAdYWkgEFMy03LjGYAQCgAQHIAQjAAQE&sclient=gws-wiz

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2055334

Appendix

Appendix 1: Raw Data Used in the Study

MFI - NM	YR	FSS	DER	OER	PYR	CAR	LR	GDP	INF	AGE	NPM
ACSI	2011	2.40	2.59	0.08	0.19	0.11	1.39	0.11	0.181	15.00	0.58
ACSI	2012	2.56	2.58	0.08	0.20	0.12	1.39	0.09	0.341	16.00	0.61
ACSI	2013	2.27	2.75	0.08	0.18	0.11	1.36	0.10	0.135	17.00	0.56
ACSI	2014	2.18	3.17	0.08	0.18	0.10	1.32	0.10	0.081	18.00	0.54
ACSI	2015	2.07	3.34	0.09	0.18	0.10	1.30	0.10	0.077	19.00	0.52
ACSI	2016	1.85	3.40	0.11	0.19	0.11	1.29	0.08	0.097	20.00	0.46
ACSI	2017	1.88	3.28	0.10	0.19	0.11	1.31	0.10	0.074	21.00	0.47
ACSI	2018	1.75	3.65	0.11	0.19	0.11	1.27	0.08	0.146	22.00	0.43
ACSI	2019	1.45	3.65	0.13	0.19	0.12	1.27	0.09	0.126	23.00	0.31
ACSI	2020	1.37	3.13	0.13	0.18	0.13	1.32	0.06	0.199	24.00	0.27
OCSSCO	2011	2.65	2.80	0.11	0.30	0.21	1.36	0.11	0.181	15.00	0.62
OCSSCO	2012	2.94	2.69	0.11	0.32	0.23	1.37	0.09	0.341	16.00	0.66
OCSSCO	2013	2.60	2.99	0.13	0.33	0.24	1.33	0.10	0.135	17.00	0.62
OCSSCO	2014	2.47	4.11	0.13	0.33	0.22	1.24	0.10	0.081	18.00	0.60
OCSSCO	2015	2.78	2.92	0.14	0.38	0.29	1.34	0.10	0.077	19.00	0.64
OCSSCO	2016	1.58	2.41	0.13	0.21	0.32	1.41	0.08	0.097	20.00	0.37
OCSSCO	2017	3.77	3.56	0.11	0.41	0.24	1.28	0.10	0.074	21.00	0.73
OCSSCO	2018	3.46	4.10	0.11	0.38	0.23	1.24	0.08	0.146	22.00	0.71
OCSSCO	2019	1.60	4.47	0.11	0.17	0.12	1.22	0.09	0.126	23.00	0.38
OCSSCO	2020	1.23	4.06	0.15	0.18	0.14	1.25	0.06	0.199	24.00	0.19
OMO	2011	1.11	3.09	0.10	0.11	0.09	1.32	0.11	0.181	15.00	0.10
OMO	2012	1.10	4.62	0.14	0.15	0.10	1.22	0.09	0.341	16.00	0.09
OMO	2013	1.41	4.81	0.11	0.16	0.09	1.21	0.10	0.135	17.00	0.29
OMO	2014	1.39	5.84	0.10	0.14	0.09	1.17	0.10	0.081	18.00	0.28
OMO	2015	1.49	5.85	0.09	0.14	0.09	1.17	0.10	0.077	19.00	0.33
OMO	2016	1.34	7.65	0.11	0.15	0.10	1.13	0.08	0.097	20.00	0.25
OMO	2017	1.31	11.88	0.12	0.16	0.09	1.08	0.10	0.074	21.00	0.23
OMO	2018	1.26	8.40	0.12	0.16	0.08	1.12	0.08	0.146	22.00	0.21
OMO	2019	1.52	4.20	0.09	0.14	0.10	1.24	0.09	0.126	23.00	0.34
OMO	2020	1.31	4.89	0.10	0.12	0.10	1.20	0.06	0.199	24.00	0.23
ADDIS	2011	1.60	1.04	0.08	0.12	0.08	1.96	0.11	0.181	15.00	0.37
ADDIS	2012	1.72	1.62	0.09	0.15	0.07	1.62	0.09	0.341	16.00	0.42
ADDIS	2013	2.41	1.46	0.10	0.25	0.13	1.68	0.10	0.135	17.00	0.59
ADDIS	2014	2.38	1.62	0.10	0.24	0.14	1.62	0.10	0.081	18.00	0.58
ADDIS	2015	2.37	1.60	0.10	0.24	0.17	1.62	0.10	0.077	19.00	0.58
ADDIS	2016	2.98	1.55	0.09	0.27	0.21	1.64	0.08	0.097	20.00	0.66
ADDIS	2017	3.38	2.02	0.10	0.35	0.24	1.50	0.10	0.074	21.00	0.70

ADDIS	**2018**	**2.94**	**1.86**	**0.10**	**0.39**	**0.25**	**1.54**	**0.08**	**0.146**	**22.00**	**0.75**
ADDIS	**2019**	**2.24**	**2.03**	**0.08**	**0.18**	**0.09**	**1.49**	**0.09**	**0.126**	**23.00**	**0.55**
ADDIS	**2020**	**2.03**	**2.52**	**0.08**	**0.15**	**0.09**	**1.40**	**0.06**	**0.199**	**24.00**	**0.51**
SFPI	**2011**	**4.66**	**1.17**	**0.19**	**0.86**	**0.58**	**1.86**	**0.11**	**0.181**	**15.00**	**0.79**
SFPI	**2012**	**4.06**	**1.34**	**0.18**	**0.73**	**0.55**	**1.74**	**0.09**	**0.341**	**16.00**	**0.75**
SFPI	**2013**	**3.79**	**1.78**	**0.16**	**0.61**	**0.47**	**1.56**	**0.10**	**0.135**	**17.00**	**0.74**
SFPI	**2014**	**3.93**	**1.60**	**0.15**	**0.60**	**0.51**	**1.63**	**0.10**	**0.081**	**18.00**	**0.75**
SFPI	**2015**	**3.65**	**1.97**	**0.16**	**0.58**	**0.46**	**1.51**	**0.10**	**0.077**	**19.00**	**0.73**
SFPI	**2016**	**3.18**	**1.92**	**0.18**	**0.56**	**0.48**	**1.52**	**0.08**	**0.097**	**20.00**	**0.69**
SFPI	**2017**	**3.31**	**1.94**	**0.18**	**0.58**	**0.48**	**1.52**	**0.10**	**0.074**	**21.00**	**0.70**
SFPI	**2018**	**1.24**	**2.08**	**0.19**	**0.23**	**0.19**	**1.48**	**0.08**	**0.146**	**22.00**	**0.20**
SFPI	**2019**	**1.17**	**4.14**	**0.22**	**0.26**	**0.20**	**1.24**	**0.09**	**0.126**	**23.00**	**0.15**
SFPI	**2020**	**1.29**	**3.68**	**0.22**	**0.29**	**0.20**	**1.27**	**0.06**	**0.199**	**24.00**	**0.23**
VISION	**2011**	**0.83**	**1.08**	**0.39**	**0.33**	**0.22**	**1.93**	**0.11**	**0.181**	**14.00**	**(0.21)**
VISION	**2012**	**0.94**	**1.10**	**0.35**	**0.33**	**0.18**	**1.91**	**0.09**	**0.341**	**15.00**	**(0.07)**
VISION	**2013**	**1.33**	**1.06**	**0.28**	**0.38**	**0.22**	**1.94**	**0.10**	**0.135**	**16.00**	**0.25**
VISION	**2014**	**1.47**	**0.92**	**0.29**	**0.42**	**0.26**	**2.08**	**0.10**	**0.081**	**17.00**	**0.32**
VISION	**2015**	**1.87**	**0.83**	**0.25**	**0.47**	**0.31**	**2.20**	**0.10**	**0.077**	**18.00**	**0.47**
VISION	**2016**	**2.14**	**0.86**	**0.26**	**0.55**	**0.39**	**2.16**	**0.08**	**0.097**	**19.00**	**0.53**
VISION	**2017**	**2.63**	**0.95**	**0.21**	**0.55**	**0.41**	**2.05**	**0.10**	**0.074**	**20.00**	**0.62**
VISION	**2018**	**2.46**	**1.52**	**0.22**	**0.55**	**0.39**	**1.66**	**0.08**	**0.146**	**21.00**	**0.59**
VISION	**2019**	**1.45**	**1.80**	**0.23**	**0.34**	**0.23**	**1.56**	**0.09**	**0.126**	**22.00**	**0.31**
VISION	**2020**	**1.38**	**1.91**	**0.24**	**0.33**	**0.23**	**1.52**	**0.06**	**0.199**	**23.00**	**0.28**
SIDAMA	**2011**	**1.11**	**2.51**	**0.24**	**0.27**	**0.18**	**1.40**	**0.11**	**0.181**	**14.00**	**0.10**
SIDAMA	**2012**	**1.28**	**2.78**	**0.22**	**0.28**	**0.20**	**1.36**	**0.09**	**0.341**	**15.00**	**0.22**
SIDAMA	**2013**	**1.23**	**3.96**	**0.23**	**0.28**	**0.18**	**1.25**	**0.10**	**0.135**	**16.00**	**0.19**
SIDAMA	**2014**	**1.31**	**2.02**	**0.21**	**0.28**	**0.21**	**1.50**	**0.10**	**0.081**	**17.00**	**0.24**
SIDAMA	**2015**	**1.28**	**1.94**	**0.21**	**0.27**	**0.22**	**1.51**	**0.10**	**0.077**	**18.00**	**0.22**
SIDAMA	**2016**	**1.38**	**2.39**	**0.19**	**0.26**	**0.18**	**1.42**	**0.08**	**0.097**	**19.00**	**0.27**
SIDAMA	**2017**	**1.51**	**2.04**	**0.19**	**0.29**	**0.21**	**1.49**	**0.10**	**0.074**	**20.00**	**0.34**
SIDAMA	**2018**	**1.59**	**1.83**	**0.17**	**0.27**	**0.19**	**1.55**	**0.08**	**0.146**	**21.00**	**0.37**
SIDAMA	**2019**	**1.45**	**1.57**	**0.18**	**0.25**	**0.18**	**1.64**	**0.09**	**0.126**	**22.00**	**0.31**
SIDAMA	**2020**	**1.35**	**1.41**	**0.17**	**0.23**	**0.18**	**1.71**	**0.06**	**0.199**	**23.00**	**0.26**
BGMFI	**2011**	**2.57**	**0.90**	**0.19**	**0.50**	**0.41**	**2.11**	**0.11**	**0.181**	**14.00**	**0.61**
BGMFI	**2012**	**2.52**	**1.15**	**0.20**	**0.51**	**0.38**	**1.87**	**0.09**	**0.341**	**15.00**	**0.60**
BGMFI	**2013**	**2.59**	**1.55**	**0.19**	**0.50**	**0.37**	**1.65**	**0.10**	**0.135**	**16.00**	**0.61**
BGMFI	**2014**	**2.81**	**1.69**	**0.17**	**0.49**	**0.37**	**1.59**	**0.10**	**0.081**	**17.00**	**0.64**
BGMFI	**2015**	**2.88**	**1.81**	**0.18**	**0.52**	**0.37**	**1.55**	**0.10**	**0.077**	**18.00**	**0.65**
BGMFI	**2016**	**1.35**	**1.43**	**0.20**	**0.28**	**0.44**	**1.70**	**0.08**	**0.097**	**19.00**	**0.26**
BGMFI	**2017**	**1.48**	**1.35**	**0.19**	**0.29**	**0.21**	**1.74**	**0.10**	**0.074**	**20.00**	**0.33**
BGMFI	**2018**	**1.32**	**1.87**	**0.24**	**0.32**	**0.20**	**1.54**	**0.08**	**0.146**	**21.00**	**0.24**
BGMFI	**2019**	**1.32**	**2.43**	**0.22**	**0.29**	**0.18**	**1.41**	**0.09**	**0.126**	**22.00**	**0.24**

BGMFI	**2020**	**1.21**	**2.24**	**0.24**	**0.30**	**0.21**	**1.45**	**0.06**	**0.199**	**23.00**	**0.18**
PEACE	**2011**	**4.09**	**1.28**	**0.18**	**0.73**	**0.55**	**1.78**	**0.11**	**0.181**	**13.00**	**0.76**
PEACE	**2012**	**4.19**	**1.21**	**0.18**	**0.76**	**0.57**	**1.82**	**0.09**	**0.341**	**14.00**	**0.76**
PEACE	**2013**	**3.99**	**1.36**	**0.18**	**0.73**	**0.55**	**1.74**	**0.10**	**0.135**	**15.00**	**0.75**
PEACE	**2014**	**3.94**	**1.29**	**0.18**	**0.70**	**0.57**	**1.77**	**0.10**	**0.081**	**16.00**	**0.75**
PEACE	**2015**	**3.63**	**1.29**	**0.20**	**0.71**	**0.58**	**1.77**	**0.10**	**0.077**	**17.00**	**0.72**
PEACE	**2016**	**3.61**	**1.27**	**0.47**	**0.75**	**0.59**	**1.79**	**0.08**	**0.097**	**18.00**	**0.38**
PEACE	**2017**	**2.47**	**1.34**	**0.22**	**0.54**	**0.41**	**1.74**	**0.10**	**0.074**	**19.00**	**0.59**
PEACE	**2018**	**2.24**	**2.00**	**0.24**	**0.54**	**0.37**	**1.50**	**0.08**	**0.146**	**20.00**	**0.55**
PEACE	**2019**	**1.32**	**2.32**	**0.25**	**0.33**	**0.24**	**1.43**	**0.09**	**0.126**	**21.00**	**0.25**
PEACE	**2020**	**1.21**	**2.87**	**0.24**	**0.29**	**0.21**	**1.35**	**0.06**	**0.199**	**22.00**	**0.17**
ESHET	**2011**	**1.37**	**0.56**	**0.27**	**0.37**	**0.25**	**2.77**	**0.11**	**0.181**	**15.00**	**0.27**
ESHET	**2012**	**1.63**	**0.62**	**0.26**	**0.42**	**0.32**	**2.62**	**0.09**	**0.341**	**16.00**	**0.39**
ESHET	**2013**	**1.72**	**0.84**	**0.25**	**0.42**	**0.34**	**2.19**	**0.10**	**0.135**	**17.00**	**0.42**
ESHET	**2014**	**1.80**	**1.06**	**0.24**	**0.44**	**0.37**	**1.95**	**0.10**	**0.081**	**18.00**	**0.45**
ESHET	**2015**	**1.80**	**0.92**	**0.27**	**0.49**	**0.44**	**2.08**	**0.10**	**0.077**	**19.00**	**0.44**
ESHET	**2016**	**2.29**	**1.82**	**0.40**	**0.52**	**0.46**	**1.55**	**0.08**	**0.097**	**20.00**	**0.22**
ESHET	**2017**	**1.26**	**1.94**	**0.35**	**0.45**	**0.37**	**1.52**	**0.10**	**0.074**	**21.00**	**0.21**
ESHET	**2018**	**1.19**	**1.89**	**0.37**	**0.44**	**0.37**	**1.53**	**0.08**	**0.146**	**22.00**	**0.16**
ESHET	**2019**	**1.01**	**2.71**	**0.38**	**0.38**	**0.27**	**1.37**	**0.09**	**0.126**	**23.00**	**0.01**
ESHET	**2020**	**1.04**	**2.87**	**0.36**	**0.38**	**0.27**	**1.35**	**0.06**	**0.199**	**24.00**	**0.04**
WASASA	**2011**	**2.86**	**1.88**	**0.13**	**0.38**	**0.29**	**1.53**	**0.11**	**0.181**	**15.00**	**0.65**
WASASA	**2012**	**3.16**	**1.41**	**0.14**	**0.43**	**0.25**	**1.71**	**0.09**	**0.341**	**16.00**	**0.68**
WASASA	**2013**	**2.88**	**2.15**	**0.16**	**0.45**	**0.33**	**1.47**	**0.10**	**0.135**	**17.00**	**0.65**
WASASA	**2014**	**2.58**	**2.37**	**0.18**	**0.46**	**0.34**	**1.42**	**0.10**	**0.081**	**18.00**	**0.61**
WASASA	**2015**	**2.62**	**3.26**	**0.16**	**0.42**	**0.27**	**1.31**	**0.10**	**0.077**	**19.00**	**0.62**
WASASA	**2016**	**2.35**	**3.37**	**0.19**	**0.44**	**0.30**	**1.30**	**0.08**	**0.097**	**20.00**	**0.57**
WASASA	**2017**	**2.40**	**2.72**	**0.20**	**0.49**	**0.35**	**1.37**	**0.10**	**0.074**	**21.00**	**0.58**
WASASA	**2018**	**2.64**	**2.41**	**0.20**	**0.53**	**0.37**	**1.42**	**0.08**	**0.146**	**22.00**	**0.62**
WASASA	**2019**	**1.22**	**2.73**	**0.18**	**0.22**	**0.14**	**1.37**	**0.09**	**0.126**	**23.00**	**0.18**
WASASA	**2020**	**1.09**	**2.88**	**0.22**	**0.24**	**0.17**	**1.35**	**0.06**	**0.199**	**24.00**	**0.08**
AGAR	**2011**	**1.52**	**1.86**	**0.36**	**0.55**	**0.23**	**1.54**	**0.11**	**0.181**	**8.00**	**0.34**
AGAR	**2012**	**1.49**	**2.36**	**0.27**	**0.40**	**0.26**	**1.42**	**0.09**	**0.341**	**9.00**	**0.33**
AGAR	**2013**	**1.61**	**1.52**	**0.25**	**0.41**	**0.24**	**1.66**	**0.10**	**0.135**	**10.00**	**0.38**
AGAR	**2014**	**2.20**	**1.56**	**0.14**	**0.31**	**0.20**	**1.64**	**0.10**	**0.081**	**11.00**	**0.54**
AGAR	**2015**	**2.32**	**1.37**	**0.14**	**0.33**	**0.23**	**1.73**	**0.10**	**0.077**	**12.00**	**0.57**
AGAR	**2016**	**2.39**	**1.32**	**0.14**	**0.32**	**0.21**	**1.76**	**0.08**	**0.097**	**13.00**	**0.58**
AGAR	**2017**	**2.28**	**0.96**	**0.13**	**0.31**	**0.21**	**2.04**	**0.10**	**0.074**	**14.00**	**0.56**
AGAR	**2018**	**1.63**	**0.86**	**0.28**	**0.45**	**0.30**	**2.17**	**0.08**	**0.146**	**15.00**	**0.39**
AGAR	**2019**	**1.67**	**1.33**	**0.21**	**0.34**	**0.19**	**1.75**	**0.09**	**0.126**	**16.00**	**0.40**
AGAR	**2020**	**1.78**	**1.10**	**0.23**	**0.41**	**0.20**	**1.91**	**0.06**	**0.199**	**17.00**	**0.44**
HARBU	**2011**	**2.11**	**0.93**	**0.16**	**0.33**	**0.22**	**2.08**	**0.11**	**0.181**	**7.00**	**0.53**

HARBU	**2012**	**1.05**	**2.02**	**0.20**	**0.21**	**0.13**	**1.50**	**0.09**	**0.341**	**8.00**	**0.05**
HARBU	**2013**	**1.05**	**2.22**	**0.24**	**0.25**	**0.17**	**1.45**	**0.10**	**0.135**	**9.00**	**0.05**
HARBU	**2014**	**1.06**	**1.90**	**0.24**	**0.25**	**0.17**	**1.53**	**0.10**	**0.081**	**10.00**	**0.05**
HARBU	**2015**	**0.67**	**1.64**	**0.38**	**0.25**	**0.25**	**1.61**	**0.10**	**0.077**	**11.00**	**(0.49)**
HARBU	**2016**	**1.02**	**2.34**	**0.38**	**0.39**	**0.23**	**1.43**	**0.08**	**0.097**	**12.00**	**0.02**
HARBU	**2017**	**1.06**	**3.50**	**0.23**	**0.24**	**0.14**	**1.29**	**0.10**	**0.074**	**13.00**	**0.06**
HARBU	**2018**	**1.20**	**4.16**	**0.23**	**0.28**	**0.17**	**1.24**	**0.08**	**0.146**	**14.00**	**0.17**
HARBU	**2019**	**1.74**	**4.94**	**0.22**	**0.39**	**0.27**	**1.20**	**0.09**	**0.126**	**15.00**	**0.42**
HARBU	**2020**	**1.49**	**3.55**	**0.23**	**0.35**	**0.25**	**1.28**	**0.06**	**0.199**	**16.00**	**0.33**
AVFS	**2011**	**2.49**	**0.80**	**0.60**	**0.90**	**0.34**	**2.25**	**0.11**	**0.181**	**14.00**	**0.33**
AVFS	**2012**	**1.48**	**0.81**	**0.32**	**0.48**	**0.35**	**2.24**	**0.09**	**0.341**	**15.00**	**0.32**
AVFS	**2013**	**1.40**	**1.25**	**0.32**	**0.45**	**0.26**	**1.80**	**0.10**	**0.135**	**16.00**	**0.29**
AVFS	**2014**	**1.12**	**1.40**	**0.39**	**0.43**	**0.28**	**1.71**	**0.10**	**0.081**	**17.00**	**0.11**
AVFS	**2015**	**1.19**	**1.50**	**0.34**	**0.40**	**0.26**	**1.67**	**0.10**	**0.077**	**18.00**	**0.16**
AVFS	**2016**	**1.06**	**1.40**	**0.33**	**0.35**	**0.24**	**1.71**	**0.08**	**0.097**	**19.00**	**0.06**
AVFS	**2017**	**0.78**	**0.87**	**0.39**	**0.30**	**0.25**	**2.15**	**0.10**	**0.074**	**20.00**	**(0.28)**
AVFS	**2018**	**1.15**	**0.87**	**0.27**	**0.31**	**0.25**	**2.15**	**0.08**	**0.146**	**21.00**	**0.13**
AVFS	**2019**	**1.06**	**1.40**	**0.35**	**0.37**	**0.24**	**1.71**	**0.09**	**0.126**	**22.00**	**0.06**
AVFS	**2020**	**0.58**	**3.60**	**0.61**	**0.35**	**0.21**	**1.28**	**0.06**	**0.199**	**23.00**	**(0.72)**
KENDIL	**2011**	**2.18**	**0.54**	**0.24**	**0.53**	**0.35**	**2.86**	**0.11**	**0.181**	**11.00**	**0.54**
KENDIL	**2012**	**2.28**	**0.55**	**0.26**	**0.60**	**0.40**	**2.82**	**0.09**	**0.341**	**12.00**	**0.56**
KENDIL	**2013**	**2.85**	**0.49**	**0.22**	**0.63**	**0.37**	**3.04**	**0.10**	**0.135**	**13.00**	**0.65**
KENDIL	**2014**	**2.03**	**0.46**	**0.31**	**0.63**	**0.39**	**3.18**	**0.10**	**0.081**	**14.00**	**0.51**
KENDIL	**2015**	**2.89**	**0.46**	**0.21**	**0.60**	**0.38**	**3.18**	**0.10**	**0.077**	**15.00**	**0.65**
KENDIL	**2016**	**2.75**	**0.39**	**0.26**	**0.72**	**0.43**	**3.53**	**0.08**	**0.097**	**16.00**	**0.64**
KENDIL	**2017**	**1.57**	**0.38**	**0.24**	**0.38**	**0.25**	**3.62**	**0.10**	**0.074**	**17.00**	**0.36**
KENDIL	**2018**	**1.78**	**0.53**	**0.24**	**0.43**	**0.24**	**2.90**	**0.08**	**0.146**	**18.00**	**0.44**
KENDIL	**2019**	**1.72**	**1.24**	**0.21**	**0.36**	**0.22**	**1.80**	**0.09**	**0.126**	**19.00**	**0.42**
KENDIL	**2020**	**1.64**	**1.17**	**0.22**	**0.36**	**0.23**	**1.85**	**0.06**	**0.199**	**20.00**	**0.39**
METEMAMEN	**2011**	**0.43**	**0.25**	**0.56**	**0.24**	**0.15**	**5.05**	**0.11**	**0.181**	**15.00**	**(1.34)**
METEMAMEN	**2012**	**0.52**	**0.63**	**0.48**	**0.25**	**0.16**	**2.58**	**0.09**	**0.341**	**16.00**	**(0.94)**
METEMAMEN	**2013**	**0.90**	**1.14**	**0.31**	**0.28**	**0.16**	**1.88**	**0.10**	**0.135**	**17.00**	**(0.11)**
METEMAMEN	**2014**	**1.53**	**0.54**	**0.18**	**0.27**	**0.18**	**2.86**	**0.10**	**0.081**	**18.00**	**0.34**
METEMAMEN	**2015**	**1.87**	**0.96**	**0.17**	**0.32**	**0.21**	**2.04**	**0.10**	**0.077**	**19.00**	**0.47**
METEMAMEN	**2016**	**1.85**	**1.00**	**0.21**	**0.39**	**0.26**	**2.00**	**0.08**	**0.097**	**20.00**	**0.46**
METEMAMEN	**2017**	**1.99**	**0.98**	**0.24**	**0.48**	**0.35**	**2.02**	**0.10**	**0.074**	**21.00**	**0.50**
METEMAMEN	**2018**	**2.34**	**1.08**	**0.21**	**0.49**	**0.34**	**1.92**	**0.08**	**0.146**	**22.00**	**0.57**
METEMAMEN	**2019**	**2.49**	**2.05**	**0.19**	**0.48**	**0.33**	**1.49**	**0.09**	**0.126**	**23.00**	**0.60**
METEMAMEN	**2020**	**1.56**	**2.05**	**0.16**	**0.25**	**0.19**	**1.49**	**0.06**	**0.199**	**24.00**	**0.36**
ONE	**2011**	**5.15**	**0.52**	**0.22**	**1.12**	**0.72**	**2.93**	**0.11**	**0.181**	**8.00**	**0.81**
ONE	**2012**	**3.80**	**1.55**	**0.17**	**0.82**	**0.45**	**1.64**	**0.09**	**0.341**	**9.00**	**0.79**
ONE	**2013**	**5.58**	**1.98**	**0.14**	**1.04**	**0.70**	**1.51**	**0.10**	**0.135**	**10.00**	**0.87**

ONE	**2014**	**5.40**	**1.30**	**0.14**	**1.03**	**0.75**	**1.77**	**0.10**	**0.081**	**11.00**	**0.86**
ONE	**2015**	**5.64**	**1.02**	**0.20**	**1.12**	**0.87**	**1.98**	**0.10**	**0.077**	**12.00**	**0.82**
ONE	**2016**	**2.14**	**1.34**	**0.32**	**0.68**	**0.51**	**1.75**	**0.08**	**0.097**	**13.00**	**0.53**
ONE	**2017**	**2.28**	**2.27**	**0.47**	**0.60**	**0.47**	**1.44**	**0.10**	**0.074**	**14.00**	**0.22**
ONE	**2018**	**0.48**	**(19.20)**	**0.96**	**0.46**	**0.36**	**0.95**	**0.08**	**0.146**	**15.00**	**(1.09)**
ONE	**2019**	**0.09**	**5.87**	**0.91**	**0.08**	**0.03**	**1.17**	**0.09**	**0.126**	**16.00**	**(10.27)**
ONE	**2020**	**0.01**	**8.86**	**2.17**	**0.02**	**0.00**	**1.11**	**0.06**	**0.199**	**17.00**	**(141.88)**
DIGAF	**2011**	**0.38**	**0.98**	**0.68**	**0.26**	**0.26**	**2.02**	**0.11**	**0.181**	**7.00**	**(1.60)**
DIGAF	**2012**	**0.32**	**0.83**	**1.48**	**0.47**	**0.28**	**2.20**	**0.09**	**0.341**	**8.00**	**(2.12)**
DIGAF	**2013**	**0.22**	**1.19**	**2.38**	**0.52**	**0.27**	**1.84**	**0.10**	**0.135**	**9.00**	**(3.56)**
DIGAF	**2014**	**(2.66)**	**1.23**	**0.95**	**(1.58)**	**(0.64)**	**1.81**	**0.10**	**0.081**	**10.00**	**1.60**
DIGAF	**2015**	**0.98**	**2.37**	**1.11**	**0.64**	**0.26**	**1.42**	**0.10**	**0.077**	**11.00**	**(0.73)**
DIGAF	**2016**	**0.08**	**0.12**	**5.31**	**0.43**	**0.04**	**9.33**	**0.08**	**0.097**	**12.00**	**(11.41)**
DIGAF	**2017**	**0.07**	**2.33**	**5.80**	**0.42**	**0.09**	**1.43**	**0.10**	**0.074**	**13.00**	**(12.70)**
DIGAF	**2018**	**0.11**	**0.97**	**9.63**	**1.02**	**0.15**	**2.03**	**0.08**	**0.146**	**14.00**	**(8.48)**
DIGAF	**2019**	**0.20**	**4.15**	**2.46**	**0.49**	**0.15**	**1.24**	**0.09**	**0.126**	**15.00**	**(3.98)**
DIGAF	**2020**	**0.12**	**(11.53)**	**2.83**	**0.33**	**0.17**	**0.91**	**0.06**	**0.199**	**16.00**	**(7.68)**
LEFAYEDA	**2011**	**0.19**	**1.52**	**1.50**	**0.29**	**0.19**	**1.66**	**0.11**	**0.181**	**6.00**	**(4.20)**
LEFAYEDA	**2012**	**0.15**	**18.10**	**1.78**	**0.26**	**0.13**	**1.06**	**0.09**	**0.341**	**7.00**	**(5.83)**
LEFAYEDA	**2013**	**0.15**	**3.78**	**2.72**	**0.42**	**0.21**	**1.26**	**0.10**	**0.135**	**8.00**	**(5.49)**
LEFAYEDA	**2014**	**0.20**	**0.44**	**1.99**	**0.41**	**0.09**	**3.29**	**0.10**	**0.081**	**9.00**	**(3.89)**
LEFAYEDA	**2015**	**0.13**	**4.91**	**1.74**	**0.23**	**0.07**	**1.20**	**0.10**	**0.077**	**10.00**	**(6.58)**
LEFAYEDA	**2016**	**0.98**	**1.21**	**0.40**	**0.39**	**0.16**	**1.83**	**0.08**	**0.097**	**11.00**	**(0.02)**
LEFAYEDA	**2017**	**0.16**	**0.21**	**0.33**	**0.05**	**0.11**	**5.78**	**0.10**	**0.074**	**12.00**	**(5.30)**
LEFAYEDA	**2018**	**0.65**	**3.74**	**0.45**	**0.30**	**0.13**	**1.27**	**0.08**	**0.146**	**13.00**	**(0.53)**
LEFAYEDA	**2019**	**0.91**	**6.06**	**0.23**	**0.21**	**0.10**	**1.17**	**0.09**	**0.126**	**14.00**	**(0.10)**
LEFAYEDA	**2020**	**1.94**	**5.17**	**0.26**	**0.51**	**0.25**	**1.19**	**0.06**	**0.199**	**15.00**	**0.49**

Source: National Bank secondary Data, 2022

Appendix 2: Code and Abbreviation of Selected MFI's Used in the Study

MFI's Code	**MFI's Full Name**	**MFI's Abbr. Name Used in the study**
1)	Amhara Credit and savings institutions.	ACSI
2)	Oromiya credit and savings institutions.	OCSSCO
3)	Omo credit and savings institutions.	OMO
4)	Addis credit &savings institutions.	ADCSI
5)	Specialized financing& prom. Institutions.	SFPI
6)	Wisdom micro-financing institutions.	VFMFI
7)	Sidama micro-financing institutions.	SMFI
8)	Buussa Gonof. Micro-financing institutions.	MGMF
9)	PEACE micro-financing institutions.	PEACE
10)	Eshet micro-financing institutions.	EMFI
11)	Wassassa micro-financing institutions.	WMMFI'
12)	Agar micro-financing institutions.	AGGAR
13)	Harbu Micro-financing institutions.	HMFI
14)	African village financial service.	AVFS
15)	Sha.Idi.ye.Ag. micro-financing institutions.	SIAMFI
16)	Metemamen micro-financing institutions.	MMFI
17)	Leta micro-financing institutions.	ONE
18)	Digaf micro-financing institutions.	DMFI
19)	Lefayda credit & saving institutions.	LCSI

Appendix 3: List of MFI's and Year of Establishment in Ethiopia

No	Name of Microfinance Institutions	Year of Establishment in GC	Remark
	Category A		
1	Amhara Credit and savings inst.	04-Sep-97	
2	Dedebit Credit and savings inst.	28-Apr-97	
3	Oromiya credit and savings inst.	08-Apr-97	
4	Omo credit and savings inst.	10-Jan-97	
5	Addis credit &savings inst.	04-Sep-97	
	Category B		
1	Specialized financing & prom. inst.	25-Nov-97	
2	Gasha micro-financing inst.	15-May-98	
3	Wisdom micro-financing inst.	17-Jun-98	
4	Sidama micro-financing inst.	17-Jun-98	
5	Buussa Gonof.micro-financing inst.	17-Jun-98	
6	PEACE micro-financing inst.	18-Nov-99	
7	Meklit micro-financing inst.	04-Sep-97	
8	Eshet micro-financing inst.	04-Sep-97	
9	Wassassa micro-financing inst.	04-Sep-97	
10	Ben. Gum. micro-financing inst.	04-Sep-97	
11	Dire micro-financing inst.	05-Feb-97	
12	Agar micro-financing inst.	18-Mar-04	
13	Harbu Micro-financing inst.	17-Feb-05	
	Category C		
1	African village financial serv.	19-Nov-98	
2	Sha.Idi.ye.Ag. micro-financing inst.	02-Jul-01	
3	Metemamen micro-financing inst.	04-Sep-97	
4	Leta micro-financing inst.	29-Oct-04	
5	Digaf micro-financing inst.	18-Jul-05	
6	Harar micro-financing inst.	17-Aug-06	
7	Lefayda credit & saving inst.	17-Aug-06	
8	Tesfa micro-financing inst.	01-Mar-08	
9	Gambella micro-financing inst.	18-Dec-08	
10	Dynamic micro-financing inst.	15-Feb-09	
11	Somali micro-financing inst.	31-Jan-11	
12	Lideta micro-financing inst.	17-Apr-12	
13	Nisir Micro-financing inst.	05-Jul-14	
14	Adeday micro-financing inst.	06-Jul-14	
15	Afar Micro-financing inst.	17-Aug-11	
16	Rays micro-financing inst.	07-Jul-14	

Source: National Bank secondary Data, 2022