DETERMINANTS OF FINANCIAL PERFORMANCE: A STUDY ON SELECTED MICRO FINANCE INSTITUTIONS IN ETHIOPIA

A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF JIMMA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE MASTER OF SCIENCE (MSc) DEGREE IN ACCOUNTING AND FINANCE

BY: ABEBAW YENESEW

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BY: ABEBAW YENESEW

ADIVISOR:

MAJOR-ADIVISOR: AREGA SEYOUM (PhD)

CO-ADVISOR: YONAS MEKONNEN (MSc)

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DECLARATION

First, I declare that this Thesis is my work and that all sources of materials used for this thesis have been fully acknowledged. This thesis has been submitted in partial fulfillment of the requirement for the Degree of Master of Science (MSc) in Accounting and Finance.

Name: Abebaw Yenesew Mekonnen

Signature_____

 Place: Jimma University

    Date of Submission: June 5, 2014

This master thesis, has been submitted for examination with my approval as thesis advisor

Name   1/ Main-advisor **Dr. Arega Seyoum**

                Signature_____

                Date_____

        2/ Co-advisor Yonas Mekonnen (MSc)

                Signature_____

                Date_____

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were carried out by Abebaw Yenesew Mekonnen under the supervision of Dr. Arega Seyoum and Mr. Yonas Mekonnen and this title has been approved by the concerned bodies of Jimma university for the partial fulfillment of the requirements for the degree of Masters of Science in Accounting and Finance (MSc).

Name of candidate	**Signature**	**Date**
Abebaw Yenesew Mekonnen	_____	June 05, 2014

Names of advisors	**Signature**	**Date**
Dr. Arega Seyoum	_____	_____
Mr. Yonas Mekonnen	_____	____

Head of department	**Signature**	**Date**
_____	_____	____

ABSTRACT

Microfinance promises to reduce poverty. To achieve this amazing objective Microfinance institutions have to become strong enough in financial performance because donor constancy is not a given. Thus the question is: In what extent the MFI-specific, industry-specific and macroeconomic factors determinants the Ethiopian micro finance industry financial performance from the period 2003-2011.By using OLS estimation method to measure the effect of internal and external determinants on financial performance in terms of return on asset. The study was based on a nine years secondary data obtained from AEMFI performance analysis report and MOFAD for thirteen (13) selected MFIs in Ethiopia. Beside this the study used primary data analysis to solicit mangers perception towards the determinants of financial performance of MFIs in Ethiopia. Regarding the explanatory variables, operational efficiency, GDP and size of MFIs affect MFIs financial performance significantly. The outcome of the study shows that Age of microfinance institutions has a positive but statistically insignificant effect on their financial performance. The other explanatory variables which is Portfolio at risk>30, Gearing ratio, capital to asset ratio and Market concentration affect negatively and not significant.The Ethiopian MFIs policy makers and managers should give high concern to the credit risk management, expense management and large MFIs size management and also the government and policy makers should work combining both poverty reduction and financial self- sufficiency of MFIs. And also MFIs have to emulate profit-making banking practices by implementing a sound financial management and good managerial governance to assure their financial performance and in the long run financial sustainability.

Key words, financial performance, Micro finance institution

ACKNOWLEDGEMENT

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List of Acronyms

ACSI- Amhara Credit and Saving Institutions S.C

ADCSI -Addis Credit and Saving Institutions S.C

AEMFI- Association Ethiopian Micro-Finance institution

AGE- Age of Micro Finance Institution

AVFS- African Village Financial Services

BUUSSA- Busa Gonofa Microfinance S.C

CAP- Capital Asset Ratio

CGAP- Consultative Group to Assist the Poor

CLRM- Classical Linear Regression Model

CONS- Market Concentration

DECSI- Dedebit Credit and Saving Institutions S.C

EFE- Operational Efficiency

ETB- Ethiopian Birr

FSS- Financial Self-Sufficiency

GASHA- Gasha Microfinance S.C

GDP- Growth Domestic Product

GR- Gearing Ratio or Debt/Equity ratio

MDGs- Millennium Development Goals

MEKLIT- Meklit Microfinance S.C

MFIs- Micro Finance Institution

NGOs- Non Governmental Organization

OCSSCO- Oromiya Credit and Saving S.C

OLS- Ordinary Least Square

OMO- Omo Microfinance S.C

OSS- Operational Self-Sufficiency

PAR- Portfolio at Risk >30 Days

PEACE- Povrty Eridaction and Community Empowerment Microfinance S.C

RMP- Relative Market power

ROA- Return on Asset

ROE- Return on Equity

SCP- structure conduct Performance

SEPI- Specialized Financial and Promotional Institutions S.C

SIZE- Size of Micro Finance Institution

WASASA- Wasasa Microfinance S.C

WISDOM-Wisdom   Microfinance   S.C

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the Study

Throughout the world, poor people are not benefited from formal financial systems. According to Brau and Woller, (2004) exclusion ranges from partial exclusion in developed countries to full or nearly full exclusion in lesser developed countries.

In the past decade, financial authorities in most developing and transitional economies have given more emphasis on bringing formal financial services to the large numbers of the world's poor who currently lack adequate access or excluded from formal financial service (CGAP, 2012).

Most of the poor population and small enterprises in Sub-Saharan Africa countries have very limited chance to access deposit and credit facilities and other financial services provided by formal financial institutions (Basu *et al,* 2004). Lack of access to credit is a major obstacle to growth in the continent, where a large majority of households do not have enough collateral to secure a loan. These households depend on both informal-sector and moneylenders where they borrow at skyrocketed interest rates, or are simply denied access to credit and therefore investment (Muriu, 2011).

Microfinance (henceforth MFIs) in the 20th century has been characterized by many new products and discoveries in the financial industry. Capitalism has allowed the increase of so many new ideas in this area therefore microfinance is only one of them. The aim of clients that microfinance serves represents the difference with many of other discoveries even as most of the new ideas target the smaller and richest part of the world population, microfinance reaches a large number of poorer people enabling them to access to financial services such as credit and deposits, insurance and others. The access to

financial services has to be considered formal as there are many informal ways in which people tend to borrow for credit and save money for unexpected situations.

Microfinance has been accepted not only as a financial mean to target specific people but it realize also a social aspect contributing to poverty reduction, women empowerment, economic development and employment creation (Iezza ,2010).

In Ethiopia, the poverty reduction strategy is set as the operational framework to translate the global MDGs targets in to national action. Micro finance service intervention in Ethiopia have also be considered as one of the policy instrument of the government and non government organizations (NGOs) to enable rural and urban poor increase output and productivity, induce technology adoption, improve input and productivity, induce technology adoption, improve input supply, increase income, reduce poverty and attain food security. The sustainability of MFIs that reach a large number of rural and urban poor who are not served by the conventional financial institutions, such as the commercial banks, has been a prime element of the new development strategy of Ethiopia (Wolday 2000 as cited by Alemayehu,2008).

The financial sustainability of an MFI is defined as the capacity to cover all of its expenses by its revenue and to generate a margin to finance its growth, and this is the same as profitability in the long run. Being a sustainable and thereby profitable MFI also brings discipline to the MFI, tightens up its own function or operation and generally leads to better products.

Microfinance allows a sustainable form of financing for the most needed and it helps to reduce inequalities. In this capitalist society, in order to make a new development strategy work, sustainability MFIs is the key if one's goal is long term survival of the company or institution. In order to make microfinance serve millions of poor households, it needs to display the sustainability if it wants to attract the necessary capital to serve this purpose.

Profitability is a suitable mechanism for achieving long term viability and sustainability of the microfinance industry. At the micro level, profitability is a precondition to a competitive microfinance industry and the cheapest source of capital, without which no firm would draw external capital. MFIs profits are also an important source of equity, if profits are reinvested and this may promote financial stability. Moreover, market sources of funding are accessible only to MFIs that have established for to turn a profit. By minimizing the probability of financial crisis, remarkable profits are vital in reassuring MFI's stakeholders, including investors, borrowers, suppliers and regulators. At the macro level, a profitable microfinance industry is better placed to overcome negative shocks and contribute meaningfully to the stability of the overall financial system (Muriu, 2011).

A profitable microfinance industry is vital in sustain the stability of the micro banking system. Low profitability deteriorates the capacity of MFIs to absorb negative shocks, which subsequently affect solvency. Profitability reflects how MFIs are run given the environment in which they operate, which should opitomize efficiency, risk management capabilities, their competitive strategies, quality of their management and levels of capitalization.

In Ethiopia, improving access to financial services is taken as an important development tool, because it helps in creating employment for unemployed and increase their income and consumption of the excluded population, which would in the final analysis reduce poverty and contribute to the implementation or realization of the five years transformation and development plan. Since 2011 31 MFIs registered with the National Bank of Ethiopia, have been serving 2.5 million borrowers with a portfolio of Birr 7.1 Billion mirroring their ever growing importance in the economy (AEMFI, 2013).

In order to achieve long term sustainability the MFIs of the country should be profitable. In the year 2008 up to 2011 the following results were achieved.

Table1.1. MFIs progress result from 2008 to 2011.

	2008	2009	2010	2011
Outstanding loan portfolio	4,691,424,443	4,892,658,879	5,706,372,461	7,157,811,931
%age change		4.29%	16.63%	25.44%
Saving balance	1,411,568,985	2,023,443,931	1,738,595,856	8,711,987,024
%age change		143%	86%	214%
Active borrowers	2,172,823	2,197,688	2,325,914	2,502,773
%age change		1.14%	5.83%	7.60%

Source: AEMFI performance analysis report, (2013).

Microfinance can be seen as either from a business point of view or as a tool for development (Jorgeson, 2011). The objective of this study is to study microfinance institutions from a business view since it's observed that an increasing number of institutions have become interested in becoming profitable. The industry is changing and profitability for the individual institution is vital for survival in the long run. Therefore, the objective of the study was to investigate what actually determines financial performance of MFIs in Ethiopia.

The focus on financial Profitability is attributed to its conformity to the perspective that only independent, financially sustainable microfinance institutions will be able to attain the wide outreach necessary to achieve the highest level of impact on their target population (Yonas, 2012). Financial performance in this study was conceptualized in terms of profitability only.

1.2. Statement of the Problem

MFIs provide financial services to low-income, economically active, borrowers who look for relatively small amounts to finance their businesses, manage emergencies, acquire

assets, or smooth consumption (CGAP, 2003). These borrowers frequently lack credit histories, collateral, or both, and thus, do not have access to financing from mainstream commercial banks. For this reason, MFIs are seen as playing a role in the creation of economic opportunity, and in poverty alleviation (CGAP, 2003).

To achieve their prime objective which is alleviating poverty, MFIs should be able to provide financial services on a sustainable way. To be sustainable, MFIs should generate an income sufficient to cover their financial costs, costs of administration, and loan loss provisions. A MFIs working towards sustainability on market principle is not different from a formal bank except clientele that it serves. Hence, it will face a challenge that a formal bank faces in achieving its objectives (Hartungi, 2007cited in Yonas, 2012).

The Microfinance industry, along with all the players in it, is quickly changing. Today, the microfinance industry has become both more crowded and complex. First of all, the concept of microfinance no longer just covers microcredit only, but also includes the possibilities of saving, insurance and money transfer. Although MFIs are characterized as one type when it comes to financial services, there is a great variety of MFI's in terms of legal form, profit status, degree of sustainability and funding sources (Sima, 2013).

The establishment of sustainable MFI that reach a large number of rural and urban poor who are not served by the conventional financial institutions, such as the commercial banks, has been a key component of the new development Strategy of Ethiopia (Alemayehu, 2008).

 Profitability is an appropriate device for achieving long term viability and sustainability of the microfinance industry. At the micro level, profitability is a precondition to a competitive microfinance industry and the cheapest source of capital, without which no firm would attract external capital. MFIs profits are also an important source of equity, if profits are reinvested and this may encourage financial stability (Muriu, 2011). Moreover, market sources of funding are accessible only to MFIs that have demonstrated that they can generate a profit.

While a large body of research on financial institutions financial performance has been undertaken in the conventional banking industry in Ethiopia For instance Birhanu, (2012); Belayneh, (2011); Habtamu, (2012); Gemechu, (2013) rigorous empirical evidence on microfinance remains limited, largely due to lack of reliable data. Moreover, it is rare or uncommon such study with regard to identification and assessment of factors that affect financial performance has been conducted in Ethiopia where the majority of MFIs are not well developed or small.

The studies conducted in the areas of microfinance institutions in Ethiopia are few in number and did not give such an emphasis on the factors considered to be determinants of financial performance of microfinance institutions in Ethiopia. For example,(Alemayehu ,2008) studied the financial and operational performance of micro finance institutions by using simple descriptive analysis and employing graphs and percentage growth rates by classifying small, medium and large. The study did not say anything about factors affecting financial performance of MFIs.

The study by Yonas, (2012) and Melkamu, (2012) tried to see the determinants of performance by using proxy of financial and operational sustainability of Ethiopian MFIs. They focused only on internal factors and have not considered external factors like macroeconomic and industry and also they have not addressed specifically the idea of financial performance of MFIs. In addition Sima, (2013) studied determinants of profitability of Ethiopian micro finance by using microfinance specific and macroeconomic factors from secondary data. Therefore, the above studies use limited variables which focus in MFI-specific and macroeconomic factors only and not say anything about industry specific determinants in their study.

Since it is believed that MFIs must be profitable for their healthy operation and attainment of the long term goal which is alleviation of poverty, this study was find out the MFIs specific, macroeconomic and industry-specific factors affecting their financial performance by including primary data and fills the gap in the context of Ethiopian MFIs.

1.3. Objective of the Study

The general objective of this study is to identify the determining factors of financial performance of Selected Microfinance Institutions in Ethiopia.
The specific objectives include:

1. To asses and analyze the extent of MFIs-specific (internal) such as Capital Asset ratio, operational efficiency, portfolio quality, Gearing ratio, size, age determinants effect on financial performance of Ethiopian MFIs.

2. To analyze the effects of external or macroeconomic such as level of GDP determinants on financial performance of Ethiopian MFIs.

3. To identify how MFI- Industry specific factors such as market concentration influence on financial performance of MFIs in Ethiopia.

1.4. Hypothesis of the Study

In Oder to achieve the objectives of the study, a number of hypotheses were tested regarding the determinants of financial performance of Ethiopia MFIs based on different empirical research and theoretical review made from banks. The reason is that there is rear theory developed in relation to MFIs financial performance. There are eight hypotheses which are include:

Hypotheses 1: Financial performance is positively related with capital Asset ratio of MFIs in Ethiopia

Hypotheses 2: Age of the MFIs has a positive relationship with financial performance of MFIs in Ethiopia.

Hypotheses 3: There is negative relationship between Operational efficiency and MFIs financial performance in Ethiopia.

Hypotheses 4: Portfolio quality and financial performance of MFIs in Ethiopia are inversely related.

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Hypotheses 5: MFIs financial performance is positive relationship with MFIs size.

Hypothesis 6: Gearing ratio is negatively related with the financial performance of MFIs in Ethiopia.

Hypothesis 7: Real GDP is positively related with the financial performance of MFIs in Ethiopia.

Hypothesis 8: Market concentration and financial performance are positively related.

1.5. Significance of the Study

Although there have been numerous studies on Financial performance of MFIs in other countries where MFIs are relatively large and well developed compared to MFIs in Ethiopia; it is uncommon to find such studies in sufficient number in Ethiopia. This study, as an attempt to assess the determinants of financial performance of MFIs in Ethiopia, provides evidence on what effect the firm-specific factors, industry-specific factors and the general macroeconomic factors have on the MFIs financial performance in Ethiopia. Analyzing and Understanding the impact of different factors on the financial performance of MFIs in Ethiopia is a major stepping stone to enlighten what should be done if financial performance is to be achieved.

The findings of the study will also be of benefits to donors, managers and others interested in the MFIs study for it will show the level of financial performance of the MFIs operating in the country have reached. This in turn helps them knowing factors affecting financial performance and thereby takes appropriate actions to increase financial performance of MFIs and the study will also initiate other MFIs service providers to give due attention on the management of identified variables. It is hoped that the outcome of this study will also provide an insight of the MFIs industry to other researchers.

1.6. Scope and Limitation of the Study

This study was confine only to know the key determinants of financial performance of selected Ethiopian MFIs by analyzing the financial statements start from 2003 to 2011 fiscal year. Since the 2013th annual performance report that is published by AEMFI is not include the recent data which is 2012 and 2013,so this paper is limited to analyze the performance till 2011. Those MFIs included in the recent annual performance report was limited in number so this paper is limited to analyze only 13 MFIs. In relation to support the secondary data analysis collecting the perception of branch managers of MFIs was intended but accessing all those key informants was difficult.

1.7. Organization of the Paper

The proposed research paper have the following form; chapter one including introduction, statement of the problem, objectives, hypotheses to be tested in the study, significance, scope and limitation, and Chapter two consists of literature review both theories and empirical studies, and chapter three Research Methodology, chapter four data analysis and discussion and lastly chapter five: conclusions and recommendations.

CHAPTER TWO

2. LITERATURE REVIEW

Under this chapter the theoretical and empirical evidences focusing on the determinants of micro finance institution financial performance are presented. Accordingly, the first section, describes overall theoretical overview of micro finance concepts. The second section presents review of empirical studies on the internal and external determinants of MFIs financial performance.

2.1. Theoretical Overview of Microfinance

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

2.1.1. Definition of Microfinance

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

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

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

The popularly known institution which is Microfinance information exchange (MIX) defined the microfinance institutions as a variety of financial services that target low-income clients, particularly women. Since the clients of microfinance institutions have lower incomes or poor and often have limited access to other financial services, microfinance products tend to be for smaller monetary amounts than traditional financial services. These services not only provide micro credit service for those have lower incomes but also include loans, savings, insurance, and remittances. Micro-loans are given for a variety of purposes, frequently for micro-enterprise development. The diversity of products and services offered shows the reality that the financial needs of individuals, households and enterprises can change significantly over time, especially for those who live in poverty, which is not benefited from the formal bank. Because of these varied needs, and because of the industry's focus on the poor, microfinance institutions often use non-traditional methodologies, such as group lending or other forms of collateral not employed by the formal financial sector especially by bank.

According to Robinson, (2001) definition:
Microfinance refers to small-scale financial services-primarily credit and savings-given to people who involved in farm or fish or herd; who work in small enterprises or microenterprises where goods are produced, recycled, repaired, or sold; who provide services; who work for wages or commissions; who gain income from renting out small amounts of land, vehicles, draft animals, or machinery and tools; and to other individuals and groups at the local levels of developing countries, both rural and urban (Robinson, 2001 p.9).

Ethiopian Proclamation No. 626/2009 defines micro financing business as "the provision of financial services like accepting savings, extend credit, drawing and accepting drafts

payable, providing money transfer services and others specified in the Article 3(2) of the proclamation.

2.1.2. History of Microfinance

The ideas and aspirations towards microfinance are not new. Small, informal savings and credit groups have worked for centuries across the world, from Ghana to Mexico to India and beyond (Helms, 2006). In Europe, as early as the 15th century, the Catholic Church founded pawn shops as an alternative to usurious moneylenders. These pawn shops spread throughout the urban areas in Europe throughout the 15th century. Formal credit and savings institutions for the poor have also been around for generations, offering financial services for customers who were traditionally neglected by commercial banks. The Irish Loan Fund system, started in the early 1700s, is an early (and long-lived) example. By the 1840s, this system had about 300 funds throughout Ireland (Helms, 2006).

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

Ledgerwood (1999) described the focus of these cooperative financial institutions as savings mobilization in rural areas that attempt to teach poor farmers how to save money and utilize it. In the early 1900s the concept of Raiffeisen began to appear with adaptations in parts of rural Latin America (Helms, 2006).
Another milestone in the history of microfinance was the opening of the Indonesian People's Credit Bank in 1895 that became the largest microfinance system in Indonesia (Helms, 2006).

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

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

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

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

2.1.3. History of Microfinance in Ethiopia

Initially, micro-credit started as a government and non-government organizations motivated plan. Following the 1984/85 severe drought and famine, many NGOs started to offer micro credit along with their relief activities although this was on a limited scale and not in a sustained manner (Alemayehu, 2008)

Although the development of deposit-taking MFIs started only in 1996, the industry has shown outstanding growth. Since 1996, NBE has registered 30 MFIs to deliver financial services to the poor. As of 2008, these MFIs had an active loan portfolio of about ETB 4.5 billion delivered to 2.3 million active borrowers and 3 million total active clients. They also mobilized savings of about ETB 1.9 billion (USD 144 million). The average size of loans in 2006 was about USD 170, which indicates that MFIs target the active poor and also do a significant amount of their business (54 percent) with women. Despite their strong growth, MFIs provide less than seven percent of the total national loan portfolio, again with government-owned MFIs playing the major role (Wolday *et al*, 2010).

2.1.4. Perspectives in Performance Measures

The various perspective on which the MFI performance is to be measured has created two contrasting but having the same goals school of thought about the MFI industry: the Welfarist approach and the Institutionist approach.

The Institutionist: According to the Institutionist school thought financial deepening is the main aim of microfinance. That is, the setting up of a separate system of "sustainable" financial intermediation for the poor who are either neglected or are underserved by the formal financial system. The activists of this school of thought give emphasis to more on the achievement of financial self-sufficiency, breadth of outreach (numbers of clients), depth of outreach (levels of poverty reached) and positive client impact. The interest of

the approach is that the institutions abstain from all kinds of subsidies as they insist on financial self-sufficiency (Nelson, 2011).

The institutionists focus and believe that in order to effectively fight the problem of poverty, it is necessary to build a microfinance industry as a system in which able to reach a large number of people.

In order to reach a large number of people a huge amount of financial resources should be contributed from MFIs them-self instead of donors provide is necessary. The institutionists start from the basic and obvious assumption that donors cannot subsidize enough MFIs to let them provide financial services to all of the potential microfinance clients. They also believe that the only way to overcome this constraint is to attract private sources of capital and this in turn requires MFIs to be sustainable and profitable (Elia, M. 2006). According to this point sustainable financial institutions that provide financial services to the poor are necessary if the main goal is a substantial poverty reduction.

The emphasis not on depth of outreach (level of poverty of clients) rather must be put on breadth of outreach (number of clients reached). If the system is not able to increase the number of clients reached, it would fail the target of poverty reduction.

Furthermore, institutionists believe and focus that if the approach of building sustainable MFIs is used the poorest will also benefit from it, while the other way around of targeting the poorest with highly subsidized programs will have a low overall impact due to the limited and unstable donor funding. The institutionist position has clearly obtained success within the microfinance community (Elia, M. 2006).

The Welfarist School: self-employment of the poorer of the economically active poor, especially women is their main objective. Their interest depends in the "family" and they give more emphasis on the depth of outreach (the levels of poverty reached). They are more concerned with the use of financial services to minimize the effects of acute poverty among individual participants as well as communities. The focus of this school of thought

is on the unexpected improvement in the well-being of participants. Though there are significant lines of differences between the two schools of thought, they have some similarities as well. In as much as the two approaches seek to solve the problem of financial needs of the poor, microfinance activities should aim at achieving the objectives of the two approaches (Nelson, 2011).

The welfarist approach focuses on depth (number of clients reached) rather than breadth of outreach (poverty level of clients) and accept subsidies on an ongoing basis. Welfarists accept subsidies as they believe and focus that if sustainability is considered as a necessary requirement, the accomplishment of the social mission of microfinance is at risk. The center of attention is now the clients that are served rather than the institution or developing self sustained industry and also the welfarist accept the subsidies or required subsidies on ongoing basis and this school not just focuses on financial self-sufficiency as a necessary tool (Elia, M. 2006).

2.1.5. Sustainability of Microfinance

According to Letenah, (2009) Sustainability defined as the ability of a MFI to cover its operating and other costs from generated revenue and provide for profit. It is an indicator which shows how the MFI can run independent (free) of subsidies. This change in emphasis has created a different perspective on the analysis of performance of the MFIs.

Guntz, (2010) point out that Sustainability in simple terms refers to the long-term continuation of the Microfinance programme after the project activities have been terminated. It entails that appropriate systems and processes have been put in place that will enable the Microfinance services to be available on a continuous basis and the clients continue to benefit from these services in a routine manner or in the day to day activities. This also would mean that the programme would meet the needs of the members through resources raised on their own strength, either from among themselves or from external sources.

As the concept of microfinance came into focus, the question of whether donor support is necessary in the long term existence and the issue of sustainability of such institutions came up as well. It could be argued that the long term sustainability of MFIs is not important as long as money was given to micro entrepreneurs and a start up help was given. This would imply that sustainability of the micro enterprises is more important than the long term existence of the financial institution that stood behind the start up.

As MFIs seek to reach as many poor people as possible in the long run to fulfill their goal to fight against the worldwide poverty, it became clear that this outreach is only possible on a sustainable and efficient basis. Some antagonist of this argument state that sustainability is not possible by reaching the poorest people on the planet (Guntz, 2010).

2.1.6. Financial sustainability

Financial sustainability indicates the ability of an MFI to survive in the long- run by means of its own income generating activity, i.e. without any contributions from donors (AEMFI, 2013).

As per the MIX Market definition the term financial sustainability is defined as having an operational sustainability level of 110% or more, while Operational sustainability is defined as having an operational self-sufficiency level of 100% or more.

Financial sustainability refers that the ability of a microfinance provider to cover all of its costs on an unsubsidized basis or without accepting donation. According to the United Nations sustainability is necessary to reach a larger number of people on an ongoing basis (Elia, M.2006). If MFIs remain dependent on limited donor funding they will be able to reach only a limited number of people. Financial sustainability is not an end in itself but is the only way to reach significant scale. To analyze the sustainability of an MFI the two known a set of ratios have been developed. These are widely accepted and they enable a comparison among MFIs all over the world. These two most important ratios are Operational Self Sufficiency (OSS) and Financial Self -Sufficiency (FSS).

$$\text{Operational Self-Sufficiency (OSS) (\%)} = \frac{\text{Operating income}}{\text{Operating expenses}}$$

The above formula indicates or measures the degree to which operating income covers operating expenses. If the calculated figure is greater than 100%, the organization under evaluation is considered to be operationally self-sufficient. In microfinance, operationally sustainable institutions are able to cover their costs through operating revenues.

$$\text{On the other hand financial self-sufficiency (FSS) \%} = \frac{\text{Adjusted operating income}}{\text{Adjusted operating expenses}}$$

This also indicates the degree to which operating income covers adjusted operating expense. The adjustments try to show how the financial picture of the MFI would look on an unsubsidized basis or free from donation. Financial self-sufficiency requires adjustments for different reasons. Financial statements must be adjusted to conform to standard accounting practices, to take into account inflation and to remove the effect of subsidies and in-kind donations. FSS shows how an MFI would look if funds had been raised on a commercial basis and if services or equipment had been purchased at a market rate and were not received as a donation (Elia, M.2006).

Operational self-sustainability is when the operating income is sufficient enough to cover operational costs like salaries, supplies, loan losses, and other administrative costs. And financial self-sustainability (which he referred as high standard measure) is when MFIs can also cover the costs of funds and other forms of subsidies received when they are valued at market prices(Meyer, 2002).

2.1.7. Profitability Theory

Not all MFIs are become sustainable, able to return a profit, or even to break even and therefore still depend on help from donors and subsidies. The rapid growth in the industry is not due to a golden "one-way-road" to profitability since there are still big diversity or

difference between the MFI's and their operations (Joergeson, 2011). This section explains the theory of banking practices that lead to profitability for MFIs.

2.1.8. Profitability of Retail Banking

There are large differences between banks, financial institutions or intermediaries especially the clients they serve. Retail banking is, however, the banking practice closest to microfinance institutions and is therefore interesting to look into when it comes to profitability.

Conventional retail banks borrow from people who have surplus of money and lend to those people who have in deficit. The bank thereby makes money on the interest spread between the two, called the net interest income. In the retail bank around half to three-quarters of the income generated or come from this intermediation role. The rest of the revenue comes from a number of other services such as insurance, money transmission, advisory services, investment and taxation services, card and factoring services etc. These all service amount together represent the non-interest income for the retail banks. One of the key and great factors of success for conventional retail banks is getting enough customers. This is likewise considered as a key factor for MFI's, but for different reasons, which depend on the purpose of the individual MFI's, whether they are social or economical goals (Jorgensen, 2011).

It is obvious that the objective of conventional retail banks is to make a profit. A bank that own twice as big as a competitor will expect to make around twice as much profit. Profits are therefore in proportion to their size (total asset), though with some advantages from scale economies Since the microfinance industry is not as developed as the conventional banking industry, it is not expected that profit is in proportion to size (total asset), and also because the institutions motive and their products vary much more from each other than those of retail banks.

Retail banking sector use investors to provide capital to get started and to keep running and in return the investors receive equity in the business, thus owning a part of the company. The company's profit and the investors' return on equity (ROE) are closely correlated. Retail bank shareholder would like the highest possible ROE, ten percent being below average, fifteen percent the standard, and 20 percent excellent. When we look MFIs only some MFIs have investors, yet this could be an interesting benchmark when looking at ROE for MFIs (Jeorgeson, 2011).

Retail banks do however has to take on some risk, with the result of losing some money. If they lose too little they will have no customers because they will be excluding a major part of the population which they could lend to, but loose too much, and the bank will go bankrupt under this condition. MFIs operate or perform under a very different approach, where they take bigger risks, but MFIs find ways to compensate for this risk the MFIs charge larger interest rates to the borrower and with the innovative methods such as joint liability. This new approach opens up a much larger market segment than seem before seen in banking (Jeorgeson, 2011).

2.1.9. The Concept of Profitability

Profitability means ability to make profit from all the business activities of an organization, company, firm, or an enterprise. It shows how efficiently the management can make profit by using all the resources available in the market. According to Harward & Upton, (1961) "profitability is the 'the ability of a given investment to earn a return from its use."

The term Profitability however is not synonymous or the same meaning to the term 'Efficiency'. Profitability is a measure of efficiency; and is regarded as a measure of efficiency and management guide to greater efficiency. Though, profitability is an important yardstick for measuring the efficiency, the degree of profitability cannot be taken as a final proof or indicator of efficiency. Sometimes satisfactory profits can mark inefficiency and conversely, a proper degree of efficiency can be accompanied by an

absence of profit. The net profit figure simply indicates that a satisfactory balance between the values receive and value given. The change in operational efficiency is merely one of the factors on which profitability of an enterprise largely depends. Moreover, there are many other factors besides efficiency, which affect the profitability (Harward & Upton, 1961).

2.1.10. Profit and Profitability

Sometimes, the people used the term 'Profit' and 'Profitability' interchangeably. But in real sense, there is a difference between the two. Profit is an absolute term, whereas, the profitability is a relative concept or meaning. However, they are closely related and mutually interdependent, having distinct roles in business. Profit refers to the total income earned by the firm during the specified period of time, while profitability refers to the operating efficiency of the firm. It is the ability of the firm to make profit on sales. It is the ability of firm to get sufficient return on the capital and employees used in the business operation (Harward & Upton, 1961).

According to Weston and Brigham, (1972) rightly notes "to the financial management profit is the test of efficiency and a measure of control, to the owners a measure of the worth of their investment, to the creditors the margin of safety, to the government a measure of taxable capacity and a basis of legislative action and to the country profit is an index of economic progress, national income generated and the rise in the standard of living", while profitability is an outcome of profit. In other words, no profit drives towards profitability (Weston and Brigham, 1972).

According Al-Shami, (2008) there are different ways to measure profitability such as: return on asset (ROA), return on equity (ROE). Return on Asset indicates of how profitable a company is relative to its total assets. It gives us an idea as to how efficient management is in using its assets to generate earnings. On the other hand return on equity measures a company's profitability which shows how much profit a company generates

with the money shareholders have invested. This measure gives a sense of how well a company is in using its money to generate returns.

2.1.11. Market Power Theory

Applied in banking the Market Power hypothesis posits that the performance of bank is influenced by the market structure of the industry. There are two distinct approaches within the Market power theory; the Structure-Conduct-Performance (SCP) and the Relative Market Power hypothesis (RMP). According to the Structure-conduct-power approach, the level of concentration in the banking market gives rise to potential market power by banks, which may raise their profitability (Njerl, 2012). Banks in more concentrated markets are most likely to make abnormal profits by their ability to lower deposits rates and to charge higher loan rates as a results of collusive (explicit or tacit) or monopolistic reasons, than firms operating in less concentrated markets, irrespective of their efficiency. Unlike the Structure-conduct-power, the Relative market power hypothesis posits that bank profitability is influenced by market share. It supposes that only large banks with differentiated products can influence prices and increase profits. They are able to exercise market power and earn non-competitive profits. The above theoretical analysis shows that Market power theory supposes bank profitability is a function of external market factors (Njerl, 2012).

2.1.12. Efficient Structure Theory

According to the efficient structure hypothesis, on the other hand posits that banks earn high profits because they are more efficient than others. There are also two distinct approaches within the Efficient Structure; the X-efficiency and Scale–efficiency hypothesis. According to the X-efficiency approach, more efficient firms are more profitable because of their lower costs. Such firms inclined to gain larger market shares, which may manifest in higher levels on market concentration, but without any causal relationship from concentration to profitability (Athanasoglou *et al*, 2006 cited in Njerl, 2012). The scale approach emphasizes economies of scale rather than differences in

management or production technology. Larger firms can gain lower unit cost and higher profits through economies of scale. This make possible to large firms to acquire market shares, which may manifest in higher concentration and then profitability. The ES like the Portfolio theory largely assume that bank performance is influenced by internal efficiencies and managerial decisions (Njerl, 2012).

2.1.13. Portfolio Theory

The portfolio theory approach is the most important and plays a great role in bank performance studies. As per the Portfolio balance model of asset diversification, the best possible holding of each asset in a wealth holder's portfolio is a function of policy decisions determined by a number of factors such as the vector of rates of return on all assets held in the portfolio, a vector of risks associated with the ownership of each financial assets and the size of the portfolio ((Njerl, 2012).

The portfolio theory further explained as portfolio diversification and the desired portfolio composition of commercial banks are results of decisions taken by the bank management. Further, the ability to obtain maximum profits depends on the feasible set of assets and liabilities determined by the management and the unit costs incurred by the bank for producing each component of assets. Portfolio theory largely supposes that bank performance is influenced by internal efficiencies and managerial decisions (Njerl, 2012).

2.2. Determinants of Financial performance of MFIs: Empirical Review

MFIs financial performance could be affected by a number of determining factors. In most literatures MFIs profitability usually expressed as a function of internal and external determinants. Muriu,(2011) also point out that the determinants of MFIs profitability can be divided into two main categories namely the internal determinants which are management controllable and the external determinants, which are beyond the control of management. Empirical literatures in relations to determinants of MFIs financial performance are very limited. The previous studies done in the area highly depended up

on theory of retail banking financial performance by assuming that MFIs also provide banking service to the poor. The following paragraphs present the empirical studies in connection with determinants of MFIs financial performance. Now let us see the first classification of MFIs financial performance determinant.

2.2.1. MFIs-Specific Determinants (Internal)

The internal determinants of MFIs financial performance are those management controllable factors which account for the inter-firm differences in profitability, given the external environment.

A. Portfolio Quality

Portfolio indicates to total funds available for the MFI to use as loans to its clients. Portfolio quality is a measure of how well or how best the institution is able to protect this portfolio against all forms of risks. The loan portfolio is by far an MFI's largest asset (Nelson, 2011) and, in addition, the quality of that asset and therefore, the risk it poses for the institution can be quite difficult to measure.

Portfolio quality is a critical area of performance analysis, since the largest source of risk for any financial institution resides in its loan portfolio. For microfinance institutions, whose loans are typically not backed by bankable collateral, the quality of the portfolio is absolutely crucial (American Development Bank, 2003 cited in AEMFI, 2013)

Portfolio quality is a vital area of analysis, since it is the largest source of risk for any financial institution. Therefore, as much as possible, MFI's must try to maintain the quality of their portfolios. For this study, portfolio quality is measured as portfolio at risk over 30 days (PAR >30 days).

According to Muriu, (2011) empirical study on determinants of profitability of African MFIs, under the study "what explains the low profitability of MFIs in Africa" tried to find the factors contributing to profitability of MFIs. He used Generalized Method of

Moments (GMM) system using an unbalanced panel dataset comprising of 210 MFIs across 32 countries operating from 1997 to 2008. The proxies for profitability were both ROA and ROE. Credit risk measured by the sum of the level of loans past due 30 days or more (PAR>30) and still accruing interest is negatively and significantly related to MFI profitability. This study therefore finds evidence to support the conjecture that increased exposure to credit risk is normally associated with lower MFI profitability.

The other study which is undertaken by Lafourcade et al, (2006) Overview of the Outreach and Financial Performance of Microfinance Institutions in Africa by taking 163 MFIs from 25 countries show that MFIs around the world continue to demonstrate low PAR > 30 days, with a global average of 5.2 percent but African MFIs maintain relatively high portfolio quality, with an average PAR > 30 days of 4.0 percent, performing better than their counterparts in South Asia (5.1 percent), LAC (5.6 percent), and East Asia (5.9 percent). When MFIs are faced with poor portfolio quality, they may write off the loans from their books or refinance the loans by extending the term, changing the payment schedule, or both. The result shows that loan at risk is negatively correlated with MFIs financial performance.

A. Capital asset Ratio

The capital to assets ratio is a simple measure of the solvency of MFIs. This ratio helps an MFI assess its ability to meet its obligations and absorb unexpected loss.
The determination of an acceptable capital to asset ratio level is generally based on a MFIs assessment of its expected losses as well as its financial strength and ability to absorb such losses. Expected losses should generally be covered through provisioning by the MFI's accounting policies, which removes expected losses from both assets and equity. Thus, the ratio measures the amount of capital required to cover additional unexpected losses to ensure that the MFI is well capitalized for potential shocks.

As a proxy for the MFIs capital, this study used the ratio of equity to assets. MFI with higher capital to asset ratios are considered relatively safer compared to institutions with

lower ratios. Given that MFI with low capital ratios are also riskier in comparison with better capitalized financial institutions.

According to retail banking research which is done by Dietrich and Wanzried, (2009) what determines the Profitability of Commercial Banks? New Evidence from Switzerland. The study try to explain determinants of bank profitability by classifying in to Bank specific, macroeconomic and institutionalized factors and use unbalanced panel data from 1999 to 2006 from 453 banks and use linear regression method. The study conclude that the capital ratio, which is defined as equity over total assets, has a positive and significant effect on bank profitability in Switzerland as measured by the return on average assets ROAA.

Similar study in the banking sector by Vong and Chan, (2010) Detrminants of Bank profitability in Macacao, which covers the data set 15-year period from 1993 to 2007, with a sample of five different banks which account for about 75% of the total asset and the same percentage of loans in the banking sector as at the end of 2007. In this study, the performance of a bank is measured by its return on assets (ROA).The ROA, defined as net income divided by total assets, and reflects how well a bank's management is in using the bank's real investment resources to generate profits. Panel regression techniques are used to analyze the internal determinants as well as the external determinants and generalized least squares (GLS) estimation technique. And the result shows that Capital asset ratio has significant impact on bank profitability meaning the positive coefficient estimate for the ratio of equity to total assets (EQTA) indicates an efficient management of banks' capital structure.

According to Muriu, (2011) study that is determinants of profitability of MFIs, Based on a panel data set of 210 microfinance institutions Muriu conclude that capital adequacy has robust and significant positive association with MFI profitability. This is depicted by the relatively high coefficient of the equity to assets ratio across the specifications this effect remains so even after the inclusion of the external factors. Intuitively, this is an indication that well capitalized MFIs are more flexible in dealing with problems arising

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from unexpected losses and are confronted with a reduced cost of funding or lower external funding.

B. Operational Efficiency

Operational Efficiency is performance measure that shows how well MFIs is streamlining its operations and takes in to account the cost of the input and/or the price of output. Efficiency in expense management should ensure a more effective use of MFIs loan able resources, which may enhance MFIs profitability. Higher ratios of operating expenses to gross loan portfolio show a less efficient management. Operational efficiency in managing the operating expenses is another dimension for management quality. The performance of management is often expressed qualitatively through subjective evaluation of management systems, organizational discipline, control systems, quality of staff, and others (Ongore and Gemechu, 2013)

According to the study Nimal Sanderatne, 2003 cited by Dissanayake, (2012) a study on determinants of financial viability, defined that the operational efficiency and low administration costs have an important bearing. Besides, a study on financial performances, the study declared that, many MFIs are not considered sustainable. By stating the fact, the researcher confirmed that the operational efficiency is inevitable to attract funds.

Dissanayake (2012), Operating efficiency is proxies by operating expense ratio which is adjusted operating expense divided by adjusted average gross loan portfolio and concludes that Operating Expense Ratio, are statistically significant predictor variables in determining Return on Assets Ratio.

In line with this idea Muriu, (2011) conclude that inefficiency in the management of operating expenses to significantly decrease MFI profitability.

C. Gearing Ratio / Debt to Equity Ratio

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The debt to equity ratio is calculated by dividing total liability by total equity. Total debt includes everything the MFI owes to others, including deposits, borrowings, account payable and other liability accounts. The debt/equity ratio is the simplest and best-known measure of capital adequacy because it measures the overall leverage of the MFIs (AEMFI, 2012).

The debt to equity ratio is a common measure used to assess a firm's leverage, or in other words the extent to which it relies on debt as a source of financing (Lislevand, 2012).

Microfinance institutions that employ higher debt in their capital structure are more profitable, and highly leveraged microfinance institutions are more profitable, (Muriu, 2011). Besides, a higher debt ratio can enhance the rate of return on equity capital during good economic times (Muriu, 2011). Moreover, it also appears that NGO type of microfinance institutions rely more on debt financing relative to other type of microfinance institutions, perhaps because many are not regulated to mobilize deposits. The significant correlation between performance and gearing ratio is an indication that perhaps more debt relative to equity is used to finance microfinance activities and that long term borrowings impact positively on profitability by accelerating MFIs growth than it would have been without debt financing (Muriu, 2011).

 According to Nelson, (2011) study entitled that performance of assessment of micro finance institution in the Ashaiman municipality, its result show that the Rural Bank recorded debt/equity ratio of 50.89 in 2007 but increased to 54.05 in 2008. It increased further to 61.65 in 2009 and to 77.35 in 2010 showing an average of 60.99%;Depicting that most of its operations are financed by debt instruments and, should probably be regulated. The Savings and Loans recorded a rapid increase from 0.30 in 2007 to 0.8 in 2008. It again increased sharply to 2.97 in 2009 and to 4.89 in 2010 with an average of 2.24. The sharp increment may signify that Savings and Loans of approaching its borrowing limit which in turn will force it to curtail growth. The Credit Union's

debt/equity decreased throughout the study period from 0.89 to 0.61 to 0.45 to 0.77 respectively. Implying that, more equity is used to finance business than debt.

It indicates what proportion of equity and debt the company is using to finance its assets. This is very much connected to where the MFI is located in its life cycle. Traditionally, the funding structure follows a certain pattern over the life cycle of an MFI. Start ups are characterized by a larger dependency on donations, usually in the form of equity grants, whereas the more mature MFI's tend to display higher debt leverage through borrowing and even evolve into a formal institution or a regulated niche bank. Some MFI's even access capital markets by issuing bonds or by going public (IPO) (Jorgensen, 2011). Dissanayake, (2012) point out that debt/equity is a statistically insignificant predictor variable for the model at 5% level of significance. Besides the expected direction of the coefficient of the corresponding models are not as per the predicted direction of the researcher.

D. Size of Microfinance (Total Asset)

Another factor that can affect the financial performance of an MFI is its size. The size of an MFI is measured by the value of its assets (Hermes et al, 2008). According to Cull et al, (2007) the size of an MFI is significantly positively linked to its financial performance. This variable is included to capture the economies or diseconomies of scale. There is consensus in academic literature that economies of scale and synergies arise up to a certain level of size. Beyond that level, financial organizations become too complex to manage and diseconomies of scale arise. The effect of size could therefore be nonlinear (Amdemikael, 2012). Natural logarithm of total asset of MFIs is used as a proxy of size. The study observed that since the dependent variable in the model (ROA) can be deflated by total assets it would be appropriate to log total assets before including it in the model.

It is argued that failure to become profitable in microfinance is partly due to lack of scale economies Muriu, (2011) this implies that profitable MFIs in Africa have a greater

control of the domestic market, and therefore lending rates may remain high while deposit rates remain lower since larger MFIs may be perceived to be safer, therefore this high interest rate spread translates to and sustains higher profits margins. Cull et al, (2007) point out that size of MFIs and financial performance has significantly related but loan size is negatively related financial performance meaning Controlling for other relevant factors, institutions that make smaller loans are not necessarily less profitable. But the result find that larger loan sizes are associated with lower average costs for both individual-based lenders and solidarity group lenders. Since larger loan size is often taken to imply less outreach to the poor, the result could have negative implications.

E. Age of Micro finance institutions

There is a thought that as MFIs mature, and thus acquire experience in their sector; they increase their likelihood of attaining financial sustainability. This can be explained by the fact that MFIs gradually improve their control over all operations related to issuance of microcredit. In other case, MFIs that have considerable experience in the microfinance sector have diligently applied credit risk management and general efficient management techniques to attain financial sustainability (Ayayi, 2010).

According to Cull et al, (2007) Sustainability could relate to the age of MFI. The age refers to the period that an MFI has been in operation since its initial inception. Studies indicate that the MFIs age relates to the financial performance. Jorgensen, (2011) states that Age, is grouping by new (1 to 4 years), young (5-8 years) or mature (more than 8 years). The number of years is calculated as the difference between the year they started their microfinance operations and the year of data submitted by the institutions. Therefore the result shows that Age (new) this dummy variable is significant with a positive sign. Implies that if an MFI is new its ROA is 0.03642 higher than the ROA of mature MFIs, it is no longer maturity and experience that provides profitability as in many industries. This indicates that new MFIs entering the industry have different set of goals and operational set of skills leading to profitability.

The study undertaken by Dietich and wanzenried (2009) in the banking industry, that is determinants of profitability in commercial bank show that, larger banks are slightly less profitable than medium sized banks, with the coefficients being significant at the 10% level. This gives some indication that larger banks cannot benefit from higher product and loan diversification possibilities and even face scale inefficiencies.

2.2.2. Macroeconomic Variable (External Factor)

Real GDP: The study used real GDP growth as a proxy of the macroeconomic environment. Arguably, this is the most informative single indicator of progress in economic development. Poor economic conditions can worsen the quality of the loan portfolio, thereby reducing profitability. In contrast, an improvement in economic conditions has positive effect on the profitability of MFIs, (Muriu, 2011). Thus, the variable is expected to exhibit positive relationship with MFIs profitability.

According to the study undertaken by Imal et al., (2012) working paper entitled financial performance of microfinance institutions a macroeconomic and institutional perspective drawing up on the Microfinance information exchange data and cross-country data on macro economy, finance and institutions and use hausman-taylor to take account of endogeneity and they found GDP have positive impact on MFIs financial performance.

2.2.3. Industry–specific Determinants of MFIs (External Factor)

Market Concentration: there are different definitions and measurements for market concentration which is given by different banking area researchers Berhanu, (2012) it is the number, size and distribution of banks in a particular market or country. As indicated in other empirical studies market concentration is captured by Herfindahl-Hirschman (H-H) index which is the sum of the square of market share of the sample banks included in particular study. Market share of each bank is measured by the ratio of a bank's total asset to total asset of all banks (Gajure and Pradhan, 2012).

Since highly concentrated market lacks proper competition as to setting the price of banking services, it makes the existing banks more profitable. On the other hand, when the concentration of the market reduced and the size and distribution of banks become more dispersed, the banking sector profitability is expected to reduce.

According to Flamini, (2009) study determinants of profitability commercial bank in sub-sharan Africa and conclude that market concentration has no direct effect on bank profitability. Athanasoglou et al, (2005) the empirical results show that market concentration affects bank profitability negatively, but this effect is relatively insignificant. In other hand Molyneux and Thornton, (1992) in their study that is determinants of European bank profitability conclude Market Concentration shows a positive, statistically significant correlation with pre-tax return on assets which is consistent with the traditional structure conduct- performance paradigm.

2.2.4. Ethiopian Scenario

The quality literatures on the Ethiopian MFIs industry financial performance are not as such available. However the study by Alemayehu, (2008) on which we have accessed to, is worth mentioning. He studied the performance of micro finance institution in Ethiopia by taking six MFIs using simple descriptive analysis using graphs and percentage growth rates. The result shows that Most MFIs are strong performers on return on asset. In connection with liquidity, most MFIs lack strong position to effect immediate obligations. Large MFIs are more efficient and productive than small and medium ones. But small MFIs seem to reach the poorest section of the society. Finally, the trend in performance of microfinance institutions during those years of operation was encouraging.

The study by Kidane, (2007) on one of the largest MFIs in Ethiopia Amhara Credit and Saving Institution (ACSI) shows that ACSI has served more than half a million clients. Over 1.6 million loans have been disbursed worth Birr 1.5 billion. By 2005, the institution was operationally and financially self sufficient at 119.9% and 115.3%

respectively. ACSI is among a few MFIs that are able to achieve the highest efficiency at the lowest cost per borrower. The operating cost was as low as five cents in 2005.ACSI also has a high portfolio quality, as delinquency rates are around 1.9%.

Melkamu, (2012) Determinants of Operational and Financial Self-Sufficiency: he uses quantitative research approach using panel data regression as the main data analysis technique. The study was based on a six years secondary data obtained from the mix-market database for twelve selected MFI in Ethiopia. The study found that average loan balance per borrower, size of a MFI, cost per borrowers and yield on gross loan portfolio affects the operational sustainability of Ethiopian MFIs significantly. Whereas cost per borrower, number of active borrowers and yield on gross loan portfolio affect their financial sustainability. The Study also found that MFIs in Ethiopia are operationally self-sufficient while they are not financially self sufficient.

Yonas, (2012) on his study regarding determinants of financial sustainability of Ethiopian MFIs, using 6 years data for 12 MFIs from AEMFI; he concluded three things. First, a high quality credit portfolio, coupled with the application of sufficiently high interest rates that allow a reasonable profit and sound management are instrumental to the financial sustainability of MFIs. Second, the percentage of women among the clientele has a weak statistically non-significant negative effect on financial sustainability of MFIs and finally, client outreach of microfinance programs and the age of MFIs have a positive but lesser impact on attainment of financial sustainability.

Sima, (2013) on his study examined internal and external factors affecting profitability of microfinance institutions in Ethiopia by including a total of thirteen microfinance institutions covering the period of 2003-2010. The researcher uses quantitative research mainly documentary analysis. The outcome of the study indicates that Age of microfinance institutions has a positive and statistically significant effect on their profitability. However, Operational efficiency and portfolio quality have a negative and statistically significant effect. However, capital adequacy, size and GDP are found to be statistically insignificant variables. The studies conducted in the areas of microfinance

institutions in Ethiopia are few in number and did not give such an emphasis on the factors considered to be determinants of financial performance of microfinance institutions in Ethiopia. For example, Alemayehu, (2008) studied the financial and operational performance of micro finance institutions by using simple descriptive analysis and employing graphs and percentage growth rates by classifying small, medium and large. The study did not say anything about factors affecting financial performance of MFIs.

The study by Yonas, (2012) and Melkamu, (2012) tried to see the determinants of performance by using proxy of financial and operational sustainability of Ethiopian MFIs. They focused only on internal factors and have not considered external factors like macroeconomic and industry and also they have not addressed specifically the idea of financial performance of MFIs. In addition Sima, (2013) studied determinants of profitability of Ethiopian micro finance by using Microfinance specific and macroeconomic factors from Secondary data. Therefore the above studies use limited variables which focus in MFI-specific and macroeconomic factors only and not say anything about industry specific determinants in their study.

Since it is believed that MFIs must be profitable for their healthy operation and attainment of the long term goal which is alleviation of poverty, the study will find out the MFIs specific, macroeconomic and industry-specific factors affecting their financial performance by including primary data and fill the gap in the context of Ethiopian MFIs.

2.3. Conceptual Framework

Different empirical evidences suggested that financial performance of financial institutions specifically MFIs is affected by internal and external factors. This study used both internal and external determinants of MFIs financial performance includes capital Asset ratio, operational Efficiency, portfolio quality, Gearing ratio, MFIs size, age, level of GDP. The study was identify how these variables are determined the financial performance of MFIs in Ethiopia.

Figure 1 Conceptual framework

MFI-specific (internal)   External (macroeconomic and industry)

Capital Asset ratio
Operational efficiency
Portfolio quality
Size
Gearing ratio
Age

ROA

Level of GDP
Market concentration
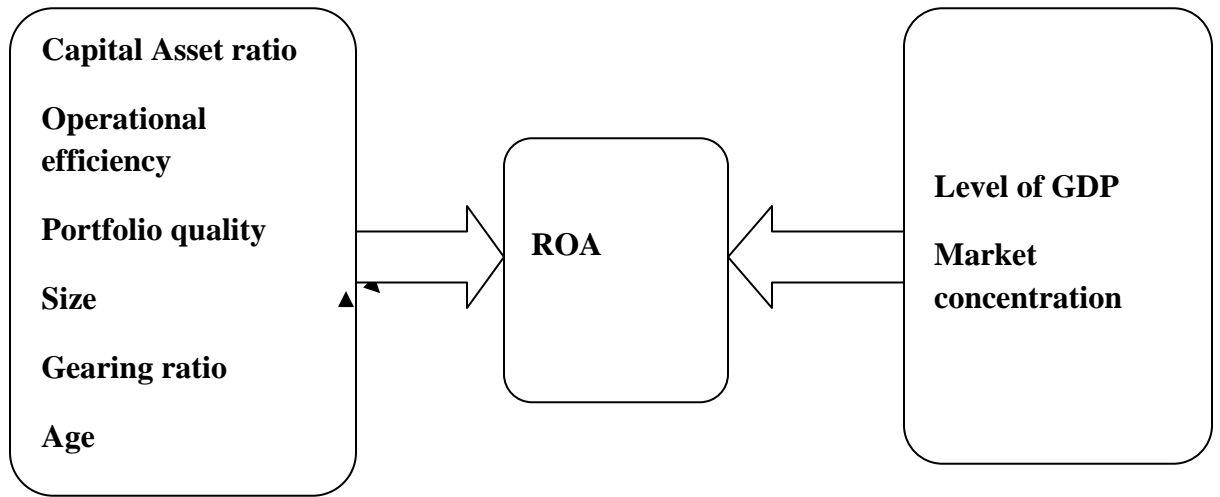
Source: developed by self design and partly adopted from Muriu, 2011)

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CHAPTER THREE

3. RESEARCH DESIGN AND METHODOLOGY

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

3.1. Research Design

The study with the aims of assessing determinants of financial performance of microfinance institutions in Ethiopia were used the quantitative research approach by using panel research design to realize a stated objectives. According to Gujarati, (2004) using Panel or longitudinal research design has advantage for instance:

The techniques of panel data estimation can take heterogeneity explicitly into account by allowing for individual-specific variables, By combining time series and cross-section observations, panel data give "more informative data, more variability, less colinearity among variables, more degrees of freedom and more efficiency" By studying the repeated cross section of observations, panel data are better suited to study the dynamics of change, panel data can better detect and measure effects that simply cannot be observed in pure cross-section or pure time series data, by making data available for several thousand units, panel data can minimize the bias that might result if we aggregate individuals or firms into broad aggregates. The study were employ quantitative research approach as the literature on research methodology shows quantitative research approach tends to assume that there is a cause and effect relationship between known variables of interest. In line with this, quantitative research tests the theoretically established relationship between variables using sample data with the intention of statistically generalizing for the population under investigation.

Therefore Ordinary least square (OLS) method particularly multiple regression models were used to assess the significant determinants of financial performance of MFIs in Ethiopia. To measure the financial performance of MFIs in Ethiopia, ROA were applied as the dependent variables because the Microfinance Financial Reporting Standards recommends the use of ROA and ROE as measures of profitability rather than financial self-sufficiency (FSS) and operational self-sufficiency (OSS) (Muriu, 2011).

3.2. Target Population

The target population for this particular study was all the microfinance institutions currently operating in the country. According to AEMFI, (2013), there are 31 microfinance institutions which are providing a microfinance service to the poor society in Ethiopia on the current period.

3.3. Sampling Technique and Sample size

A sample of a subject is taken from the total population to make inference about the population because it is time consuming and expensive to collect data about every individual institutions in the population. However, where the selected sample can reliably represent the population, the sample can still be use to make inferences about the population (Collis and Hossey, 2003cited in Yonas, 2012). This study has used a sample of 13 (42 % of the population) MFIs which are ACSI, ADCSI, Buussa, DECSI, OCSSCO, OMO, Wasasa, PEACE, AVFS, Gasha, Meklit, SEPI and Wisdom, from the total population of 31 MFIs in the country.

The criteria for choosing among the MFIs were based on the availability and quality of data for the time period of 9 years (2003-2011). Therefore, based on the sample size and the time coverage, the sample consists of 117 observations. The study were anticipated more of by consisting secondary data by means of annual reports of the respective MFIs from Association of Micro finance Institutions in Ethiopia (AEMFI), Ministry of Finance and development (MoFED) and the majority of selected MFIs were found to have branch

office in Addis Ababa and also have nine years quality data the purposive sampling is selected to collect the branch managers perception by using structured questionnaire. According to Singh, (2006) when the subjects used in the sample is homogeneous using purposive sampling technique is appropriate.

3.4. Source of Data and Methods of Data Collection

In order to carry out any research activity; information should be gathered from proper sources. The sources of data for this research was almost secondary sources, but for the purpose of supporting the finding of the research, primary data used to some extent. Primary data were collected by soliciting the branch manager of each MFIs included in the study through structured survey questionnaire by using purposive sampling. The secondary data which were used to analyze MFIs–specific variables were collected from AEMFI annual report and to analyze external-specific variables were collected from MoFED with documentary survey   .

3.5. Data Analysis and Technique

The collected data regressed by panel least square method and interpret with the help of descriptive statistics including standard deviation, mean, minimum, maximum and inferential statistics which is multiple regression analysis (significant test). To conduct this, the researcher use E-view 6 software (The E-views software were selected following its ability to help researchers to analyze research easily and efficiently (Brooks, 2008). Moreover, the E-views software has a range of advanced tool for panel analysis that a researcher needs to organize and manage their data and then obtain and analyze statistical results) and the researcher also use SPSS 16 for windows software package for primary data analysis.

3.6. Variable definition

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

A. Dependent Variable

Return on Asset (ROA) measures how well the institution uses all its assets. It is also an overall measure of profitability which reflects both the profit margin and the efficiency of the institutions (AEMFI, 2013).

Return on Asset (ROA) was applied as the dependent variables because the Microfinance Financial Reporting Standards recommends the use of ROA and ROE as measures of profitability rather than financial self-sufficiency (FSS) and operational self-sufficiency (OSS) (Muriu, 2011). ROA may be biased due to off balance-sheet items; It can however be argued that such activities may be negligible in MFIs. The ROA reflects the ability of MFI's management to generate profits from the MFI's assets. It shows the profits earned per birr of assets and indicates how effectively the MFIs assets are managed to generate revenues. In Banks and other commercial institutions, the most common measure of profitability is return on asset (ROA) for instance (Abate, 2012), (Sima, 2013).

According to yonas, (2012) which is done in the banking sector profitability, using return on equity has its own limitation than using return on asset. Among the limitation the study point out that, timing problem (it is believed that Managers should be forward looking but ROE is precisely the opposite: Because they focused on a single period. The risk period, ROE will not tell a company or a firm about what risks a company has taken to generate it.
The Value period ROE measures the return on shareholders' investment only by using Book Value of shareholders equity not the market value. Therefore based on the above rationality this study was used ROA as the proxy for financial performance.

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

B. Independent Variable

To measure the predictor variables of financial performance of MFIs in Ethiopia, Eight measures were used as independent variables which were extracted from different studies. The variables namely, age, capital asset ratio, operational efficiency, portfolio quality, gearing ratio or debt to equity ratio, size, GDP and market concentration.

Table3.1. Variable description (independent variable)

S/N	Variable standard name	Description	Variable name in regression model	Expected effect
	MFI-specific factors			
1	Capital asset ratio	Equity/Asset	CAP	+
2	Operational Efficiency	Operating expense/ Loan portfolio	EFF	-
3	Portfolio Quality	Outstanding balance, loan overdue>30 days/Adjusted gross loan portfolio	PAR	-
4	Gearing Ratio	Debt /Equity	GR	-
5	Age of MFI	Age of MFIs since their establishment	AGE	+
6	Size of MFI	Natural logarithm of the total asset	SIZE	+
	Macroeconomic			

	Factor			
7	Economic growth	Real GDP growth (%)	GDP	+
8	**Industry specific** (market concentration)	HH index	CONS	+

Therefore, except gearing ratio, operational efficiency and portfolio quality the other variable were expected to have positive relationship with financial performance of MFIS in Ethiopia.

3.7. Model Specification

This section covers the operational panel fixed regression model (multiple regression model) that was used in the study. The multiple regression model used for this study to determine the factors affecting the financial performance of MFIs in Ethiopia is explained as follows. The model is adopted from different studies conducted on the same area.

$$ROA_{it} = \beta o_i + \beta 1*CAP_{it} + \beta 2*EFF_{it} + \beta 3*PAR_{it} + \beta 4*GR_{it} + \beta 5*AGE_{it} + \beta 6*SIZE_{it} + \beta 7*GDP_{it} + \beta 8*CONS_{it} + \mu it$$

Where $\beta 1$ to $\beta 8$ are the coefficients of the variables and μit is the random error term.

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

$CAP_{it:}$ stands for Capital asset ratio for MFI i at time t

EFFit: stands for operational efficiency for MFI i at time t

PARit: stands for portfolio quality for MFI i at time t

GRit: gearing ratio or debt/equity ratio for MFI i at time t

AGEit: stands for age of micro finance for MFI i at time t

SIZEit: stands for size of micro finance for MFI i at time t

GDPit: stands for growth domestic product of the country

CONSit: stands for market concentration for MFI i at time t

CHAPTER FOUR

4. DATA ANALYSIS AND DISCUSSION

This chapter deals with the results of study which include descriptive statistics of variables, correlation results for dependent and explanatory variables, model misspecification tests (tests for the Classical Linear Regression Model assumptions), and finally presentation of panel data regression analysis and discussion of results.

4.1. Descriptive Statistics of Variables

In this section the study present the results based on the descriptive statistics for both dependent variable, the Return On Asset (ROA), and independent variables discussed in chapter three over 9 years. Table 4.1 provides a summary of the descriptive statistics of the dependent and independent variables.

As discussed in the methodology part, the Return on Asset (ROA) indicates or measures how well the institution uses all its assets. It is also an overall measure of profitability which reflects both the profit margin and the efficiency of the institutions.

The table below shows descriptive statistics for all variables. The financial performance of Ethiopian Micro Finance institutions which is measured by Return on Asset for 117 observations indicates that averagely negative value of -0.0003 during the study period of (2003-2011). In addition to this the Maximum value of ROA 0.141 and minimum value of -0.155. This shows that the MFIs included in the sample in the study period was lost on average 0.0003 cents in every one birr investment they made on total asset and the profitable MFIs earned 0.14 cent of profit after tax for a single birr investment they made on total asset. On the contrary, not profitable MFIs lost 0.15 cents for one birr investment made on total assets of the firm. This clearly illustrates the disparity of rates of return earned by MFIs.

Regarding the variable Par>30, the higher its value, the riskier the credit portfolio, which can have a negative influence on the financial performance of the MFI. For this study case, the mean of the par is 4.85% and the maximum is 26% and minimum is 0 % respectively. According to AEMFI, (2013) any portfolio at risk (par > 30 days) exceeding 10 % should be a serious cause for concern; because unlike loans of commercial banks, most loans are not backed by bankable collateral. Therefore, the result of study shows during the study period on the sample MFIs is that from loan portfolio the portion of the portfolio in arrears or unpaid is 4.85 % averagely that is good and the maximum 26 % result implies that the credit portfolio of some MFIs in the sample is fairly risky.

In relation to the Capital to asset ratio variable the mean is 39.5 % and maximum value shows 88.6 %. 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, (2013). The capital asset ratio mean value results suggest that about 39.5 % of the total assets of the sample MFIs were financed by shareholders funds while the remaining 60.5 % was financed by deposit liabilities.

 In regard to gearing ratio or Debt to equity ratio implies that the average value of 3.44 and maximum value of 167 and 0.13 minimum value. Meaning as per the mean value of this variable (3.44) indicates, MFIs in Ethiopia are leveraged on average than financed through equity capital because the AEMFI's suggested standard of debt to equity is 1.5. On the other side the minimum gearing ratio (debt to equity) is 0.13 indicating few MFI are financed more through equity capital than debt. However, the maximum value for this variable is 167 which indicate that debt financing is more considered instead of having proportional financing structure, therefore highly leveraged.   The Standard deviation of gearing ratio is 15.38 this clearly illustrates the disparity of gearing ratio by MFIs.

According to AEMFI, (2013) report Ethiopian micro finance institution on average debt to equity ratio was able to maintained 1.5 of their equity. Therefore the result of the study shows the value higher than the minimum requirement.

On the other hand, the average operating efficiency of selected MFIs was 12.3% indicating that on average they are incurring 0.123 cents in operating expense for each birr in the gross loan portfolio. Some highly efficient institutions incur operating expense of 0.01 cent for each birr in the gross loan portfolio. On the other hand, inefficient institutions in the industry incur an operating expense of 0.42 cents for each birr on their gross loan portfolio. The standard deviation showed 8.21% implying the 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.

The MFIs size plays an important role to maintain the position of a MFI in the market. The mean value of the variable is 7.86 in its natural logarithm value, whereas the maximum and minimum values are 9.51 and 6.39 respectively. These values are in their log form and when they are transformed into their real values they become 347,031,021, 3,279,192,202 and 2,479,546 for the mean, maximum and minimum values respectively. The size of MFIs under this study has mean value of 7.86 and the maximum and minimum value of 9.51 and 6.39 respectively. But the standard deviation value is 0.79 which is the fourth highest value among independent variables and indicating higher disparity of size (total asset) in sample MFIs in Ethiopia.

Finally, the descriptive statistics of the Herfindahl – Hirschman index shows that there is high concentration of MFIs in the MFI industry in Ethiopia that is average market concentration has 0.264 and maximum 0.2925 and also minimum score of 0.2313. According to H-H index when H-H index value is below 0.01 indicates that highly competitive market, when the value is below 0.1 shows that unconcentrated market, when the value is between 0.1 to 0.18 indicted that moderate market concentration and when H-H index above 0.18 indicates that high market concentration (Gajure and Pradhan,2012). Therefore the results indicate the existence of market concentration in the market. Which is practically visible in Ethiopia.

Table 4.1.Descriptive statistics

Dependent variable	Mean	Max	Min	Set.Dev	Observation
ROA	-0.0003	0.141	-0.155	0.054	117
Independent variable					
AGE	8.46	14	2	2.97	117
CAP	0.395	0.886	0	0.194	117
EFE	0.1239	0.425	0.0188	0.0821	117
GDP	11.02	13.6	8.5	1.508	117
GR	3.44	167	0.13	15.37	117
MC	0.264	0.2925	0.2313	0.0222	117
PAR	0.048	0.26	0	0.0512	117
SIZE	7.8614	9.515	6.394	0.7951	117

Source: Eview 6 output (2014)

4.2. Correlation analysis

Multiple correlation is a measure of the degree of association between dependent and all the independent (explanatory variables) jointly (Gujirati, 2004). The analysis was meant to first, indicate whether variables were correlated or not. If variables are not correlated then using several simple regressions or one multiple regression models could give the same results (Dougherty 2006 as cited Yonas, 2012). The main aim of conducting correlation is whether multicollinearity is strong enough to invalidate the simultaneous inclusion of the explanatory variables in regressions. According to Gujarati, (2004) multicollinearity could only be a problem if the pair-wise correlation coefficient among regressors is above 0.80 and according to Hailer et al, 2006 *cited in* Birhanu, (2012) Multicollinearity could only be a problem if the pair wise correlation coefficient among regressors is above 0.90 which is not more or less in the case of this study variables.

By taking a correlation result which is presented below from 2003 up to 2011 the study period the independent variables to dependent variable which is the Return to asset ratio

(ROA), except Age and GR, which are positively correlated to return to asset ratio of an MFI, implies the change in these explanatory variables positively contributes towards the change in return to asset ratio of sample MFIs, other variables have negatively correlated with ROA, implies that when PAR, SIZE, MC, GDP, EFE and CAP increases ROA move in opposite direction.

The size of all MFIs (log of total asset) which are included in this study shows improvement. Increase in the size of the MFIs shows a higher negative correlation with portfolio at risk>30 (-0.262), market concentration (-0.397), GDP (-0.29), operational efficiency (-0.74) and capital to asset ratio (-0.311). Except size and age the other variables have negatively correlated with ROA, imply that when PAR, GR, MC, GDP, EFE and CAP increases ROA move in opposite direction and the size has positively correlated with GR ratio (0.0231), and indicate that the majority of the asset of the Ethiopian MFIs composed from deposit liability.

In addition, market concentration have had inversely correlated with variables, portfolio at risk >30 days (-0.199), gearing ratio or debt to equity (-0.144) and age (-0.029). This is because the concentration of Ethiopian MFIs industry is reduced through time and contrary portfolio at risk >30 days, gearing ratio or debt to equity ratio and age of the MFIs increases.

Market concentration (MC) is negatively correlated with ROA (-0.563) indicating that when market concentration of MFIs increase financial performance decreases because of inefficiency. By the same token, as GDP and operating efficiency increases, ROA moves in opposite direction which is indicated by -0.444 and operating efficiency -0.488 respectively.

On the other hand size and age indicated that a positive correlation with ROA (0.454) and (0.528) respectively indicating that the increase in size (total asset) of MFIs and the increase in number of years of their operation will tend financial performance to increase.

Table 4.2.Correlation Matrix

	ROA	SIZE	PAR	MC	GR	GDP	EFE	CAP	AGE
ROA	1								
SIZE	0.454502	1							
PAR	-0.1368	-0.26211	1						
MC	-0.5639	-0.39759	-0.19972	1					
GR	0.129167	0.023187	-0.07082	-0.14414	1				
GDP	-0.44406	-0.2914	-0.0061	0.513778	-0.00372	1			
EFE	-0.48823	-0.74835	0.167455	0.289707	-0.05696	0.262412	1		
CAP	-0.30376	-0.31173	-0.22105	0.263803	-0.11277	0.200723	0.360656	1	
AGE	0.528589	0.573095	0.140433	-0.8298	0.111231	-0.55244	-0.4126	0.47462	1

Source: E-view 6 output (2014)

4.3. Tests for the Classical Linear Regression Model (CLRM) Assumptions

A. Normality Assumption

If the residuals are normally distributed, the histogram should be bell-shaped and the Bera-Jarque statistic would not be significant meaning disturbance to be normally distributed around the mean. This means that the *p*-value given at the bottom of the normality test screen should be bigger than 0.05 to not reject the null of normality at the 5% level (Brooks, 2008).

Ho: Normally distributed errors

Ha: Non-Normal Distribution error

Therefore, the normality tests for this study as shown in table below, the Bera-Jarque statistic has a P-value of 0.179 implies that the p-value for the Jarque-Bera test for models is greater than 0.05 which indicates that the errors are normally distributed. Based on the statistical result, the study failed to reject the null hypothesis of normality at the 5% significance level.

Figure 2 Normality Test for Residuals

Series: Standardized Residuals
Sample 2003 2011
Observations 117

Mean	-9.45e-19
Median	0.002727
Maximum	0.085914
Minimum	-0.086366
Std. Dev.	0.032121
Skewness	-0.417282
Kurtosis	3.093339
Jarque-Bera	3.437890
Probability	0.179255
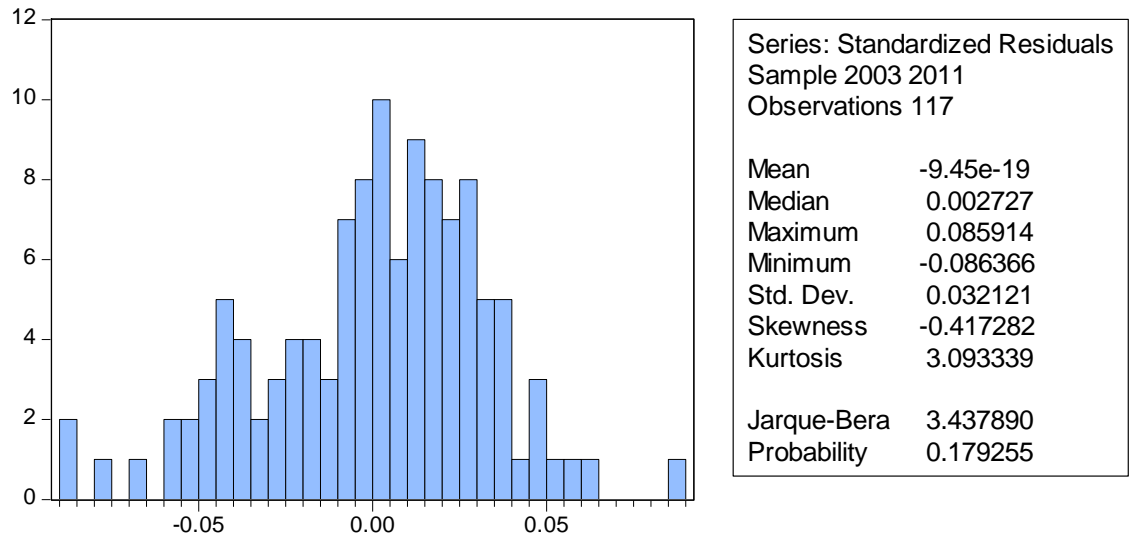
Source: Eview 6 output (2014)

B. Homoscedasticity Assumption (variance of the errors is constant)

According to Brooks, (2008) it has been assumed thus far that the variance of the errors is constant, $\sigma 2$ - this is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they are said to be heteroscedastic. To test for the presence of heteroscedasticity, the popular white test was employed.

It is hypothesized that as follows

Ho: There is no heteroskedaticity problem (homoskedasticity)

Ha: There is heteroskedaticity

Heteroskedasticity Test:White

F-statistic	0.493021	Prob. F(44,72)	0.9935
Obs*R-squared	27.08928	Prob. Chi-Square(44)	0.9789
ScaledexplainedSS	21.28082	Prob. ChSquare(44)	0.9985

According to Brook, (2008) indicated that if the P-values of these test statistics are considerably in excess of 0.05, then the test give conclusion that there is no evidence for the presence of hetroscedasticity. It is clear evident that the errors are homoscedastic. Therefore, based on this statistics we fail to reject the null hypothesis that is indicated as there is no Heteroscedasticity for the models.

C. Test for Assumption of Autocorrelation

It is assumed that the errors term are uncorrelated with one another. If the errors are not uncorrelated with one another, it would be stated that they are auto correlated. This is an assumption that the errors are linearly independent of one another (uncorrelated with one another). The simplest test is due to Durbin and Watson (Brook, 2008). To test this assumption, the DW stat value in the main regression table should be considered.

The Durbin-Watson test statistic value in the regression result was 1.71. To identify determinants of Ethiopian MFIs financial performance, 117 (9*13) observations were used in the model.

Therefore, to test for autocorrelation, the DW test critical values were used. Then relevant critical lower and upper values for the test are dL= 1.421 and dU=1.670 respectively. The values of 4 - dU = 4-1.670=2.33; 4 - dL = 4-1.421=2.579. The Durbin-Watson test statistic of 1.71 is clearly between the upper limit (dU) which is 1.670 and the critical value of 4- dU i.e.2.33 and thus, the null hypothesis of no autocorrelation is within the non- rejection region of the number line and thus there is no evidence for the presence of autocorrelation.

D. Multicollinearity Test

An implicit assumption that is made when using the panel LS estimation method is that the explanatory variables (independent variable) are not correlated with one another. If there is no relationship between the explanatory variables (independent variable), they would be said to be orthogonal to one another. If the explanatory variables were

orthogonal to one another, adding or removing a variable from a regression equation would not cause the values of the coefficients on the other variables to change (Brook, 2008). According to Gujarati, (2004) multicollinearity could only be a problem if the pair-wise correlation coefficient among regressors is above 0.90 Hailer et al, 2006 *cited in* Birhanu, (2012) which is not more or less the case in the study variables.

Table4.3. Multicollinearity test

	SIZE	PAR	MC	GR	GDP	EFE	CAP	AGE
SIZE	1							
PAR	-0.26	1						
MC	0.397	-0.1997	1					
GR	0.023	-0.0708	-0.1441	1				
GDP	-0.29	-0.0061	0.51377	-0.0037	1			
EFE	-0.74	0.1674	0.2897	-0.0569	0.26241	1		
CAP	-0.31	-0.221	0.2638	-0.1127	0.20072	0.3606	1	
AGE	0.573	0.1404	-0.8298	0.1112	-0.55244	-0.4126	-0.4746	1

Source: E-view 6 output (2014)

4.4. Finding of the Regression

This part presents the empirical findings from the econometric results on the factors affecting the financial performance of microfinance institutions in Ethiopia. The section covers the operational panel data regression model used and the results.

Operational model: The specific panel fixed regression model used to study the determinants of financial performance was:

$ROA_{it} = \beta_{0i} + \beta_1*CAP + \beta_2*EFF + \beta_3*PAR + \beta_4*GR + \beta_5*AGE + \beta_6*SIZE + \beta_7*GDP + \beta_8*CONS + \mu_{it}$.

Deciding on whether the random effect (RE) model or fixed effect model (FE) was an appropriate model for this study depended on whether the individual effect were fixed or random. Despite increasing availability of panel data, panel data regressions may not be appropriate in every situation so one has to use some practical judgment in each case (Gujarati, 2004). Based on the outcome of the two in the regression or in the model the current study applied fixed effect model; since the adjusted R square figure, significance level and Durbin-Watson stat value increases with the use of cross-sectional fixed effect model.

Table4.4: Regression Results for Determinants of Financial performance of Ethiopian Microfinance Institutions.

Variable	Coefficient	Std.Error	t-Statistic	Prob.
C	0.694431	0.279287	2.486444	0.0146
SIZE	-0.052376	0.029584	-1.770387	0.0798**
PAR	-0.111282	0.105724	-1.052566	0.2952
MC	-0.866409	0.530318	-1.633752	0.1056
GR	-3.99E-06	0.000231	-0.017279	0.9862
GDP	-0.005164	0.003097	-1.66738	0.0987**
EFE	-0.319385	0.093648	-3.410466	0.001*
CAP	-0.0212	0.030696	-0.690636	0.4915
AGE	0.006688	0.006488	1.030789	0.3052

R-squared	0.652794
AdjustedRsquared	0.580459
S.E. of regression	0.035309
F-statistic	9.024641
Prob(F-statistic)	0

| DurbinWatsonstt | 1.719374 |

4.5. Discussion of the Results

Based on the regression result, the R^2 value is 0.652 (65.2 %) which implies that 65% of fitness can be observed in the sample regression line. This can be further explained as, 65% of the total variation in the financial performance that is ROA is explained by the independent variables (Capital to Asset ratio, Size, Age, GDP, Gearing ratio, Operational efficiency, Portfolio at Risk>30 days and Market concentration) jointly. The remaining 35% of change is explained by other factors which are not included in the model. The Prob (F-statistic) value is 0.000 which indicates strong statistical significance, which enhanced the reliability and validity of the model. Each variable are described in detail under the following sections.

A. **Capital to Asset ratio**

The coefficient of the capital to asset ratio (CAP) is negative (-0.0212) and statistically insignificant even at 10%. This confirms that for the study period 2003 up to 2011 capital strength of Ethiopian MFIs do not have a positive relationship with their financial performance or holding constant all other variables, increasing CAP by one unit causes to decrease the ROA nearly 0.02 birr. Therefore hypothesis No.1 which is financial performance is positive relationship with capital asset ratio of MFIs in Ethiopia is rejected because the data did not support the hypothesis. Even though the theory says the argument that well capitalized MFIs is more flexible in dealing with problems arising from unexpected losses and against credit risks and results in a better chance for financial performance but result of the study not supports the argument.

Contrary to this majority of MFIs branch managres have a perception (mean 3.9 see appendix 2) that capital to asset ratio can have a significant impact on the financial performance of their MFI. This might be due to managers are measuring the performance of their institution based on the total profitability, which means ignoring the details of financial transaction data.

The result of this study is similar to the findings of Sima, (2013) but inconsistent with the finding of Joergenson, (2011) and Muriu, (2011) perhaps this can be attributed to external factors which are responsible for such variations.

B. **Age of MFIs**

The Age of microfinance institutions refers to the period that an MFI has been in operation since its initial inception. Previously, in hypothesis no.2 indicated that Age of the MFIs has a positive relationship with financial performance of MFIs in Ethiopia. And according to this finding, the variable confirms or supports the hypothesis and its coefficient is 0.00668 but statistically insignificant even at 10% significance level or in the other interpretation holding constant all other variables, increasing Age by one year causes to increase the ROA nearly by 0.007birr.

The positive relationship between age and financial performance of MFI in Ethiopia implies that as MFIs mature, and thus gets experience in their industry: they increase their likelihood of attaining financial performance. This can be explained by the fact that MFIs gradually improve their control over all operations related to issuance of microcredit and their critical activities. In other words, MFIs that have considerable experience in the microfinance industry have diligently or carefully applied credit risk management and general efficient management techniques to attain financial performance. On the other hand branch managers do not perceive years of operation have a relationship with financial performance of their MFI. This can be manager's believed that if the structure of the organization is in line with its provision of service it is possible to attain its financial performance within short period of time.

The result is similar to Joergenson, (2012), Sima, (2013) and Yonas, (2012).Therefore this study concludes that age is MFI's internal factor that affects MFIs financial performance positively. This is also practical in Ethiopia where matured MFIs earn high financial performance compared to new MFIs.

C. **Operational Efficiency**

Operational Efficiency is performance measure that shows how well MFIs is streamlining or reforms its operations and takes in to account the cost of the input and/or the price of output. And Efficiency of the MFIs management measured in terms of adjusted operating expense to adjusted average gross loan portfolio. By taking the above formula as the tool to calculate, the current study which covers the time period from 2003 to 2011 indicates that coefficient of -0.319 and it was statistically significant at 1% significance level (P-value 0.001) this result shows that holding constant all other variables, increasing operational expense in one unit on gross loan portfolio cause to decrease ROA nearly by 0.32 birr it is an indication that MFIs should give great attention in cost minimization technique. The result indicated that there was a negative relationship between efficiency and financial performance of Ethiopian MFIs during the study period. The result confirms the common rule of thumb that the higher our expense the lower our financial performance. Based on the finding the study fail to reject null hypothesis no.3 namely there is a negative relationship between Operational efficiency and MFIs financial performance in Ethiopia because the result supports the expectation. Generally operational efficiency was a key determinant of financial performance of Ethiopian MFIs for the study period 2003-2011. The perception of managers towards operational efficiency result supports the regression finding which is minimizing expense to loan portfolio have a significant role to achieve the financial performance of their MFI.

The result was consistent with findings many research like, Dissanayake, (2012), Muriu, (2011) and Sima, (2013) but inconsistent with Jorgensen, (2011) perhaps this can be attributed to external factors which are responsible for such variations.

D. **Portfolio quality**

Portfolio quality is a measure of how well or how best the institution is able to protect total funds available for the MFI to use as loans to its clients against all forms of risks. The coefficient of the portfolio-at-risk at > 30 days is negative, as expected but statistically insignificant. This confirms the hypothesis, namely that a significant reduction in the portfolio-at-risk at > 30 days in the portfolio should have a positive impact on the MFI's financial performance in Ethiopia. In other words, a high portfolio-at-risk would limit the revenue derived from microcredit operations and therefore decrease the amount of lendable funds. As a result this would lead to the addressing of credit outreach problem and ultimately the inability to sustainably supply quality services to the clientele, and have a negative impact on MFIs' financial performance results.
 The negative value of the coefficient of -0.111 of the portfolio-at-risk clearly illustrates this problem.

The portfolio at risk (PAR) measure indicates how efficient an MFI is in making collections. The higher the PAR implies low repayment rates, an indication of inefficient MFI. The higher the PAR, the more inefficient the MFI will be and, therefore, the less financial performance. In general it shows that the portfolio-at-risk (Par>30) is the most determining indicator of the financial performance of Ethiopian MFIs. Regarding the quality of portfolio, managers have a positive perception in keeping its quality. Meaning a high portfolio-at-risk would limit the revenue derived from microcredit operations and therefore decrease the amount of lendable funds so managers are familiar with this risk their by improving the quality of their portfolio.
 The result is similar to Muriu, (2011), Yonas, (2012), Sima, (2013) but inconsistent with Dissanayake, (2012) finding.

E. **Size of MFI (Total Asset)**

Natural logarithm of total asset of MFIs is used as a proxy of size of MFIs. As with relative market power theory and scale efficiency theory, size of a firm expands its market power and profits increases.

The finding of the study had opposite to the theory that is negative coefficient -0.052 and statistically significant at 10 % (p-value 0.079) the negative sign implies that size of MFIs does not determine MFIs financial performance in Ethiopian during the study period, indicates that large MFIs in the industry have not significantly enjoyed economies of scale. In fact, the negative coefficients bring to attention the possibility that diseconomies exist, which adversely affect their financial performance. This might occur due to the existence of bureaucratic bottleneck system and managerial inefficiencies to manage their assets and the result is consistent with AEMFI, (2013) report, that is in an MFIs economies of scale have much less impact on efficiency than is usually believed because of high variable cost, the report also point out that if the loan portfolio of an MFI exceeds 1 to 2 million USD, growth does not seem to bring significant efficiency gains, and small MFIS can often be more efficient than their much larger peers. In other way the result confirms that the smaller size MFIs might be advantageous by their size to generating more return from their assets.

The result was in contrary with hypothesis no.5 namely financial performance has positive relation with size of MFIs in Ethiopia. Therefore the study rejected the hypothesis because the data did not support the result. Concerning the size of total asset branch managers oppositely believed that an increase in total asset would have positive impact in financial performance of their MFI. This can be managers are highly focusing on increasing in asset by giving less attention to an increase operating expense as asset of their MFI is increased. This ends up with no profit.

The result was not consistent with Cull et al. (2007) and Muriu, (2011) but similar to the banking industry result, Dietich and wanzenried, (2009) and MFIs result, Sima, (2013).

F. **Gearing ratio/Debt to Equity ratio**

The debt to equity ratio is a common measure used to assess a firm's leverage, or in other words the extent to which it relies on debt as a source of financing. The ratio showed up a negative coefficient (-3.99E-06) and it is statistically insignificant variable (P-value 0.986). This implies that for the study period (2003-2011) the insignificant correlation between financial performance and gearing ratio. The result is inconsistent with Dissanayake, (2012) and Muriu, (2011) 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. The result is consistent with melkamu, (2012).

Therefore, based on the regression result from the study, the study fail to reject the hypothesis no.6 namely gearing ratio has negative relationship with financial performance of Ethiopian MFIs which was formulated to show the absence of a significant relationship between debt to equity ratio and financial performance of Ethiopian microfinance institutions. Similarly branch managers have also perceived that gearing ratio would not have a positive impact on the financial performance of their MFI.

G. **GDP**

Economic growth (GDP) is among the most commonly used macroeconomic indicators, as it is a measure of total economic activity within an economy and the study used real GDP growth as a proxy of the macroeconomic environment. The Result shows that a negative coefficient of -0.005 but it was statistically significant at 10% significance level (P-value 0.09) indicating that growth in economic condition measured in terms of real GDP growth did not affect financial performance of Ethiopian MFIs for the study period. On the same way branch managers also believed GDP has non- significant role for financial performance of MFI. Most likely the reason behind this result and perception is that, 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.

The result was consistent with Muriu, (2011) and Sima (2013). Therefore, the current study found that real GDP growth is not positively affect the MFIs financial performance in Ethiopia. Therefore the study rejects the hypothesis no.7 namely real GDP has positive relationship with financial performance of Ethiopian MFIs because the data did not support the result.

H. **Market concentration**

According to Herfindahl-Hirschman (H-H) index, market concentration is measured with the sum of the square of market share of the sample banks included in the particular study and the researcher adopt from different literatures in the banking industry and look MFIs market concentration in the same fashion. Even though the descriptive result shows that there is market concentration in Ethiopia but the regression result indicates a negative and statistically insignificant even at 10% impact on Ethiopian MFIs financial performance, the reason behind is most likely inefficiency and the motive that MFIs is established in Ethiopia. The banking theories on market concentration argue that if the size and firm distribution of a specific sector is concentrated, the profitability of firms becomes high because they could get monopoly power to set the price of their products/service and determine their desired level of profit.

This empirical results show that market concentration affects MFIs financial performance negatively (-0.866), but the effect was statistically insignificant (p-value 0.105). On the contrary the branch managers believe that market concentration have positive impact on the financial performance of their MFI. The reason is most likely they could get monopoly power to set the price of their products/service and determine their desired level of profit.

Hence, this study finds no evidence to support the hypothesis no.8 namely market concentration has positive relationship with financial performance of Ethiopian MFIs.

The study is consistent with banking sector result Flamini, (2009), Athanasoglou, (2005) Birhanu, (2012) but inconsistent with Mohneux and Thornton, (1992), Belayineh, (2011) and Habtamu, (2012).

CHAPTER FIVE

5. CONCLUSIONS AND RECOMMENDATION

This chapter presents conclusions and recommendations based on the analysis made in previous chapter.

5.1. Conclusions

Microfinance has been accepted not only as a financial mean to target specific people who excluded from the formal financial system to gain access to sources of financing, but it comprehends also a social aspect contributing to poverty reduction, women empowerment, economic development and employment creation. In order to survive negative shocks and maintain a good financial stability, the financial managers and policy maker should identify the key financial performance determinants of MFIs. Because of this, the current study use both primary and secondary data for an empirical framework to investigate the effect of MFI-specific, industry-specific and macroeconomic determinants on the financial performance of Ethiopian MFIs from 2003 to 2011. To attain this objective the researcher began by reviewing the literature, also applied commercial banking theories in order to test theories and then identified factors affecting financial performance that could apply to the empirical data. After collecting these data, the researcher formed a basic sample of 13 MFIs operating throughout Ethiopia. Subsequently, the researcher processed and analyzed the data gathered to test the model and clarify the determinants of financial performance of MFIs in Ethiopia.

Based on the descriptive and empirical evidence obtained from the econometric results in Chapter 4, the researcher generally conclude that financial performance of microfinance institutions is highly affected by the internal factors than external one.

Descriptive analysis results show that Ethiopian MFIs averagely generating negative ROA. This is an indication that MFIs in Ethiopia is more focused on poverty reduction than profit orientation.

The capital to Asset mean value results suggest that about 40% of the total assets of MFIs were financed by shareholders funds while the remaining 60 % was financed by other source which is above the standard set by CGAP, 20%. The mean value of operating expense to loan portfolio indicates that about 12.3 percent of operating expense which is below rest of Africa, 24.27% (AEMFI, 2013). The mean value of Gearing Ratio shows that the Ethiopian MFIs was much leveraged (3.44), two times more than the minimum statutory 1.5 set by AEMFI. The mean value of Market concentration (0.26) shows that the industry is highly controlled by few MFIs in Ethiopia.

Operational Efficiency of the MFIs management measured in terms of adjusted operating expense to adjusted average gross loan portfolio, the current study which covers the time period from 2003 to 2011 indicates that coefficient of -0.319 and it was statistically significant at 1% significance level (P-value 0.001) as expected. The result shows that the higher the cost, the lower the financial performance of the selected Ethiopian MFIs. And the result indicates the real evidence for Ethiopian MFIs which are less efficient in managing their expenses.

Operational efficiency in microfinance is an important and key determinant of financial performance and therefore MFIs have much to gain if they improve on their managerial practices. Efficient cost management is a prerequisite to financial performance since Ethiopian MFIs may not have reached the maturity level required to link quality effects emanating from increased spending to higher MFI financial performance.

The coefficient of the portfolio-at-risk at 30 days is negative, as expected but statistically insignificant. In other words, a high portfolio-at-risk would limit the revenue derived from microcredit operations and therefore decrease the amount of lendable funds. As a result this would lead to the addressing of credit outreach problem and ultimately the

inability to sustainably supply quality services to the clientele, and have a negative impact on Ethiopian MFIs financial performance results.

The positive relationship between age and financial performance of MFI in Ethiopia implies that as MFIs mature, and thus gets experience in their industry: they increase their likelihood of attaining financial performance. This can be explained by the fact that MFIs gradually improve their control over all operations related to issuance of microcredit and their critical activities.

When we look the other variables that is GR, CAP, PAR, AGE of MFIs and Market Concentration their influence in the financial performance (ROA) is not significant. And when we look the primary data result with the secondary data, although the secondary data regression result shows size, operational efficiency and GDP have significant influence in financial performance but by looking the mean value the primary data result shows that size, portfolio quality, market concentration, operational efficiency and capital to asset ratio have significant influence on financial performance in Ethiopia since their mean value is near to 4(see appendix 2). The gearing ratio, age of MFIs and GDP growth were not had influence on financial performance of MFIs in Ethiopia since their mean value is below 2 (see appendix2). Thus, it can be concluded that financial performance in the Ethiopian MFI is largely driven internal or MFIs-specific factors than external factors.

Generally these findings have responded to the primary aims of the study and made a contribution to the existing literature. Overall, these empirical results provide evidence that the MFIs financial performance is shaped by MFI-specific factors (that is MFIs level management) than External Variables (that are not the direct result of MFIs manager decisions).

5.2. Recommendations

Based on the findings of the research, the researcher has recommended certain points what he thought to be very critical if considered and implemented by the microfinance institutions accordingly and properly. Therefore, the following recommendations have been given.

- Size, Growth Domestic Product and Operational Efficiency are significant determinants of financial performance of MFIs in Ethiopia. Since inefficiency is the bottleneck of MFIs in Ethiopia, the management should give great attention to a good expense management policy or reduce operating costs and credit risk management by employing different technologies which can minimize cost example mobile banking.
- The MFIs managers and policy makers should give high concern in the motives of MFIs that is MFIs should be perform their activity with comprising the two motives together. Meaning the government and policy makers should give due attention for both poverty reduction and financial self-sufficiency of MFIs.
- The MFIs have to emulate profit-making banking practices by implementing a sound financial management and good managerial governance to assure their financial sustainability in the long run financial performance.
- Since MFIs in Ethiopia is in infant stage the government should avail different facilities or infrastructures to reduce inefficiencies.

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JIMMA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF ACCOUNTING PROGRAM MASTER OF SCIENCE IN ACCOUNTING AND FINANCE

Dear respondents

This questionnaire is prepared to managers of sample MFIs. The objective of the questionnaire is to collect information about the determinants of financial performance of MFIs in Ethiopia.

Note:

➢ No need of writing your name

➢ The information you provide will be valuable for the successes of the research paper. Please be honest and objective while filling the questionnaire.

➢ The information you give is used only for academic purpose and will be kept confidential.

Thank you in advance for your cooperation.

Part one: Demographic Information

1. Level of education

1. Diploma   2. First Degree

3. Second Degree   4. Above second degree

2. Work experience in the MFIs

1. 1-5 years   2. 6-10 years

3. 11-15 years   4. More than 15 years

Part two: Determinants of financial performance of MFIs

1. The major factors that affecting financial performance of MFIs in Ethiopia are listed below. After you read each of the factors, evaluate them in relation to your MFI experience and then put a tick **mark √ under** the choices below.

5=strongly agree 4=agree 3=undecided 2=disagree 1=strongly disagree

S/N	Agreement Scale						Remark
	Key Variables	**1**	**2**	**3**	**4**	**5**	
1	**Capital adequacy**						
2	**Operational Efficiency(operational expense to loan portfolio)**						
3	**Gearing ratio or debt to equity ratio**						
4	**Portfolio quality (portfolio at risk >30 days)**						
5	**Age of MFI**						
6	**Size MFI (Total asset)**						
7	**GDP**						
8	**Market concentration**						

Appendix II

Branch managers' perception analysis on determinants of MFIs financial performance

In this part primary data collected from the managers of sample MFI through structured survey questionnaire (see appendix 1) was analyze and discussed. 10 Managers were solicited to rank the major factors that determine the profitability of MFI in Ethiopia.

Respondents' profile

level of education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	diploma	1	10.0	10.0	10.0
	first digree	9	90.0	90.0	100.0
	Total	10	100.0	100.0	

Source: survey output

work experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	6-10	2	20.0	20.0	20.0
	11-15	5	50.0	50.0	70.0
	>15	3	30.0	30.0	100.0
	Total	10	100.0	100.0	

Source: survey output

Descriptive Statistics of branch managers perception

	N	Minimum	Maximum	Mean	Std. Deviation
portfolio quality	10	3.00	5.00	4.3000	.82327
size of micro finance	10	4.00	5.00	4.6000	.51640
operational efficiency	10	3.00	4.00	3.7000	.48305
capital to asset ratio	10	3.00	5.00	3.9000	.73786
gearing ratio	10	1.00	3.00	2.6000	.69921
age of micro finance	10	1.00	4.00	2.1000	.73786
gdp growth	10	1.00	5.00	2.1000	1.37032
market concentration	10	2.00	5.00	4.0000	1.05409
Valid N (listwise)	10				

Source: survey output

Appendix-IV: Tests for the Heteroskedasticity Test: White

Heteroskedasticity Test: White

F-statistic	0.493021	Prob. F(44,72)	0.9935
Obs*R-squared	27.08928	Prob. Chi-Square(44)	0.9789
Scaled explained			
SS	21.28082	Prob. Chi-Square(44)	0.9985

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 05/10/14   Time: 04:53

Sample: 1 117

Included observations: 117

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.154169	0.29954	-0.51469	0.6083
SIZE	0.011828	0.044013	0.268741	0.7889
SIZE^2	-0.000942	0.002217	-0.42482	0.6722
SIZE*PAR	-0.021649	0.029483	-0.73429	0.4652
SIZE*GR	0.002283	0.069816	0.032698	0.974
SIZE*MC	0.000181	0.001432	0.12653	0.8997
SIZE*GDP	1.64E-05	0.0005	0.032777	0.9739
SIZE*EFE	0.003433	0.023465	0.146299	0.8841
SIZE*CAP	-0.00474	0.011525	-0.4113	0.6821
SIZE*AGE	0.000378	0.000717	0.527818	0.5992
PAR	0.268459	0.286522	0.936958	0.3519
PAR^2	-0.1479	0.153141	-0.96578	0.3374
PAR*GR	-0.370993	0.588585	-0.63031	0.5305

PAR*MC	0.0001	0.007753	0.012891	0.9897
PAR*GDP	7.03E-05	0.00517	0.013601	0.9892
PAR*EFE	-0.058085	0.216937	-0.26775	0.7897
PAR*CAP	-0.018753	0.067125	-0.27937	0.7808
PAR*AGE	0.003065	0.007384	0.41503	0.6794
GR	0.577083	1.221238	0.472539	0.638
GR^2	-1.497502	1.783693	-0.83955	0.4039
GR*MC	-0.045717	0.029169	-1.56731	0.1214
GR*GDP	0.059741	0.029778	2.006207	0.0486
GR*EFE	-0.248227	0.734823	-0.33781	0.7365
GR*CAP	-0.548037	0.261095	-2.099	0.0393
GR*AGE	-0.014717	0.029495	-0.49896	0.6193
MC	0.01293	0.012799	1.010198	0.3158
MC^2	8.22E-07	1.02E-05	0.080551	0.936
MC*GDP	5.94E-05	0.000158	0.375184	0.7086
MC*EFE	0.004138	0.010085	0.410297	0.6828
MC*CAP	-0.004086	0.005592	-0.7306	0.4674
MC*AGE	-0.000329	0.000363	-0.907	0.3674
GDP	-0.008088	0.007682	-1.05289	0.2959
GDP^2	-0.000378	0.000233	-1.62624	0.1083
GDP*EFE	-0.00161	0.004766	-0.33779	0.7365
GDP*CAP	0.000351	0.001778	0.19721	0.8442
GDP*AGE	6.72E-05	0.000176	0.381794	0.7037
EFE	0.05533	0.312019	0.17733	0.8597
EFE^2	0.079257	0.100261	0.790511	0.4318
EFE*CAP	-0.036192	0.073077	-0.49525	0.6219
EFE*AGE	-0.001726	0.005975	-0.28883	0.7735
CAP	0.22655	0.135984	1.665999	0.1001
CAP^2	-0.014353	0.021909	-0.65509	0.5145
CAP*AGE	-0.003705	0.002535	-1.46161	0.1482
AGE	0.004614	0.011176	0.412819	0.681

AGE^2	-0.000133	0.000153	-0.86538	0.3897

R-squared	0.231532	Mean dependent var	0.001482
AdjustedRsquared	-0.238087	S.D. dependent var	0.002021
S.E. of regression	0.002249	Akaike info criterion	-9.073319
Sumsquaredresid	0.000364	Schwarz criterion	-8.010944
Log likelihood	575.7891	Hannan-Quinn criter.	-8.642008
F-statistic	0.493021	Durbin-Watson stat	2.022718
Prob(F-statistic)	0.993538		

Appendix-V: Regression Results For Factors affecting MFIs Financial Performance

Dependent Variable: ROA

Method: Panel Least Squares

Date: 05/10/14   Time: 04:37

Sample: 2003 2011

Periods included: 9

Cross-sections included: 13

Total panel (balanced) observations: 117

Variable	Coefficient	Std.Error	t-Statistic	Prob.
C	0.694431	0.279287	2.486444	0.0146
SIZE	-0.052376	0.029584	-1.770387	0.0798
PAR	-0.111282	0.105724	-1.052566	0.2952
MC	-0.866409	0.530318	-1.633752	0.1056
GR	-3.99E-06	0.000231	-0.017279	0.9862
GDP	-0.005164	0.003097	-1.66738	0.0987
EFE	-0.319385	0.093648	-3.410466	0.001
CAP	-0.0212	0.030696	-0.690636	0.4915
AGE	0.006688	0.006488	1.030789	0.3052

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.652794	Meandependentvar	-0.0003
Adjustedsquared	0.580459	S.D. dependent var	0.054512
S.E. ofregression	0.035309	Akaikeinfocriterion	-3.68823
Sumsquaredresid	0.119683	Schwarz criterion	-3.19246
Log likelihood	236.7616	HannanQuinncriter.	-3.48695
F-statistic	9.024641	Durbin-Watsonstat	1.719374
Prob(F-statistic)	0		

Appendix VI the raw data used for analysis (source AEMFI and MOFAD)

	YEAR	SIZE	ROA	PAR	MC	GR	GDP	EFE	CAP	AGE
ACSI	2003	8.46246	3.80%	1.70%	**0.287983**	**1.6**	13.6	7.60%	38.00%	6
ACSI	2004	8.661249	4.80%	0.50%	0.292517	2	11.8	6.20%	33.50%	7
ACSI	2005	8.772789	4.30%	1.10%	0.290277	2.1	10.8	6.20%	32.40%	8
ACSI	2006	8.925866	4.50%	0.80%	0.265834	2.30	11.5	5.00%	30%	9
ACSI	2007	9.106247	4.10%	0.50%	0.274165	2.7	10.8	4.60%	27%	10
ACSI	2008	9.294153	8.00%	2.00%	0.254126	2.2	8.8	3.00%	31.00%	11
ACSI	2009	9.368846	6.00%	4.00%	0.251259	2.8	12.2	4.00%	26.00%	12
ACSI	2010	9.403673	4.00%	3.50%	0.231375	2.60	11.2	2.00%	28.00%	13
ACSI	2011	9.515767	6.60%	1.46%	0.233959	2.59	8.5	4.81%	28.00%	14
ADCSI	2003	7.236262	-7.80%	7.80%	**0.287983**	**0.22**	13.6	14.30%	82.30%	2
ADCSI	2004	7.780814	-5.90%	2.50%	0.292517	0.13	11.8	7.90%	88.60%	3
ADCSI	2005	8.151553	-0.50%	0.90%	0.290277	0.43	10.8	4.10%	70.00%	4
ADCSI	2006	8.370727	-6.50%	3.50%	0.265834	0.4	11.5	4.10%	70.70%	5
ADCSI	2007	8.242234	-8.10%	0.00%	0.274165	0.5	10.8	4.70%	66.90%	6
ADCSI	2008	8.465449	4.00%	3.00%	0.254126	0.43	8.8	4.00%	70.00%	7
ADCSI	2009	8.585466	3.00%	4.00%	0.251259	0.4	12.2	3.00%	72.00%	8
ADCSI	2010	8.724389	4.00%	2.60%	0.231375	0.54	11.2	3.00%	65.00%	9
ADCSI	2011	8.882626	3.10%	3.78%	0.233959	1.03	8.5	3.38%	49.00%	10
Buussa	2003	6.568119	-4.60%	5.80%	**0.287983**	**0.2**	13.6	40%	84.10%	3
Buussa	2004	6.800228	-5.10%	3.90%	0.292517	0.3	11.8	41.80%	76.80%	4

Buussa	2005	7.011894	-8.50%	0.40%	0.290277	0.5	10.8	30.40%	66.20%	5
Buussa	2006	7.182172	-1.30%	1.20%	0.265834	0.5	11.5	23.30%	66.60%	6
Buussa	2007	7.45821	-8.00%	1.30%	0.274165	1.3	10.8	25.20%	43.50%	7
Buussa	2008	7.635457	7.00%	2.00%	0.254126	1.22	8.8	18.00%	44.00%	8
Buussa	2009	7.779146	7.00%	2.00%	0.251259	1	12.2	15.00%	49.00%	9
Buussa	2010	7.779146	7.00%	1.60%	0.231375	1.02	11.2	16.00%	49.00%	10
Buussa	2011	7.922216	14.10%	6.80%	0.233959	0.9	8.5	12.59%	53.00%	11
DECSI	2003	8.471657	-0.50%	6.30%	**0.287983**	**1.3**	13.6	6.10%	43.10%	6
DECSI	2004	8.695466	2.10%	2.30%	0.292517	1.90	11.8	3.80%	33.60%	7
DECSI	2005	8.955147	3.40%	2.20%	0.290277	3.30	10.8	2.80%	23.30%	8
DECSI	2006	9.017604	1.90%	1.00%	0.265834	3.70	11.5	2.50%	21.20%	9
DECSI	2007	9.198141	-0.30%	0.50%	0.274165	3.90	10.8	2.90%	20.30%	10
DECSI	2008	9.266974	2.00%	2.00%	0.254126	4.01	8.8	3.00%	19.00%	11
DECSI	2009	9.318761	3.00%	5.00%	0.251259	1.60	12.2	3.00%	38.00%	12
DECSI	2010	9.329857	0.00%	6.70%	0.231375	3.13	11.2	2.00%	24.00%	13
DECSI	2011	9.432035	1.90%	2.16%	0.233959	3.16	8.5	1.88%	24.00%	14
OCSSCO	2003	7.934227	-6.50%	7.80%	**0.287983**	**0.6**	13.6	10.80%	63%	6
OCSSCO	2004	8.061607	-0.70%	5.00%	0.292517	0.90	11.8	9.00%	54.00%	7
OCSSCO	2005	8.265985	1.10%	5.30%	0.290277	0.90	10.8	7.50%	51.30%	8
OCSSCO	2006	8.408491	0.40%	0.20%	0.265834	1.30	11.5	6.40%	43.80%	9
OCSSCO	2007	8.706947	0.70%	1.50%	0.274165	2.50	10.8	6.00%	28.60%	10
OCSSCO	2008	8.893442	4.00%	3.00%	0.254126	3.48	8.8	4.00%	22.00%	11

OCSSCO	2009	8.954794	3.00%	7.00%	0.251259	3.10	12.2	5.00%	25.00%	12
OCSSCO	2010	9.142436	3.00%	4.60%	0.231375	3.14	11.2	5.00%	24.00%	**13**
OCSSCO	2011	9.22814	5.40%	3.52%	0.233959	2.80	8.5	5.02%	26.00%	14
OMO	2003	7.655846	-10.90%	1.40%	**0.287983**	**4.80**	13.6	14.00%	17.10%	6
OMO	2004	7.791695	-6.10%	5.50%	0.292517	6.00	11.8	16.40%	14.30%	7
OMO	2005	8.074388	-2.00%	1.20%	0.290277	9.90	10.8	10.30%	9.20%	8
OMO	2006	8.14547	-0.50%	2.90%	0.265834	9.10	11.5	8.30%	9.90%	9
OMO	2007	8.394748	-1.30%	2.00%	0.274165	7.10	10.8	8.60%	12.30%	10
OMO	2008	8.670329	2.00%	5.00%	0.254126	11.15	8.8	4.00%	9.00%	11
OMO	2009	8.70846	2.00%	7.00%	0.251259	9.40	12.2	2.00%	10.00%	12
OMO	2010	8.80151	0.00%	6.60%	0.231375	2.66	11.2	5.00%	27.00%	**13**
OMO	2011	8.867523	1.40%	15.16%	0.233959	3.09	8.5	5.12%	24.00%	14
Gasha	2003	6.94979	-15.50%	8.60%	**0.287983**	**0.7**	13.6	42.50%	59.80%	5
Gasha	2004	7.073617	-12.30%	4.60%	0.292517	1.50	11.8	25.00%	39.50%	6
Gasha	2005	7.224908	-1.60%	8.15%	0.290277	1.30	10.8	14.60%	42.50%	7
Gasha	2006	7.178262	-11.20%	12.10%	0.265834	1.40	11.5	13.60%	41.70%	8
Gasha	2007	7.206984	-7.80%	15.60%	0.274165	1.20	10.8	15.30%	46.10%	9
Gasha	2008	7.255297	2.00%	26.00%	0.254126	3.00	8.8	13.00%	0.00%	10
Gasha	2009	7.315626	1.00%	24.00%	0.251259	3.00	12.2	22.00%	0.00%	11
Gasha	2010	7.260654	2.00%	13.50%	0.231375	1.10	11.2	22.00%	0.00%	12

Gasha	2011	7.321004	7.30%	11.06%	0.233959	1.34	8.5	20.36%	43.00%	13
Meklit	2003	6.394372	-6.70%	9.70%	**0.287983**	**1.2**	13.6	17.40%	46.20%	3
Meklit	2004	6.564636	-8.70%	17.70%	0.292517	5.30	11.8	15.30%	16.00%	4
Meklit	2005	6.713233	-4.20%	7.00%	0.290277	5.50	10.8	17.40%	15.20%	5
Meklit	2006	7.005791	7.60%	2.90%	0.265834	2.00	11.5	15.50%	33.70%	6
Meklit	2007	7.206513	2.40%	2.40%	0.274165	2.50	10.8	12.10%	28.90%	7
Meklit	2008	7.285829	3.00%	4.00%	0.254126	2.27	8.8	9.00%	28.00%	8
Meklit	2009	7.346666	0.00%	16.00%	0.251259	2.80	12.2	10.00%	27.00%	9
Meklit	2010	7.393541	-2.00%	23.80%	0.231375	3.42	11.2	11.00%	23.00%	10
Meklit	2011	7.441878	6.50%	21.33%	0.233959	2.63	8.5	10.66%	28.00%	11
SEPI	2003	7.053497	-4%	0.90%	**0.287983**	**0.9**	13.6	18.50%	52.60%	6
SEPI	2004	7.151144	-3.30%	1.50%	0.292517	1.00	11.8	15.80%	49.60%	7
SEPI	2005	7.267172	-3.40%	4.30%	0.290277	0.80	10.8	13.50%	54.70%	8
SEPI	2006	7.412794	-2.70%	3.10%	0.265834	0.90	11.5	12.70%	52.40%	9
SEPI	2007	7.52637	-9.30%	1.80%	0.274165	1.80	10.8	12.50%	30.70%	10
SEPI	2008	7.634492	3.00%	4.00%	0.254126	1.17	8.8	12.00%	46.00%	11
SEPI	2009	7.729191	1.00%	3.00%	0.251259	1.30	12.2	16.00%	43.00%	**12**
SEPI	2010	7.787862	7.00%	3.20%	0.231375	1.23	11.2	7.00%	45.00%	13
SEPI	2011	7.84438	6.80%	5.99%	0.233959	1.16	8.5	13.09%	46.00%	14
Wisdom	2003	7.314479	-3.80%	5.30%	**0.287983**	**0.8**	13.6	20.80%	56.80%	3
Wisdom	2004	7.42235	-2.50%	3.50%	0.292517	1.10	11.8	19.90%	47.20%	4
Wisdom	2005	7.50364	-2.10%	3.30%	0.290277	1.50	10.8	19.50%	39.30%	5

Wisdom	2006	7.728825	1.10%	4.70%	0.265834	1.10	11.5	17.70%	47.30%	6
Wisdom	2007	7.859479	-7.80%	2.70%	0.274165	1.70	10.8	19.90%	36.40%	7
Wisdom	2008	7.968501	0.00%	3.00%	0.254126	1.25	8.8	17.00%	44.00%	8
Wisdom	2009	8.031206	-2.00%	5.00%	0.251259	1.30	12.2	20.00%	44.00%	9
Wisdom	2010	8.081376	-1.00%	9.40%	0.231375	0.77	11.2	19.00%	47.00%	10
Wisdom	2011	8.142165	-2.60%	2.11%	0.233959	1.08	8.5	16.75%	48.00%	11
Wasasa	2003	6.528172	1.70%	5.90%	**0.287983**	0.80	13.6	16.90%	69.60%	3
Wasasa	2004	6.914347	3.40%	0.10%	0.292517	1.10	11.8	17.90%	52.20%	4
Wasasa	2005	7.127924	-5.10%	7.60%	0.290277	1.50	10.8	16.50%	47.60%	5
Wasasa	2006	7.416982	-1.60%	0.90%	0.265834	1.10	11.5	15.10%	46.60%	6
Wasasa	2007	7.582469	0.30%	1.70%	0.274165	1.20	10.8	11.30%	45.80%	7
Wasasa	2008	7.726221	6.00%	2%	0.254126	1.97	8.8	8.00%	0.00%	8
Wasasa	2009	7.926554	8%	1%	0.251259	2.20	12.2	6.00%	32.00%	9
Wasasa	2010	7.978466	3%	4.10%	0.231375	2.19	11.2	4.00%	31.00%	10
Wasasa	2011	8.106045	6.40%	2.25%	0.233959	1.88	8.5	7.13%	35.00%	11
PEACE	2003	6.889269	-5.30%	0.20%	**0.287983**	1.3	13.6	20.60%	42.60%	4
PEACE	2004	7.054066	3.40%	0.10%	0.292517	1.3	11.8	17.50%	44.30%	5
PEACE	2005	7.287438	-3.00%	0.10%	0.290277	2.6	10.8	12.10%	27.90%	6
PEACE	2006	7.467415	5.90%	0.70%	0.265834	0.9	11.5	8.10%	26.90%	7
PEACE	2007	7.567615	5.20%	0.50%	0.274165	1.8	10.8	7.50%	31.50%	8
PEACE	2008	7.642305	7.00%	0.00%	0.254126	1.92	8.8	8.00%	33.00%	9
PEACE	2009	7.691458	2.00%	6.00%	0.251259	2.1	12.2	5.00%	0.00%	10

PEACE	2010	7.723983	7.00%	0.40%	0.231375	167	11.2	11.00%	34.00%	11
PEACE	2011	7.754852	9.30%	0.34%	0.233959	1.25	8.5	11.76%	44.00%	12
AVFS	2003	6.455277	-9.40%	11.60%	**0.287983**	0.76	13.6	21.00%	56.80%	5
AVFS	2004	6.673391	-10.10%	2.30%	0.292517	0.56	11.8	18.50%	63.80%	6
AVFS	2005	6.900647	-8.00%	3.30%	0.290277	0.61	10.8	14.70%	62.20%	7
AVFS	2006	7.073521	-7.80%	4.30%	0.265834	0.7	11.5	15.10%	59.80%	8
AVFS	2007	7.164549	-5.70%	5.40%	0.274165	0.6	10.8	18.00%	61.60%	9
AVFS	2008	7.219681	1.00%	10.00%	0.254126	0.61	8.8	14.00%	62.00%	10
AVFS	2009	7.242277	3.00%	9.00%	0.251259	0.6	12.2	18.00%	1.00%	11
AVFS	2010	7.297255	-2.00%	3.60%	0.231375	0.8	11.2	27.00%	56.00%	12
AVFS	2011	7.297255	-1.80%	7.39%	0.233959	0.8	8.5	26.78%	56.00%	13