



**ST.MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES
DEPARTMENT OF ACCOUNTING AND FINANCE**

**DETERMINANTS OF PROFITABILITY
STUDY ON THE SELECTED
MICROFINANCE IN ETHIOPIA**

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DETERMINANTS OF PROFITABILITY STUDY ON THE SELECTED MICROFINANCE IN ETHIOPIA

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DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Zenegnaw Abiy (phD). All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

Name

Signature & Date

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MBA PROGRAM

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LIST OF ABBREVIATIONS AND ACRONYMS

ACSI	Amhara Credit and Saving Institution, Share Company
ADCSI	Addis Credit and Saving Institution Share Company
AEMFI	Association of Ethiopian Microfinance Institutions
AVFS	African village financial service
BSC	Balanced Scorecard
BUUSSA	BusaGonofa Microfinance S.C
CAR	Capital adequacy ratio
CGAP	Consultative Group to Assist the Poorest
CLRM	Classical linear regression model
CONS	Market Concentration
CSA	Central statistics agency
DECSI	Dedebit Credit and Saving Institution, Share Company
EFF	Efficiency
FSS	Financial self-sufficiency
GDP	Gross domestic product
GLP	Gross loan portfolio
GMM	Generalized Method of Moments
GR	Gearing Ratio or Debt/Equity ratio
IMF	International Monetary Fund
MFI s	Microfinance Institutions
MoFEC	Ministry of Finance and Economic cooperation
NBE	National Bank of Ethiopia
OCSSCO	Oromia Credit and Saving Institution, Share Company
OLS	Ordinary least square
OSS	Operational self-sufficiency
PAR>30	Portfolio at risk past due 30 days
PEACE	Poverty Eradication and Community Empowerment Microfinance
RMP	Relative market power
ROA	Return on Asset
ROE	Return on Equity
SFPI	Specialized Financial and Promotional Institution, Sh. Company

ABSTRACT

As the different literatures document shows the Financial Performance has significant impact on both the firm performance and stockholder interests. Having this the main aim of this study was to investigate and present the most prominent determinant of profitability of microfinance institutions (MFIs) in Ethiopia by using panel data. Due to data limitation out of a total population of 35 MFIs the study selected 19 micro finance institutions operating in the country during the period of 2004-2016. The study used explanatory research design based on the collected secondary data. Besides a quantitative approach, the research considered the fixed effect model. ROA was used as a proxy for profitability measurement. The study used internal and external factors. The internal factors which were used in the study includes gearing ratio, capital adequacy, portfolio quality, efficiency, size and age, while the external factors were real GDP growth, inflation and market concentration. Based on the collected data regression analysis; the specific variable age among the micro finance institutions was found to be significant variable with a positive coefficient against ROA. Whereas gearing ratio, capital adequacy and operational efficiency were determined to be significant variable and size and quality of portfolio became the insignificant variable with a negative coefficient. Moreover, the effect of the external variables Inflation was shown sound impact on ROA where us GDP was statistically insignificant. The industrial factor Market concentration found to have insignificant effect on ROA. Base on the study outcome the paper suggested that management of microfinance institutions need to obtain available ways to reduce their operating costs and employ a good credit management policy.

CHAPTER ONE

1. INRODUCTION

1.1 Background of the Study

Microfinance is the practice of providing loans, along with other basic financial services, to the very poor in an effort to help them achieve economic self-sustainability and remove themselves from poverty. Poverty has continued to be a concern and attracts attention both in the developed world and developing world. Over the years, microfinance has evolved as an economic development approach intended to benefit the low income population. It is not just banking; it is a development tool commonly used by donors. The history of microfinance dates back to about four decades when in 1976, Mohammed Yunus, who is believed to be the founder of formal microfinance, founded Grameen-Bangladesh. Grameen-Bangladesh, began assessing micro finance service to poor women in South Asian Villages. Grameen is a Bengali name which means village. Its evolution, however, dates about 30 or 50 years from the late 1960s with efforts made towards the reduction of poverty through the promotion of income earning activities among the poor. It is thus an up growth of the small enterprise development initiative (Greuning, 2003).

Micro finance however, has a number of origins. For hundreds of years, poor people in Africa and Asia had formed savings and lending groups. Moneylenders and the informal curb market had provided quick services at very high costs to poor households who had no access to mainstream financial institutions. In the last century, cooperatives and credit unions in developing countries have focused on savings mobilization and lending with rural households, many of which are poor. Over the years, governments have created lending programs for poor entrepreneurs and producers; most of these programmers have suffered from subsidized interest rates, political patronage and low repayment (Janson, 2007).

Microfinance is high on the public policy agenda. It has achieved tremendous success in improving the livelihoods of the poor, through the provision of financial services. Such initiatives are widely sponsored by a variety of organizations including; the World Bank, United Nations, national governments and many charitable non-governmental

organizations (NGOs). Their aim is to help the poor cope with risk and take advantage of small income generating opportunities, by employing profit-making banking practices amongst low income communities (Banerjee and Duflo, 2009; Ahlin and Jiang, 2008; Arun and Hulme, 2008; Swain and Varghese 2009; Imai et al. 2010). By alleviating financing constraints, microfinance is able to promote small scale investments from otherwise unrealized market activities while yielding a return on their investment (Hartarska and Nadolnyak 2008a; Hilson and Ackah-Baidoo 2010).

The need for MFIs is highly pronounced due to the fact that the poor are 'un bankable' in the views of the formal financial institutions, because the poor fail to bet collateral which these institutions put as a pre-condition for disbursement of a loan. More than 3 billion poor people seek access to basic financial services worldwide (Helms, 2006) and ignored by commercial banks for a long time. Micro finance institutions (hence forth abbreviated as MFIs in this study) expand the frontier of financial services by providing credit to those who are excluded from financial markets (Muriu, 2011). MFIs are defined in terms of the following characteristics: targeting the poor (especially the poor women); promoting small businesses; building capacity of the poor; extending small loans without collaterals; combining credit with savings; and charging commercial interest rates (Dejene, 1998 cited in Alemayehu, 2008). The recent trend of commercialization of MFIs even under lines a run for profits from the business conducted with customers who are poor (Sarah, 2011).

Researchers who studied on the issue like Muriu, (2011) and Jorgensen, (2012) argue that the concept of profitability is also practicable for MFIs due to the fact that profitable MFIs reach the larger poor as well as build a sustainable institution with their own resources rather than, with subsidies from external donors. Being synchronize with the concept of profitability, to make MFIs a sustainable cause of finance for the larger poor, this study focused on identifying factors of micro finance profitability which contribute for the sustainability of the MFIs and make them a reliable source of finance for the poor, by taking into account some selected or nominated MFIs operating in Ethiopia.

1.2 Statements of the problem

The general objective of microfinance institution is to get rid of poverty by providing the poor with sustainable credit facility to start small business. The establishment of sustainable MFI that reach a large number of rural and urban poor who are not aided by the

conventional financial institutions, such as the commercial banks, has been a prime component of the new development Strategy of Ethiopia (Alemayehu, 2008). The objective of almost all of the MFIs in Ethiopia is poverty alleviation. To achieve this objective MFIs, have a duty to be financially viable and sustainable.

The concept of microfinance no longer just covers microcredit, but also includes the possibilities of saving, insurance and money transfer. Even though MFI's are considered as one type when it comes to financial services, there is a great variation of MFI's in terms of legal form, profit status, degree of sustainability and funding springs. Study by Dieckmann (2007) has shown that MFIs go through an actual transformation from the traditional donor-driven non-governmental organizations (NGO) framework towards a greater degree of capital market involvement. On the other hand, it is questionable that whether the MFIs achieve the stated objective of profitability given their different diversity from poverty reduction to profitability (Muriu 2011).

Advanced economies which means formerly well known for their donations in recent years have suffered a severe financial and economic crisis, Donor countries are engaged in their own internal problems rather than external problems, like helping the poor in third world countries, on the other hand the previous well known aid beneficiary countries are increasingly becoming investment destinations, some countries which were synonymous for poverty before, are now enjoying a promising growth. In light of this, MFIs operating in these countries should be catalysts for change that is being a role player in the countries ambition to become a middle income economy. Ethiopia is not an exception, once it was known for its famine and vicious circle poverty, in recent years the country has enjoyed a double digit economic growth certified by IMF & World Bank. Having this big crystal of truth, MFIs operating in Ethiopia should be catalysts in the country's ambition of alleviating extreme poverty and becoming a middle income economy (Fikremariam 2015). 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.

Large body of research on financial institutions profitability has been undertaken in the conventional banking industry like (Belayineh, 2011, Flarnini, et al., 2009; Garcia Herrero, et al., 2009; Marccucci and Quagliarello, 2008,). But exact empirical evidence on micro finance profitability is insufficient. Except study regarding their sustainability and performance, having this very truth in hand it would be interesting to study determinants of profitability of MFIs since studies in this area are not rife Fikremariam 2015.

In Ethiopia as the rest of the world, studies in relation to determinants of MFIs profitability considering both internal and external factors are rare, but studies regarding performance of MFIs were conducted by various scholars like, (Birhanu, 2007, Alernayehu, 2008, and Letenah, 2009). 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 besides; they have not addressed the idea of profitability of MFIs specifically. Sima (2013) & Fikremariam (2015) studied determinants of profitability of Ethiopian microfinance by using microfinance specific and macroeconomic factors. Therefore, the above studies use limited variables which focus on MFI-specific and macroeconomic factors only. Though, the MFIs-specific, industry specific and some of Macroeconomic factors such as Gearing ratio, Market concentration and inflation determinants in their study was not mentioned but these factors have their own effects on profitability because it was experienced by different outsider scholars such as Gearing ratio (Muriu, 2011) , Market concentration (Sastrosuwito & Suzuki 2011) and inflation (Ahlin et al. 2011) .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 tried to find out the MFIs -specific, macroeconomic and industry-specific factors affecting their Profitability and fill the gap in the context of Ethiopian MFIs.

1.3 Objective of the Study

1.3.1 General Objective

The primary objective of the study was to examining the factors determining the profitability of Ethiopian Microfinance Institutions.

1.3.2 Specific Objectives

Specific objectives of the study include

- ⇒ To assess the impact of internal factors like financial structure, quality of portfolio, operation efficiency, age, size and gearing that affect profitability of Ethiopian MFIs
- ⇒ To assess the impact of macroeconomic factors GDP and inflation that affect profitability of Ethiopian MFIs
- ⇒ To assess the impact of industry factor that is market concentration on the profitability of Ethiopian MFIs

1.4 Hypotheses of the Study

On the theoretical frame works available on microfinance profitability, this study formulated a total of nine hypotheses.

- H1.** There is a significant negative Relationship between amount of capital and profitability of MFIs.
- H2.** There is a significant negative Relationship between qualities of portfolio and MFIs profitability.
- H3.** There is a significant negative Relationship t between operational efficiency (lower cost) and MFIs profitability.
- H4.** There is a significant negative Relationship between size and profitability of MFIs.
- H5.** There is a significant positive Relationship between age and MFIs profitability.
- H6.** There is a significant positive Relationship between real domestic product (GDP) growth and profitability of MFIs.
- H7.** There is a significant positive Relationship between rate of inflation and profitability of MFIs.
- H8.** There is a significant negative positive Relationship between rate of Gearing ratio and profitability of MFIs.
- H9.** There is a significant negative Relationship between market concentration and profitability of MFIs.

1.5 Significance of the Study

Several studies were conducted on sustainability and performance of MFIs in Ethiopia, the number of particularly tailored studies on determinants of micro finance profitability were limited until recently considering the internal and external factors simultaneously. In light of this, the finding of the study has been advantageous to the stakeholders like donors, managers and government in that it helps them to detect what factors affect the profitability of MFIs in Ethiopia and what measures should be in use for the yet to come for the accomplishment of the long term objective of MFIs, which is poverty reduction. Furthermore, it gives some supplement motivation for future researchers to conduct a further cutting-edge study. Finally, it has been also contributed additional elements to the existing literature on micro finance profitability.

1.6 Scope of the Study

The study considered internal and external profitability determinants, such as the internal variables considered by this study include financing structure, portfolio quality, operational efficiency, size, gearing ratio and age of MFIs. Macroeconomic external variables include GDP and inflation whereas the only industry variable to be used is market concentration. External variable, unemployment rate and internal variables such as depth of outreach, lending methodology, type of institutions and ownership structure were not included in the study. In addition to this the study used only the most recent thirteen consecutive data (2004-2016). Only 19 samples were selected out of a total population of 35. Among the 19 MFIs selected, the first 6 MFI's are government owned whereas the last 13 are privately owned.

1.7 Limitation of the study

On the top of data limitation, only 19 samples were selected out of a total population of 35. This includes ACSI, ADCSI, DECSI, OCSSCO, OMO, Sidama, BuussaaGonofaa, Vision Fund, Wasasa, AVFS, SFPI, PEACE, Metemamen, Shashemene, Dire, Gasha, Benshangul, Eshet, and Meklit. in addition to difficulty during data collections & lack of up-to-dated information from MFIs, the findings of this study can't necessarily represent for other

MFIs sectors & similar to these businesses in the country, because the sample is not a representation of the entire MFIs in the country.

1.8 Organization of the paper

This paper is organized into five chapters: Chapter one contains the introduction part back ground of the study, the research problem, objectives of the study, hypothesis, significance and scope of the study. The second chapter consists of literature review both theories and empirical studies about the subject matter. In chapter three the research methodologies were presented. In chapter four presents results and discussion of the study and finally, chapter five presents the major findings, conclusions, recommendation and Direction for Further Research.

CHAPTER TWO

2. REVIEWS OF RELATED LITERATURES

2.1 Theoretical Review

2.1.1 Concepts and Developments of MFIs

The definition of Microfinance anticipated by different scholars and organizations are to some extent different from one another. However, the basic concepts of the descriptions are similar. Let's start from the terms microfinance and microcredit are often used interchangeably, it is important to define each term separately and thereby see what they cover. Microfinance is the practice of providing a variety of financial services that target low-income and poor clients whereas microcredit is one of the financial services namely the loans which include the act of providing loans of small amounts to the poor and other borrowers that have been ignored by commercial banks Accordingly, microcredit is just one type of service under microfinance.

Robinson (2001) define microfinance as all types of financial intermediation services (savings, credit, funds transfer, insurance, pension remittances, etc.) offered to low-income households and enterprises in both urban and rural areas, including employees in the public and private sectors and those who are self-employed. Churchill & Frankiewicz (2006) articulate microfinance as commonly associated with small, working capital loans that are invested in microenterprises or income-generating activities. Hossain & Knight (2008) also defined microfinance as the supply of loans, savings, and other basic financial services to the poor and they noted that microcredit, a central theme of microfinance, is broadly recognized as the practice of offering small, collateral-free loans to members of cooperatives who otherwise would not have access to the capital necessary to begin small businesses.

Ledgerwood (1999) and Arsad (2005) defined it as the setting up of financial services (in the main saving and credit) to low income consumers. Jorgensen (2012) also tried to define MFI as an organization that make available the microfinance services to low income consumers.

Different institutions also define MFI in their own way. Microfinance institution is remarks more in the main as the provision of financial services to those left out from the formal financial system (UNCDF, 2002). The 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 and often have limited access to other financial services, microfinance products have a tendency to be for smaller monetary amounts than traditional financial services. These services take account of loans, savings, insurance, and remittances. Microloans are given for a variety of purposes, frequently for microenterprise development. The diversity of products and services obtainable reflects the fact that the financial necessities of individuals, households and enterprises can change significantly over time, especially for those who live in poverty. 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. Asian Development Bank (2000) defines; microfinance is the provision of a broad range of financial services such as deposits, loans, payment services, money transfers, and insurance to poor and low-income households and, their microenterprises.

The typical users of microfinance services are traders, street vendors, small farmers, service provider's hairdressers, artisans and small producers, such as blacksmiths and seam stresses and belong to the economically active poor population that are living close to the poverty line and are therefore self-employed, low income entrepreneurs in both urban and rural areas (Ledgerwood, 1999).

As described by Alemayehu (2008), Microfinance services that might be understood in terms of four main mechanisms (Loans, Savings, Insurance and Pensions). (1) Loans; agree to a lump sum to be enjoyed now in exchange for series of savings to be made in the future in the form of repayment instalments. (2) Savings; agree to a lump sum to be enjoyed in future in exchange for a series of savings made now. (3) Insurance; agree to a lump sum to be received at some unspecified future time if needed in exchange for a series of savings made both now and in the future. Insurance also involves income pooling in order to spread risk between individuals on the assumption that not all those who contribute were necessarily receive the equivalent of their contribution. (4) Pensions; agree to a lump sum

to be enjoyed as a specified and generally distant date in future in exchange for a series of savings made now.

Dejene (1998) as well defined Microfinance Institution (MFI) in terms of the following features: targeting the poor mainly the poor women; promoting small businesses; building capacity of the poor; encompassing small loans without collaterals; merging credit with savings; and charging commercial interest rates and also they are often innovative and flexible in their design and implementation.

In a nut shell from all the above definitions, it is possible to conclude that MFI is financial service centred on the poor and the typical microfinance clients are low income employed persons or house hold based entrepreneurs, those do not have possibilities to practice in formal financial institutions.

2.1.2 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 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).

2.1.3 The market power theories

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 (CGAP, 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 states 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.

2.1.4 Efficiency structure theory

The efficient structure hypothesis, on the one hand states that banks earn high profits because they are more efficient than others. There are also two distinct approaches within the Efficient Structure (ES): 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). 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 makes it possible for large firms to acquire market shares, which may manifest in higher concentration and then profitability. The efficiency structure on the other hand like the Portfolio theory largely assumes that bank performance is influenced by internal efficiencies and managerial decisions (Njeri, 2012).

2.1.5 The Balanced 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 which 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 (Ibid). The portfolio theory further explained as portfolio diversification and the desired portfolio composition of commercial banks results are 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 (Ibid). The best portfolio composition determined for each and every asset considering risk and return, by the banks management; enables the bank to minimize risk and maximize profit (Nzongang and Atemnkeng, 2006).

2.1.6 Risk return trade off theory

The risk return trade off theory describes that as firms increase risk through increased leverage (debt over equity), they have a tendency to earn higher profit. But, according to Van Ommeren (2011) signalling and bankruptcy cost hypotheses are opposite to the above two theories. Berger (1995) Signalling hypothesis says that high equity ratio (equity over debt) leads to high profit and bankruptcy cost hypothesis says that where bank assumes the bankruptcy costs was be high, they accumulate higher equity capital to evade financial distress.

2.1.7 Institutionist Theory

The various standpoint 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 first one is Institutions view and the other was Welfarist approach.

The Institutionist school thought that financial developing 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 (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, hence lump sum of money should be supplied from MFIs them-self instead of donors. 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 was also benefit from it, while the other way around of targeting the poorest with highly subsidized programs 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).

2.1.8 The Welfares 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

centre 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).

2.1.9 Sustainability of MFI

CGAP defines sustainability as the ability of an MFI to stand on its own feet financially after a period of operations. 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.

Financial sustainability indicates the ability of an MFI to survive in the long-run by means of its own income generating activities, i.e. without any contributions from donors (AEMFI, 2014). 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). As the notion of microfinance came into consideration, the question of whether donor support is necessary in the long term 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 start-up assistance 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 (Sarah, 2011). As MFIs seek to reach as many poor people as possible in the long run to fulfil their goal to fight against the worldwide poverty, it became clear that this outreach is only possible on a sustainable and efficient basis.

One might undertake that sustainable MFIs are typically for-profit commercial companies; on the other hand this is not true. Actually, just about two-thirds of the sustainable MFIs are NGOs, cooperatives, public banks, or other not-for-profit organizations (Rosenberg et al., 2009). Generally, Sustainability means the ability of a program to uninterruptedly carry out activities and services in pursuit of the statutory objectives. To analyse the sustainability of 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 Financial Self -Sufficiency (FSS) and Operational Self Sufficiency (OSS):

2.1.9.1 Financial Self Sustainability

To capture the broader notion of sustainability, it is necessary to take into account subsidies from soft loans and investments. The financial self-sufficiency (FSS) ratio corrects for soft loans by making adjustments that price capital at its market cost.

As noted by Armendariz and Morduch (2010) FSS takes into account additional adjustments to operating revenues and expenses that is good for the MFI could cover its costs if its operations were unsubsidized and if it were funding its spreading out with liabilities at market prices. Subsidy adjustments serve two purposes. First, since institutions show a discrepancy considerable with the amount of subsidy they receive, adjustments that account for subsidies allow for useful comparison across institutions. Second, to the extent that operating on a commercial basis, free from subsidy, is an objective, subsidy adjustments represent how close an institution is to addressing this goal.

The query responded by FSS is roughly, whether an institution can increase or grow without subsidy. There are two types of subsidy adjustments. The first is subsidized cost of funds adjustment, also called an adjustment for concessionary borrowing. It captures the difference between what an institution pays in borrowing expenses, and what it would pay if all of its borrowing liabilities were priced at market rates. The difference is supplementary to financial expense. A second type of subsidy adjustment takes into account in kind donations, or goods and services provided to the institution at no cost or at below market cost. If FSS is below 100 percent, that is if adjusted income is below adjusted cost, the institution is reflected subsidy dependent.

Over all, financial sustainability describes the ability to cover all costs on adjusted basis and point toward the institution's ability to activate without ongoing subsidy (i.e. including soft loans and grants) or losses. At this point UNCDF (2009) make a distinction for FSS and OSS only by the fact of an adjusted basis. Ledgerwood (1999) as well states that the FSS indicator should show whether an adequate amount of revenue has been received to cover direct costs, (including financing costs, provision for loan losses and operating expenses) and indirect costs (including adjusted cost of capital). In line to the fact that

donor support is not unlimited in reality, financial practicability of microfinance services is essential for getting higher outreach to large numbers of the worlds poor. In addition, the retention of profits of microfinance operations is important to capitalize growth, (CGAP, 1998).

2.1.9.2 Operational sustainability

As noted in Armendariz and Morduch, (2010) Operational self-sufficiency (OSS) ratio measures the extent to which the operating revenues of MFI cover its operating cost. Revenues mainly come from interest and fees paid by borrowers, on the other hand typical institution also generates income from investment and other services.

The financial expense in the denominator of OSS ratio refers to the cost of raising capital. It takes account of the interest and fee that the institution pays to commercial banks, shareholders and other investors. CGAP (2003) suggested that expenses for loan loss provisions also be incorporated in the denominator. The loan-loss provision expense is the amount set aside to cover the cost of loans that the MFIs do not expect to recover. The third item in the denominator captures basic operating expenses including rent, staff wages and transportation cost among others. The nominator one which means operating revenue is calculated net of subsidy.

OSS ratio is most often presented as a percent. A value of 100 percent for OSS ratio point toward full operational self-sufficiency, while a value under 100 percent point toward that the institution must rely on continued outside funding to maintain its current level of operation. Operational sustainability actually refers to the future maintainability of the MFIs OSS. For MFIs it is one of the major goals to achieve OSS in order to maintain practical and further grow in their operations.

It is noticeable that MFIs essential to cover both operational as well as financial costs in order to keep up their position in the market in the long run. Mainly by covering the financial costs they come to be access to the capital markets and to commercial capital which then allow MFIs to increase and grow their loan portfolio and clients outreach. MFIs know how to as a rule serve their poor customers best by operating sustainably, rather than by generating losses that require constant infusions of undependable subsidies, (Rosenberg et al., 2009).

2.1.10 Determinants of MFIs Profitability

It is particularly assumed that to decrease poverty by getting higher their outreach, MFIs should be profitable. The existing literatures give details about profitability of a financial intermediary as the return on assets (ROA) or the return on equity (ROE). This is measured and/or expressed as a function of internal as well as external factors. Those factors which are influenced by management decisions or within the direct control of firm management are called internal factors. Such factors include firm size, capital adequacy, credit risk provisioning and efficiency in the management of operating expenses. The external determinants which cannot be directly influenced by the firm's internal management (out of the control of the firm's management) include macroeconomic and industry specific factors which reflect the economic, legal and business frame works surrounded by the financial institutions function.

2.2 Empirical Review

2.2.1 Studies on determinants of profitability of MFIs

MFIs financial performance could be affected by a number of determining factors. In most literatures MFIs profitability is usually expressed as a function of internal and external determinants. Muriu (2011) pointed out that the determinants of MFIs profitability could be divided into internal determinants which are management controllable and the external determinants, beyond the control of management. Empirical literatures in relations to determinants of MFIs financial performance are very limited. Previous studies carried out in the area highly depended upon theory of retail banking financial performance by assuming that MFIs also provide banking services to the poor. Following are elaborations of empirical studies in connection with determinants of MFIs financial performance.

Muriu (2011) the primeval empirical study on the determinants of profitability of African MFIs is done by Birmingham University in England. Muriu, under the study entitled 'what explains the low profitability of MFIs in Africa tried to find the factors contributing to profitability of MFIs. Muriu 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. The factors studied are classified into three categories: Firstly, MFIs specific including capital, credit risk, size,

age efficiency and gearing ratio; secondly, macroeconomic factors including Gross National Income (GNI) per capita and inflation; thirdly, freedom from corruption was used as a proxy for institutional developments. The data for the study were gathered from MIX database, world development indicator and Heritage foundation for the three categories of determinants. In concluding his study Muriu stated that; capital, size (scale of economy) and freedom from corruption had significant positive relationship with profitability. Factors such as credit risk and efficiency have significant negative relation with profitability. As the study also revealed; Gearing ratio, inflation, GNI per capita and age were insignificant factors among others.

Anne Norgaard (2011) tried to examine the factors that determine profitability of MFIs and the relationship between profitability and yield on gross profitability. The data used in the study was found through mix market and a sample of 879 MFIs was processed and analysed to test two profitability models with return on assets and profit margins as the dependent variables. The study findings revealed that factors that statistically influenced profitability positively was the capital asset ratio, age (new) and gross loan portfolio, factors with a statistical negative influence were legal status (credit union), cost per borrower, and two other variables showed statistically significant but with opposite influences: operating expense over loan portfolio which had a positive influence, and a number of active borrowers, with a negative influence.

2.2.2 Studies on MFIs and variables

Portfolio Quality

Portfolio indicates the total funds available for the MFI as loans to its clients. Portfolio quality is a measure of how well or how best the institution is able to protect such 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 the institution to 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), in "what explains the low profitability of MFIs in Africa" he tried to find out the factors contributing to profitability of MFIs. Using the Generalized Method of Moments (GMM) system and an unbalanced panel dataset comprising of 210 MFIs across 32 countries operating from 1997 to 2008, he carried out the study. The proxies for profitability were both ROA and ROE. He found out that Credit risk measured by the sum of the level of past loans due 30 days or more (PAR>30) and still accruing interest was negatively and significantly related to MFI profitability. The study therefore found evidence to support the conjecture that increased exposure to credit risk was normally associated with lower MFI profitability.

Lafourcade et al.(2006) on the "Overview of the Outreach and Financial Performance of Microfinance Institutions in Africa" considering 163 MFIs from 25 countries showed that MFIs around the world continue to demonstrate low PAR > 30 days, with a global average of 5.2 percent. However, African MFIs maintain relatively high portfolio quality, with an average PAR > 30 days of 4.0percent, performing better than their counterparts in South Asia (5.1 percent), Latin American Countries (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 terms, changing payment schedules, or both. The result showed that a loan at risk was negatively correlated with MFIs financial performance.

Bartual et al. (2011) measured the performance of MFIs that have a banking side and asocial side, using a goal programming based multi criterion methodology. The authors found that the two categories representative of the general performance tendency are: Overall financial performance, risk and liquidity followed by institutional characteristics which represent the size of the company, then by expenses. By carrying out a spearman correlation analysis in order to analyze the correlation between each of the single-criterion measurements and the final performance, they found that only two variables have highly significant correlations with multi criterion performance: ROE and Portfolio quality were the two key factors for improving MFIs' performance.

In determining the factors which have relationships with financial performances of the MFIs, Ayayi and Sene (2010) analyzed a sample of 217 MFI of various legal forms and originating in 101 countries of the various parts of the sphere. The authors used financial self-sufficiency as independent variable and results showed that the quality of loans portfolio, interest rate, and productivity have positive impacts on the financial viability of MFIs.

Capital Asset Ratio

The capital assets ratio is a simple measure of solvency of MFIs. The ratio helps an MFI to assess its ability to meet its obligations and absorb unexpected losses. The determination of an acceptable capital to asset ratio level is generally based on an MFI assessment of its expected losses as well as its financial strength and ability to absorb such losses. Expected losses should generally be covered through the provision of MFI's accounting policies, which remove expected losses from both assets and equities. Thus, the ratio measures the amount of capital required to cover additional unexpected losses to ensure that the MFI is well capitalized against potential shocks. Equally MFIs with low capital ratios are riskier in comparison with better capitalized financial institutions.

According to Dietrich and Wanzried (2009) on what determines the profitability of commercial banks? New evidence from Switzerland, they tried to explain the determinants of bank profitability by classifying them into bank specific, macroeconomic and institutionalized factors. They used unbalanced panel data from 1999 to 2006 from 453 banks in a linear regression method to conclude that capital ratio has a positive and significant effect on bank profitability in Switzerland as measured by the return on average assets (ROAA). A similar study by Vong and Chan (2010), on the determinants of bank profitability in Macacao, covering a data set 15-years period from 1993 to 2007 was carried out. By Panel regression and generalized least squares (GLS) estimation techniques they analyzed the internal as well as the external determinants of bank profitability. The results showed that Capital asset ratio had significant impact on bank profitability meaning that the positive coefficient estimate for the ratio of equity to total assets (EQTA) indicated an efficient management of banks' capital structure.

To Muriu (2011), using a panel data set of 210 microfinance institutions; he revealed that capital adequacy had robust and significant positive association with MFI profitability.

This was depicted by the relatively high coefficient of the equity to assets ratio across the specifications. The effect remains the same even after the inclusion of the external factors. Intuitively, it was an indication that well capitalized MFIs are more flexible in dealing with problems arising from unexpected losses and witnessed a reduced cost of funding or lower external funding.

Hartarska and Nadolnyak (2007) found a positive impact of capital ratio on the financial performance of MFI measured by the ratio of operational self-sufficiency.

Gearing Ratio/Debt to Equity Ratio

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 (Lislevet al., 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 (ibid). Moreover, it also appears that NGO type of microfinance institutions rely more on debt financing relative to other types 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 are 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 (Ibid).

According to Nelson (2011) the Rural Bank in Ashaiman municipality recorded a 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 were 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. This again

increased sharply to 2.97 in 2009 and to 4.89 in 2010 with an average of 2.24, signifying that savings and loans were approaching the borrowing limits leading to the curtailment of 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. 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. Startups are characterized by a larger dependency on donations, usually in the form of equity grants, whereas the more mature MFIs tend to display higher debt leverage through borrowing and even evolve into a formal institution or a regulated niche bank. Some MFIs even access capital markets by issuing bonds or by going public IPO (Joergensen, 2011). Dissanayake (2012) points out that debt/equity is a statistically an insignificant predictor variable for the model at 5% level of significance.

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. Total asset of MFIs is used as a proxy of size.

It is argued that failure to become profitable in microfinance is partly due to lack of economies of scale Muriu (2011). This implies that profitable MFIs in Cameroon 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 the size of MFIs and financial performance are significantly related but loan size is negatively related to financial performance. This means that controlling for other relevant factors; institutions that make smaller loans are not necessarily less profitable. But the result showed 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.

Operational Efficiency

Operational efficiency is a performance measure that shows how well MFIs is streamlining its operations and taking into account the cost of the input and/or the price of output. Efficiency in expense management should ensure a more effective use of MFIs loanable 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 & Gemechu, 2013).

According to Nimal Sanderatne (2003) cited by Dissanayake (2012), in the study of the determinants of financial viability showed that operational efficiency and low administration costs have an important bearing on the Financial performance of MFIs.

Dissanayake (2012), operating efficiency is proxy by operating expense ratio which is adjusted operating expense divided by adjusted average gross loan portfolio and he concludes that operating expense ratio is statistically a significant predictor variable in determining return on assets ratio. In line with this idea Muriu (2011) concluded that inefficiency in the management of operating expenses significantly decrease MFI profitability.

Market Concentration

Birhanu (2012), defines market concentration as the number, size and distribution of banks in a particular market or country. As indicated in other empirical studies, market concentration is captured by the Herfindahl-Hirschman (H-H) index which is the sum of the square of market share of the sample banks included in a particular study. The market share of each bank is measured by the ratio of the bank's total asset to total assets of all banks (Gajure & Pradhan, 2012).

Since highly concentrated market lacks proper competition as to setting the price of banking services, it makes the existing banks more profitable. However, when the concentration of the market is reduced and the size and distribution of banks become more dispersed, the banking sector profitability is expected to reduce. Flamini (2009) studying

the determinants of profitability of commercial bank in Sub-Saharan Africa, concluded that market concentration has no direct effect on bank profitability.

Athanasoglou et al. (2005) also examined and concluded that market concentration affects bank profitability negatively, in an insignificant manner. Similarly, Molyneux and Thornton (1992) in their study carried out on the determinants of European bank profitability, showed that market concentration has a positive, statistically significant correlation with pre-tax return on assets which are consistent with the traditional structure - conduct-performance paradigm.

Firm Age

Examining the relation between firm age and financial performance would seem to be relevant for both theory and practice. If performance declines as firms grow older, it could explain why most of them are eventually taken over (Loderer, Neusser, and Waelchli, 2009). Age could actually help firms become more efficient. However, old age may also make knowledge, abilities, and skills obsolete and induce organizational decay (Agarwal and Gort, 2002).

Sorensen & Stuart (2000) argued that companies age affect the firm's performance. They further argued that organizational inertia operating in old firms tend to make them inflexible and unable to appreciate changes in the environment. Liargovas and Skandalis (2008) reported that older firms are more skilled since they have enjoyed the benefits of learning and not prone to the liabilities of newness, hence they have a superior performance. Loderer et al, (2009) found a positive and significant relationship between the age of a company and profitability. Malik (2011) in his Pakistan study found that there is significantly positive relationship between company size and profitability.

2.2.3 Studies on Performance of MFIs in Ethiopia

Different researches have been done so far conducted by different scholars on the subject of microfinance. The review starts from the very recent studies conducted in Ethiopia:

Sima (2013) conducted the study in determinants of profitability; an empirical study on Ethiopian MFIs examined internal and external factors affecting profitability of Ethiopian MFIs for a total of 13 MFIs for the period of 2003-2010. The regression result using fixed

effect model showed up, operational efficiency and portfolio quality to have a negative statistically significant effect on profitability while age of MFIs has a positive statistically significant effect, whereas capital adequacy, size and the only macroeconomic variable used in the study i.e. GDP were found to be statistically insignificant variables.

Belayneh (2012) conducted the study in examined factors affecting financial sustainability of microfinance institutions in Ethiopia. The study followed a quantitative research approach using a balanced panel data set of 126 observations from 14 MFIs over period 2002-2010. The study showed that microfinance breadth of outreach, depth of outreach, dependency ratio and cost per borrower affect the financial sustainability of microfinance institutions in Ethiopia; however, the study revealed that capital structure and staff productivity has insignificant impact on financial sustainability.

Yonas (2012) focused on determinants of financial sustainability of Ethiopian MFIs, using 6-year data for 12 MFIs from AEMFI. In his study, Yonas concluded three things. Firstly, 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 MFIs financial sustainability. Secondly, the percentage of women among the clientele has a statistically insignificant negative effect on financial sustainability of MFIs and finally, on attainment of financial sustainability, client out reach of micro finance program and the age of MFIs have a positive but lesser impact.

Melkamu (2012) tried to see determinants of operational and financial self -sufficiency of Ethiopian MFIs. He used 6 years' data of 12 MFIs from MIX data base where he used two multiple regression analysis for OSS and FSS independently. The outcome of the study revealed that average loan per borrower, size of MFIs, cost per borrower and yield on gross loan portfolio affect the operational self-sufficiency of the institutions in a significant manner. Additionally, cost per borrower, number of active borrowers and yield on gross loan portfolio GLP are found to be determinants of financial self-sufficiency with a significant effect. Generally, the following conclusions are attained from the study: Ethiopian MFIs are operationally self- sufficient but, they are not financially self-sufficient; Ethiopian MFIs are young in terms of duration of time (but benchmark used is not cited), the average loan size of Ethiopian MFIs is small compared to other MFIs in Africa, Ethiopian MFIs are efficient in cost management; this is compatible with the findings of Letenah in 2009 and finally, in terms of asset size Ethiopian MFIs are big

enough relative to African peer groups. The tests of classical linear regression model are performed in the study and all the variables met the assumptions of CLRM; but in the comparisons made with African countries, the benchmarks used for comparison were not enumerated.

Yitay (2011) also studied in assess institutional performance and sustainability of selected MFIs in Ethiopia using a sample of six. Mixed research methods employed and conventional financial performance and sustainability indicators and non-parametric DEA-based Malmquist total factor productivity index model used. The study period covers 2003 to 2009. As indicated in this study conventional financial performance and sustainability indicators revealed that all MFIs outreach performance has increased during the study period. Despite the increase in outreach performance, it is difficult for the institutions to operate and expand without subsidies. The other findings are technological change has higher value relevance than technical efficiency gain, and the intermediation services which is the responsibility of the MFIs to transfer funds from surplus groups such as from savers and donors to the deficit groups particularly borrowers or investors are more productive than the production responsibility of MFIs which considers the institutions as producers of deposits and loans.

Letenah (2009) tried to see in performance analysis of sample MFIs of Ethiopia evaluated both outreach and sustainability and explored the relationship between them. The study was conducted on 16 MFIs whose reports were available on Mix Market data. Data were analysed using statistical analysis techniques specifically one sample t test, one-way ANOVA with Scheffe Post Hoc Comparison tests, Kruskal-Wallis test and Pearson correlation coefficients. The outcome of the study showed that; Ethiopian MFIs are poor performers on depth of outreach; hence, they are not reaching the poorest of the poor. However, they are good at breadth of outreach. The study also concluded that the MFIs are poor in terms of gross loan portfolio (GLP) to asset, allocating a lower proportion of their total asset into their loan portfolio. The finding on Letenah also confirmed Alemayehu (2008) in that the performance of MFIs related with size where the higher the size the better the sustainability. Large and small MFIs allocate more loan loss provision expense than industry average and also portfolio at risk is high for these MFIs. Ethiopian MFIs are good in cost management, efficiency and productivity. The MFIs charge lower interest rate compared to the benchmarks used in the study. The results also depicted that, profitability

is dependent on size of institutions. There is a trade-off between serving the poor and operational self-sufficiency; in contrary to the findings of Birhanu in 2007. Age of the institutions is positively correlated with efficiency, productivity, debt financing and operational self-sufficiency. And finally, the use of debt financing makes the institutions more efficient and enables them to increase productivity.

Alemayehu (2008) also studied in examine the performance of MFIs in Ethiopia by taking six institutions. The study focused on analysis of profitability and sustainability, asset and liability management, and efficiency and productivity of MFIs in Ethiopian using a descriptive analysis of data collected from audited annual reports of 6 microfinance institutions covering a period of five years (2002-2006). The result of the study showed that most of the MFIs were doing well in terms of Operational self-sufficiency and financial self-sufficiency though both operational and financial self-sufficiency declined with the size of the institutions. The analysis of asset and liability management also showed that most of them used their asset for undertaking primary activity of lending. They also have a low cost capital which is below the commercial bank lending rate, but the debt to equity ratio was high in most of the cases. With respect efficiency large MFIs had a better operational efficiency than their small counter parts as measured by the ratio of operating expense to gross loan portfolio and cost of serving a single client. Yet, small ones were good in outreach measured by average loan size. In general, Alemayehu concluded that the sustainability of large and medium MFIs in Ethiopia were encouraging, but the case in small MFIs demands consideration for the fact their good outreach measures are not accompanied with good sustainability indicators.

Birhanu (2007) tried to see the study in outreach and financial performance analysis of MFIs found that outreach of Ethiopian MFIs is increasing from 2003 up to 2007 on average by 22.9%. Birhanu also concluded that the institutions financial sustainability is improving from time to time as measured in terms of ROA and ROE. Additionally, his study revealed that there is no trade-off between outreach and financial sustainability of Ethiopian MFIs. The study noted that the credit access of women is still limited (34%) and also default rate of some not all MFIs is increasing steadily so care should be taken. Finally, he concluded that Ethiopian MFIs are increasingly becoming profitable.

2.3 Conclusions and Knowledge Gap

Different literatures have tried different approaches to address the determinant factors affecting the profitability of Ethiopian MFI. To mention some of the studies; Muriu of Birmingham University in England developed a model based on the retail banking theories since there are no developed theories for the MFIs profitability, in this regard the works of Anne Norgaard (2011), Jorgenson (2012) and Dissanayake (2012) could be cited too. These studies were conducted abroad and they were not particularly tailored to an Ethiopian case. While turning to the studies that took place in Ethiopia, Fikremariam 2015 used only internal & macroeconomic variable, and the study of Sima (2013) used only limited number of internal variables leaving some key determinants of profitability like gearing ratio and some other macroeconomic then industry variables from macroeconomic like inflation and from industry market concentration etc. Looking into the study of Yonas (2012); used only six years' data which is too small to assess the determinants of financial sustainability of MFIs. Regarding to the study of Yitay (2012) tried to use only a sample of six selected MFIs in Ethiopia which is too small to assess institutional performance and sustainability of MFIs. Melkamu's (2012) the study was concerning determinants of operational and financial self-sufficiency of Ethiopian MFIs. His ultimate conclusion was Ethiopian MFIs are performing well compared to their African counterparts but he hasn't cited the benchmark used. The study of Letenah (2009) made a comparative study on the performance of Ethiopian MFIs with the micro bulletin benchmarks and accordingly, he found Ethiopian MFIs to be poor performers. While Alemayehu (2008) looked at asset, liability, efficiency and productivity and used only internal factors leaving no place for external factors in assessing the performance of MFIs, and Birhanu (2007) used some internal factors to assess the performance of MFIs but kept muted on the determinants of MFIs profitability.

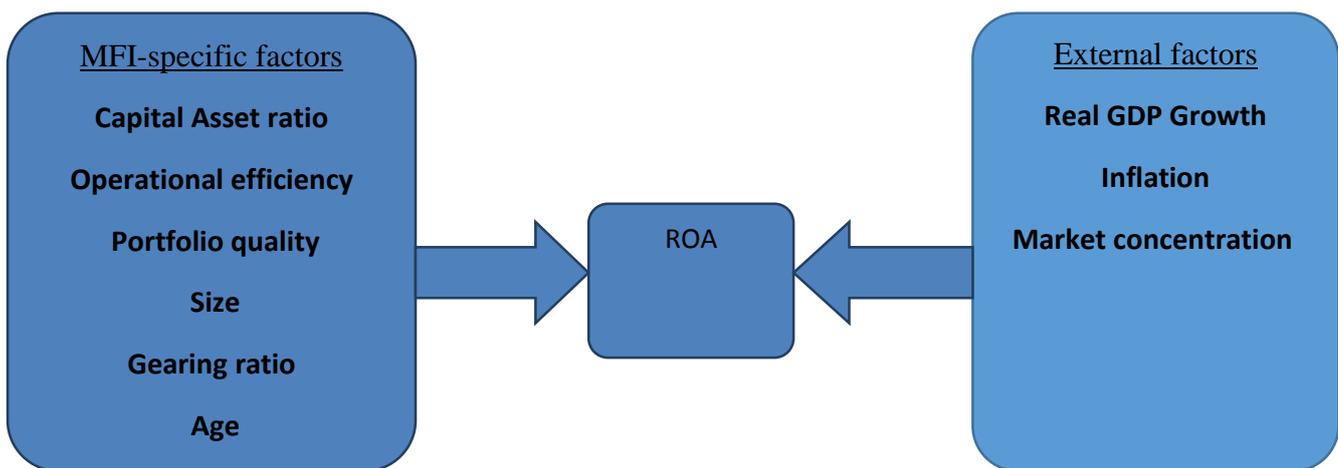
Generally some of the literatures indicate simply internal determinant factors are taken into account, most of the studies kept silent on external factors like inflation and market concentration etc. Some studies took only narrow observation which can contribute to the variance of the results detected. Operational self-sufficiency or financial self-sufficiency were used as a proxy to assess performance of MFIs and they kept quiet on profitability parameters like ROA and ROE, most of the studies came absence of giving emphasis in

black and white about the importance of being profitable in order to be sustainable MFI and increase in outreach.

This study will narrow the knowledge gap available in microfinance profitability studies in Ethiopia. Specifically, this study tries to incorporate internal factor like gearing ratio and external factors such as inflation and market concentration in the impact of microfinance profitability. To the best of the researcher knowledge there are no prior studies on the determinants of MFIs profitability which took gearing ratio, inflation, and market concentration simultaneously as internal and external microfinance profitability determining factors in Ethiopia.

2.4 Conceptual framework

Figure 2.1 **Conceptual framework**



Source: developed by self-design and partly adopted from Muriu, 2011)

CHAPTER THREE

3. RESEARCH DESIGN AND METHODOLOGY

3.1 Research Design and Approach

As noted in Kothari (2004), explanatory research design examines the cause and effect relationships between dependent and independent variables. Therefore, in order to achieve the main objective of this research, the study adopted quantitative research approach. Quantitative research is the numerical representation and manipulation of observations for the purpose of describing and explaining the phenomena that those observations reflect. It is a means for testing objective theories by examining the relationship among variables (Creswell, 2009). It uses statistical procedures to analyse numbered data. It also follows positivist thought that can be verified by observation and experimentation. Despite that of qualitative study there is less interaction between the researcher and subjects. To increase the quality of finding, standardized procedures are used in sample selection, instrument design, analysis and implementation in this approach. There are two strategies of inquiry in quantitative approach: survey design and experimental design. The former provides a quantitative or numeric description of trends and opinions of a population by studying a sample of that population whereas the latter is used to test the impact of a treatment on an outcome, controlling for all other factors that might influence the outcome (Creswell, 2009).

So in this study the main reason for adopting quantitative method is that the objective of the research is to see the relationship between profitability of MFIs and factors affecting it then to generalize about the population based on sample. In order to collect the necessary data, the study adopted survey design through structured document review.

3.2 Sample design

As noted by Kothari (2004), good sample design must be viable in the context of time and funds available for the research study. Besides, for this study the target population were all the Microfinance institutions registered by NBE. When population elements are selected for inclusion in the sample based on the ease of access, but to select items for the sample,

concerning the choice of items as supreme based on the selection criteria set by the researcher. Thus the researcher set a criterion of exclusive based on the MFI's under operation in the country at least for the last thirteen years. Since, lack data availability of 13 years' data that is required for the analysis purpose in most of the newly established MFIs the number of sample MFIs is reduced. Accordingly, from the 35 MFIs registered by NBE the study selected and the sample of 19 MFIs which fulfilled the researcher's exclusive criterion.

3.3 Data collection

In order to analyse the effect of MFI specific factors (financing structure, gearing, quality of portfolio age, size, and operational efficiency) and industry variable (market Concentration) on profitability of MFIs, the study used 19 MFIs data for thirteen consecutive years. i.e. from 2004-2016 which has been collected from performance analysis report (published bulletin) of each of the micro finance institutions included in the sample and AEMFI. The analysis basically concentrates on the data available in financial statement of MFIs. Regarding macroeconomic variables, representative data has been collected from National Bank of Ethiopia (NBE) whereas GDP and Inflation covering the period 2004-2016 is collected from Ministry of Finance and Economic Cooperation of Ethiopia (MoFEC) and Central Statistics Agency (CSA) respectively.

3.4 Data Analysis

As noted by Kothari (2004), data has to be analysing in line with the purpose of the research plan after data collection. Thus, this study utilized both descriptive and econometric analysis based on a panel data from 2004-2016 to examine the relationship between profitability of MFIs and its potential determinants. The data collecting from different sources coding, checking and entering in to MS- Excel program to make the data was be ready for analysis. Then the collected data process and analyse through E-views version 8.1 software packages. Various diagnostic tests such as, heteroskedasticity, autocorrelation, normality and multicollinearity was conduct to decide whether the model used in the study is appropriate and fulfil the assumption of classical linear regression model. Results of the descriptive statistics such as mean, standard deviation, minimum and

maximum values was report to describe the characteristics of variables under investigation. Thus, in order to examined the possible degree of Multicollinearity among variables, a correlation matrix used.

To this end the researcher used fixed effect regression model analysis to examine the effect of each explanatory variable on the profitability of Ethiopian MFIs. Thus, regression results presented in a tabular form with the appropriate test statistics and then an explanation of each parameter give in line with the evidence in the literature.

3.5 Model of the research

To investigate the effect of MFI-specific, industry specific and macroeconomic determinants of MFIs profitability, the following general multivariate regression equation used as a base equation similar to Muriu or Birmingham University (20 11).

$$ROA_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 PAR_{it} + \beta_3 EFF_{it} + \beta_4 SIZE_{it} + \beta_5 AGE_{it} + \beta_6 GR_{it} + \beta_7 GDP_{it} + \beta_8 INFL_{it} + \beta_9 CONS_{it} + \epsilon_{it}$$

Where: -

ROA_{it} = Return on asset for MFI i at time t

CAR_{it} = Capital strength for MFI i at time t

PAR_{it} = Portfolio quality of MFI i at time t

EFF_{it} = Operating efficiency for MFI i at time t

$SIZE_{it}$ = the natural logarithm of total asset for MFI i at time t

AGE_{it} = Age of MFI i at time t

GR_{it} = Gearing ratio of MFIs i at time t

GDP_{it} = Real GDP growth for MFI i at time t

$INFL_{it}$ = Inflation for MFI i at time t

$CONS_{it}$ = Market concentration of MFI i at time t

ϵ = the error term

3.6 Dependent variable

For the purpose of this study, return on assets (ROA) used as proxy of MFI profitability. 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 be deal with such activities may be negligible in MFIs. It is known that most of the studies undertaken in similar industries like banking and insurance employ ROA as a measure of profitability; Olweny&Shipho (2011) and Sufian (2011) are some. Even though much is not done in case of MFIs, Muriu (2011) and Jorgensen (2012) used the same approach for microfinance. Therefore, this study measured profitability using ROA similar to the above-mentioned researches. According to AEMFI, ROA is measuring as adjusted net operating income, net of tax divided by adjusted average total assets. Regarding the determining factors of profitability, the study identified the following explanatory variables under MFIs specific, industry specific and macroeconomic determinants.

3.7 Independent variables

The independent variables that used in the econometric model to estimated the dependent variable. As the objective of the study is to examining internal, industry and macroeconomics factors of profitability of MFIs; based on previous studies in relation to MFIs profitability (Muriu 2011, Jorgensen 2012) here also the independent variables are divided into firm (MFI) specific factors, industry specific factors and macroeconomics factors.

3.7.1 Firm (MFI) specific variables

Financing structure

This study used this variable to measure how much of the MFIs assets are funded with owner's fund (inverse to leverage ratio). The ratio selecting to measure the capital structure of MFIs is capital to asset ratio measured as adjusted total equity divided by adjusted total assets (AEMFI).The risk return trade off assumes high leverage (more debt financing) do have higher return whereas signalling and bankruptcy hypothesis says high equity ratio leads to high profitability due to signalling effect and lower financial distress.

Portfolio quality

It is vivid that as the asset quality increases profitability increases since they are directly related; that is poor credit quality has negative effect on profitability and vice versa (Ayayi and Sene, 2010). This relationship exists because an increase in the doubtful assets, which do not accrue income, requires the financial institutions to allocate a significant portion of their gross margin to provisions to cover expected credit losses; thus, profitability was lower. This is in line with the theory that increased exposure to credit risk is normally associated with decreased firm profitability. Thus to capture the quality of portfolio for MFIs the study used portfolio at risk past due 30 days (PAR>30). This theory was also used in Muriu (2011).

Operating efficiency

Efficiency in expense management should ensure a more effective use of MFIs loanable resources, which may enhance profitability. A well-managed MFI that applies best practices can effectively control its operating expenses. Efficiency theory also states that the more efficient firms were generating higher profit. This is in line with Muriu (2011) and Dissanayake (2012). So this study used operating efficiency is proxy by operating expense ratio which is adjusted operating expense divided by adjusted average gross loan portfolio (AEMFI).

Size

This variable is including capturing 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. Thus Natural logarithm of total asset of MFIs used for this study as a proxy of size.

Age

Age is another variable that influences profitability. There has been an enormous progress in the existence of MFIs and client outreach. As more and more MFIs start up, it is also interesting to investigate whether only the mature MFIs have found their way to profitability, or whether the new MFIs entering the industry has different set of goals and operational set of skills leading to profitability, (Jorgensen 2012). Therefore, the expecting

sign of age is unpredictable. In this study Age was denoted by the number of years MFI has been in operation in order to capture learning effect in MFI performance.

Gearing

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 relationship between profitability 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).

3.7.2 Macroeconomic (external) variables

Real GDP

The gross domestic product (GDP) is among the most commonly used macroeconomic indicators for measuring total economic activity. The GDP is expected to influence numerous factors related to the supply and demand for loans and deposits. As GDP growth slows down particularly during recessions, credit quality deteriorates, and defaults increase, thus reducing bank returns. The coefficient of the variable is expected to be positive (Fadzlan & Royfaizal, 2008). GDP in this study was measure by the real GDP growth rate.

Inflation

To capture the inflation for MFIs the study used annual inflation rate. According to Ahlin et al. (2011) inflation can hinder the microfinance lending mission and may also impact on

microfinance cost of funds and borrowers' incentives for defaults. Moreover, unanticipated inflation lowers MFIs' returns, and in response, MFIs may build (conservatively) large inflation premia into interest rate.

3.7.3 Industry Specific Variable

Market Concentration

It is the number, size and distribution of MFIs in a particular market or country. This study uses the most popular measure of industry concentration level namely, Herfindahl–Hirschman index (HHI) to measure industry concentration similar to Sastrosuwito & Suzuki (2011) and Ponce (2012) among others. Thus in this study Market concentration was capture by using Herfindahl-Hirschman (H-H) index which is the sum of the square of market share of the sample MFIs include in this particular study. Market share of each MFI in this study was measure by using the ratio of a MFI's total asset to total asset of all MFIs. If highly concentrated market lacks proper competition as to setting the price of micro financing services, it makes the existing MFIs more profitable. On the other hand, when the concentration of the market reduced and the size and distribution of MFIs become more dispersed, the micro financing sector profitability is expected to reduce.

In this study there are factors/variables that affect the profitability of microfinance which are shown below in table.

Table 3. 1: Table of variables and measurements

VARIABLES	MEASUREMENT
DEPENDENT VARIABLES	
ROA	Adjusted operating income, net of tax/adjusted average total assets
INDEPENDENT VARIABLES	
MFIs specific factors	
1. Financing structure	Adjusted total equity/ adjusted total assets
2. Quality of portfolio	Outstanding balance, loans overdue > 30 Days/adjusted Gross Loan Portfolio
3. Operational efficiency	Adjusted operating expenses/adjusted average gross loan portfolio
4. Size	Natural log of total assets
5. Age	Number of years of operation
6. Gearing	Debt to equity
Macroeconomic factors	
1. GDP	Real GDP growth (in %)
2. Inflation	The annual inflation rate
Industry factor	
1. Market concentration	HH Index

CHAPTER FOUR

4. DISSCUSION AND ANALYSIS

In the previous chapter detail insight was given concerning the research methodology followed in this study, this chapter presents the results of documentary reviews and the different tests made to ascertain the fulfilment of classical linear regression model assumptions.

4.1 Documentary analysis

It is clear that the objective of this study is to identify the internal and external determinants of profitability of MFIs in Ethiopia. The secondary data for the analysis purpose are collected through structured documentary review from performance analysis report published by AEMFI, NBE, MoFEC and MFIs. The following discussion presents respectively the tests for the classical linear regression model assumptions, the descriptive statistics, the correlation analysis among the dependent and independent variables and the outcomes of the panel data regression analysis.

4.1.1 Test results for the classical linear regression model assumptions

As it is mentioned in methodology part, diagnostic tests were carried out to confirm that the data fits the basic assumptions of classical linear regression model. Hence, the results for model misspecification tests are presented as follows:

4.1.1.1 Test for Hetroscedasticity

One of the CLRM assumptions says that the variance of the errors is constant. This is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they are said to be heteroscedastic (Brooks, 2008, p 132). In this study as shown in table 4.1, both the F-statistic and Chi-Square versions of the test statistic gave the same conclusion that there is no evidence for the presence of heteroscedasticity, since the p-values were in excess of 0.05.

Table 4. 1 Heteroskedasticity Test: ARCH

F-statistic	0.634113	Prob. F(2,218)	0.5314
Obs*R-squared	1.278242	Prob. Chi-Square(2)	0.5278

Source: AEMFI, NBE, MOFED, MFIs and own computation via E-views 8.1

4.1.1.2 Test for Autocorrelation

To identify determinants of Ethiopian micro finance profitability 247(19*13) observations were used in the model. The researcher tested the autocorrelation assumptions that imply zero covariance or error terms. That means errors associated with one observation are uncorrelated with the errors of any other observation. As noted in Gujarati (2004), the best well-known test for detecting serial correlation is the Durbin Watson test. Accordingly, as it is shown in table 4.2 the Durbin Watson test statistic value for this study was 1.53, that is clearly between the DL and DU which is 1.358 and 1.715 respectively hence there is no evidence for the presence of autocorrelation.

Table 4. 2 Autocorrelation test:

Variables	DW test statistics result
All specific and macroeconomic factors	1.53

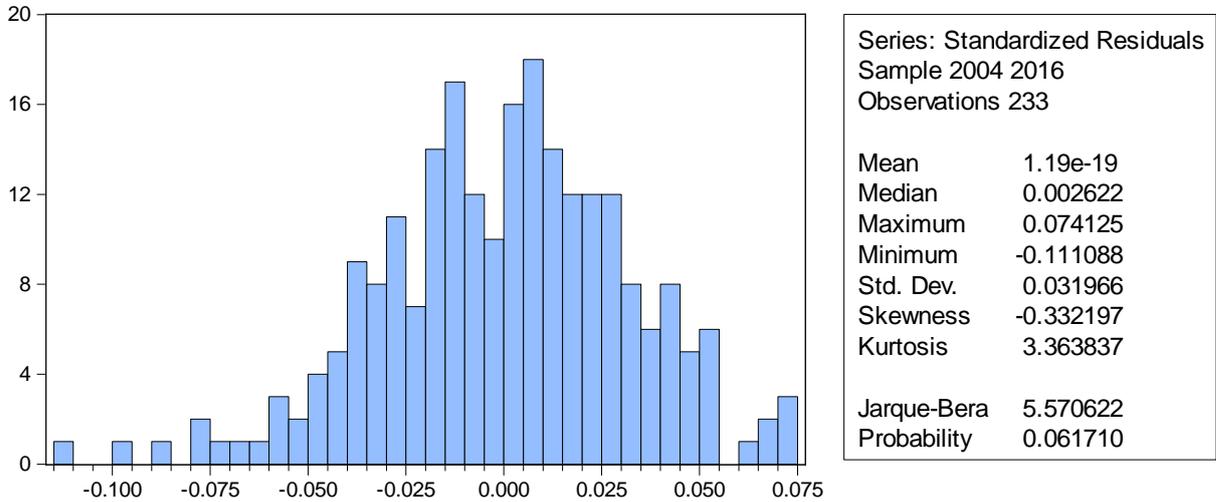
Source: AEMFI, NBE, MOFED, MFIs and own computation via E-views 8.1

4.1.1.3 Test for normality

The normality test for this study is shown in figure 4.1 below. 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). Therefore, the normality tests for this study the coefficient of kurtosis was 3.36, and the Bera-Jarque statistic has a *P*-value of 0.062 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 this implying that the data were normally distributed.

Figure 4. 1 Normality Test



Source: Eviews 8.1 output (2016)

4.1.1.4 Test for Multicollinearity

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 (Brooks, 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.

Table 4.3 Correlation matrixes of independent variables

	SIZE	PAR_30	INFL	GR	GDP	EFF	CONS	CAR	AGE
SIZE	1.0000								
PAR_30	-0.1955	1.0000							
INFL	-0.0079	0.0402	1.0000						
GR	0.3495	0.0447	0.0231	1.0000					
GDP	-0.2096	-0.0756	-0.3109	-0.0165	1.0000				
EFF	-0.6562	0.0114	-0.0432	-0.3849	0.0628	1.0000			
CONS	0.7541	-0.2466	-0.0045	0.3126	0.0210	-0.5292	1.0000		
CAR	-0.3529	-0.1162	-0.0468	-0.7333	0.1163	0.3988	-0.3198	1.0000	
AGE	0.5719	0.0214	-0.0684	0.1865	-0.4835	-0.2157	0.1759	-0.3258	1.0000

Source: Eviews 8.1 output (2016)

4.2 Model selection

4.2.1 Random effect versus fixed effect models

The key factor to consider when determining between a random effect model and a fixed effect model is whether it is reasonable to assume that the unobserved effect μ_i , is uncorrelated with all of the explanatory variables (Wooldridge, 2008:2009). Elaborating the argument we find it unlikely that this is the case. Potential correlation might be found in differing regulation standards in terms of capital flow in and out of the observed countries, where this could affect the availability to credit thus limiting the MFIs ability to leverage their business. Consequently, higher leverage among MFIs might in part be attributed to less restrictive capital control. The fixed effect model allows correlation between μ_i , and the explanatory variable for any t which eliminates the possibility to include any time constant variable (ibid). Consequently the legal status dummy indicating institution type will be omitted in the fixed effect model as it does not vary over the observed period. Whereas this opportunity is still possible under a random effect model we do not find it reasonable to assume there is no correlation between the time-constant unobserved effect and the entire explanatory variable. Therefore, we assume the fixed effects model to be better suited for this study.

To formally test this hypothesis, a Hausman specification test (1978) will be applied. The test compares the result from a random effects model and a fixed effect model and tests the null hypothesis that difference in coefficients is not systematic. A rejection of the null hypothesis would point in favour of a fixed model. Failure to reject would either imply

difference between the two are insignificant and therefore either one could be used, or that variation in the sample of the fixed effects model is large enough making it impossible to prove practical significance(ibid.) As noted by Gujarati (2004). Fixed effect model is most appropriate when null hypothesis is rejected whereas random effect is appropriate when null hypothesis is not rejected. For Hausman test, the null and alternative hypotheses are as follows:

Ho: u_i is not correlated with X_i (random - effects model appropriate)

HI: u_i is correlated with X_i (fixed-effects model appropriate)

Under the null hypothesis the two estimates differ systematically as indicated by the P-values in table 4.4. This means that the coefficients of interest are statistically different in the two estimates hence, the random effect solution is rejected both on substantive and statistical grounds, as a result the fixed-effect model is the appropriate model for this study.

Table4. 4 Test of Hausman

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	48.635965	9	0.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
SIZE	-0.009487	-0.002356	0.000029	0.1873
PAR_30	-0.112544	-0.198907	0.001937	0.0497
INFL	0.054297	0.048757	0.000015	0.1565
GR	-0.007180	-0.009644	0.000002	0.0859
GDP	-0.138595	-0.325318	0.001602	0.0000
EFF	-0.238537	-0.206601	0.000794	0.2571
CONS	0.150058	-0.071314	0.008730	0.0178
CAR	-0.137158	-0.123608	0.000144	0.2590
AGE	0.010716	0.008571	0.000002	0.0829

Source: Eviews 8.1 output (2016)

4.3 Descriptive statistics

This section presents the outcomes of the descriptive statistics for main variables involved in the regression model. Key figures, including mean, median, standard deviation, minimum and maximum value were reported. This was generated to give overall description about data used in the model and served as data screening tool to spot unreasonable figure.

As it is shown table below, profitability of Ethiopian MFIs measured in terms of ROA for the total 233 observations showed up averagely a positive value of 2.15% during the study period (2004-2016), with a maximum value of 12.4% and a minimum of -20%. This indicates the profitable MFIs earned 12.4 cents of profit after tax for a single Birr investment they made on total asset. On the other hand, not profitable MFIs lost 20 cents from profit for 1Birr investment made on total assets of the firm. The standard deviation statistics for ROA was 0.060 indicating that the profit variation between the selected MFIs was slightly lower compared to other variables. The overall statistical result for ROA implies the MFIs in Ethiopia need to efficiently utilize their assets to increase their profitability.

Table4. 5 Descriptive statistics

	ROA	SIZE	PAR_30	INFL	GR	GDP	EFF	CONS	CAR	AGE
Mean	0.0215	18.47	0.06	0.15	1.96	0.1087	0.122	0.055	0.3911	11.3047
Median	0.03	18.03	0.04	0.106	1.62	0.106	0.12	0.0082	0.36	11
Maximum	0.124	23.85	0.38	0.364	10.39	0.133	0.418	0.4101	0.967	19
Minimum	-0.2	15.12	0	0.028	0.03	0.0859	0.0114	0.0007	0	4
Std. Dev.	0.0579	1.87	0.0716	0.1042	1.5177	0.0123	0.0717	0.1004	0.1725	3.8525
Observations	233	233	233	233	233	233	233	233	233	233

Source: AEMFI, NBE, MOFED, MFIs and own computation via E-views 8.1

From table 4.5 it can be seen that there is much deviation in capital to asset ratio of selected MFIs; the maximum is 96.7% and the minimum 0%. In addition the average capital to asset

ratio showed a value of 39.11% which is above the statutory requirement of 12% set by NBE. The standard deviation between the MFIs regarding capital adequacy was 17.25% indicating the existence of large deviation for the study period.

Quality of Portfolio measured in terms of portfolio at risk greater than 30 days for the selected MFIs was on average 6%. The range was between 38% and 0%. The standard deviation in relation to quality of portfolio was 7.16% indicating the large deviation among the MFIs. This result shows that MFIs showing highest PAR>30 (lower portfolio quality) are in higher default risk and hence lowering their profitability compared to others. On the other hand, the average efficiency of selected MFIs was 12%, were the maximum efficiency was 41.8% and the minimum was 1.14%. The standard deviation showed 7.17% implying the large disparity in terms of operational efficiency (operating expense management). Here, the result indicated that the most efficient MFIs have a larger tendency in managing their operating expenses in connection to their loan portfolio in relation to least efficient MFIs. The size of the MFIs measured in natural logarithm of their total assets had the second largest standard deviation (187%) next to number of years of operation (age) of the institutions which was 385.25%. Both results indicate the existence of large deviation in size and age of operation between selected MFIs; which is practically visible in Ethiopia.

In regard to gearing ratio or Debt to equity ratio implies that the average value of 1.96 and maximum value of 10.39 and 0.03 minimum value. Meaning as per the mean value of this variable (1.96) indicates, MFIs in Ethiopia are leveraged on average than financed through equity capital because the AEMFI's suggested standard of debt to equity is 1.5177. On the other side the minimum gearing ratio (debt to equity) is 0.03 indicating few MFI are financed more through equity capital than debt. However, the maximum value for this variable is 10.39 which indicate that debt financing is more considered instead of having proportional financing structure, therefore highly leveraged. The Standard deviation of gearing ratio is 1.5177 this 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.

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 0.055 and maximum 0.4101 and also minimum score of 0.0007. 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 un concentrated market, when the value is between 0.1 to 0.18 indicated 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 there is existence of market concentration in the market.

Economic growth proxies by real GDP growth showed a mean value of 0.1087 during the study period with a maximum of 0.133 and a minimum of 0.0859. The standard deviation for GDP is 0.0123 which is the smallest of all other deviations in this study, indicating that Economic growth in Ethiopia during the study period of 2004-2016 remains fairly stable and the result is more or less in line with the government's report in relation to the improvement in the economic conditions of the country. Finally, Inflation during the study period on average was 0.15 with maximum of 0.364 and minimum of 0.028 showing unstable price level during the study period.

4.4 Finding of the Regression

This section presents the regression result of fixed effect model that was made to examine the determinants of profitability or MFIs in Ethiopia. Accordingly, the regression result was made and coefficients of the variables were estimated via E-views 8.1 software package. As stated above, fixed effect regression model is an appropriate model used in this study. Thus, the model used to examine the determinants of profitability of MFIs in Ethiopia in this study was:

$$ROA_{it} = \beta_0 + \beta_1 CAR_{it} + \beta_2 PAR_{it} + \beta_3 EFF_{it} + \beta_4 SIZE_{it} + \beta_5 AGE_{it} + \beta_6 GR_{it} + \beta_7 GDP_{it} + \beta_8 INFL_{it} + \beta_9 CONS_{it} + \epsilon_{it}$$

Table4. 6 Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.178360	0.110076	1.620342	0.1067
SIZE	-0.009487	0.006550	-1.448344	0.1490
PAR_30	-0.112544	0.059915	-1.878374	0.0617**
INFL	0.054297	0.023957	2.266442	0.0245**
GR	-0.007180	0.002863	-2.507513	0.0129**
GDP	-0.138595	0.234145	-0.591923	0.5546
EFF	-0.238537	0.057646	-4.137959	0.0001*
CONS	0.150058	0.106819	1.404797	0.1616
CAR	-0.137158	0.025705	-5.335850	0.0000*
AGE	0.010716	0.001662	6.449584	0.0000*

Effects Specification	
Cross-section fixed (dummy variables)	
R-squared	0.695689
Adjusted R-squared	0.655609
Prob(F-statistic)	0.000000
Durbin-Watson stat	1.531441

Source: AEMFI, NBE, MOFED, MFIs and own computation via E-views 8.1

*Significant@1%

**Significant@5%

4.5 Discussion of the Results

Based on the regression result, the adjusted R^2 value is 0.656 (65.6 %) which implies that 66% of fitness can be observed in the sample regression line. This can be further explained as, 66% of the total variation in the profitability that is ROA is explained by the independent variables (Capital to Asset ratio, Size, Age, GDP, Inflation, Gearing ratio, Operational efficiency, Portfolio at Risk>30 days and Market concentration) jointly. The remaining 34% 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 is described in detail under the following sections.

4.5.1 Capital to Asset ratio

The coefficient of the capital to asset ratio (CAP) is negative (-0.137158) and it is statistically significant variable even at 1% significance level (P-value 0.0000) This confirms that for the study period 2004 up to 2016 capital strength of Ethiopian MFIs have a negative relationship with their profitability or holding constant all other variables, increasing CAP by one unit causes to decrease the ROA nearly 0.137158 Birr. Hence, the hypothesis saying there is a significant negative effect between capital adequacy and profitability of MFIs is not rejected or data did support the hypothesis. The result of this study is similar to the findings of Muriu (2011), Jorgenson (2012) and Ayayi (2009) but opposite to Sima (2013) & Fikremariam (2015). In general, capital strength can affect profitability; the current study proved that there is significant effect between the two.

4.5.2 Portfolio quality

Loan overdue greater than 30 days to gross loan portfolio was used to measure the quality of portfolio of Ethiopian MFIs. The ratio was used to check whether there is a relationship between quality of portfolio and profitability. The negative coefficient of the ratio (-0.112544) was in line with the prior expectations of the study and also the theory which indicates negative relationship between profitability and portfolio quality. The coefficient was statistically insignificant level (P-value of 0.0617). The result is opposite to Muriu, (2011), Yonas, (2012), Sima, (2013) but inconsistent with Dissanayake, (2012) finding & Fikremariam (2015). In general, it can be said that the quality of portfolio was not a key determinant of profitability of Ethiopian MFIs. Therefore, this study fails to reject the hypothesis which says there is a significant negative effect between profitability and portfolio quality of Ethiopian MFIs.

4.5.3 Operating 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 2004 to 2016 indicates that coefficient of (-0.238537) and it was statistically significant at 1% significance level (P-value 0.0001) 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

0.238537 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 profitability of Ethiopian MFIs during the study period. The result confirms the common rule of thumb that the higher our expense the lower our profitability. Based on the finding the study fails to reject null hypothesis namely there is a negative effect between Operational efficiency and MFIs profitability in Ethiopia because the result supports the expectation. Generally operational efficiency was a key determinant of profitability of Ethiopian MFIs for the study period 2004-2016 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 profitability of their MFI. The result was consistent with findings many research like, Dissanayake, (2012), Muriu, (2011), Sima, (2013) & Fikremariam (2015) but inconsistent with Jorgensen, (2011).

4.5.4 Size

As the study measured size by taking the natural logarithm of total assets of the MFIs, the coefficient was negative (-0.009487) and was statically insignificant level (P-value of 0.1490). The result is opposite with Sima (2013) and similar to Melkamu (2012), Muriu (2011), Fikremariam (2015), Letenah (2009) and Cull et al. (2007). Accordingly, the hypothesis which says, there is a significant positive effect between size and profitability of MFIs is rejected. Off course, the real practice in Ethiopia shows that the large MFIs constitute the largest portion of the market share from the industry; this study found that size was not a key determinant of profitability of Ethiopian MFIs.

4.5.5 Age

The researcher included this variable to check whether there is a learning effect in the operations of the MFIs in Ethiopia. The coefficient was positive (0.010716) and it is statistically significant at 1% significance level (P-value of 0.0000). This indicates the fact that age was a key determinant of profitability of Ethiopian MFIs having a direct relationship with ROA. Accordingly, the study failed to reject the formulated hypothesis which says, there is a significant positive effect between age and profitability of MFIs during the study period of 2004 up to 2016. The finding is similar with Sima (2013), Fikremariam (2015), Joergenson (2012) and Yonas (2012).

4.5.6 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 (-0.007180) and it was statistically significant at 5% significance level (P-value 0.0129). This implies that for the study period (2004-2016) the significant correlation between profitability 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 profitability 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 failed to reject the hypothesis namely gearing ratio has negative relationship with profitability of Ethiopian MFIs which was formulated to show the significant effect between debt to equity ratio and profitability of Ethiopian microfinance institutions.

4.5.7 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 (-0.138595) but it was statistically insignificant (P-value 0.5546) which indicates that improvement in economic conditions did not significantly affect profitability of Ethiopian MFIs during the study period 2004-2016. The result was consistent with Muriu, (2011), Jordan (2008) and Sima (2013) but inconsistent with Fikremariam (2015). Therefore, the current study found that real GDP growth is not positively affect the profitability of MFIs in Ethiopia. Therefore, the study rejects the hypothesis namely real GDP has positive effect with profitability of Ethiopian MFIs because the data did not support the result.

4.5.8 Inflation

The other macroeconomic factor included in the study was inflation as measured with consumer price index. Had a positive coefficient of (0.054297) and it was statistically significant at 5% significance level (P-value of 0.0245). Inflation depicting that during the study period of 2004-2016 inflation was a key determinant of profitability of Ethiopian

MFI's. Accordingly, the hypothesis saying, there is a significant positive effect between inflation and profitability of Ethiopian MFIs not rejected as per the findings of the study. The result is opposite with the findings of Muriu (2011) and Jordan (2008) & Fikremariam (2015).

4.5.9 Market Concentration (CONS)

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. 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 profitability positively (0.150058), but the effect was statistically insignificant (p-value 0.1616). The study is consistent with banking sector result Athanasoglou, (2005) Birhanu(2012) but inconsistent with Belayneh, (2011) and Habtamu, (2012). Therefore, the study rejects the hypothesis namely Market concentration has negative effect with profitability of Ethiopian MFIs because the data did not support the result.

CHAPTER FIVE

5 CONCLUSIONS AND RECOMMENDATIONS

The previous chapter analyzed the results detected in the study and accordingly tested the formulated hypotheses for validity. And also, the researcher separated the significant determinants of profitability of Ethiopian MFIs from the insignificant ones for the study period. This chapter presents the conclusions attained and the recommendations forwarded by the researcher as per the findings detected and finally the chapter raises issues for further study in the subject matter

5.1 Conclusions

The main objective of this study was to examine the internal and external factors affecting profitability of Ethiopian MFIs. Even though previous studies in relation to MFIs profitability are scant, the study reviewed the available studies and used commercial banking theories as a base ground, presuming they are also workable for MFIs. Profitability is anticipated to be highly dependent on internal (firm specific) factors, external factors can also contribute to the profitability of a given firm. The internal factors include, capital adequacy, portfolio quality, efficiency, size, Age, gearing and other variables which are under the control of the managerial organ of the firm. External factors include macro-economic conditions like GDP, inflation and other industry specific factors like market concentrations.

Based on the previous studies the study examined the effect of internal and external factors of profitability of Ethiopian MFIs for the study period of 2004-2016, The firm specific factors included in this study were gearing (Debt to Equity), capital adequacy, portfolio quality, efficiency, size and age of MFIs. The external macroeconomic variables included in the study were GDP and inflation and also industry specific factor include market concentration.

To accomplish the stated objective of the study, quantitative research method was adopted. The data for the study were gathered from performance analysis report annual bulletins by AEMFI and MFIs for the internal factors and industrial factor for the selected 19 MFIs; and the macroeconomic factors were extracted from the annual reports of NBE and MOFEC.

As per the collected quantitative data, multiple regression analysis was run to test the different hypotheses formulated in the study. The empirical findings of the study provided the following conclusions.

Gearing showed a negative coefficient against ROA, which is in line with prior expectations and the variable was statistically significant; indicating that the increment in the debt to equity decrease the profitability of Ethiopian MFIs.

Portfolio quality showed up a negative coefficient against ROA which is in accordance with prior expectations and also the variable was statistically insignificant. Thus the result was not similar to prior expectations and also with relative market power theory and scale efficiency theory.

The outcome of the study showed that size was a negative coefficient and statistically insignificant variable. Thus the result was not similar to prior expectations and also with relative market power theory and scale efficiency theory.

Efficiency as measured in terms of operating expense to gross loan portfolio showed a negative coefficient against ROA and the variable was statistically significant as it was predicted. This depicts that the higher the cost the lower the profitability of Ethiopian MFIs.

Age of MFIs as measured with the number of years a MFI is under operation showed a positive coefficient and statistically significant variable as it was expected; implying that the more the maturity of the MFIs the more the profitability will be get.

Rate of inflation showed a positive coefficient against ROA which is in line with prior expectations and the variable was statistically significant; implying that the increment of rate of inflation is increases the profitability of Ethiopian MFIs.

Capital adequacy of Ethiopian MFIs showed on average a result greater than the statutory requirement set by NBE which is 12%, as the study verifies on average 39.11% of the MFIs asset is funded by owners' equity and the fund found that capital adequacy is a statistically significant profitability determinant of Ethiopian MFIs during the study period of 2004-2016.

The other variables included in the study, GDP and Market concentrations were found to be statistically insignificant profitability determinants for Ethiopian MFIs. The study tried to see the effect of economies or diseconomies of scale for Ethiopian MFIs, the macro economic variables included in this study such as GDP was found to be statistically insignificant profitability determinants for Ethiopian MFIs and finally the industry specific variable included in the study Market concentrations was found statistically insignificant profitability determinants for Ethiopian MFIs.

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.

- ⇒ Operational Efficiency, Capital Adequacy, Gearing, Age and Inflation are significant determinants of profitability of MFIs in Ethiopia. Therefore, the management may need to develop a good credit management policy, 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 and Gearing, Since Microfinance institutions that employ higher debt in their capital structure are less profitable, and highly leveraged microfinance institutions are less profitable so the management should not give a great attention and finally the matured MFIs have found their way to profitability so the new MFIs entering the industry must have different set of goals and operational set of skills leading to profitability.
- ⇒ The MFIs have to learn from profit-making banking practices by implementing a sound financial management and good managerial governance to assure their financial sustainability in the long run profitability without affecting their main objective.
- ⇒ 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.

- ⇒ Since MFIs in Ethiopia is at its infant stage, hence the government should avail different facilities and infrastructures like expanding the cash flow security and e-banking and electronic property management systems property managements in the country level to reduce inefficiencies.

5.3 Direction for Further Research

This study examined only limited internal and external variables by using 13 years' data. There are other variables which are not included in this study like, depth of outreach, breadth of outreach, lending methodology, type of institutions, ownership structure from internal factors and unemployment rate, interest rate, from external factors. Having further investigation with the inclusion of the above variables might have a better role in identifying other factors which contribute for the profitability of Ethiopian MFIs.

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APPENDIXES I

Heteroskedasticity Test: ARCH

F-statistic	0.634113	Prob. F(2,218)	0.5314
Obs*R-squared	1.278242	Prob. Chi-Square(2)	0.5278

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 05/13/17 Time: 16:35

Sample (adjusted): 3 247

Included observations: 221 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.001219	0.000169	7.202148	0.0000
RESID^2(-1)	0.060291	0.059722	1.009522	0.3138
RESID^2(-2)	0.019109	0.057973	0.329616	0.7420
R-squared	0.005784	Mean dependent var		0.001335
Adjusted R-squared	-0.003337	S.D. dependent var		0.001876
S.E. of regression	0.001879	Akaike info criterion		-9.702153
Sum squared resid	0.000770	Schwarz criterion		-9.656024
Log likelihood	1075.088	Hannan-Quinn criter.		-9.683527
F-statistic	0.634113	Durbin-Watson stat		1.920908
Prob(F-statistic)	0.531381			

ENDORSEMENT

This thesis has been submitted to St.Mary's University, School of Graduate Studies for examination with my approval as a University Advisor.

Advisor

Signature & Date