# A STRUCTURE-CONDUCT-PERFORMANCE ANSLYSIS OF THE ETHIOPIAN MICROFINANCE INDUSTRY

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## ADDIS ABABA UNIVERSITY

## SCHOOL OF GRADUATE STUDIES

This is to certify that this thesis prepared by Beza Teshome entitled *A Structure-Conduct-Performance Analysis of the Ethiopian Microfinance Industry* and submitted in partial fulfillment of the requirements of the Degree of Masters of Science in Economics (Economic Policy Analysis) complies with the regulations of the university and meets the accepted standards with respected originality and quality.

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# Abstract

The main objectives of this study are to analyze the Structure-Conduct-Performance of the microfinance industry and measure the level of competition. In order to achieve these objectives, both descriptive and econometric analyses were carried out. In the econometric analysis, a three-stage-least-squares (3SLS) estimation method was used to estimate a model comprising two equations, each representing the structure and performance of the industry, for a sample of fifteen MFIs for years 2003 to 2011.

From the descriptive analysis, it was found that there is no form of collusion among MFIs in terms of their pricing strategies and that the sector is concentrated, with regional-government backed MFIs dominating the industry. However, competition exists between MFIs and banks in terms of saving mobilization. The findings from the econometric analysis revealed that MFI size, capital structure, average loan size and financial self-sufficiency significantly affect the market share of MFIs. Furthermore, average loan size and cost per borrower were found to significantly affect the performance of MFIs, whereas market share and yield on gross portfolio were found to have an insignificant effect on the financial performance of MFIs. The findings imply that in the microfinance industry, performance of MFIs affects market structure, while the structure of the market has an insignificant effect on market performance.

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# Table of Contents

**Contents** **Page**

## List of Tables

## List of Figures

# Acronyms

ACSI: Amhara Credit and Saving Institution

ADCSI: Addis Credit and Saving Institution

AEMFI: Association of Ethiopian Microfinance Institutions

AL: Average Loan Size

AVFS: African Village Financial Services

DECSI: Dedebit Credit and Saving Institution

DER: Debt to Equity Ratio

FSS: Financial Self-sufficiency

HHI: Herfindahl-Hirschman Index

MFI: Microfinance Institutions

MFISZ: size of the microfinance institution

MIS: Management Information System

MS: Market Share

NBE: National Bank of Ethiopia

OCSSCO: Oromia Credit and Saving Institution

OMFI: Omo Microfinance Institution

OSS: Operational Self-Sufficiency

PEACE: Poverty Eradication and Community Empowerment Microfinance Institution

REST: Relief Society of Tigray

ROA: Return on Assets

ROE: Return on Equity

RUFIP: Rural Financial Intermediation Program

SFPI: Specialized Financial and Promotional Institutions

VF: Vision Fund

YGP: Yield on Gross Portfolio

# Chapter One

# Introduction

## 1.1 Background of the study

With the basic goal of providing credit and savings services to thousands or millions of poor people; microfinance has been paving the way for development in different parts of the world (Rhyne, 1998). Microfinance activities began in Africa in the 17th century with the operation of informal saving and credit groups called Tontines. In Sub-Saharan Africa, over half of the MFIs have been in business since 1998 and they have shown an increase in number only recently. In African countries where there is limited outreach of formal financial institutions, a flourishing informal sector, high demand for financial services, and where the political and economic environment is stabilizing, MFIs are highly concentrated (UNEP, 2008).

In Ethiopia, following the famine in 1984/85, NGO based credit and saving activities were launched. The first individual microcredit program of Relief Society of Tigray (REST), transformed into the current Dedebit Credit and Savings Institution (DECSI), was established in 1993. After the issuance of the microfinance proclamation in 1996 Amhara Credit and Savings Institution (ACSI), Dedebit Credit and Savings Institution (DECSI), Oromia Credit and Savings Institution (OCSSCO), Specialized Financial and Promotional Institutions (SFPI), OMFI (Omo Microfinance Institution), Gasha, Wisdom (currently Vision Fund), Sidama, Asser and AVFS (African Village Financial Services) were established, marking the commencement of institutionalized microfinance in Ethiopia[1] (Al-Bagdadi and Brüntrup, 2002).

[1]In 1999, with the aim of facilitating information and experience sharing, Association of Ethiopian Micro-Finance Institutions (AEMFI) was conceived (Al-Bagdadi and Brüntrup, 2002).

As of December 2013, thirty-one Microfinance Institutions (MFIs) have registered with the National Bank of Ethiopia (NBE) and have been providing financial services to 3.1 million borrowers with a portfolio of 13 billion birr (AEMFI, 2013). These MFIs are operating in the country with more than 1000 branches and sub-branches. The growth of the industry in terms of the number of clients and the number and type of providers and products is commendable. However, in the face of the high demand for financial services by the poor population, the outreach of the existing MFIs is limited (Wolday, 2012).

## 1.2 Statement of the problem

Even though MFIs have shown a remarkable growth in outreach and performance in the last 18 years, they are expected to expand significantly to meet the growing demand for loan, saving, insurance and money transfer service. Among the several challenges faced by the MFIs in Ethiopia, lack of loan fund to on-lend to clients, limited use of back-office and front-office technologies to improve the capacity of MFIs, limited capacity to attract skilled staffs who effectively deliver quality financial services to clients and high staff turnover, limited financial education to the public and limited capacity to mobilize savings are of great magnitude (Wolday, 2012).

Although several studies have been conducted on MFIs in Ethiopia, they usually focus on the impact and performance of MFIs (Asmelash (2003); Bamlaku (2006); Befekadu (2007); Letenah (2009)). To my knowledge, Esubalew et.al (2010) is the only research that focuses on competition in the microfinance industry in Ethiopia. This implies that the issue of competition in the micro-finance sector requires further investigation. In addition, the strategic behavior of the MFIs is another aspect which remains underexplored.

Competition in the microfinance market can have advantages as it may lead to improved and new financial product designs, better customer services, lower costs and lower interest rates (Esubalew et al., 2010). There is a need to enhance the competition of MFIs among themselves and with other financial institutions such as banks in order to increase their capacity and performance (Wolday, 2012).

In the context of Ethiopia, with the exception of the work by Sisay (2012), previous studies, which use the SCP methodology (Yifru (2007); Nardos (2011)), employ only descriptive statistics. Hence, these studies do not account for the simultaneity of inter-relations among structure and performance. This research attempts to fill the above mentioned research gaps by employing a simultaneous equations model to the study of Structure-Conduct-Performance of the microfinance industry in Ethiopia.

## 1.3 Objectives of the study

The study attempts to analyze the performance and challenges of the microfinance industry of Ethiopia using the Structure-Conduct-Performance (SCP) framework.

The specific objectives of the study are:

- Study the Structure-Conduct-Performance of the microfinance industry
- Examine the simultaneous interdependence among structure and performance in the context of the microfinance industry
- Assess the competitive behavior of MFIs
- Assess the key performance indicators of the industry

## 1.4 Research hypotheses

The research hypothesizes that;

- There is limited competition in the microfinance industry due to the existence of entry barriers.
- There is a tradeoff between the social objective of serving the poor and financial self-sufficiency.

## 1.5 Data collection methodology

Secondary data were collected from Association of Ethiopian Micro-Finance Institutions (AEMFI) and MIX (Microfinance Information Exchange) Market and National Bank of Ethiopia (NBE), while primary data on the competitive behavior of the MFIs was collected through a checklist that was filled out by the respective General Managers of selected MFIs.

This study uses a sample of 15 MFIs, from the total of 31 MFIs in the country. The 15 MFIs are ACSI, DECSI, OCSSCO, ADCSI, Omo, Bussa Gonofa, AVFS, Gasha, Vision Fund, Meklit, PEACE, SFPI, Wasasa, Eshet and Sidama. Nine years data (from 2003 to 2011) was taken for each of the MFIs. The basis for selecting these MFIs was the availability of nine years data (from 2003 to 2011). This time period was chosen for the study as data on the largest number of MFIs (15) is found. The equations specified are estimated with a panel dataset of 15 MFIs operating in Ethiopia over the period from 2003 to 2011. Accordingly, the sample consists of 135 observations.

## 1.6 Significance of the study

As the study is concerned with microfinance, which gives emphasis to helping the poor achieve self-sufficiency, it can serve as a tool to implement the five-year micro and small enterprise development strategy in particular and the country's poverty reduction and growth and transformation plan in general. The study will provide useful evidence to improve the growth of the industry and enhance competitiveness in delivering financial services to the excluded population. The research results can provide valuable inputs to industry players and policymakers to make informed decisions. The study will also add to the existing research in the area of microfinance in Ethiopia and identify research agendas for further investigations of the subject matter.

## 1.7 Scope and limitation of the study

Taking the availability of data into consideration, the study is limited to the analysis of Structure-Conduct-Performance relationships in the microfinance industry for the years from 2003 to 2011. In addition, as the researcher could not find data on advertising expense (proxy for market conduct) of the MFIs under study, an equation for the conduct of the industry could not be estimated, resulting in the descriptive analysis of conduct.

## 1.8 Organization of the study

The rest of the paper is organized as follows. The second chapter reviews both conceptual and empirical literature relevant to key problems that require investigation. Descriptive analysis of the structure, conduct and performance of the microfinance industry is presented in the third chapter. The fourth chapter gives an overview of the estimated model and results of the econometric analysis, while interventions, challenges and research agenda are summarized in chapter five.

# Chapter Two

# Literature review

## 2.1 Theoretical review

### 2.1.1 The concept of Structure-Conduct-Performance

The SCP paradigm postulates that there is a causal relationship between market structure, conduct and performance. It argues that performance is determined by the conduct of firms, which is in turn determined by structural characteristics of the market. Attractiveness of the SCP approach lies in straightforwardness of the chain of reasoning and the relative ease with which structural characteristics can be identified (Ferguson and Ferguson, 1994). Mason first formalized the approach in 1939 and Bain (1951) modified it to obtain more generalized conclusions from cross-section studies (Ferguson, 1988).

The Structure-Conduct-Performance (SCP) paradigm comprises:

- Structure, which is described by seller concentration, entry barriers and degree of product differentiation;
- Conduct, which is the behavior of firms, and is explained by pricing strategies, advertising, collusion, capacity investment and research and development;
- Performance, which refers to an outcome that is assessed in terms of allocative efficiency. Widely used measures of performance are price-cost margin and profitability (Lee, 2007).

The conventional premise which states that market structure is exogenous is unreliable, since conduct and performance affect structure. In light of this fact, Koch modifies the definition of structure as "the relatively permanent strategic elements of the environment of a firm that influence, and are influenced by, the conduct and performance of the firm in the market in which it operates" (Ferguson and Ferguson, 1994).

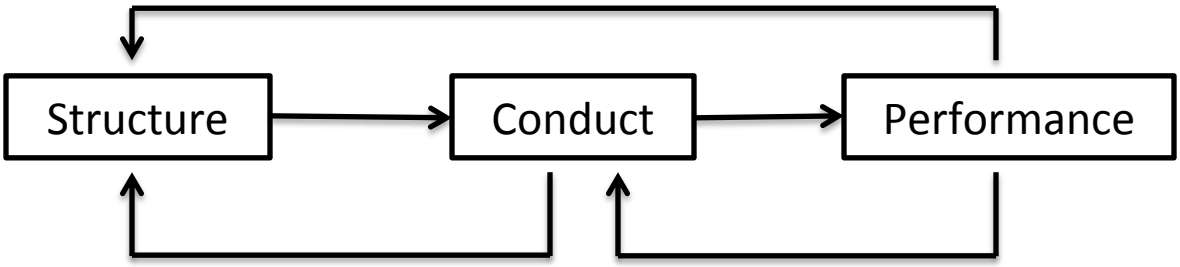



Figure 2.1 a complex relationship between structure, conduct and performance (Ferguson and Ferguson, 1994)

The traditional structure performance hypothesis and efficient structure hypothesis are two competing hypotheses in the SCP paradigm. The structure performance hypothesis states that the degree of market concentration and the degree of competition are negatively related. This is because market concentration encourages firms to collude and hence discourage competition. This hypothesis will be supported if a positive relationship exists between market concentration and performance, regardless of efficiency of the firm, measured by market share (Edwards, 2006).

The efficiency structure hypothesis asserts that there is a positive relationship between performance of a firm and its efficiency. This is because market concentration emerges from competition where firms with low cost structure increase profits by reducing prices and

expanding market share. In contrast to the traditional SCP paradigm, it postulates that more efficient firms earn increased profits because they are more efficient and not because of collusive activities (Edwards, 2006).

## 2.1.2 Market Structure

Market structure relates to the importance and characteristics of individual markets within the economy. It describes the environment within which firms in a particular market operate. It can be identified by considering the number and size distribution of buyers and sellers (market concentration), the extent to which products are differentiated, the conditions of entry and exit and the extent to which firms are integrated or diversified (Ferguson and Ferguson, 1994). Market structure is generally examined in terms of degree of sellers' concentration as it shows the extent of imperfect competition. In the absence of entry barriers, even the most complete monopoly is open to competition from new entrants (Stead et al, 1996).

### 2.1.2.1 Market concentration

The most widely used measure of market structure is market concentration, especially seller's concentration. The degree of concentration of a market is negatively related with the number of firms in that market (Ferguson, 1988). Market concentration is an attractive measure of market structure as published data on the number and size distribution of firms is usually accessible and also as it can shed light on the degree of market power, which can in turn help to make inferences about performance.

There are several measures of sellers' concentration. These can be categorized into absolute measures of concentration and relative measures of concentration. "Absolute concentration measures combine the number of firms and their size distribution in a single measure while

relative measures of concentration show the inequality of firm sizes in a market and disregard the number of firms present." (Pisanie, 2013)

Absolute measures of concentration include the N-firm concentration ratio, Hefindahl-Hirschman Index (HHI), Hanna and Kay indices, the Horvath index and Rosenbluth index. Gini coefficient and variance of natural logarithms of market shares are relative measures of concentration. The above mentioned measures are positively related with concentration, as they increase with an increase in concentration. Inverse concentration measures, which fall with a rise in concentration, include occupancy count, the entropy coefficient, the relative entropy coefficient and numbers equivalent of Hanna and Kay indices (Pisanie, 2013).

#### 2.1.2.1.1 Herfindahl-Hirschman index (HHI)

The Herfindahl index, also known as Herfindahl–Hirschman Index (HHI), is a measure of the size of firms in relation to the industry and an indicator of the amount of competition among them. It is calculated as the sum of the squares of the market shares of firms within the industry. $H = \sum_{i=1}^{N} s_i^2$, where $s_i$ is the market share of firm $i$ in the market and $N$ is the number of firms.

It ranges from 1/N to 1, where N is the number of firms in the industry. If percents are used as whole numbers, the index can range up to 10,000.

- A HHI index below 0.01 (or 100) indicates a highly competitive index.
- A HHI index below 0.15 (or 1,500) indicates an unconcentrated index.
- A HHI index between 0.15 to 0.25 (or 1,500 to 2,500) indicates moderate concentration.
- A HHI index above 0.25 (above 2,500) indicates high concentration.

The normalized Herfindahl index ranges from 0 to 1. It is computed as:

$H^* = \frac{(H - 1/N)}{1 - 1/N}$, where N is the number of firms in the market, and H is the usual Herfindahl Index.

Increases in the Herfindahl index generally indicate a decrease in competition and an increase of market power, whereas decreases indicate the opposite (Wikipedia, 2013).

In order to ensure the validity of concentration measures, Hanna and Kay list conditions which these measures should always fulfill. These are:

- "The concentration curve ranking criterion: if firms are ordered from largest to smallest and plotted against their cumulative output and the concentration curve of one market lies above that of another market at all points [except (0, 0) and, when N is equal in the two markets, (N, 1)], a positive concentration measure of the first market must be greater than that of the second market, while an inverse concentration measure must be lower."
- The sales transfer criterion: measured concentration should increase if customers switch from smaller to larger firms and vice versa.
- The entry criterion: if a new firm which is smaller than the average size of incumbent firms, enters the market, measured concentration should decline, assuming that the relative market shares of the existing firms decline proportionately to accommodate the new firm.
- The merger criterion: measured concentration should increase if existing firms merge

Pisanie (2013) showed that concentration ratios, the occupancy count (CRN%), the Gini coefficient (GC), the variance of logarithms of market shares (VL) and the relative entropy

coefficient (REC) and the Horvath index fail to meet the above mentioned Hanna and Kay criteria and advised that these measures should not be used to study seller concentration. On the other hand, Herfindahl-Hirschman index (HHI), the Hannah and Kay indices [HKI(α)], the Rosenbluth index (RI), the numbers equivalent of the Hannah and Kay indices [HKIne(α)] and the entropy coefficient (EC) were found to meet the conditions laid out by Hanna and Kay. Accordingly, the HHI is used in the present study to measure the degree of concentration in the microfinance industry.

### 2.1.2.2 Entry barriers

An entry barrier is any factor that reduces the motivation or ability of potential entrants despite established firms' excessively high profits. The ability of firms to enter an industry is an important structural factor that determines market performance (Perloff, 2007). Bain identified product differentiation and absolute cost advantages of incumbent firms to be the main determinants of entry into a market. On the contrary, Stigler emphasized that product differentiation and high absolute capital requirement of operating at minimum efficient scale are entry barriers, only if it is more expensive for entrants to create a specific amount of differentiation and if entrants are faced with higher cost of capital than incumbents, respectively (Martin, 1993).

Neo-Austrian economists only consider barriers created by governments to be persistent, as enterprises cannot overcome them. Already existing firms in a market can deliberately create entry barriers to influence the strategic decisions of prospective competitors. This implies that structure is to a great extent endogenous, except in the short run (Stead et al., 1996). With respect to the microfinance market, entry regulation is believed to hinder its development (Kai, 2009).

### 2.1.3 Market Conduct

Conduct represents the decisions and policies of producers. It relates to pricing policies, collusion, attempts of entry barrier creation, investment and mergers (Stead et al., 1996). Conduct affects performance directly and through feedback on market structure. Successful firm strategies and market characteristic often describe market conduct (Zellner, 1989). Selling effort, which includes advertising and marketing of products or services, influences financial performance. Advertising differentiates products from that of rivals, creates entry barriers and enhances the image of firms, while expenditure towards building up marketing and distribution related complementary assets improves financial performance by raising competitiveness through developing marketing and service networks, which, in turn, facilitates appropriateness of products/services and enhances efficiency (Sahoo and Mishra, 2012).

Product strategies are concerned with the number and diversity of products, product innovation, product scope and product design. It includes features of a product such as quality, convenience, branding and the likes. With regard to pricing strategies, for a new product, the pricing strategy may be skimming or penetration pricing, whereas for an already existing product, the producing firm may maintain, increase or decrease the price of the product. Pricing decisions are guided by pricing objectives, cost, competition, and demand for a product (Subhash, 2000).

Distribution strategies deal with the channels a firm may use to make its goods and services available to customers while promotion strategies are concerned with planning, implementing, and control of persuasive communication with customers that may be designed around advertising, personal selling, sales promotion, or any combination of these (Subhash, 2000).

## 2.1.4 Market Performance

Market performance is concerned with the benefits an industry generates for its different stakeholders (Stead et al., 1996). Measures of market performance reveal whether there is market power in an industry (Perloff, 2007). Market performance may be measured by profitability, productivity and efficiency.

### 2.1.4.1 Profitability

Financial self-sufficiency (FSS) refers to the ability of a MFI to cover all of its costs through income generated from its own operations. It is a preferred measure of financial performance as it offers a more complete summary of inputs and outputs than standard financial ratios such as return on assets or return on equity (Cull et al., 2007). It is calculated as:

$$\text{FSS} = \frac{\text{Adjusted operating revenue}}{(\text{Financial expense} + \text{Loanloss provision expense} + \text{Operating expense} + \text{Expense adjustments})}$$

### 2.1.4.2 Productivity

Productivity refers to "the amount of physical output produced by one unit of a given factor of production at a stated time period." It is the efficient use of resources in the production of various goods and services. A rise in the productivity of inputs shows the amount of input that has been saved or employed more productively (Ferguson and Ferguson, 1994).

Productivity of a firm may be influenced by different factors. These may include economic factors, demographic and social factors, manpower, institutional mechanisms, policies and strategies, infrastructure, technology and management styles (Greer, 1992).

With respect to the microfinance industry, productivity measures the quality of service delivered by a microfinance staff to their customers and it shows the efforts exerted by the staff to meet the objectives of the MFIs. An MFI can eventually improve its self-sufficiency by enhancing its productivity (Wolday and Anteneh, 2013).

#### 2.1.4.3 Efficiency

Efficiency involves the production of an output with the use of the least possible resource, whether be it physical resource or monetary resource. In order to attain efficiency, a firm must use production methods that are both technically and economically efficient (Greer, 1992). Minimizing the cost of operations to the least possible level enhances efficiency. In the microfinance industry, cost per borrower is one of the measures of efficiency. It is calculated as:

$$\text{Cost per borrower} = \frac{\text{Adjusted operating expense}}{\text{Adjusted average number of active borrowers}}$$

In addition to the aforementioned measures, social performance measures are as important in the microfinance industry. The Social Performance Taskforce defines social performance as "the effective translation of an institution's social goals into practice consistent with accepted social values, which include sustainably serving increasing numbers of poor and excluded people, improving the quality and appropriateness of financial services, improving the economic and social conditions of clients, and ensuring social responsibility to clients, employees and the community they serve."

While financial performance of MFIs is measured using return on assets (ROA), return on equity (ROE), operational self-sufficiency (OSS) and financial self-sufficiency (FSS), outreach

indicators such as depth of outreach and breadth of outreach measure social performance. In addition, average loan size is also considered to measure the extent of social performance.

### 2.1.5 Limitations of the Structure-Conduct-Performance Model

The SCP model has been criticized as being descriptive rather than theoretical (Perloff et al., 2007). Other limitations of the model include the following.

The empirical test of the SCP involves testing the relationship between structure and performance, considering conduct as either a black box or theoretically proven. The above specification is due to the fundamental hypothesis that concentration determines profitability (Lee, 2007).

Another issue of importance in the empirical literature of SCP is the measurement of performance. Theoretically, Lerner index (ratio of the difference between price and marginal cost to price) is a good measure of market power. Yet, it is not always possible to empirically derive the index, as it may be challenging to find data on the marginal cost of firms. Another measure of market power is the concentration ratio. However, this measure is also criticized as it does not account for the distribution of market shares across all firms in an industry, unlike the Herfindahl-Hirschman Index (HHI) (Lee, 2007).

### 2.1.6 Definition of Microfinance

MIX (2012) defines microfinance as “a variety of financial services that target low-income clients, particularly women. Since the clients of microfinance institutions (MFIs) have lower incomes and often have limited access to other financial services, microfinance products tend to be for smaller monetary amounts than traditional financial services. These services include loans,

savings, insurance, and remittances." Microfinance offers such varied services with the expectation that the financial needs of households and enterprises, particularly that of those in poverty, will drastically change in due course. As a result of these diverse needs and due to the emphasis of the sector on serving the financial needs of the poor, non-conventional methods of lending, such as group lending or using other kinds of collateral, are prevalent in the microfinance industry (MIX, 2012).

According to Wikipedia (2014), "microfinance is a source of financial services for entrepreneurs and small businesses lacking access to banking and related services." It identifies two major instruments of provision of financial services to such clients, namely, relationship-based finance for small businesses and businessperson and group-based models, in which a number of entrepreneurs gather together to request for financial services as a group. Wikipedia (2014) also suggests that though there are conflicting views regarding the claim that microfinance is a way out of poverty, it is a fact that it improves financial inclusion. Though there are different definitions of microfinance, there is a consensus that microfinance serves the financial needs of those excluded by conventional financial institutions.

### 2.1.7 Unique features of microfinance

MFIs have certain features that distinguish them from conventional financial institutions. These include the following.

**Clients**

MFIs provide financial services to those who face difficulties in obtaining such services from the usual financial institutions, such as banks. These clients largely include farmers and micro and small enterprise (MSE) operators.

**Group-guarantee method of lending**

As the clients of MFIs do not usually provide physical collateral, lending is generally based on collateral substitutes, the most common being group-based guarantees. It has advantages of lowering administrative costs, increasing repayment rates and dealing with the challenges of collateral based lending (Wolday, 2012).

**Performance measures**

Profitability is not the sole measure of performance as in the case of other profit maximizing financial institutions. As the basic goal of MFIs is serving the financial needs of the poor and disadvantaged groups, whether they fulfill this goal or not is also an important component of performance. This implies that the social performance of MFIs is also as important as the financial performance.

## 2.2 Empirical Review

Choudhury (2010) applied the SCP framework to examine the Indian microfinance market. He used market concentration and entry barriers to define structure and used profitability and output to measure the performance of the industry. The results contradicted the hypothesis of the original SCP paradigm and showed that there was a reversal in causation, with performance determining conduct and conduct in turn determining structure. However, the study depends only on descriptive statistics.

With the purpose of examining the effect of timing of entry into the Bangladesh microfinance market on performance in a competitive environment, Khandker et al. (2013) took a sample of one hundred seventeen non-profit MFIs and made use of MFI-level panel data from 2005 to

2010 and estimated a panel fixed-effects model. Results pertaining to newer MFIs are as follows. Newer MFIs were found targeting less risk-averse clients and the highest loan recovery rates in newer MFIs were recorded for women borrowers in rural areas. In addition, for these MFIs, agricultural credit rose, while saving products declined. Lower loan interest rates were found to be functions of access to better infrastructure and markets.

McIntosh and Wydick (2002) showed three major effects of the entrance of new lenders into an already existing pool of borrowers. The first is as competition intensifies, it reduces the ability of a socially-motivated lender to generate rents amongst relatively wealthier borrowers that support lending to the very poor, implying that the poorest borrowers will be dropped as competition increases. Second, lack of constraints placed on grant funding to lending institutions can prevent the emergence of a competitive market place completely, as client-maximizing non-profit institutions challenge profit-maximizing institutions to capture the most profitable borrowers. The third channel originates from the possibility of increasing asymmetric information between lenders, in which case an increasing number of lenders in a market creates an incentive for impatient borrowers to take multiple loans, hence, creating uncertainty about each borrower's total level of indebtedness. In short, the study shows that wealthier and impatient borrowers may profit from increasing competition among MFIs, but it is very likely that an increase in the number of lenders in a market will lower the welfare of the poor and the patient.

Cull et al. (2013) studied competition between microfinance institutions and banks taking 99 developing and developed countries. In particular, the study focused on effects of competition on the profitability and outreach of microfinance institutions and also on access to financial services, specifically among the poor. They came to the conclusion that competition from banks induced MFIs to increase their outreach and that competition among MFIs was associated with

deeper outreach to underserved markets. Also, competition from banks was found to have a more significant effect on urban-oriented MFIs, while in the absence of competition, commercially-oriented MFIs showed an inclination towards better-off customers. In general, the effect of competition was found to be particularly strong for MFIs dependent on commercial-funding and those using bilateral lending contracts, instead of group lending methods.

Richman and Fred (2010) examined the impact of competition and gender composition of borrowers on sustainability of MFIs in Ghana using a short panel data of 72 MFIs for the period 2003 to 2007. The findings of the research showed that industry competition increased sustainability of MFIs and reduced the dependency rate on donor subsidy, implying that growing competition in the sector increased efficiency and reduced the repayment risks and drop rates. In addition, sustainability was found to be an increasing function of men borrowers, indicating that the more the MFIs aimed at men borrowers, the lower was the rate of default or the portfolio at risk.

In order to analyze the effect of competition among MFIs on their performance, Esubalew et al., (2010) used data from 362 MFIs in 73 countries spanning the period from 1995 to 2009. Focusing on commercial-oriented MFIs, they used Lerner index to examine the competitive behavior of MFIs. The results indicated that increased competition among MFIs was associated with a decline in efficiency, a lower extent of outreach, a rise in loan delinquency and default rates and reduced profits, thus implying the negative effect competition had on performance of MFIs.

Similarly, Kai (2009) took a sample of 450 socially-motivated MFIs in 71 countries to see the relationship between competition, financial self-sufficiency and wide outreach using a fixed

effect model. The findings showed that intense competition caused poorer borrowers to drop out of the market. On the contrary, the experienced MFIs made use of their market power and technological progress and were, thus, able to avoid the adverse effect of competition on wide outreach.

Rhyne and Christine (undated) pointed out that the microfinance industry has been subjected to very limited competition. They perceived the only real competition in the industry to be for resources, namely donor and commercial funding, and not for clients. However, in recent years the industry is showing signs of competition, which the authors believe will change the focus of MFIs towards seeking ways to attract clients.

In addition to studies about competition in the microfinance industry, several studies have been conducted regarding the performance of MFIs, which include the following.

With an aim of investigating the financial performance of MFIs in Latin America, Tucker (2001) compared the financial ratios of seventeen MFIs to benchmark performance ratios for the industry and commercial Latin American banks. The results of the study showed that a strong performance was realized by applying good business practices and that financial self-sufficiency demands "well-trained, honest and motivated management". For MFIs that are less likely to achieve financial sustainability, Tucker stresses the necessity for them to develop a standardized set of benchmarks that show their achievement of their mission of providing service to the poor, with measures derived from social audits being the most probable source of such standards.

Psico and Dias (2007) studied the social performance of seven MFIs in Mozambique using the Social Performance Indicators (SPI) model developed by CERISE. Four social dimensions of microfinance, namely, outreach to the poor and excluded adaptation of the services and products

to the target clients, improvement of social and political capital of the clients, and social responsibility of the MFI, were assessed. The social performance of the MFIs was found to be weak. Particularly, poor results were found with respect to improving the social capital of clients and the social responsibility of the MFIs.

Woller and Schreiner (undated) investigated the determinants of financial self-sufficiency among thirteen village banking institutions over a three-year period. Their findings showed that interest rates, administrative efficiency, loan officer productivity, and staff salaries were significant determinants of financial self- sufficiency. On the contrary, staff productivity measures and institutional scale were found to be unrelated to financial self-sufficiency.

Gutiérrez-Nieto et al. (2009) took a sample of 89 MFIs for the year 2003 from MIX market to estimate a model of Data Envelopment Analysis (DEA) to study the relationship between social and financial efficiency, and the relationship between efficiency and other indicators, such as profitability. They found a positive, but low, correlation between social efficiency and financial efficiency, implying that, to meet their social responsibilities, MFIs have to be financially sound. Also, the relationship between efficiency in supporting women and efficiency in fighting poverty was found to be significant and positive. Furthermore, MFIs operated by NGOs were found to be more socially efficient than the MFIs that were run under other organizational structures.

With regard to studies done on Ethiopian MFIs, Letenah (2009) assessed the performance of sixteen MFIs in Ethiopia using one sample t tests, one way ANOVA with Scheffe Post Hoc Comparison tests, Kruskal-Wallis test and Pearson correlation coefficients. Particularly, he analyzed the outreach, sustainability, portfolio quality, productivity, revenue performance, efficiency, cost management, profitability, capital structure and asset allocation of the MFIs and

compared the performance of each MFI against that of the industry average and the performance of the large, medium and small size MFIs. The findings of the research showed that the MFIs performed well in terms of breadth of outreach, cost management, efficiency and productivity. In addition, profitability and sustainability of the MFIs were found to depend positively on their size while operational self-sufficiency showed an inverse relation with serving the poor.

Having an objective of identifying factors that influence financial sustainability of MFIs in Ethiopia, Bayeh (2012) took a sample of sixteen MFIs and regressed financial sustainability on its possible determinants. He concluded that breadth of outreach, depth of outreach, dependency ratio and cost per borrower determined financial sustainability, whereas he found no significant relationship between capital structure and financial sustainability, and also staff productivity and financial sustainability of MFIs.

Similarly, Asmelash (2003) and Bamlaku (2006) studied the impact of microfinance, while Befekadu (2007) and Alemayehu (2008) examined the performance of MFIs in Ethiopia.

As can be seen from the abovementioned works, majority of the studies conducted with regard to MFIs in Ethiopia usually focuses on the impact and performance of the sector. This implies that other aspects of the industry, like competition, are least researched issues. This paper attempts to fill this research gap.

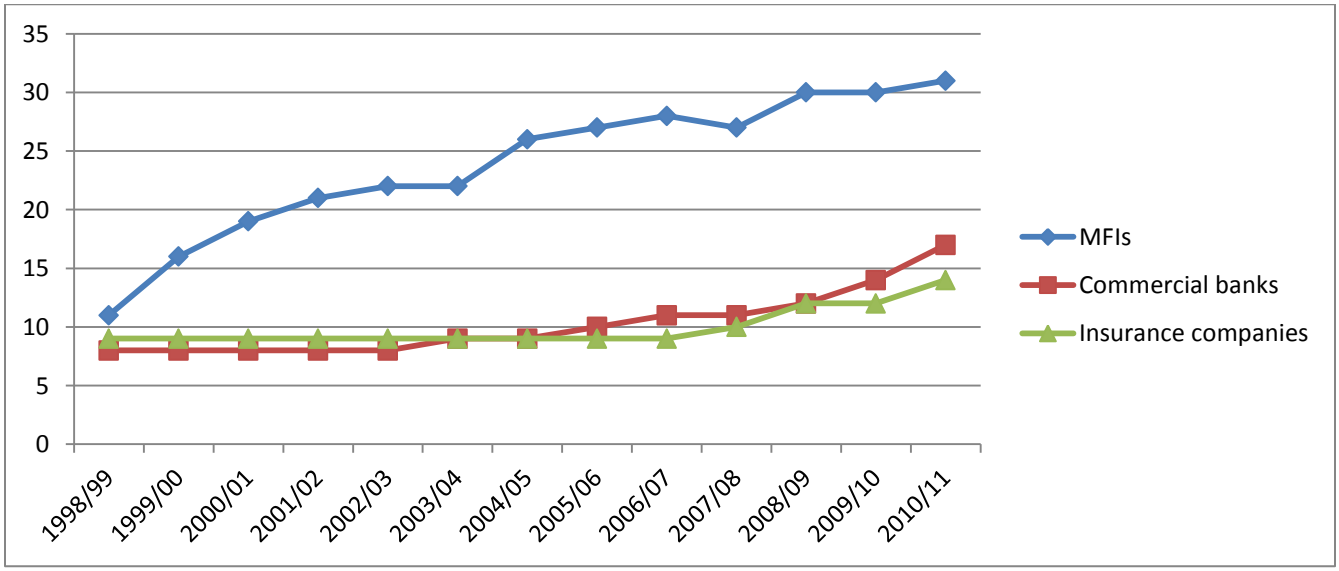
# Chapter Three

## Structure-Conduct-Performance of the Microfinance Industry

### 3.1 Overview of the financial sector in Ethiopia

The financial sector is mainly composed of commercial banks, insurance companies, microfinance institutions (MFIs) and saving and credit cooperatives (SACCOs). From 1998/99 to 2010/11, the number of commercial banks increased by 52.94%, while insurance companies grew by 35.71%. Since the establishment of Proclamation No. 40/1996, the number of MFIs grew from 11 in 1998/99 to 31 in 2010/11, showing a 64.5% increase. This is probably due to the infancy of the industry and the fact that the amount of minimum paid-up capital required to start the business of microfinance is lower compared to that of commercial banks, which is 500 million ETB, and insurance companies, which amounts to 60 million ETB.

*Figure 3.1: Trend of the number of major financial institutions*




*Source: Own computation from NBE annual report*

## 3.2 Regulation of MFIs

The need for establishing sustainable financial institutions which promote saving by the poor and high repayment rates of credit necessitated the regulation of institutions which provide financial services to those neglected by conventional financial institutions. This came as a consequence of the limitations of the approaches of NGOs in providing microcredit to the poor, which include the failure to separate charity from credit and also failure to abide by financial principles (Wolday, 2012).

According to Proclamation No. 83/1994, the National Bank of Ethiopia (NBE) has the authority to regulate and supervise MFIs and other financial institutions. Accordingly, the central bank issues directives regarding the licensing and operation of MFIs.

### 3.2.1 Licensing requirement

In order to acquire a license of operation, a MFI has to be structured in the form of a share company, with the minimum number of founding members being five. Ownership and management of MFIs is restricted to Ethiopian nationals. Proclamation No. 626/2009 states that "any foreign national or organization fully or partially owned by foreign nationals may not be allowed to establish a micro-financing institution, open branches or subsidiaries of a foreign micro- financing institution in Ethiopia or to acquire the shares of an Ethiopian micro-financing institution." However, MFIs are allowed to receive grants from either local or foreign sources.

### 3.2.2 Minimum paid-up capital, minimum and minimum capital ratio

According to Directive No. MFI/25/2013, "the minimum initial paid up capital required to obtain a micro-financing business license is 2 million ETB, which shall be fully paid in cash and

deposited in a bank in the name and to the account of the microfinance institution under formation." This is an amended version of Directive No. MFI/01/96, which specified the minimum paid-up capital to be 200,000 ETB. The amendment was initiated to improve the competitiveness of MFIs. In addition, a MFI is obliged to renew its license annually. Following Directive No. MFI/15/2002, MFIs are required to retain liquid assets amounting to at least 20 percent of their total deposits. Similarly, MFIs have to maintain a minimum capital ratio of 12 percent, in accordance with Directive No. MFI/16/2002.

### 3.2.3 Interest rates

Directive No. NBE/INT/11/2010 allows both demand deposit interest rates and lending rates on loans and advances to be defined by each MFI. The MFIs are also free to fix saving and time deposit rates, which are not less than 5 percent per year. However, lending rate on loans and re-discount facilities granted by NBE are to be decided by NBE now and then.

### 3.2.4 Branches

Directive No. MFI/07/96 states that a MFI may open branch offices without gaining the consent of NBE in advance. However, a MFI needs the permission of the NBE before closing a branch under operation.

### 3.2.5 Loans and repayment periods

Directive No. MFI/18/06 asserts that the total loan provided to a single client should not exceed one percent of the total capital of the MFI, while that offered on the basis of group guarantee must not go above four percent of the total capital of the MFI. The directive also stresses that the loan repayment period must not go beyond 5 years. Plus, it is necessary that MFIs mainly

provide loans on the basis of group-guarantee, though they may also deliver loans to individuals on a limited scale based on collateral or through other means.

### 3.2.6 Information reporting

Directive No. MFI /22/2012 states that MFIs are required to report their respective financial and operational information and reports to NBE quarterly, within four weeks from the end of the quarter.

## 3.3 Financial products of MFIs

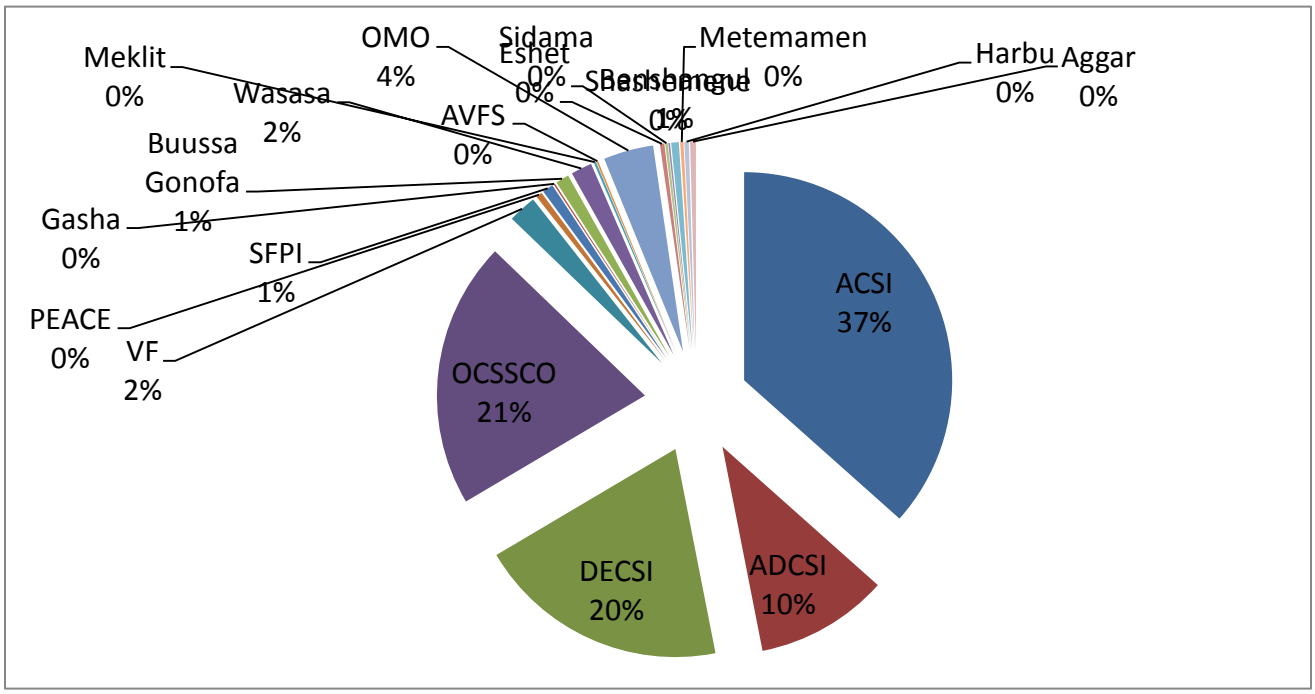
Loan and saving products are the principal financial products provided by MFIs in Ethiopia. The provision of loan micro-insurance is also becoming more widespread. Among loan products, agricultural loan, business loan, consumption loan, cooperative loan, loan to community-based organizations, manufacturing loan, service loan, trade loan, civil servant loan, Micro and Small Enterprise (MSE) loan are commonly provided by MFIs in Ethiopia (MIX, 2013).

The saving products of MFIs include compulsory and voluntary savings of borrowers, individual non-borrowers' saving, such as by staff and board members, institutional saving such as, by cooperatives, associations and groups. Several MFIs also provide loan insurance. In addition, business management training, pension payments and orientation to borrowers on how to use credit are some of the services MFIs offer (MIX, 2013).

## 3.4 Institutional characteristics

### 3.4.1 Total assets

*Figure 3.2: Total assets of respective MFIs*




*Source: Own-computation from AEMFI's quarterly outreach data*

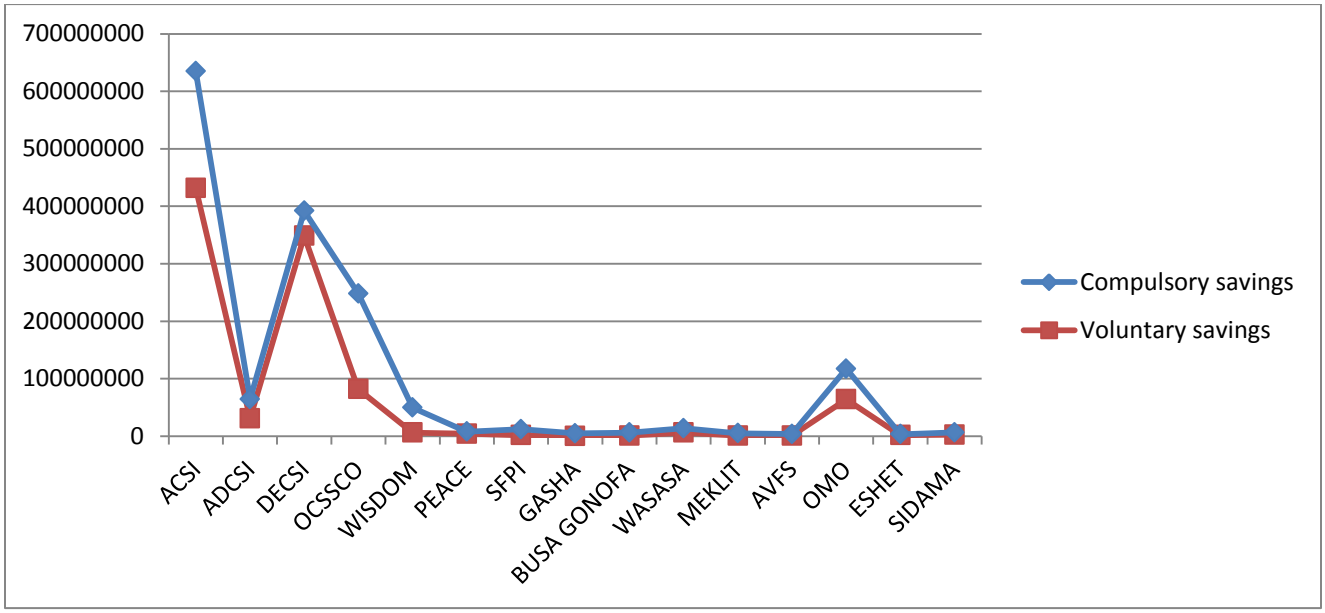
Among the total asset holdings of the industry, ACSI, OCSSCO DECSI, ADCSI and OMO held the largest shares of total assets respectively. The five MFIs account for about 92 percent of the total asset holdings of the industry. This indicates that the five MFIs dominate the sector in terms of asset holdings. The total assets of the industry as of December 2013 was more than 18 billion, showing an increment of about 28 percent from the previous year.

### 3.4.2 Savings

MFIs can become self-sufficient by mobilizing small and micro-savings. Mobilizing savings benefits MFIs as the financial costs of using deposits for credit are lower in comparison to that of obtaining capital from the interbank market. Furthermore, unlike withdrawals from larger

savings, withdrawals from small amounts on deposits cannot subject the financial institution to liquidity risks (Wisniwski, 1998). Ethiopian MFIs also use savings as a source of loanable funds.

*Figure 3.3: Voluntary and Compulsory Savings*




*Source: own-computation from different performance reports of AEMFI*

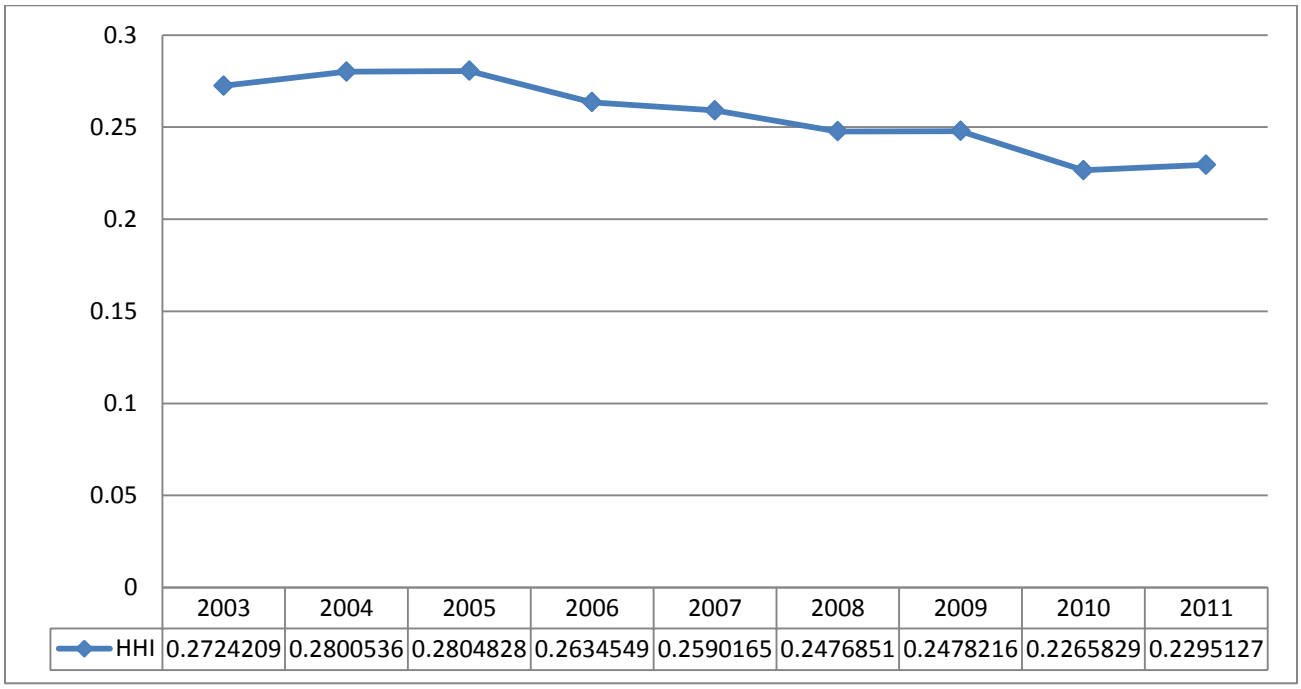
As can be seen from figure 3.3, average voluntary and compulsory savings of respective MFIs have a similar trend. In December 2013, ACSI (41%), followed by DECSI (25%) and OCSSCO (15%) collected the largest voluntary savings, while OCSSCO (36%), followed by ACSI (24%) and ADCSI (14%) collected the largest compulsory savings. This indicates the dominance of government backed MFIs in terms of saving mobilization.

## 3.5 Market concentration

### 3.5.1 Herfindhal-Hirschman Index (HHI)

As mentioned in the literature, HHI indicates the degree of competition in an industry and its values range between 0 and 1. A value of HHI closer to 0 implies there is competition, while a value of HHI closer to 1 indicates a monopoly. Accordingly, the HHI for the microfinance industry ranging from 2003 to 2011 is as follows.

*Figure 3.4: Trend of HHI of Microfinance Industry*



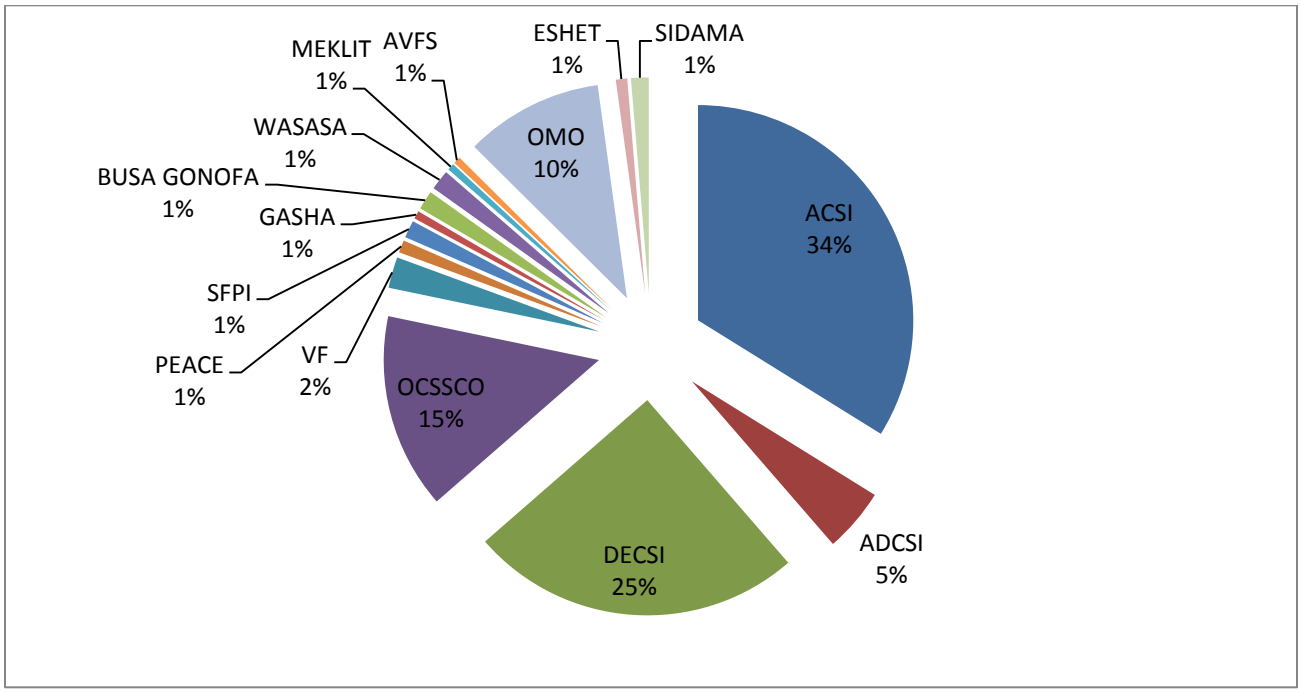

| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|---|---|---|
| HHI | 0.2724209 | 0.2800536 | 0.2804828 | 0.2634549 | 0.2590165 | 0.2476851 | 0.2478216 | 0.2265829 | 0.2295127 |

*Source: Own-computation from different performance reports of AEMFI*

As can be seen from the above figure, the industry has moved from high degree of concentration (0.272, which is greater than 0.25) to moderate concentration (0.229, which is between 0.15 and 0.25). The HHI showed a decline of about only 4 percent from 2003 to 2011. This implies that the microfinance market has become less concentrated since 2003. However, considering the fact that the HHI decreased only by 4 percent in nine years, the sector still remains concentrated.

With regard to entry barriers, out of the seven MFIs questioned, OCSSCO revealed that changing the view that existed about the poor being non-bankable and being able to serve poor clients was difficult during the time the MFI began its operations. The other MFIs stated that they did not face any entry barriers.

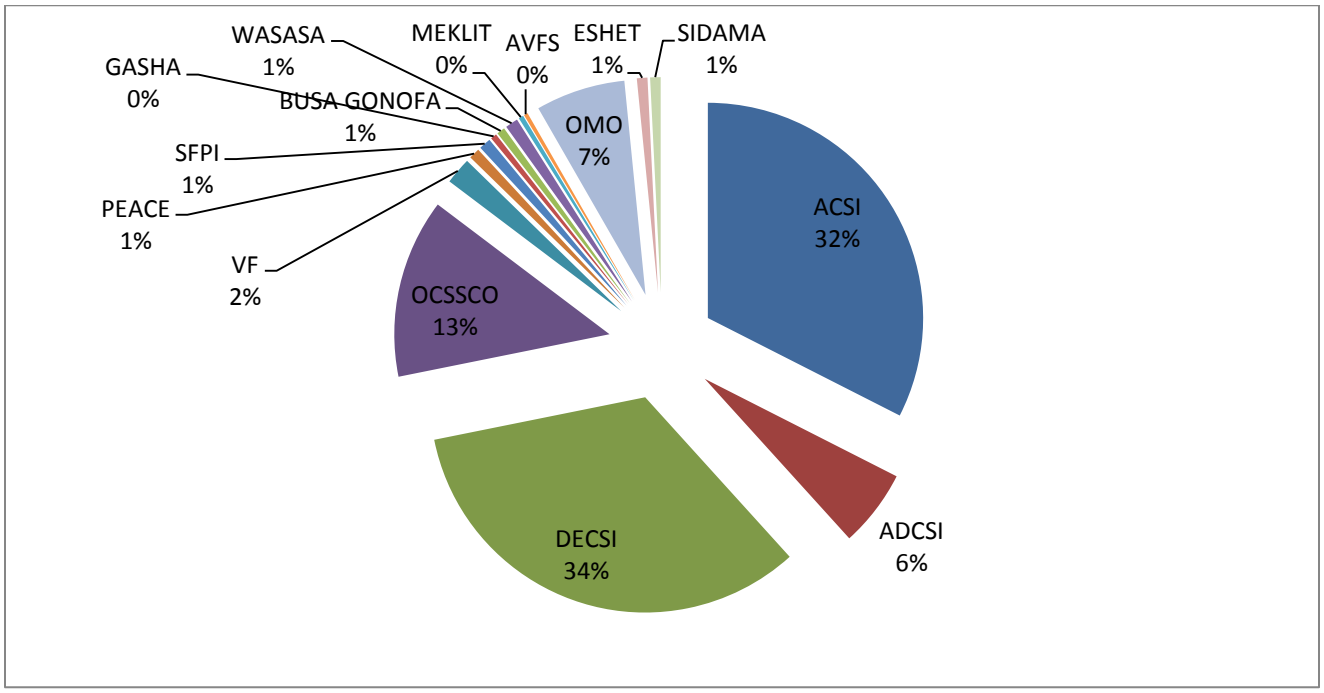
*Figure 3.5: Market Share of MFIs by Number of Active Borrowers*




*Source: Own-computation from different performance reports of AEMFI*

Similar to that of total asset holdings, on average, ACSI (34%), DECSI (25%) and OCSSCO (15%), OMO (10%) and ADCSI (5%) have held the largest market shares in terms of number of active borrowers, over the years of 2003 through 2011. The five MFIs have served about 89 percent of the total number of active borrowers of the industry.

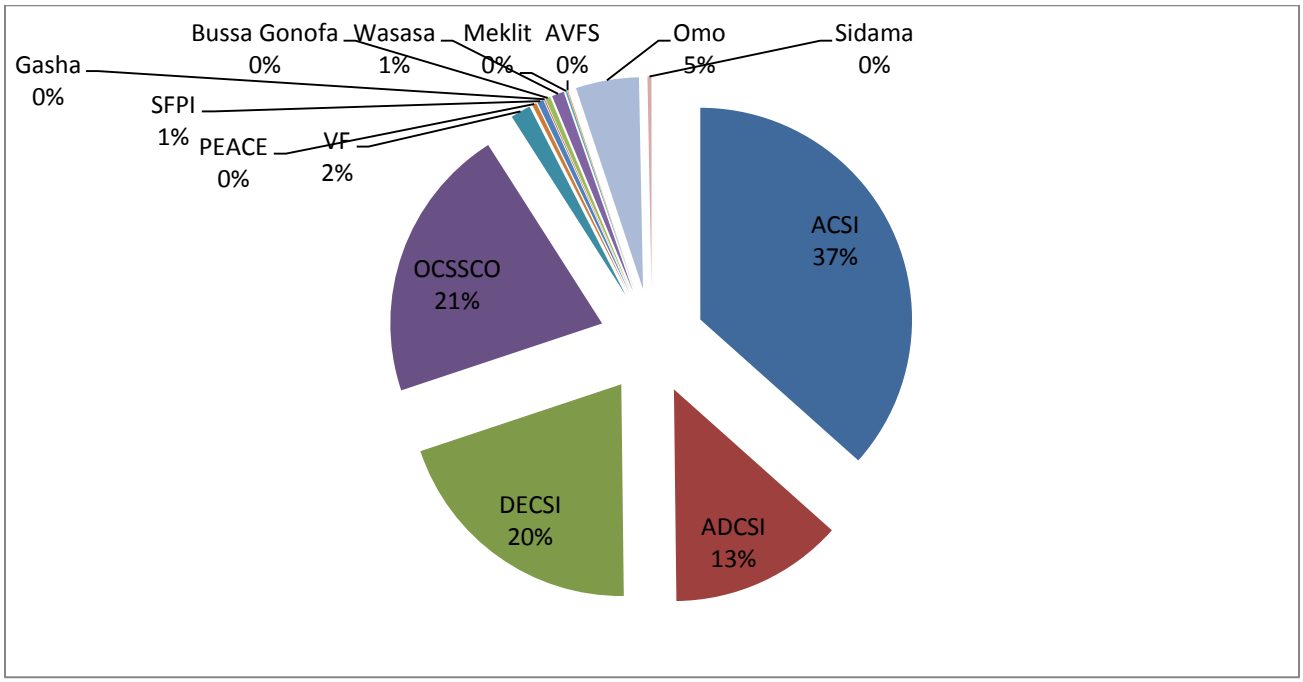
*Figure 3.6: Market Share of MFIs in terms of Loan Portfolio*




*Source: Own-computation from different performance reports of AEMFI*

With regard to market share by loan portfolio, DECSI (34%), ACSI (32%), OCSSCO (13%), OMO (7%) and ADCSI (6%) took the largest market shares of the industry respectively. 92 percent of the total gross loan portfolio of the industry was contributed by these MFIs.

*Figure 3.7: Total Savings*




*Source: Own-computation from AEMFI quarterly outreach data*

As of December 2013, a total of 96 percent of savings was mobilized by ACSI, DECSI, OCSSCO, OMO and ADCSI, yet again showing their dominance in terms of saving mobilization also.

In summary, the microfinance industry is dominated by five MFIs, namely, ACSI, DECSI, OCSSCO, OMO and ADCSI, in terms of total assets, number of active borrowers served, gross loan portfolio and saving mobilization. This may be a result of the support these MFIs receive from their respective regional governments, in addition to the fact that these MFIs have been in the industry relatively longer as compared to other MFIs.

## 3.6 Market conduct

It is difficult to quantify market conduct as it is concerned with the behavior of firms in an industry. Advertising expense is usually used as a proxy for market conduct. However, as the author was not able to get data of nine years on the advertising expenses of each of the MFIs under study, the conduct of the MFIs is studied using a checklist filled out by seven MFIs, namely, ADCSI, OCSSCO, Vision fund (VF), PEACE, Gasha, Aggar and Lefayeda (see Annex 2 for details).

### 3.6.1 Nature of ownership

All of the abovementioned MFIs are organized in the form of share companies. ADCSI and OCSSCO are regional-government backed MFIs, whereas VF and PEACE are share companies, which are not distributing dividend. The roots of VF and PEACE can be traced back to NGOs. As the Ethiopian law does not allow NGOs to be involved in the ownership or operations of MFIs, these two MFIs organized themselves in the form of a share company. Gasha is also an NGO backed MFI, while Aggar and Lefayeda are private share companies focusing on delivering financial services to the missing-middle and generate profit to distribute dividend to their shareholders.

### 3.6.2 Financial products

The seven MFIs provide loan and saving products, while ACSI, OCSSCO, PEACE and Vision Fund also provide microinsurance. Unlike the many MFIs, PEACE offers a saving product for the youth.

### 3.6.3 Sources of loanable funds

With regard to the source of loanable funds, in addition to shareholder capital, ACSI, OCSSCO, Aggar and PEACE use borrowed funds from Rural Financial Intermediation Program (RUFIP). They also stated their major source of funding to be saving mobilization, while that of VF is donations. Moreover, all of the above MFIs consider their costs when setting their respective interest rates. ADCSI and VF also consider the price of their competitors when determining their prices.

### 3.6.4 Competition

All of the MFIs have stated that they compete with other MFIs in the industry. The basis of competition includes saving mobilization, interest rate, financial products, loan size and customer service. In contrast to the others, skilled manpower is a ground for competition in the industry for OCSSCO. However, the MFI representative stated that there is not as such a strong competition with other MFIs.

ADCSI and OCSSCO compete with banks on the basis of saving mobilization, while Lefayeda, Aggar and Gasha compete with banks by offering lower loan sizes. PEACE vies for more clients with banks by offering higher interest rate on saving and by targeting the poor.

PEACE specified its ground for competition with cooperatives to be saving mobilization, whereas that of Lefayeda is financial products. On the contrary, OCSSCO does not compete with cooperatives but rather works together with them as the cooperatives organize groups of borrowers and sends them to OCSSCO. Aggar indicated it does not compete with cooperatives as they offer financial services to their members only. Likewise, Gasha, ADCSI and VF do not compete with cooperatives.

Aggar stated it competes with informal lenders through interest rates, loan size and loan term. Similarly, PEACE competes with them via interest rate, service delivery, loan application format, loan size and loan guarantee.

### 3.6.5 Pricing strategy

OCSSCO, PEACE, Gasha, Aggar and Lefayeda specified that they fix their respective prices independently based on costs. In addition to costs, VF takes into consideration the prices of other MFIs, whereas ADCSI sets its price by further considering its doubtful account and inflation.

The MFIs charge similar interest rates for loans the lowest interest rate being 10 percent charged by ADCSI and OCSSCO, and the highest being 24 percent, which ADCSI charges for short term loans. The interest charged by the other MFIs ranges from 15 to 20 percent. ADCSI pays a maximum interest rate of 7.5 percent on time deposits, whereas the other MFIs pay 5 or 6 percent for depositors.

### 3.6.6 Factors affecting performance

The MFIs identified shortage of loanable funds as the primary factor which affects their performance. Inability of borrowers to repay their loans, staff turnover, difficult topography, natural factors such as drought, absence of infrastructure and an automated MIS are also additional factors which affect the performance of the MFIs. The MFIs also mentioned unfair competition influences their performance adversely. The case of Sendafa can be an example.

In Sendafa region, five MFIs operate with their branch offices close to each other. These MFIs are ADCSI, OCSSCO, AVFS, PEACE and Gasha. The other MFIs stated that the Kebele in the area organizes groups of people who demand for loans and sends them to OCSSCO, while the

remaining MFIs have to search for clients without receiving help from any other organization. In addition, they also mentioned that OCSSCO does not check whether its clients have already taken credit from the other MFIs in the area. Accordingly, the other MFIs suggested that they are facing unfair competition from OCSSCO.

Relating to the effect of competition on performance, PEACE indicated that competition from other MFIs raises client dropout, reduces client retention rate, raises operational cost and affects growth in outreach and sustainability. On the contrary, Aggar viewed competition to have a positive effect of enhancing creativity and innovation.

In summary, the basis of competition among MFIs is saving mobilization. This may be due to the fact that saving mobilization is an inexpensive source of loanable funds. The nature of ownership of MFIs does not affect their pricing strategies, that is, government backed and NGO affiliated MFIs do not necessarily charge lower interest rates. In addition, different MFIs provide similar loan and saving products. This implies that there is lack of innovation in terms of financial products in the industry.

## 3.7 Market performance

Unlike other markets, in the microfinance industry, financial performance, especially profitability, is not the only measure of performance. All MFIs in Ethiopia have both financial and social objectives. In other words, social performance of MFIs is another important component of the overall performance of the industry.

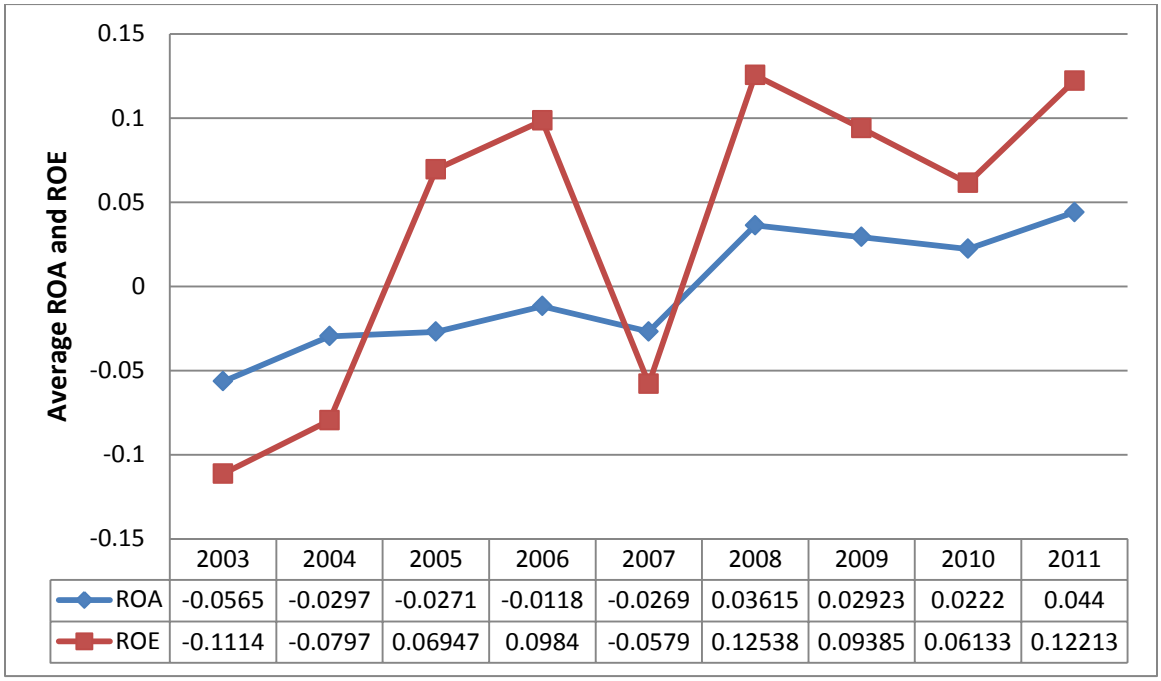
### 3.7.1 Financial performance

Return on Assets (ROA), Return on Equity (ROE), Operational Self-Sufficiency (OSS) and Financial Self-Sufficiency (FSS) are used to measure the financial performance of MFIs.

#### 3.7.1.1 ROA and ROE

ROA measures the extent to which a MFI uses its assets and it also shows the profit margin and efficiency of the MFIs, whereas ROE shows the amount of earnings of the MFI resulting from shareholders' investments or donors' grants (Wolday and Anteneh, 2013).

*Figure 3.8: Trend of ROA and ROE*




| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|---|---|---|
| ROA | -0.0565 | -0.0297 | -0.0271 | -0.0118 | -0.0269 | 0.03615 | 0.02923 | 0.0222 | 0.044 |
| ROE | -0.1114 | -0.0797 | 0.06947 | 0.0984 | -0.0579 | 0.12538 | 0.09385 | 0.06133 | 0.12213 |

*Source: Own-computation from different performance reports of AEMFI*

The average ROA of the industry has been exhibiting positive values since 2008. In 2011, Letta (19.2%) Buussa Gonofa (14.1%) and Harbu (11.6%) exhibited the three highest ROAs,

respectively. Letta also achieved the highest ROE of 29.1%, followed by Aggar (28.5%) and Buussa Gonofa (26.8%). However, this value of ROE has to be complemented by low capital to asset ratio to be deemed successful. While Aggar had a capital to asset ratio of 28.5%, both Letta and Buussa Gonofa had a capital to asset ratio of 66% and 53%, respectively, offsetting the effect of a good ROE value.

#### 3.7.1.2 Financial Self-Sufficiency (FSS) and Operational Self-Sufficiency (OSS)

It is impossible to fulfill social goals unless a MFI achieves its financial goals or at best reaches efficiency (Guntz, 2011). FSS portray the actual financial health of MFIs. Thus, FSS includes cost of adjusted capital apart from the components in OSS. On the other hand, OSS indicates whether enough revenue has been earned to cover the MFI's direct costs, excluding the cost of capital but including actual financing costs (Borbora and Sarma, undated). If these ratios are greater than 100 percent, the MFI is covering all of its costs through own operations and is not depending on grants or subsidies from donors to survive (Churchill and Frankiewicz (2006) as cited by Guntz (2011)).

*Table 3.1: Average OSS and FSS of MFIs for Years 2003 to 2011*

| MFIs | Average OSS | Average FSS |
|---|---|---|
| ACSI | 216.38% | 142.60% |
| ADCSI | 149.26% | 82.38% |
| DECSI | 174% | 111.20% |
| OCSSCO | 155% | 105.30% |
| Wisdom | 99.80% | 79.20% |

| | | |
|---|---|---|
| PEACE | 139.70% | 103.00% |
| SFPI | 121.60% | 85.20% |
| Gasha | 92.50% | 63.80% |
| Buussa Gonofa | 125.70% | 97.20% |
| Wasasa | 144.30% | 108.10% |
| Meklit | 116.70% | 95.30% |
| AVFS | 92.00% | 64.80% |
| OMO | 113.20% | 78.80% |

*Source: Own computation from different performance reports of AEMFI*

As can be inferred from the above table, on average, with the exception of Wisdom, Gasha and AVFS all the above mentioned MFIs are operationally self-sufficient. On the contrary, on average, ACSI, DECSI, OCSSCO, PEACE and Wasasa are the only financially self-sufficient MFIs, with their FSS ratios above 100 percent. This implies that MFIs need to do more to improve their respective financial sustainability.

### 3.7.2 Social performance

As indicated in the literature, social performance is exceptionally important in microfinace. MFIs take into consideation different factors to analyze their respective social performance. ADCSI considers the total number of clients and percentage of women borrowers served, and employment opportunities created due to the loan to analyze its social performance. Similarly, Aggar measures its social performance by considering the percentage of women clients served, number of rural branches, the number of farmers who received financial services and also the number of disabled clients. Vision Fund looks at the children impacted and jobs created as a

result of the finacial services it provides. It also uses progress out of poverty index (PPI), which measures the percentage of clients that come out of povety owing to the provision of financial services by the financial institution. Likewise, PEACE also uses the PPI in additon to the quarterly social impact survey it compiles and analyzes. OCSSCO evalutates its social performace in view of reaching poorer clients, improving the lives of clients and their families, meeting client needs and widening the range of opportunities available to them.

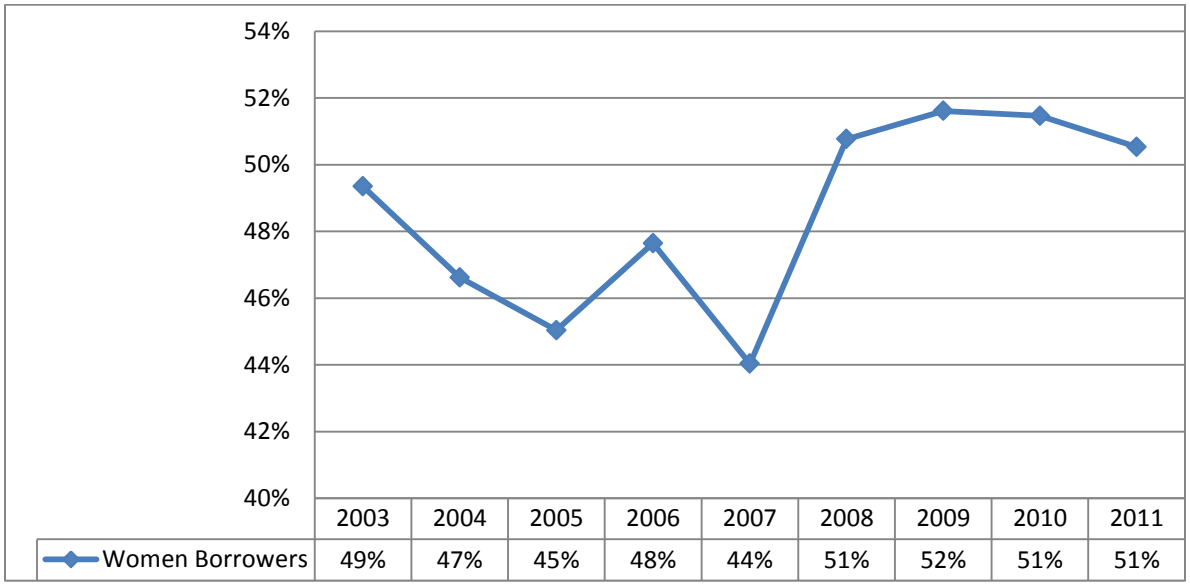
### 3.7.2.1 Outreach

#### 3.7.2.1.1 Depth of outreach

Depth of outreach measures the extent to which a MFI serves low-income clients that have been neglected by formal financial institutions. The proportion of women borrowers and the average loan size of a MFI are commonly used as proxies for depth of outreach.

**a) Percentage of women borrowers**

*Figure 3.9: Trend of Average Percentage of Women Borrowers*



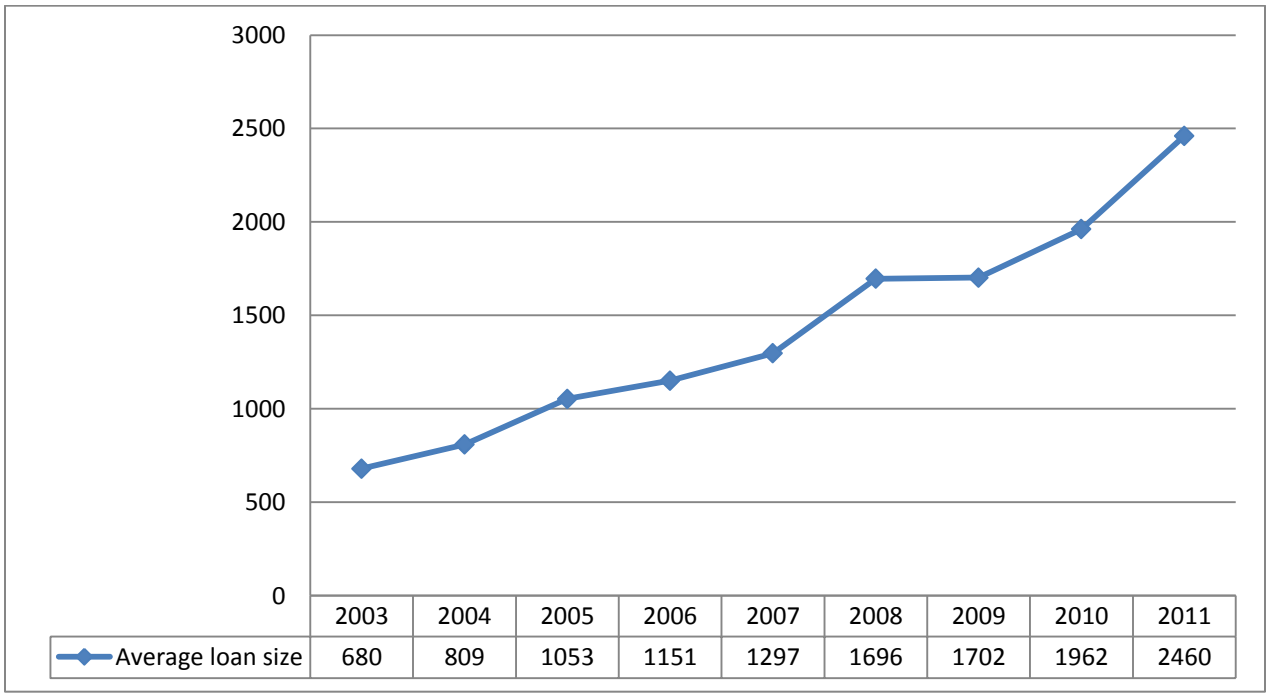
*Source: Own-Computation from different performance reports of AEMFI*

Of the total number of active borrowers served by twenty MFIs in 2011, 51 percent of them were women. The average percentage of women borrowers that were served by the industry in 2003 was 49 percent. It fell to 44 percent in 2007 and rose again to 51 percent in the following year. The industry served its highest percentage of women borrowers (52 percent) in 2009.

**b) Average Loan Size (AL)**

The average loan size is commonly used as a proxy for the depth of outreach. Although smaller AL requires a higher transaction cost, it shows that a MFI is reaching poorer clients.

*Figure 3.10: Trend of Average Loan Size of the Microfinance Industry*



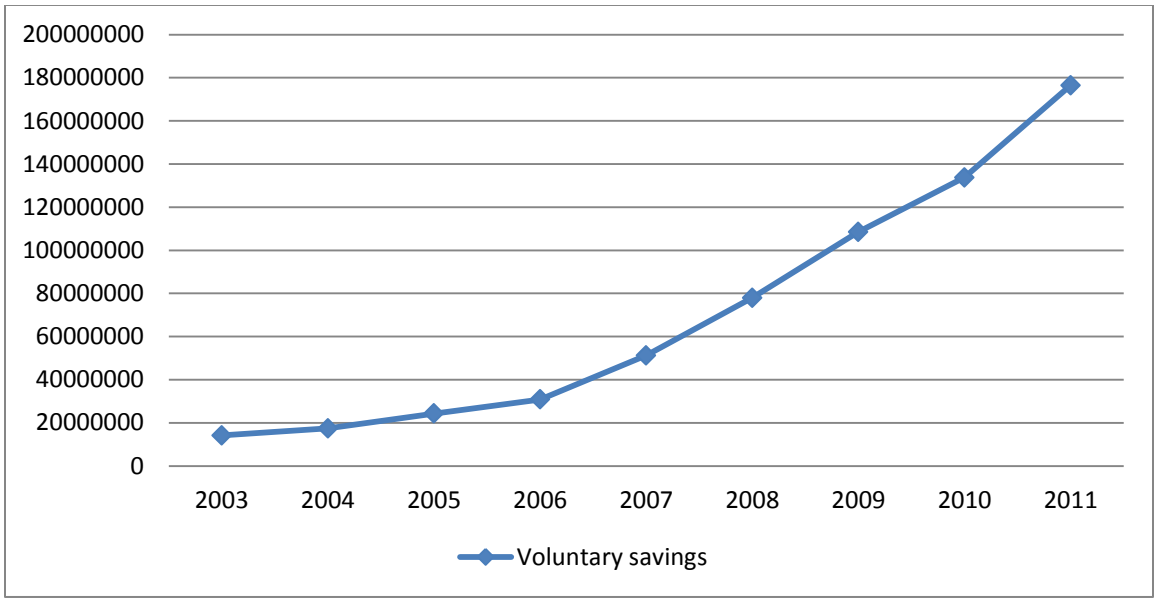

| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|---|---|---|
| Average loan size | 680 | 809 | 1053 | 1151 | 1297 | 1696 | 1702 | 1962 | 2460 |

*Source: Own computation from different performance reports of AEMFI*

As can be seen from figure 3.9, following the increase in the number of clients served, AL has also been increasing. The average loan size of the industry increased from 680 birr in 2003 to 2460 birr in 2011 showing a 72 percent increment.

**3.7.2.1.2 Breadth of outreach**

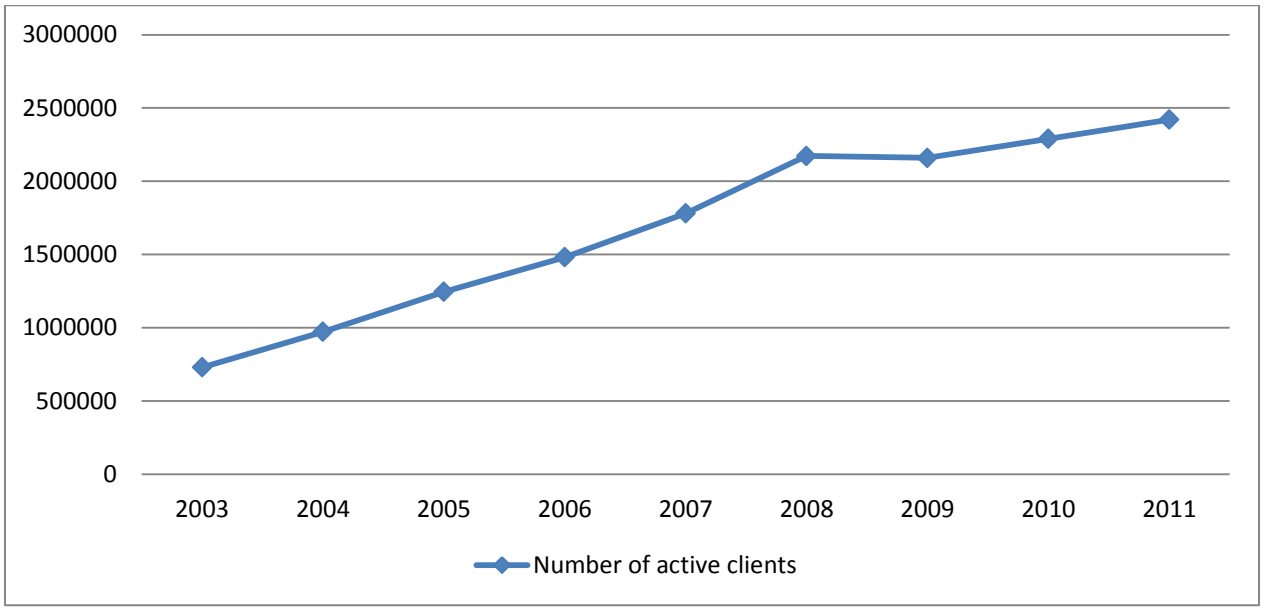
*Figure 3.11: Trend of voluntary saving mobilization*




*Source: Own computation from different performance reports of AEMFI*

As can be inferred from the above graph, the amount of voluntary savings collected by MFIs has had an increasing trend. It showed an increment of about 92 percent from 2003 to 2011. As of December 2013, about 5.9 billion birr was collected as voluntary savings by the industry.

*Figure 3.12: Trend of Number of Active Borrowers*



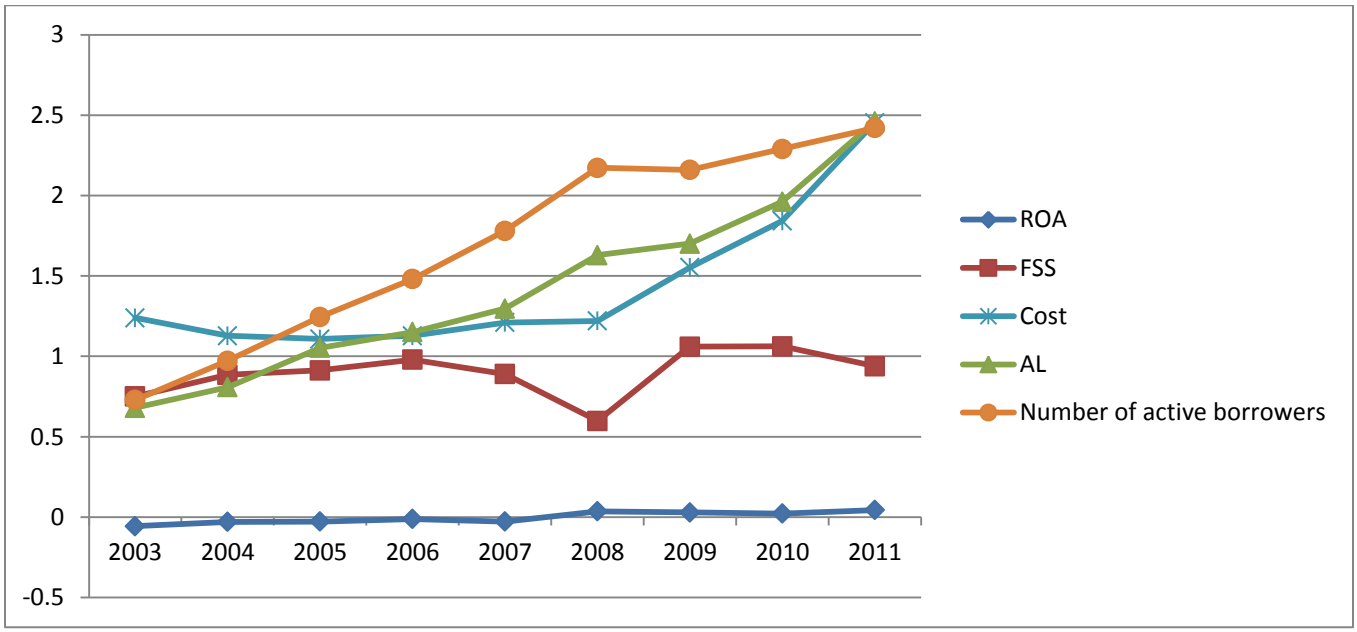

*Source: Own computation from different performance reports of AEMFI*

As can be seen from figure 3.11, the total number of active borrowers served by the microfinance industry has been rising continuously. The 2011, the microfinance industry served its highest number of 2,420,108 clients. Since 2003, the number of active borrowers has increased by about 70 percent. This shows that the industry has been expanding its outreach.

## 3.8 Relationship between performance indicators

Figure 3.12 shows the relationship between different performance indicators. No particular relationship can be established between ROA and the other performance indicators. However, more or less, there is a positive relationship among number of active borrowers served, average loan size and cost per borrower. This implies serving more clients is associated with increased average loan size and costs. As compared to the growth rates of number of active borrowers served, average loan size and cost per borrower, the growth rate of FSS is lower.

*Figure 3.12: Relationship between performance indicators*




*Source: Own computation from performance reports of AEMFI*

## 3.9 Challenges of MFIs

Consistent with the findings of Wolday (2012), the seven MFIs identified shortage of loanable funds as the primary challenge to their operations. This has been further aggravated by the limited willingness of banks to lend to MFIs without collateral. The MFIs also mentioned high staff turnover and shortage of skilled manpower have limited their growth. The provision of similar and limited financial products has encouraged copying and constrained innovation. Some MFIs also acknowledged that absence of an automated MIS (Management Information System) negatively affects their performance. In addition, underdeveloped saving habits and limited trust on MFIs have constrained saving mobilization efforts of the MFIs. Absence of well-developed infrastructure, unfair competition from dominant MFIs and absence of legal title of assets in rural areas have also reduced the outreach of MFIs. Furthermore, as rural economic activities are

highly dependent on nature, factors such as crop failure and drought reduce the repayment of loans by rural borrowers, thereby affecting the performance of MFIs. Some borrowers also consider loans to be grants and do not repay their loans, while others do not make timely repayments. The delinquency of borrowers is exacerbated as they take loans from different MFIs. The major challenges of the MFIs are summarized as follows.

- Delinquency of clients: some borrowers fail to repay their loans considering it to be a grant. Also, when they take loans from multiple MFIs, they are faced with a high debt burden which makes it difficult for them to repay their loans.
- Limited financial products: currently, financial products provided by MFIs are not demand driven. All MFIs offer very similar products, hence, there is little room for the development of products which are tailored to the needs of clients.
- Absence of legal title of assets in rural areas: in rural areas, land and livestock are usually considered as the only assets. But these cannot be used as collateral since as per the Ethiopian law individuals cannot own land and as it is also difficult to present livestock as valid collateral. Although MFIs implement group guarantee method of lending to overcome the problem of absence of effective collateral, the MFIs identified absence of effective group pressure to be a major challenge.
- High staff turnover: in addition to limited well-trained and experienced staff in the microfinance industry, the MFIs stated that they are challenged by high turnover of experienced human resource. This hinders outreach of MFIs and reduces service quality.
- Absence of a well-developed infrastructure: this limits the outreach of MFIs to remote areas. The MFIs stated that in areas where the topography is so difficult to

even use motorcycles, loan officers have to travel a long distance on foot in search of clients.

- Underdeveloped saving habits of clients and limited trust on MFIs: as the major source of loanable funds for MFIs is saving mobilization, underdeveloped saving habits limit the availability of loanable funds. In addition, many prefer to place their savings in banks rather than in MFIs as clients do not trust MFIs as much as they trust banks.
- Limited willingness of banks to lend to MFIs without collateral: in addition to the two abovementioned challenges to saving mobilization, limited willingness of commercial banks to lend to MFIs without collateral further reduces the amount of loanable funds that could have been available to clients of MFIs.
- Unfair competition: some regional governments offer exclusive support to selected MFIs. They even organize prospective clients for them whereas other MFIs go door-to-door in search of clients. Some MFIs stated that this makes it difficult for them to attract clients. Furthermore, MFIs that do not check whether clients have already borrowed from other MFIs encourage borrowing from multiple sources and contribute to delinquency of clients.
- Absence of a robust MIS: the MFIs stated that there is lack of an automated and effective MIS in many MFIs. This reduces the quality of customer service and limits the fast exchange of information within a MFI among MFIs.

# Chapter Four

# Model Specification and Results from the Simultaneous Equations Estimation

## 4.1 The Structure-Conduct-Performance Framework

In order to improve the growth of the microfinance industry, issues of competition and performance need to be dealt with. The SCP framework addresses such matters emphasizing on firm behavior and market structure (Lee, 2007). The SCP framework has been widely used for analyzing financial markets (Bhatti and Hussain (2010); Jedlicka and Jumah (2006); Sahoo and Mishra (2012); Choudhury (2010)).

The Structure-Conduct-Performance (SCP) framework originated from Neo-classical analysis of markets. It was introduced by the Harvard School of thought and was popular during 1940 to 1960. With an emphasis on price theory and econometric estimation, the Chicago School of thought gained interest after 1960. A game theoretic approach to the subject dominated the 1980s, followed by empirical industrial organization in the 1990s, which stressed the use of economic theory and econometrics (Edwards, 2006).

The SCP paradigm postulates that there is a one-way causal relationship among structure, conduct and performance of an industry. It holds that the structure, which is the environment within which firms operate, determines the conduct of buyers and sellers which in turn determines the performance of firms in an industry (Perloff, 2007).

In contrast to the claim that there is a one-way causal relationship among structure, conduct and performance of an industry, recent studies on SCP indicate that structure is affected by conduct and performance. This implies that there will be a simultaneity bias in OLS estimates of the

effects of structure on performance. Hence, to account for this bias, a simultaneous equations model can be applied to a system of equations. The estimates obtained from such a model will be consistent and unbiased (Delorme, 2002).

Conforming to the above justification, this study applies a three-stage-least-squares (3SLS) estimation method to see whether there is a feedback effect of performance on structure and vice versa in the microfinance industry.

3SLS is consistent estimation method as it satisfies the requirements for an IV instrument. It is also asymptotically efficient and follows the same asymptotic distribution as the full-information maximum likelihood estimator, which is asymptotically efficient among all estimators (Green, 2003).

SCP studies usually use advertising expense to measure market conduct (Zellner (1989); Delorme (2002); Yifru (2007); Sahoo and Mishra (2012)). However, the researcher could not find data on the advertising expense of all of the MFIs under study, therefore making it difficult to quantify the conduct of the MFIs. To understand the conduct of the MFIs to some extent, a checklist to be filled out by the respective general managers of nine MFIs was distributed. Of the nine MFIs, seven of them, namely, ADCSI, OCSSCO, PEACE, Vision Fund, Lefayeda, Gasha and Aggar filled out and returned the checklist. Although it may not give a complete picture of the market conduct of the microfinance industry, the available data is used to make a descriptive analysis of the conduct of the seven MFIs.

## 4.2 Determinants of market share

The author could not find a varied literature on the determinants of market share in the microfinance market. The work by Mahmoud et al., (2009) is an exception to this. They found

size and age of a MFI, average loan size, loan amount disbursed for unique loan purpose, such as, housing loan, and deposit interest rates to be determinants of market shares of MFIs in a village microcredit market. In the current study, average loan size, size of an MFI, debt to equity ratio and financial self-sufficiency of a MFI are used to estimate the market share equation.

### 4.3 Determinants of financial self-sufficiency (FSS)

With regard to FSS, Nyamsogoro (2010) identified capital structure, interest rates charged, average loan outstanding, average loan size, product type, size of a MFI, liquidity ratio, yield on gross loan portfolio to be factors which positively and significantly affect financial sustainability of rural MFIs in Tanzania, whereas the effect of cost per borrower, portfolio at risk, staff productivity and the operating efficiency was found to be negative and significant.

Likewise, (Sima, 2013) found age of microfinance institutions to have a positive and statistically significant effect on their profitability in the case of Ethiopia, while operational efficiency and portfolio quality were found to have a negative and statistically significant effect. In contrast, the researcher found capital adequacy, size and gross domestic product to be statistically insignificant.

The findings of Tilahun (2013) show that financial sustainability of East African MFIs is positively and significantly determined by loan intensity and their respective sizes, represented by total assets, whereas management inefficiency, measured in terms of the ratio of operating expenses to total assets, and portfolio at risk were found have a negative and significant effect. Breadth of outreach, measured by the number of active borrowers, and deposit mobilization were found to be insignificant determinants of financial sustainability.

According to Melkamu (2012), cost per borrower, number of active borrowers and yield on gross loan portfolio determine financial self-sufficiency in Ethiopia. Cost per borrower was found to have a negative and significant effect, while the latter two had a positive and significant effect. The age of a MFI, liquidity ratio and operating expense ratio were found to be insignificant in determining financial self-sufficiency.

In this study, market share, yield on gross portfolio, average loan size and cost per borrower are used as independent variables to estimate the FSS equation.

## 4.4 Model Specification

The estimated model comprises two equations. The first equation represents the market structure of the microfinance industry while the second equation represents the market performance of the sector.

$$MS_{it} = \alpha_0 + \alpha_1 MFISZ_{it} + \alpha_2 DER_{i,t-1} + \alpha_3 AL_{i,t-1} + \alpha_4 FSS_{i,t-1} + e_{it,MS}$$

$$FSS_{it} = \beta_0 + \beta_1 MS_{i,t-1} + \beta_2 AL_{it} + \beta_3 YGP_{it} + \beta_4 Cost_{it} + e_{it,FSS}$$

- $MS_t$: market share of MFIs
- $MFISZ_t$: current size of MFIs
- $DER_{t-1}$: lagged debt to equity ratio
- $AL_t$: average loan size
- $FSS_t$: financial self-sufficiency
- $YGP_t$: yield on gross portfolio
- $Cost_t$: cost per borrower
- $e_{it,MS}$: error term of the market share equation

- $e_{it,FSS:}$ error term of the financial self-sufficiency equation

**Market share equation**

- **Market share** is measured in terms of revenue of the MFIs. It is a proxy for market structure.
- **Current size of MFIs** is measured in terms of total assets. Current size of a MFI can be perceived as a proxy for the scale of operation. Larger MFIs are expected to operate at a higher scale. This indicates that larger MFIs will be able to reap the benefits of economies of scale, and hence have a greater share in the market. Thus, asset base is expected to have a positive impact on the market share of a MFI.
- **Debt to equity ratio** measures the overall leverage of a MFI. It is used as a proxy for structural aspects of the market other than market share.
- **Average loan size**: providing higher average loans requires smaller transaction costs as compared to offering smaller loans. Thus, a MFI can increase its market share by offering large average loans, as it minimizes its costs.
- **Financial self-sufficiency**: good financial performance may result in higher market share as it increases the ability and willingness of a MFI to grow. On the contrary, if there are no entry barriers, better financial performance of existing MFIs can encourage entry into the industry leading to a lower market share. Therefore, better financial performance of a MFI may affect its market share positively or negatively depending on the relative strength of these opposite forces.

**Financial self-sufficiency equation**

- **Financial self-sufficiency** is used as a proxy for financial performance. It is a preferred measure of performance as it offers a more complete summary of inputs and outputs than standard financial ratios such as return on assets or return on equity (Cull et al., 2007).
- **Market share**: MFIs with greater market shares (in terms of revenue) will be able to cover their financial and operating expenses. Hence, they are expected to be more financially self-sufficient than those with lower market shares.
- **Portfolio yields** are a proxy for effective interest rates and indicate the ability of an institution to generate revenue to cover its financial and operating costs (Peck and Ephrem, 2009). Charging higher interest rates for loans enables MFIs to cover their financial and non-financial costs thus improving their financial sustainability (Adongo and Stork, 2005).
- **Average loan size** is an outreach indicator and it captures the social performance of MFIs. Offering smaller loans will enable the MFI to serve more clients, hence, increasing its outreach. In contrast, offering larger loans per borrower, will have a smaller transaction cost but the number of clients served will relatively be lower. This implies that there is a tradeoff between serving a larger number of poor clients and attaining financial self-sufficiency. Hence, average loan size is expected to positively affect financial performance.
- **Cost per borrower** is used as a proxy for the performance of MFIs other than FSS and shows the extent of efficiency of MFIs. High cost of serving clients is expected to have a negative impact on the financial performance of MFIs.

## 4.5 Descriptive statistics

*Table 4.1: Descriptive statistics of variables*

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| Market share | 116 | 0.0689655 | 0.0248275 | 0.0212766 | 0.1289474 |
| Financial self-sufficiency | 133 | 0.9110226 | 0.3257628 | 0.29 | 1.76 |
| Yield on gross portfolio | 116 | 0.1575776 | 0.0856684 | -0.051 | 0.375 |
| Cost | 133 | 142.9474 | 99.28779 | 36 | 669 |
| Average loan size | 134 | 1413.634 | 817.757 | 339 | 4844 |

The average market share of the sample MFIs in terms of revenue is around 7 percent. The maximum market is about 13 percent and was held by Bussa Gonofa in 2003, while the minimum is about 2 percent and was held by DECSI in 2010.

The mean of financial self-sufficiency is 0.911, which is below 1. This indicates that, on average, the MFIs under investigation are not financially self-sufficient. Its standard deviation is 0.32. Since the standard deviation is small, it can be concluded that all of the fifteen MFIs have a value of FSS close to the average. It also implies that the mean FSS can be generalized for the whole population. Thus, on average, Ethiopian MFIs are not financially self-sufficient.

The mean yield on gross portfolio shows that, on average, MFIs generate around 15 cents for each single birr in outstanding loan portfolio. The maximum YGP is 0.375, contributed by Bussa Gonofa and the minimum YGP is -0.051 and it is that of Sidama's. This shows Sidama was the least efficient MFI in 2003.

The maximum cost per borrower was sustained by VF in 2011 while the minimum was incurred by Omo in 2009. Omo also delivered the smallest average loan size of 339 birr in 2003, whereas DECSI gave the maximum average loan of 4844.

## 4.6 Econometric analysis

Before a simultaneous equations model can be estimated, the order and rank conditions of identification need to be satisfied. In order for the model of the study to be identified, lags of some explanatory variables were taken. These variables are debt to equity ratio, average loan size, financial self-sufficiency and market share. The Hansen-Sargan test of overidentifying restrictions is used to check whether the variables used as instruments are valid or not. The null hypothesis of the test states that instruments are uncorrelated with the error term. The p-value of the test came out to be 0.7275, failing to reject the null hypothesis and indicating the validity of the instruments in the system. The Kleibergen-Paap LM test of rank of a matrix determines whether the minimal canonical correlation between the endogenous variables and the instruments is statistically different from zero. The null hypothesis of the test states that the equation is unidentified. The test provided a p-value of 0.000000 for the market share equation and that of 0.000002 for the performance equation. This confirms that the equations satisfy the rank condition of identification (see Appendix C).

In addition, all of the variables underwent box-cox transformation in order to guarantee the normality of disturbance terms. Diagnostic tests and estimation results of the model are presented as follows.

### 4.6.1 Diagnostic Tests

#### 4.6.1.1 Test for normality of residuals

*Table 4.2: Shapiro-Wilk W test for normal data*

| Variable | Obs | W | V | z | Prob>z |
|---|---|---|---|---|---|
| Market share residual of MFIs | 116 | 0.98186 | 1.696 | 1.182 | 0.11868 |
| Performance residual of MFIs | 133 | 0.99220 | 0.819 | -0.449 | 0.67330 |

The null hypothesis of the Shapiro-Wilk test states that the residual of an equation is normally distributed. With a p-value of 0.11868 for the market share equation and 0.67330 for the performance equation, one fails to reject the null hypothesis of residual normality. Thus, it can be concluded that the residuals of both equations are normally distributed.

#### 4.6.1.2 Test for functional form

**Market share equation**

Ramsey RESET test

Ho: model has no omitted variables

F(3, 90) = 2.26

Prob > F = 0.0872

**Performance equation**

Ramsey RESET test

Ho: model has no omitted variables

F(3, 91) = 0.76

Prob > F = 0.5180

Ramsey RESET test checks whether a model is correctly specified or not. For the market share equation, one fails to reject the null hypothesis at 10% level of significance, whereas one fails to reject the null hypothesis at 5% level of significance.

### 4.6.2 Econometric Results

*Table 4.3: 3SLS Results*

**Market share equation**

| Variables | Coefficient | Standard Error | z | P>\|z\| | [95% Confidence Interval] | |
|---|---|---|---|---|---|---|
| MFISZ | -1.398727 | 0.2109256 | -6.63 | 0.000 | -1.812134 | -0.9853206 |
| DER | 0.1287347 | 0.045322 | 2.84 | 0.005 | 0.0399052 | 0.2175642 |
| AL | 0.0880679 | 0.0246392 | 3.57 | 0.000 | 0.039776 | 0.1363599 |
| FSS | 0.0698439 | 0.0209885 | 3.33 | 0.001 | 0.0287073 | 0.1109806 |
| Constant | 6.030313 | 1.054955 | 5.72 | 0.000 | 3.962638 | 8.097987 |

**Performance equation**

| Variables | Coefficient | Standard Error | z | P>\|z\| | [95% Confidence Interval] | |
|---|---|---|---|---|---|---|
| MS | -0.2221087 | 4.252624 | -0.05 | 0.958 | -8.557099 | 8.112881 |
| YGP | 4.725994 | 4.465792 | 1.06 | 0.290 | -4.026797 | 13.47878 |
| AL | 0.7465169 | 0.2891423 | 2.58 | 0.010 | 0.1798084 | 1.313225 |
| Cost | -1.449332 | 0.3976756 | -3.64 | 0.000 | -2.228762 | -0.6699026 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Constant | 3.975034 | 2.986042 | 1.33 | 0.183 | -1.877502 | 9.827569 |

As can be inferred from Table 4.3, the 3SLS estimation results of the market share equation show that in contrast to its expected sign, the coefficient of MFI size is -1.398727 and it is significant. This may be explained by the fact that increased size of incumbent MFIs attracts new MFIs to enter the market, thereby reducing the market shares of existing MFIs and lowering the concentration of the industry. Debt to equity ratio has a significant coefficient of 0.1287347, indicating that capital structure has a positive effect on market share. Similar to the findings of Mahmoud et al. (2009), the coefficient of average loan size is 0.0880679 and it is significant. This implies that offering large average loans increases the market share of MFIs. The coefficient of financial self-sufficiency also has a positive and significant value of 0.0698439, indicating that financial performance enhances the market share of MFIs. This result is in line with the experience of other industries, such as the case of the Indian banking sector, where Sahoo and Mishra (2012) found a positive effect of financial performance on market share. This implies that good financial performance may serve as an entry barrier when new entrants are not capable enough to improve their financial performance to that of the incumbents, thus, enhancing the market shares of incumbent MFIs.

In the performance equation, the coefficients of market share and yield on gross portfolio are insignificant. In contrast to the aforementioned explanatory variables, the coefficients of average loan size and cost per borrower are significant. The negative sign of the coefficient of market share may be explained by the fact that, rather than holding large market shares, efficiency leads to financial sustainability. In line with the findings of Adongo and Stork (2006), Nyamsogoro (2010) and Tilahun (2013), the positive coefficient of average loan size indicates that providing larger average loans enhances financial performance through cost efficiency. This confirms the

hypothesis that there is a tradeoff between financial and social performance. Similarly, consistent with the findings of Nyamsogoro (2010) and Melkamu (2012) cost per borrower has, as expected, a negative sign, implying that high cost of serving borrowers reduces the financial performance of MFIs.

In conclusion, in the microfinance industry, performance affects the structure of the microfinance market, whereas market structure has an insignificant effect on the performance of the industry. This contrasts the view of the traditional SCP paradigm which asserts that market structure affects performance. In addition, significant impact of MFI size on market share suggests the interdependence of different aspects of market structure. This implies that they should not be considered separately.

# Chapter Five

# Conclusions and Implications

## 5.1 Conclusion

Microfinance has become an important source of financial services to the poor all over the world. Ethiopia is no exception to this. In addition to credit provision, MFIs have proven that the poor can save by providing saving products. Saving mobilization has become the backbone of many MFIs and hence they compete for it among themselves and with other financial institutions such as banks. The issue of strategic behavior of MFIs and competition in the industry has not been given as much attention as that given to the impact and performance of MFIs. In order to analyze such issues, the current paper employs the SCP framework to the study of the microfinance industry. With the aim of analyzing the simultaneity of interrelations between market structure and performance in the microfinance industry in Ethiopia, a 3SLS equation was estimated. The results of the estimation show that financial performance of MFIs affects the structure of the industry, while the effect of market structure on performance is insignificant.

The HHI for the microfinance industry showed a decline of only 4 percent in nine years, indicating that the industry is dominated by few MFIs. Also, each MFI sets its prices independently and there is no form of collusion among the MFIs in terms of pricing decisions.

From the descriptive analysis, it was found that ACSI, DECSI and OCSSCO dominate the industry in terms of saving mobilization, number of active borrowers, ownership of total assets and size of gross loan portfolio. These MFIs receive support from their respective regional governments. As a result of this backing by regional governments, private MFIs face the challenge of unfair competition from them, especially in terms of attracting clients.

The descriptive analysis also revealed some of the challenges of MFIs. Delinquency of clients and late repayment of loans, absence of a well-developed infrastructure, high staff turnover, limited willingness of banks to lend to MFIs without collateral the absence of a robust MIS were the major challenges that were identified by some MFIs.

The econometric analysis showed that the size and capital structure of MFIs negatively affect market share, while average loan size and financial sustainability have a positive and significant impact on the market share of MFIs. It was also found that market share and yield on gross loan portfolio have an insignificant effect on financial sustainability, while cost per borrower negatively and significantly affects FSS. The coefficient of average loan size was also found to be positive and significant, implying that there is a tradeoff between serving the poor and financial sustainability.

With regard to the relationship between market structure and performance, the findings of the study show that opposed to the traditional SCP view that market structure affects performance via market conduct, in the microfinance industry, performance positively affects market structure, whereas the effect of market structure on performance is insignificant, but negative.

## 5.2 Implications

Currently, only few MFIs benefit from the support of regional governments. However, regional governments should create a conducive environment that facilitates the operations of MFIs and provide plain-level support for all MFIs. In addition, all MFIs should sign a code of conduct so as to reduce the delinquency of clients that arises from taking credit from multiple MFIs.

As saving mobilization is the major source of loanable funds for MFIs, they should work on building their capacity to mobilize more savings. Investments should be made by concerned parties to build training institutions to train new and already existing employees, as trainings will enhance the productivity of staff and reduce the high rate of staff turnover. Moreover, the development of an automated MIS should be set as an objective by MFIs, as its use will facilitate fast exchange of information and reduce the inefficiency created by manual operations.

MFIs should also focus on developing new financial products that meet the demands of clients instead of only providing products that are already in the microfinance market. Developing products in line with client demand will improve the outreach of MFIs. Hence, investments in research and development of new products are required.

To conclude, further researches which incorporate data on all MFIs, use a different proxy for market performance, model the behavior of MFIs may enable to draw additional policy implications.

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# Appendices

## Appendix A.1: Microfinance Institutions in Ethiopia

| No. | MFIs |
|---|---|
| 1 | Amhara Credit and Savings Institution (ACSI) |
| 2 | Addis Credit and Savings Institution (ADCSI) |
| 3 | Dedebit Credit and Savings Institution (DECSI) |
| 4 | Oromia Credit and Savings institution (OCSSCO) |
| 5 | Vision fund micro-financing institution |
| 6 | PEACE micro-financing institution |
| 7 | Specialized Financial and Promotional Institutions (SFPI) |
| 8 | Gasha micro-financing institution |
| 9 | Buussa Gonofa micro-financing institution |
| 10 | Wasasa micro-financing institution |
| 11 | Meklit micro-financing institution |
| 12 | African Village Financial Services (AVFS) |
| 13 | Omo credit and savings institution |
| 14 | Eshet micro-financing institution |
| 15 | Sidama micro-financing institution |
| 16 | Aggar micro-financing institution |
| 17 | Benishangul Gumuz micro-financing institution |
| 18 | Degaf micro-financing institution |

| | |
|---|---|
| 19 | Dire micro-financing institution |
| 20 | Dynamic micro-financing institution |
| 21 | Gambella micro-financing institution |
| 22 | Harrar micro-financing institution |
| 23 | Harbu micro-financing institution |
| 24 | Letta micro-financing institution |
| 25 | Meket micro-financing institution |
| 26 | Metemamen micro-financing institution |
| 27 | Tesfa micro-financing institution |
| 28 | Lideta micro-financing institution |
| 29 | Somali micro-financing institution |
| 30 | Lefayeda credit and saving institution |
| 31 | Shashemene iddirs yelimat agar microfinancing institution |

*Source: NBE*

**Appendix B.1: Checklist**

**My name is Beza Teshome and I am currently writing my MSc. thesis on "A Structure-Conduct-Performance Analysis of the Microfinance Industry in Ethiopia". I have prepared the following checklist to be filled out by the respective General Managers of MFIs to understand the competitive behavior of MFIs to some extent. The information you provide will solely be used for academic purposes. Hence, I will appreciate your cooperation in presenting correct information.**

1. Name of MFI _____ Year of establishment _____
2. What is the ownership structure of the MFI?
    a. Government
    b. Share Company
    c. NGO
3. Does the MFI have social-orientation or commercial-orientation?
    a) Commercial orientation
    b) Social orientation
    c) Both
4. What type of financial products and services do you provide to your customers?

    _____

    _____

    _____

    _____

5. How much interest do you charge for your loan products?

    _____

    _____

    _____

6. How much interest do you pay for your saving products?

    _____

    _____

    _____

7. What are your sources of funds and which one is your major source?

8. Does the MFI compete with other MFIs in the city? If so, on what basis does it compete?

9. Does the MFI compete with banks in the city? If so, on what basis does it compete?

10. Does the MFI compete with informal lenders in the city? If so, on what basis does it compete?

11. Does the MFI compete with cooperatives in the city? If so, on what basis does it compete?

12. If there is no competition with other financial institutions, what is the reason?

a) Monopoly

b) Collusion

c) Specify if other

13. How do you set prices?

a) Follow the price set by competitors

b) Agree with other MFIs to set price

c) Fix price level based on cost

d) Specify if other

14. How do you measure

a) Financial performance?

b) Social performance

15. What factors affect your performance?

16. How does competition affect your performance?

17. Was there an entry barrier that the MFI encountered? If there was, how did the MFI overcome it?

18. Do you think the legal framework for MFIs is conducive for entry into the industry and your operations? If not, what are the major constraints imposed by the legal framework?

19. Do you use an automated MIS system for your operations?

☐ Yes ☐ No

20. Do you think using an MIS system

a) Enhances performance

b) Improves competitiveness

c) Specify if other

21. What are your major challenges?

**Appendix B.2 : Feedback of MFIs**

1. ADCSI

- Nature of ownership: Share company
- Financial products: loan, saving and micro-insurance.
- Sources of loanable funds: saving mobilization, borrowed funds from commercial bank, shareholder capital. Savings of customers is the major source of funds.
- Basis for setting price: cost, inflation, doubtful account, and by considering price of other MFIs
- Basis of competition with other MFIs and banks: saving mobilization
- Factors which affect performance: default and untimely repayment of loan, shortage of loanable funds, staff turnover, lack of an MIS system.
- Challenges: some clients do not pay interest on loan as they consider loan to be a grant, late repayment of loans and lack of loanable funds.

2. OCSSCO
    - Nature of ownership: Share company
    - Financial products: loan (agricultural loan, government employee loan, business loan, housing loan, MSE loan and individual loan), saving and credit life insurance.
    - Sources of loanable funds: own equity, saving mobilization and other programme funds. Savings mobilization is the major source of funds.
    - Basis for setting price: cost
    - Basis of competition with other MFIs: saving mobilization, quality of service and they also compete for skilled manpower. It competes with banks on the basis of saving mobilization.
    - Factors which affect performance: shortage of loanable funds, mobility of skilled and experienced staff, absence of effective group pressure or collateral, improper

selection of clients, crop failure, absence of saving habits, negligence of clients when it comes to repayment of loan, and limited loan products.

- Challenges: limited loan products, absence of saving habits, absence of legal title of assets in rural areas, limited willingness of banks to lend to MFIs without collateral, high turnover of experienced human resources and absence of infrastructure.

3. Vision Fund
    - Nature of ownership: Share company
    - Financial products: loan products (agricultural loan, agricultural business loan, individual loan, family loan, enterprise loan), saving products (compulsory and voluntary savings) and micro-insurance.
    - Sources of loanable funds: interest from loan and donations, the latter being the major source of loanable funds.
    - Basis for setting price: based on market price assessment
    - Basis of competition with other MFIs: outreach, interest rate and service provision. It does not compete with banks, cooperatives or informal lenders.
    - Factors which affect performance: topography, inability of some borrowers to repay loans, absence of infrastructure, illiteracy of clients, competition with other MFIs.
    - Challenges: high capital requirement for entry, high risk of repayment, difficult topography, absence of infrastructure, illiteracy of clients, competition with other MFIs.
4. Lefayeda
    - Nature of ownership: Share company
    - Financial products: loan and saving products

- Sources of loanable funds: shareholders' contribution and saving mobilization.
- Basis for setting price: based on cost
- Basis of competition with other MFIs: saving mobilization and financial products. It competes with banks on the basis of loan size. It does not compete with informal lenders. The MFI also competes with cooperatives based on financial products.
- Factors which affect performance: competition in the industry and low staff motivation
- Challenges: shortage of loanable funds, absence of an automated MIS system, high staff turnover

5. Gasha
    - Nature of ownership: Share company
    - Financial products: loan (group guarantee, consumption loan) and saving (voluntary and compulsory).
    - Sources of loanable funds: saving mobilization and shareholder capital
    - Basis for setting price: cost
    - Basis of competition with other MFIs: interest rate and efficient service. The MFI also competes with banks by offering lower loan sizes and door-to-door service.
    - Factors which affect performance: motivation of staff
    - Challenges: shortage of loanable funds, awareness of society, culture
6. PEACE
    - Nature of ownership: Share company

- Financial products: loan (agricultural loan and business loan), saving (voluntary saving, mandatory saving, regular saving, time deposit and youth saving) and loan micro-insurance.
- Sources of loanable funds: saving mobilization, borrowed funds and donation or grants, where saving mobilization is the major source.
- Basis for setting price: based on cost
- Basis of competition with other MFIs: interest rate, loan size and loan term. It competes with banks by paying higher interest rate on saving and by targeting the poor. There is also competition with informal lenders on the basis of interest rate, service delivery, loan application format, loan size and loan guarantee, and with cooperatives based on saving mobilization.
- Factors which affect performance: delinquency, shortage of loanable funds, unfair competition, inflation, market failure and climate
- Effect of competition on performance: raises client dropout and reduces client retention rate, raises operational cost, affects growth in outreach and sustainability.
- Challenges: shortage of loanable funds and lack of a robust MIS.

7. Aggar
    - Nature of ownership: Share company
    - Financial products: credit (micro-business loan, small business loan, agricultural loan and consumption loan) and saving services (compulsory savings, voluntary savings, special savings and time deposits)
    - Sources of loanable funds: shareholder capital, client savings and loan from RUFIP. Client savings is the major source.

- Basis for setting price: administrative expenses cost of funds, loan loss provision and profit margin.
- Basis of competition with other MFIs: interest rates, loan size and customer service. It also competes with informal lenders with interest rates, loan size and loan term. It does not compete with cooperatives as they provide financial services to their members only.
- Factors which affect performance: shortage of loanable funds, lack of an automated MIS, staff turnover, delinquency, unethical competition, natural factors such as rain and drought.
- Effect of competition on performance: enhances creativity and innovation. However, it has a negative effect if competition is unethical.
- Challenges: lack of loanable funds, lack of experienced manpower and high staff turnover, and absence of an automated MIS.

**Appendix C: Tests of order and rank conditions**

**Appendix C1: Test of overidentifying restrictions**

Hansen-Sargan overidentification statistic : 0.636

Under H0, distributed as Chi-sq(2), pval = 0.7275

**Appendix C2: Kleibergen-Paap rk LM test of rank of matrix**

Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)

Ha: matrix has rank=K1 (identified)

Market share equation: rk= 90.25 Chi-sq( 4) pvalue=0.000000

Performance equation: rk= 31.67 Chi-sq( 4) pvalue=0.000002