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ADDIS ABABA UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS
DEPARTMENT OF ACCOUNTING AND FINANCE
(GRADUATE PROGRAM)

THE EFFECT OF CAPITAL STRUCTURE ON FINANCIAL PERFORMANCE
OF MICROFINANCE INSTITUTIONS IN ETHIOPIA

A Thesis Submitted to the School of Graduate Studies of Addis Ababa University
in Partial Fulfillment of the Requirements for the Degree of Masters of Science in
Accounting and Finance.

BY
YOHANNES LIKU

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ADDIS ABABA

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January, 2017
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Statement of Declaration

I, Yohannes Liku Getaneh, hereby declare that the thesis on the topic entitled “The effect of capital structure on the financial performance of microfinance institutions in Ethiopia” submitted by me for the award of the degree of Master of Science in accounting and finance from Addis Ababa university, is original work and it hasn't be presented for the award of any other Degree, Diploma, or other similar titles of any other university or institution.

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Statement of Certification

This is to certify that Yohannes Liku Getaneh has carried out a thesis on the topic entitled “The effect of capital structure on financial performance of microfinance institutions in Ethiopia” in the partial fulfillment of the requirements of the MSc degree in accounting and finance complies with the regulations of the university and meets the accepted standards with respect to originality and quality.

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Chair of Department or Graduate Program Coordinator

Abstract

This study was undertaken with the objective of identifying the effect of capital structure on microfinance institutions financial performance in Ethiopia. The study was based on thirteen microfinance institutions, within the period of 2010-2015, which are practicing micro-financing business at present. The collected secondary data were analyzed through usage of panel data analysis technique by the help of e view 8.0 software and the findings shows that most of the microfinance institutions had employed high leverage. The mean total debt ratio was around 63% as well as the average deposit to total asset ratio shows a mean value of 42.2%. All other variables except firm size do have a positive relation with financial performance measured by (profitability) of microfinance institutions in Ethiopia. Finally, the study recommended that microfinance institutions in Ethiopia should employ more debt, which is up to optimal level in to their capital structure, so as to maximize their financial gain (profitability).

Key words: Microfinance, Debt Financing, profitability, return on equity

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List of Acronyms

| | |
|-------|---|
| CFO | Chief Finance Officers |
| CLRM | Classical Linear Regression Model |
| DEPTA | Deposit to Asset Ratio |
| DTAR | Debt to Asset Ratio |
| DTER | Debt to Equity Ratio |
| DW | Durbin Watson Test |
| EBIT | Earnings Before Interest and Tax |
| EVA | Economic Value Added |
| FE | Fixed Effect Model |
| FAGE | Firm Age |
| FSIZE | Firm Size |
| GDP | Gross Domestic Product |
| ICR | Interest Coverage Ratio |
| LTDR | Loan to Deposit Ratio |
| MFI | Microfinance Institution |
| NBE | National Bank of Ethiopia |
| NGOs | Non-Governmental Organizations |
| NIM | Net Interest Margin |
| OEPDL | Operating Expense per Dollar Lent |
| OLS | Ordinary List Square |
| PECE | Poverty Eradication and Community Empowerment |
| RAROC | Risk Adjusted Return on Capital |
| RE | Random Effect Model |
| ROA | Return on Asset |
| ROE | Return on Equity |
| SMEs | Small and Medium Enterprise |

CHAPTER ONE: Introduction

This chapter gives a brief background of the impact of capital structure on financial performance of microfinance institutions with regard to Ethiopia's perspectives. It also captured the statement of the problem, general and specific objectives, research questions, scope of the study, and the limitations of the study.

1.1. Background of the study

For every organization in one way or another, their business activities must be financed. A good financing strategy is one of the main factors for their success. As a result, the proportion of debt and equity which make up assets of a firm is one of the major issues for their financial earnings that owners and managers are worried about it, in order to make an optimal capital structure decision which maximizes value of the firm.

Capital structure is the way a firm combines equity and debt to gain the maximum value. The value of a firm is therefore defined as value of debt plus value of equity (Ross, Westerfield, Jaffe & K akani, 2009). A firm should work towards maximizing its value and at the same time maximize the stockholders' interests and it should therefore establish what ratio maximizes the shareholders' interests (Ross et al., 2009). Capital structure is defined as the composition of all the securities the firm issues in order to finance its operations (Brav & Maug, 1998).

The concept is generally described as the combination of debt and equity that make the total capital of firms (Saad, 2010). The proportion of debt to equity is a strategic choice of corporate managers. Capital structure decision is the vital one since the financial performance of an enterprise is directly affected by such decision. Hence, proper care and attention need to be given while determining capital structure decision. In the statement of affairs of a firm, the overall position of the enterprise regarding all kinds of assets and liabilities are shown. Capital is a vital part of that statement. (Saad, 2010).

According to Myers & Majluf (1984), industry sector can be a determinant of firm's capital structure decisions, given that the nature and composition of assets influence financing needs, as well as firm's capacity to provide creditors with assets as collateral. Therefore, firms whose activities are based on tangible assets obtain debt more easily. On the contrary, firms whose activities are based on intangible assets associated with future growth opportunities experience more difficulty in obtaining credit.

In these regard, a cautious attention has to be paid as far as the effect of capital structure is concerned with unplanned capital structure, companies may fail to economize the use of their funds. Consequently, it is being increasingly realized that a company should plan its capital structure to maximize the use of funds and to be able to adapt more easily to the changing conditions (Pandey, 2009).

Capital structure of any institution should therefore be well managed to ensure that the firm remains in operation and it's able to finance its projects. Therefore, the way a microfinance institutions combines its debt and equity, will define its performance as noted by (Ross et al., 2009).

In Ethiopia there are studies on determinants of capital structure and the effect of capital structure in banking and other non-financial sectors, the existing empirical studies have basically focused on the determinants of capital structure, to explain how firms can finance business activities by using debts and equity to maximize the benefits for shareholders based on their advantages. A natural extension from Ethiopian finance sector perspective is to investigate the effects of financial structure on the financial performance of microfinance institutions, of which previous studies have tended to be fairly limited.

Therefore, given the unique features of microfinance institutions financial structure and the environment in which they operate, there are strong grounds for a separate study on the impact of capital structure on the financial performance of microfinance institutions in Ethiopia.

Hence, the aim of this study is to examine the impact of financing decision /capital structure on financial performance of microfinance institutions in Ethiopia. This will equip financial

managers with applied knowledge of the potential problems in performance and capital structure, as well as determining their optimal level of capital structure to achieve optimum level of firm's financial performance (profitability) and hence shareholders' wealth.

1.2. Problem Statement

The issue to decide on financing a business operation and investment is the utmost consideration given from the time of its initial establishment to the entire life of the business. In raising the fund for use, managers (owners) encounter different sources to choose. A source can be a fund raised from owners of the business (or stockholders) as equity capital and debt through issuance of debt securities or borrowing loan extended through financial institutions. Financing decision is also vital in relation with the profitability of an enterprise as well as the performance is directly affected by such decision.

The successful selection and use of fund is one of the key elements of the firms' financial strategy. Hence, proper care and attention need to be given for determining financial decision. Moreover, financing decision is among the major issues in both small and large business firms. Most of the business firms especially small ones are said to die or poorly perform due to different challenges facing managers or owners on the financing decisions. Firm's decision on the use of different forms of financing results into different capital structures which may have different impact on the firm performance.

Many studies have been conducted by using different methods and data from developed and developing countries to define the effects of capital structure on financial performance of firms. They investigate the link between the choice of leverage ratios, profitability, firm size, and other factors (such as non-debt tax shields, firm growth and collateral values of assets etc.). However, the results of their studies provide contradictory and mixed that consists negative, positive and mixed correlation between financial performance (profitability) and the leverage ratio of firms in developed and developing countries.

King and Levine (1993) and Levine and Zervos (1998) provide empirical evidence regarding the strong positive relationship between the financial leverage and profitability in financial sector. It is also suggested that firms tend to rely on external funds for their expansion, and that they grow faster in countries with good financial systems. This finding is consistent with the findings of Rajan and Zingales (1998a), Demircuc-Kunt and Maksimovic (1998) and Demircuc-Kunt and Levine (1999). As Trong (2012) stated, Demircuc-Kunt and Huizinga (2000) were the first to consider the impact of capital structure on bank financial performance for a large number of developed and developing countries in the period from 1990 to 1997. They investigate the effects of financial structure on profitability and bank interest margins. The empirical study result concludes that financial leverage has an important impact on bank performance. Hutchison and Cox (2006), test the causal relationship between bank capital structure and profitability by using bank data from the US in two different time periods: the less regulated period from 1983 to 1989 and the more highly regulated period from 1996 to 2002. Financial leverage is found to be positively related to the return on equity (ROE) or the return on assets (ROA). Kyeboah-Coleman (2007) examines the impact of financial structure on the performance of MFIs. This study shows that most MFIs employ high leverage and finance their operations with long-term rather than short-term debt. Highly leveraged MFIs also perform and found better financial return by reaching out to more clients, and enjoy scale economies.

In contrast to the above results, most studies have proved that capital structure is related negatively with firm financial performance. Taggart (1985) examines how US firms build their financial structures and concludes that leverage is negatively related to profitability. Majumdar, Chhibber (1999), (Ghosh, 2007) reached that debt (capital structure) associated inversely with firms financial performance. (Abor, 2005), noted that capital structure measured by short term debt, long term debt and total debt associated negatively and significantly with firms financial performance. Furthermore, studies of Arimi (2010), Gleason, Mathur (2000), Krishnan and Moyer (1997) Rao, Al-Yahyee and Syed (2007), showed negative relationship of firm debt and profitability. Huang and Song (2006) found a negative correlation between leverage and performance (earnings before interest and tax to total assets on firms of China). Chakraborty, (2010) reported a negative relationship between debt and financial performance of firms. While

examining the relationship between leverage and financial performance of firms in Jordan, Zeitun, Tian (2007) found that debt level is negatively related with performance.

In addition to the above contradictory researched results, the relationship between firm's financial performance and capital structure has produced mixed results. (Arbian and Safari, 2009), investigate the effects of capital structure on profitability using 100 Iranian listed firms from 2001 to 2007. They found short-term and total debts are positively related to profitability measured by (ROE), which also indicate a negative relation between long-term debts and ROE. Based on the indication of the above literatures reviewed, still there are contradictory results of capital structure and firm's financial performance relationship. Therefore, one of the aim of this research is to identify the relationship between capital structure measured by total debt to asset ratio (DTAR), total deposit to asset ratio (DEPTR) and interest coverage ratio (ICR) and financial performance measured by return on equity (ROE) of Ethiopian microfinance industry over the period 2010-2015 years.

In Ethiopia perhaps as to the researcher's knowledge, there are few researches conducted where most of them are emphasized in determinants of capital structure. Amanuel (2011), investigated determinants of capital structure evidence from manufacturing share companies in Addis Ababa city, Bayeh (2011) deals in empirical investigation on determinant of capital structure the case of insurance companies in Ethiopia, Daniel (2011) investigated the determinants of capital structure in Ethiopian small scale manufacturing cooperatives, Weldemikal (2012) examined determinants of capital structure on commercial banks in Ethiopian banking industry, Mohammed (2014) investigate determinant factors of capital structure and their impact on performance evidence from insurance companies in Ethiopia, Frezewed (2016) investigate corporate capital structure and its impact on profitability, evidenced from manufacturing firms in Ethiopia, Tamirat (2015) examine the effect of debt financing on profitability of commercial banks in Ethiopia.

Therefore, based on the above studies, there is no empirical research done in Ethiopia concerning the effect of capital structure on financial performance of microfinance institutions (MFIs) in Ethiopia, which motivates the researcher in filling the gap by putting his contribution on the effects of capital structure on financial performance of Ethiopian microfinance institutions.

1.3. Research Question

Based on the above statement of the problems the researcher develops the following research question.

- What is the effect of capital structure on financial performance of microfinance institutions in Ethiopia?

1.4. Objectives

1.4.1. General Objective

The main purpose of this research is to provide in-depth analysis and to introduce possible explanations on the effect of capital structure on financial performance (profitability) of microfinance institutions in Ethiopia. In order to achieve these objectives, this study conducted an empirical investigation into the impact of financial leverage on the financial performance (profitability) of MFIs by using a panel data analysis.

1.4.2. Specific Objectives

This study attempted to achieve the following specific objectives:

1. To examine the effect of total debt to asset ratio on Return on Equity as a measure of financial performance of microfinance institutions in Ethiopia.
2. To determine whether deposit to asset ratio have any effect on Return on Equity as a measure of financial performance of microfinance institutions in Ethiopia.
3. To establish if there is any effect of interest coverage ratio on Return on Equity as a measure of financial performance of microfinance institutions in Ethiopia.

1.5. Research Hypothesis

Based on theories and empirical studies develops the following hypothesis to find out the effect of capital structure on financial performance given in the study, the following hypotheses are developed for testing.

H1:- There is a significant positive relationship between debt to asset ratio and return on equity (ROE)

H2:- There is a significant positive relationship between deposit to asset ratio and return on equity (ROE)

H3:- There is a significant positive relationship between interest coverage ratio and return on equity (ROE)

1.6. Methodology of the Study

The goal of this research is realized by employing both theoretical and empirical analysis. The theoretical analysis consists of a literature review. The literature review is desk-based research which uses various sources of secondary data. The empirical analysis consists of econometric analyses. The econometric analyses use secondary data from National Bank of Ethiopia (NBE) and from each Microfinance Institutions (MFIs). To achieve the objective of the study panel data of thirteen MFIs six years (2010 – 2015) financial statement data was analyzed.

1.7. Significance of the Study

This study that deals with the effect of capital structure on financial performance (profitability) of microfinance institutions in Ethiopia is beneficial for different stakeholders such as for microfinance institutions, future researchers and concerned bodies like donor and other government institutions including the controlling organ National Bank of Ethiopia. For MFIs managers, this study provides basic information about the effect of capital structure on financial performance and understanding on the activities that enhance their institutions performance. For future researchers, provide basic information for further study in the sector by developing new hypotheses and design with new variables by using other capital structure measurements that are

not included in this research. Finally, the finding of the study is used as an input for the concerned bodies (regulator and policy makers) to forecast the overall health and soundness of the microfinance business in Ethiopia. Besides, it helps other researchers and other academic communities as a source of reference for those who want to make further study on the area afterwards.

1.8. Scope and limitation of the study

The scope of this study is limited to the examination of the impact of capital structure on financial performance of sample MFIs over the period of six years, 2010-2015. Even if there are so many factors that affect MFIs financial performance (profitability), but this study is limited only to factors such as, total debt to asset ratio, deposit to asset ratio, interest coverage ratio to measure the level of debt on capital structure of the institution and loan to deposit ratio, firm size and firm age are used as control variables to ensure the accuracy of the results of the regression model.

In order to make generalization from sample to population through observation of the study, the researcher selected sample MFIs from Category A and B, which is segregated by National Bank of Ethiopia into three, because of their larger asset size, market share (controls over 95%), larger number of customers, data quality, data availability and similarity in their financial structure that they have, unlike category C. As a result, the researcher obtains 78 observations by taking a sample of 13 microfinance institutions from that of 18 categorized under category A&B namely: Amhara Credit and Saving Institutions, Dedit Credit and Saving Institution, Oromia Credit and Saving Institution, Omo Micro Finance Institution, Addis Credit and Saving Institution, Specialized Financial and Promotional Institution, Vision Fund Microfinance Institution, Buusaa Gonofaa Micro Financing, Poverty Eradication & Community Empowerment Micro Financing Institution (PECE), ESHET Micro Finance Institution, Aggar Micro Finance, Wasasa Micro Finance Institution and Africa Village Financial Services.

There are also the following limitation which might affect the research significance of expected out comes; this limitation is data unavailability (for example, lack of audited financial statement for MFIs and data before the year 2010).

1.9. Structure of the Study

This study is organized into five chapters. Chapter one presents research introduction, statement of the problem, objective of the study, hypothesis, scope and limitation, and significance of the study. Following on this, chapter two of the thesis presents review of theoretical and empirical literatures on capital structure and financial performance (profitability). Chapter three presents the research methodology. Then, chapter four present the results and discussion of the study and finally, chapter five present conclusions and possible recommendations.

CHAPTER TWO: Review of Related Literatures

2.0. Introduction

This chapter serves as background for this study by describing concepts of financial intermediation and factors that could influence MFIs' financial performance (profitability). Subsequent chapters will build on concepts and definitions described here. In light of the above, the purpose of this chapter is to review the literatures related to the effects of capital structure on the financial performance (profitability) of MFIs. The review has theoretical orientation, overview of MFIs in Ethiopia and previous studies related to the topics. The chapter begins with theoretical framework on capital structure theories to inform the study further. In addition, the researcher discusses various empirical studies done in the same field. Finally, the chapter summary and knowledge gap are stated.

2.1. Capital structures theories

The capital structure decision is crucial for any business organization, including MFIs. This decision is important because of the need to maximize the returns of the firm, and also because of the impact such a decision has on the firm's ability to deal with its competitive environment. The capital structure of a firm is a mix of different securities (Abor, 2005). Berk and DeMarzo (2007) define capital structure like this: "The relative proportions of debt, equity, and other securities that a firm has outstanding constitute its capital structure" (Berk&DeMarzo, 2007, p. 428).

Today MFIs have an increasingly broad range of financial sources to urban traders and rural households at their disposal. This gives them a wider funding diversification, but it also makes it much more complex to make decisions about capital structure. Better capital structure decision making amongst MFIs will minimize risk, maximize financial flexibility, and encourage the long-term solvency needed to provide sustainable financial services to poor clients (CGAP, 2007).

Within finance, capital structure has been a hotly debated issue for years. Several theories have been advanced in explaining the firm's capital structure. Despite this researchers in financial management have not yet found the optimal capital structure. So far the best that the academics and practitioners have been able to achieve are prescriptions that satisfy short-term goals (Abor, 2005). The following section will discuss the most influential economic theories on the link between capital structure and financial performance to provide quality statements for the empirical analysis presented in the following chapters.

2.1.1. Modigliani and Miller (MM) theory

In corporate finance, there is a large body of literature that examines the financing behaviors and the impact of financial structure on financial performance of firms. However, most current studies in the field of financial structure are dominated by two main theories: trade-off theory and pecking order theory (Swinnen et al., 2005). They have both been developed from Modigliani and Miller's theorem, which is considered as one of the most important cornerstones of finance (Pagano, 2005). These theories provide a main framework for the effects of financial structure on the financial performance of firms in general and financial institutions in particular. Over the years, three major theories of capital structure have emerged which diverge from the assumption of perfect capital markets under which the "irrelevance principle" works. Therefore, the capital structure of a firm is considered as the result of the transactions with various suppliers of finance.

In a perfectly competitive market, Modigliani and Miller (1958 and 1963), state that the value of a firm is independent of financial structure. Leveraged and unleveraged firms have the same cost of funds, since debt and equity are assumed to have the same interest rate. This theory has several assumptions, including that there is no transaction cost, no information asymmetry, no taxes and the same interest rate.

According to Modigliani and Miller (1963), debts have a tax benefit shield, which leads firms to maximize their value by using as much debt as possible if there are no bankruptcy and agency

costs. However, imperfections exist in the real world, including bankruptcy costs, agency costs and gains from leverage-induced tax shields. Thus, financial structure is completely relevant to the value of a firm. It suggests that an optimal financial structure may exist and tends to reflect both the tax advantages of debt, fewer default costs and the agency costs of managerial discretion (Lehan 1998).

There are a number of theoretical and empirical studies that largely support the notion that bankruptcy and agency costs are the partial determinants of leverage and optimal financial structure. These studies have generally examined the financing behaviors of firms if Modigliani and Miller's hypotheses do not hold.

2.1.2. Trade-off theory

Refers to the trade-off between the benefits and costs of debt and equity financing after accounting for market imperfections such as taxes, bankruptcy costs and agency costs. According to the assumptions of Modigliani and Miller (1963 and 1958), there are no bankruptcy and agency costs. However, the presence of agency and bankruptcy costs of debt in the real world make its tax benefit exaggerated. This means that there are some threshold levels of debt, under which the values of firms are maximized. The threshold level is generally called the optimal level of financial structure, in which debt is expected to provide maximum tax benefits (Myers, 1984).

When firms are profitable, they prefer debts to equity because interest paid to lenders is a deductible item to net income before paying corporate income tax (IFS, 2011). However, one of the disadvantages of debt is the cost of potential financial distress, especially when the firm relies on too much of it. They target their capital structures and tend to use more debt to implement highly efficient output strategies when the past positive return is a good proxy for future return (Jensen, 1986). Firms with low profit prefer internal funds, since external ones may be more expensive and non-debt tax shields may be bigger than the advantage of tax benefits (De Angelo and Masulis 1980). Developed from these predictions, dynamic trade-off theory points out the role of time, expectations and adjustment costs. The correct financing decision typically depends on the financing margin that the firm anticipates in the next period (i.e. some firms expect to pay

out funds, while others expect to raise funds in the next period). This suggests that the optimal financial choice today tends to depend on what is expected to be optimal in the next period. These theories explain the difference in the debt to equity ratio between industries but they do not explain differences within the same industry.

In addition, Trading-off theory assumes that large firms are more diversified, have lower risk, better reputation, more stable cash flows and fewer hazards to be liquidated. This gives large firms easier access to the capital markets with negligible debt costs. Thus these firms are stronger to face bankruptcy and financial distress (Mohammed G. 2014).

This theory has been reviewed so as to anchor the independent variable of debt and Deposits. The trade-off theory suggests that managers simply prefer debt (Myers, 2001). They balance the costs and benefits of debt to reach an optimal leverage level, the interest expense on the debt is tax deductible (thereby reducing the firm's tax liability), thereby reducing the effective price of using debt relative to equity (Myers, 2001). An additional benefit of debt is that an organization's free cash flow is reduced (Myers, 2001). Deposit finance has also played a role in the theory of bank funding it is usually simply treated as another form of debt (Calabrese, 2011). Therefore Deposits is also tied to Trade-off theory in the study.

2.1.3. Pecking order theory

The pecking-order theory argues that, because of information asymmetry, firms choose to use their retained earnings first to finance their investments Myers and Majluf, (1984). When internal financing does not suffice, firms issue debt first and equity last. The pecking order theory suggests that firms have a particular preference order for capital used to finance their businesses Myers and Majluf, (1984). The order of preferences reflects the relative costs of the various financing options A bor, (2005), Berk and DeMarzo, (2007). Owing to the presence of information asymmetries between the firm and potential financiers, the relative costs of finance between the financing choices Berk and DeMarzo, (2007). Where the funds provider is the firm's retained earnings, meaning more information than new equity holders, the new equity holders will expect a higher rate of return on capital invested resulting in the new equity finance being more costly to the firm than using existing internal funds Myers and Majluf, (1984). A similar

argument can be provided between the retained earnings and new debt-holders. In addition, the greater the exposure to the risk associated with the information asymmetries for the various financing choices besides retained earnings, the higher the return of capital demanded by each source Berk and DeMarzo, (2007). Thus, the firm will prefer retained earnings financing to debt, short-term debt over long-term debt and debt over equity.

Having enough slack would allow firms to minimize the costs of information asymmetry associated with external financing. Studies show that majority of (CFO) Chief Finance Officers appreciate financial flexibility, more so when the proportion of managerial ownership is higher Graham and Harvey, (2001). According to Graham and Harvey (2001) most managers confirm that debts are issued when their internal funds are insufficient to fund their activities. Sometimes a firm's inability to obtain funds using debt affects their decisions to issue common stock Graham and Harvey, (2001). There is weak support for either the trade-off or the information asymmetry-based pecking-order theory of capital structure, Graham and Harvey, (2001).

This theory explains why managers simply prefer internal funds to external borrowing Calabrese, (2011). The pecking order theory is an alternative explanation to predict organizational leverage Calabrese, (2011). Unlike the trade-off theory, increased profitability is expected to result in a decline in leverage, because a more profitable firm is better able to finance capital needs with internal financial resources (such as retained earnings), Calabrese, (2011). At the core of the pecking order theory is the notion that leverage decisions are driven by information asymmetry between management and investors: because investors will view equity (stock) issuances negatively, firms will prefer to finance capital from retained earnings, then debt, and only having exhausted these options, new equity Calabrese, (2011).

2.1.4. Market Timing Theory

The theory perceives that managers issue securities depending on the time varying costs of relative equity and debt and thus issuance decisions have a long term effect on capital structure because the observed capital structure at any particular date is the outcome of prior issuance decision thus firms prefer to issue equity when the relative cost is low and prefer to issue debt when equity cost is high (Linus M. 2013).

Since the promised payments to bondholders are fixed, stockholders are entitled to what is left over after the fixed payments; stock prices are more sensitive than bond prices to any proprietary information about the firm's future performance. If management has favorable information that is not yet reflected in market prices, the release of such information will cause a larger increase in stock than in bond prices, and so the current stock price will appear more undervalued to managers than current bond prices (Molyneux and Thornton 1992). Implication of this theory is that for a firm to avoid diluting the value of existing stockholders claims, the companies that are profitable uses for more capital but believe their shares not to be undervalued will generally choose to issue debt rather than equity. Conversely, managers who think their companies are overvalued are more likely to issue equity and, what amounts to the same thing, to make stock for- stock acquisitions. The importance for management is to recognize here is that most companies issuing new equity those that are undervalued as well as those that are overvalued should expect a drop in their stock prices when they announce the offering.

2.2. Overview of Microfinance Institutions role

Microfinance refers to giving poor and low income people with no access to financial services through the ordinary formal financial sector the provision of different types of small-scale financial services. The fundamental services that the MFIs provide are the same that conventional financial institutions offer to their clients; the only difference is the scale and method of service delivery (Ledgerwood, 1999).

Here is a definition of microfinance used by Gateway (2012) "Microfinance is often defined as financial services for poor and low-income clients offered by different types of service provider" (Gateway, 2012). Some MFIs also provide enterprise development services, such as skills training and social services, these are not included in this definition, and it only focuses on the financial side of microfinance, which I will do in this thesis.

There have been a huge growth in the microfinance industry for over a decade, but there is still a long way to go, it only reaches a small percentage of its potential market worldwide

(Ledgerwood & White, 2006). Microfinance can be a powerful instrument against poverty, but it is only when supply meets demand that the poor people can find their way out of poverty (Helms, 2006). According to the most recent estimates microfinance has reached one hundred and fifty million individuals worldwide (Armendariz & Labie, 2011) . Still 90 percent of the population of the developing world do not have access to formal sector financial services (Robinson, 2001).

There is a huge demand for small scale commercial financial services among the world's poor and low income people. The financial services can help them improve household and enterprise management, increase productivity, smooth income flows and consumption costs, enlarge and diversify their micro-businesses, increase their incomes, and empower their way out of poverty. But unfortunately the formal financial sector is rarely able to cover the demand for these financial services (Robinson, 2001). Credit is often widely available from informal commercial moneylenders, such as commercial moneylenders, pawnbrokers and rotating savings, and credit associations but typically at a very high cost to the client (Ledgerwood, 1999; Robinson, 2001).

The Ethiopian microfinance sector rather is characterized by its rapid growth, an aggressive drive to achieve scale, a broad geographic coverage, a dominance of government backed MFIs, an emphasis on rural households, the promotion of both credit and savings products, a strong focus on sustainability and by the fact that the sector is Ethiopian owned and driven. The industry has a strong focus on loans to the very poor, as indicated by the relatively small loans when compared to neighboring countries. Sector outreach is impressive and the financial performance of the sector is considered good, although the operational margins and profitability are low. MFIs have also mobilized a significant amount of savings, thereby improving financial as well as operational sustainability (MFT, 2011).

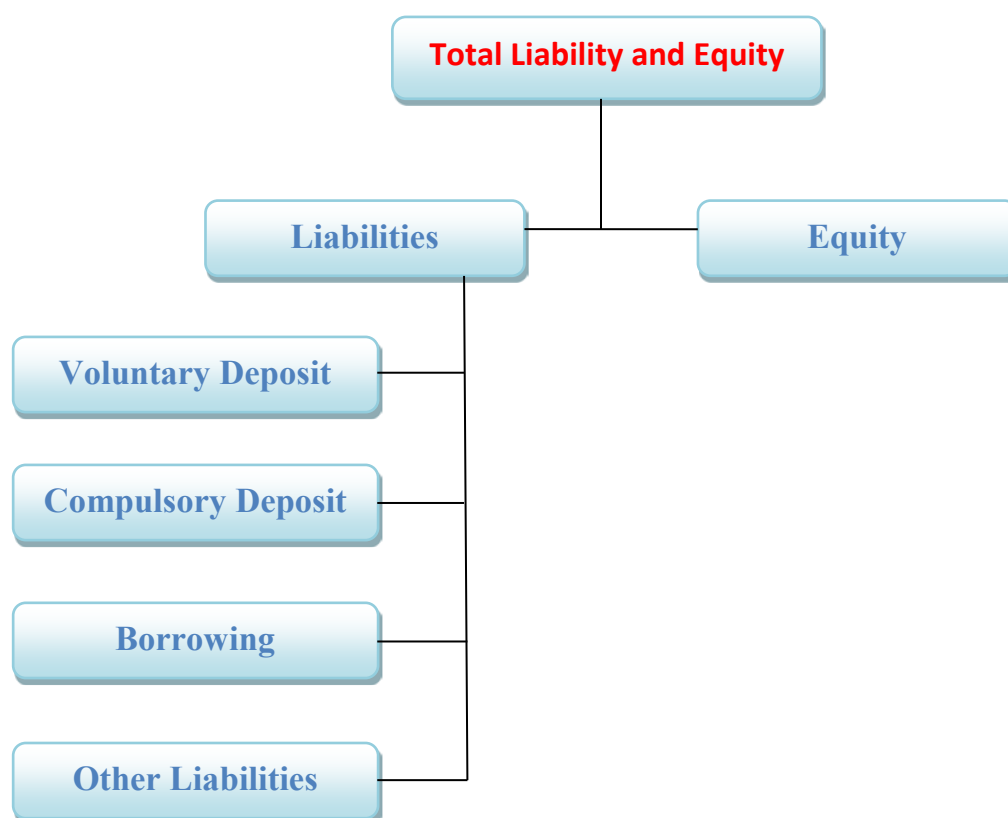
2.3. Capital Structure of Microfinance

Like other businesses, the financial structures of MFIs include two major parts: total liabilities and total equity (see Figure 2.1). Total liabilities, sometimes called total debts, typically include voluntary deposits, compulsory savings, debts and other owners have invested. Before deciding

to start a new business or to expand a current one, one of the first questions is how to raise money or funds to finance the operation based on the business plans. Fundamentally, there are two main separate categories of financing instruments that a MFIs can choose: liabilities financing and equity financing (Mullineux and Murinde, 2001). There has been discussion on which is the best option: debt or equity financing?

Choosing between liabilities and equity financing regularly creates a dilemma, since the answer always depends on the particular situation of each MFI. Each instrument has its own pros and cons; therefore, a mix of liabilities and equity financing is constantly the optimal strategy, with favorable financial leverage to maximize the benefits for shareholders based on their advantages.

Figure 2.1. Financial Structure of MFIs



Sources: Adapted from Hsu (2007), MIX Market (2009), Sapundzhieva (2011) and Hermes et al. (2011).

2.3.1. Equity Financing

Equity financing refers to the act of raising money to finance business activities by issuing stocks (common or preferred stocks) to the current owners or potential investors. This form of financing enables firms to receive more investment funds from the current owners and potential investors with or without borrowings for their startups or when they need to raise additional equity to offset existing debts.

At the early stages of a new business, owners need to invest their own money to finance the start-up operations. As the business is a separate entity from its owners, these investments create a liability in the shape of capital. In accounting and finance, owners' equity is the residual interest or claim of owners in assets after all other liabilities are paid (Delloite, 2010). If total debts exceed total assets, negative equity exists. This means that creditors would not be able to get enough money back from their debts, and nothing is left over to reimburse owners' equity. Thus, owners' equity is also known as risk or liable capital.

It is widely accepted that firms with high profitability and poor credit ratings often rely on equity financing to fund their new or small businesses. It is also ideal for startups and newly launched firms, since they do not have a solid track record of success and face uncertainty in the early stages of development. There are three main methods of raising equity: retained profits, rights issues and new issues of shares to the public. (Chasnow and Johnson, 2010).

2.3.2. Liabilities Financing

Liabilities financing, also called debt financing, refers to the borrowed money which a firm must pay back to lenders with interest after a specific agreed period of time. Firms tend to rely on debt financing to fund their businesses if they are well established and have steady sales, solid collateral and profitable growth. Due to lack of sufficient funds (equity), firms always use borrowed money as an extra source of finance to expand their businesses. Debt may be a good option, but it can be very dangerous if firms do not have in-depth knowledge of the pros and cons of the financial instrument. The main advantages of debt financing are:

- Owners can maintain maximum control over their business without sharing control and profit with lenders.
- The firm has no other obligations apart from the repayment of the loans (the principal and interest) to the lenders.
- Interest on debts is tax-deductible to corporate income tax. This means that it shields a part of the income from taxes and lowers tax liability every year.

However, there are also a number of disadvantages of debt financing. Firms have to show lenders how they are going to repay the loans, and secure loans against their assets as collateral. In addition, they may have large loan repayments for startup costs. Thus, whenever they use debt financing they run the risk of bankruptcy. The higher the level of debt financing, the higher the risk. Clearly, debt financing can bring some benefits to shareholders, but over-reliance on this financing instrument creates a negative impact on their credit ratings and makes it difficult to raise funds in the future.

2.3.3. Deposits

Deposits refer to the sum of savings deposited in financial institutions. They are categorized according to the type of client (individual vs. institution) and different products. In microfinance, there is an additional category which includes disclosures of voluntary deposits vs. compulsory deposits (MIX Market, 2011). These terms are often mixed and inappropriately used. Therefore, the correct use of these terms plays an important role in achieving the objectives of MFIs. Voluntary deposits are characterized by convenience and return: the ability to deposit and withdraw at will and earn interest at the market-driven rates (Branch and Klaehn, 2002).

Compulsory savings refer to a sum of money which borrowers have to save at regular intervals with MFIs as a condition for receiving a loan. They are considered as collateral and used to cover missed payments (CGAP, 1997 and 2011a). These savings typically provide clients with little or no choice of saving products, but teach them how to make micro savings. These savings are collected indirectly through groups (group lending) or directly from individuals (individual lending), only one time when the poor receive loans, or many times on a regular basis. The borrower can withdraw immediately upon repayment of the loan. In contrast to saving up,

compulsory saving is a kind of saving done, by taking an advance loan from lenders and repaying through the series of savings (Rutherford, 2000). It suggests that the poor are usually not permitted to have compulsory saving, unless they borrow. They also provide a source of lending and investment funds for MFIs. However, they do not, in fact, provide a sufficient volume of funding for the lending activities of MFIs (Branch and K laehn, 2002; Wisniewski, 1999).

In contrast, voluntary deposits refer to the savings deposited voluntarily by public clients. There are different types of deposits with various features related to interest rate and withdrawal ability, such as current account deposits, savings deposits, time deposits, monthly income schemes or fixed deposits. Most deposits are basically voluntary savings and are withdrawable anytime, apart from time deposits (Seibel, 1999; Giehler, 1999). Voluntary deposits refer to the saving up of small amounts of money to accumulate assets, with the plan to use them in the future (Rutherford, 2000).

Voluntary deposits assume that the economically active poor already save in a variety of forms, and that they do not need to be taught to save, as previously mentioned. If MFIs aim to collect savings from the public, they need to learn to provide a choice of saving products appropriate for clients' demand, particularly for the poor. This is consistent with the fact that two of the biggest obstacles to serving low-income depositors are the distance and the products. Deposits are always the primary source of funds of financial institutions and can be divided into three main types: current account deposits, savings deposits, and time deposits (Giehler, 1999).

Deposits are a relatively stable and low-cost source of funds. They help MFIs to achieve independence from donors and investors, which is particularly important in periods of liquidity constraints (Morduch and Haley, 2002). Deposits are more than half of the total assets reported by financial institutions that have deposit mobilizations (Gonzalez and Meyer, 2009) because depositors enjoy certain benefits, such as access to loans (Wright, 1999; Elser et al., 1999).

There are some arguments over whether or not the deposit mobilizing MFIs are really serving small depositors (micro-savings). Based on the combined database of MIX Market – Micro

Banking Bulletin for 2007 (MBB, 2008), Gonzalez and Meyer (2009) state that most deposit mobilizing MFIs were reaching small depositors, perhaps even smaller than their borrowers. This result suggests MFIs have been able to design and mobilize voluntary deposits to meet the special needs of the people who are poor or even poorer than their borrowers. Therefore, not all MFIs have succeeded at micro deposit mobilization.

2.3.4. Borrowings and other Liabilities

Borrowings are loans or money borrowed from other financial institutions in the short- or long-term (especially from local commercial banks, development banks, central banks or international financial organizations) (MIX Market, 2009). Even though debts are the commercial funds generally priced at the market rate and may be expensive for new or small MFIs, they are currently the most popular funding source for lending when MFIs have limited ability to obtain savings from the public (Sapundzhieva, 2011).

Other liabilities are investment funds from other external sources (such as soft loans or grants from local or international donors). They also are mixed with other funding sources (such as commercial debts) to make the interest rate lower than the market rate (MIX Market, 2009).

To sum up, MFIs have three main sources to fund their potential growth: equity, deposits and debts. Each fund has different costs which contribute to the lending interest rate. Besides reducing operating expenses by becoming cost-effective, MFIs try to obtain low-cost funds such as soft loans or public deposits to combine with other commercial funds to reduce costs. Clearly, commercial debts are necessary to fund the continued expansion of microfinance to meet the increasing demand for well-designed financial services for the poor, as previously mentioned.

2.4. Firm Financial Performance (Profitability)

Profit is the major motive of a business. An enterprise should earn profits to survive and grow over a long period of time. It provides evidence concerning the earnings potential of a company

and how effectively a firm is being managed. If the enterprise fails to make profit, capital invested is eroded and if this situation prolongs the enterprise ultimately ceases to exist.

A profitable financial sector is better able to withstand negative shocks and contribute to the stability of the financial system. Important changes in the operating environment particularly credit risk is likely to affect MFIs profitability. Empirical analysis finds that both MFIs specific as well as macroeconomic factors are important determinants in the profitability of microfinance institutions, (Westerfield, 2008). (Brealey and Myers 2003) argue that there are various important measures in determining profitability of an organization. These include; Return on Assets (ROA) and Return on Equity (ROE).

Profitability measures, such as return on equity and return on assets, tend to summarize performance in all areas of the company. If portfolio quality is poor or efficiency is low, this will be reflected in profitability (MicroRate & InterAmericanDevelopmentBank, 2003, p. 3).

But in the same guide they also point out that all performance indicators tend to be of limited use (in fact, they can be outright misleading) if looked at in isolation and this is particularly the case for profitability indicators (MicroRate & InterAmericanDevelopmentBank, 2003).

To measure the profitability of an MFIs we can use Return on Equity, Return on Assets and Portfolio Yield as indicators (MicroRate & InterAmericanDevelopmentBank, 2003).

2.4.1. Profitability Measures

The two major methods of measurements of profitability are: the traditional accounting based measurements and economic measurements of profitability. In economic measurements of profitability the two common methods are: Risk-Adjusted Return on Capital (RAROC) and economic value added (EVA), which are the economic based metrics of economic profits. Following Kimball study as cited in (Ommeren, 2011) these metrics are take into account risks and opportunity costs of equity when measuring the profitability.

But related to Ommeren (2011) study, although, numerous banks disclose RAROC and EVA economic profit metrics, academic literature does not use these measures to analyze banks' and other financial institution's profitability, because the disclosed parameters are subject to internal policies and assessments which cannot be generalized or validated. So, this project attempts to discuss more on accounting measurements of profitability.

The traditional accounting based measures are easy proxies of MFIs' profitability, obtainable from public disclosed information. As concluded by extensive prior academic researches there are different accounting based measures for financial institutions' profitability. For instance, return on Equity (ROE) used by Goddard et al, (2004), Berger & Bonaccorsi-diPatti, (2006). Abor (2005), Silva (2008), Return on Assets (ROA) used by (Flamini et al., 2009, return on equity (ROE) and Return on Assets (ROA) used by Athanasoglou et al, (2006), Ommeren (2011) and Demircuc-Kunt and Huizinga (1999) uses as proxy for profitability.

2.4.1.1. Return on Asset

The return on assets ratio measures how effectively a company can earn a return on its investment in assets. In other words, ROA shows how efficiently a company can convert the money used to purchase assets into net income or profits.

Since all assets are either funded by equity or debt, some investors try to disregard the costs of acquiring the assets in the return calculation by adding back interest expense in the formula.

It only makes sense that a higher ratio is more favorable to investors because it shows that the company is more effectively managing its assets to produce greater amounts of net income. A positive ROA ratio usually indicates an upward profit trend as well. ROA is most useful for comparing companies in the same industry as different industries use assets differently. For instance, construction companies use large, expensive equipment while software companies use computers and servers.

2.4.1.2. Return on Equity

The most common measures of profitability in commercial institutions is return on assets (ROA), which reflects an organization's ability to deploy its assets profitably, and return on equity (ROE), which measures the returns produced on the owners' investments (Lafourcade et al., 2005).

ROE is a ratio of Income to its total equity. It measures the ability of the MFIs management to generate income by utilizing company equity at their disposal.

In other words, the return on equity ratio shows how much profit each dollar of common stockholders' equity generates.

So a return on 1 means that every dollar of common stockholders' equity generates 1 dollar of net income. This is an important measurement for potential investors because they want to see how efficiently a company will use their money to generate net income.

2.4.1.3. Reason for Return on Equity Is Important

A business that has a high return on equity is more likely to be one that is capable of generating cash internally. For the most part, the higher a company's return on equity compared to its industry, the better provided it isn't achieved with extreme risk. This should be obvious to even the less-than-astute investor. In fact, the key to finding stocks that will make you rich in the long run often involves finding companies capable of generating a sustained, outsize return on equity over many decades and acquiring it at a reasonable price.

As there is no unique measurement of financial performance, and reviewing its importance the researcher uses ROE as a proxy of profitability of Microfinance Institutions in this study.

2.5. The Link between capital structure and Financial Performance

Economic profit (or loss) refers to the difference between total revenues and all expenses. Responding to profit incentives, firms tend to try to increase total revenues and decrease total expenses (including costs of capital). In the case of a financial institution, financial expenses

(costs of funding) usually represent a large part of total costs, but this part is more difficult to control by the financial institution, while the revenues depend mostly on the interest on loans provided to borrowers (De Aghion and Morduch, 2005). Therefore, financial structure in terms of funding has become one of the important issues for MFIs in gaining efficiency and sustainability. The effects of capital structure can be positive or negative due to their positive contributions to total financial revenue (i.e. the predicted effects are indeterminate and depend on the specific circumstances of each MFI). However, the increase in financial expenses is always expected to be lower than the increase in financial revenues.

2.6. Related Empirical Studies

There have been several studies investigating the effects of capital structure on firms performance in different business sectors such as electricity and utility companies (Miller & Modigliani, 1966), manufacturing sector (Long & Malitz, 1985; Titman & Wessels, 1988), non-profit hospitals (Wedig, Sloan, Hassan, & Morrisey, 1988), agricultural firms (Jensen & Langemeier, 1996) and joint venture-ships (Boateng, 2004). One of the main findings in the studies listed above is that industrial or sector classification is an important determinant of capital structure, because different sectors employ different mix of debt and equity for their operations (Kyereboah-Coleman, 2007).

Many studies have been conducted by using different methods and data from developed and developing countries to define the effects of financial structure on the profitability of firms. They investigate the link between the choice of leverage ratios, profitability, firm size, firm age and other factors (such as non-debt tax shields, firm growth and collateral values of assets). The results provide useful evidence supporting the consistent negative/positive correlation between profitability and the leverage ratio of firms in developed and developing countries.

Some findings refer to large firms and are unlikely to be valid for smaller ones. However, Hovakimian et al. (2001) and Leary and Roberts (2005) conclude that highly profitable firms will be more likely to issue debt rather than equity because they are less subject to high bankruptcy risk and consequently they can borrow at more attractive interest rates. Clearly, these findings

are consistent with the suggestion of the trade-off theory. Leverage is found to be negatively related to profitability due to the presence of transaction costs, which prevent firms from adjusting their ratios towards to the optimal ones. The adjustment process depends on whether the firm is below or above its optimal ratio and other factors, such as firm size (scale of operation) and interest rates.

As stated by Trong VIN go (2012), Demircuc-Kunt and Huizinga (2000) were the first to consider the impact of financial structure on bank performance for a large number of developed and developing countries in the period from 1990 to 1997. They investigate the effects of financial structure on profitability and bank interest margins. The empirical results show that greater bank development is related to lower profitability and interest margins. This means that lower profitability and lower interest margins should be reflections of increased efficiency due to a high level of competition between banks. The study concludes that financial development has an important impact on bank performance. Following the work of Demircuc-Kunt and Huizinga, some research has been conducted on the determinants of financial structure or profitability in different countries. These findings are consistent with pecking order theory.

In a seminal paper Myers (1977) suggests that firms that employ shorter-maturity debt are likely to have more growth options in their investment opportunities. Debt that matures before execution of investment options cannot lead to suboptimal investment decisions. There could also be a conflict between stockholders and bondholders that might lead to an underinvestment problem if long term debt is issued. Managers acting on behalf of their stockholders might reject projects with positive net present values because risky debt absorbs a portion of stockholders' benefits. Given that underinvestment deteriorates profits in the long run, such behavior implies a negative relationship between liability maturity and firm performance. The signaling hypothesis views issuance of short-term debt as a positive signal of the firm's low credit risk. Many empirical analyses have dealt with capital structure, corporate governance and firm value, but most of them have concentrated on only one of the equity. Thus only one aspect of the relation has been taken into account and the presence of reciprocal causations and complementarily between capital structure and other governance instruments have not been considered important in determining firm value (Heinrich 2000).

Hutchison and Cox (2006) test the causal relationship between bank capital and profitability by using bank data from the US in two different time periods: the less regulated period from 1983 to 1989 and the more highly regulated period from 1996 to 2002. Financial leverage is found to be positively related to the return on equity (ROE) or the return on assets (ROA). The findings of this study tend to support the suggestion of trade-off theory.

There have also been studies emphasizing on the relationship between capital structure and firm performance. Berger and Bonaccorsi di Patti (2006) argued that firm performance and capital structure could be closely correlated. They used data on commercial banks in the US and their results are consistent with the agency theory, under which high leverage reduces the agency costs of outside equity and increases firm value by constraining or encouraging managers to act more in the interests of shareholders (Berger & Bonaccorsi-diPatti, 2006). Abor (2005) on “The effect of capital structure on profitability: an empirical analysis of listed firms in Ghana”, show a significantly positive relation between the short-term debt ratio and profitability (measured by ROE). However, a negative relationship between long-term debt ratio and profitability was established. But in terms of the relationship between total debt ratio and profitability, the results of his study indicated a significantly positive association between total debt ratio and profitability (Abor, 2005). There have also been a number of other studies providing empirical evidence supporting this positive relationship between debt level and firm's performance (Champion, 1999; Gill, Bigger, & Mathur, 2011; Hadlock & James, 2002; Hutchinson, 1995; Roden & Lewellen, 1995; Taub, 1975).

Abor (2007) on “Debt policy and performance of SMEs: evidence from Ghanaian and South African firms”, show that capital structure, especially long term and total debt ratios; negatively affect performance of SMEs (Abor, 2007). There have also been some other studies that have provided empirical evidence supporting this negative relationship between debt level and firm's performance (Cassar & Holmes, 2003, Fama & French, 1998, Gleason, Mathur, & Mathur, 2000, Majumdar & Chhibber 1999, Titman & Wessels, 1988).

Studies emphasizing on linkage between capital structure and financial performance in MFIs have been few. Kyeboah-Coleman (2007) on “The impact of capital structure on the

performance of microfinance institutions” found that most of the MFIs use high leverage and finance their operations with long term as against short term debt. Further the study show that highly leveraged MFIs perform better by reaching out to more clientele, enjoy scale economies, and are therefore better able to deal with moral hazard and adverse selection. The study uses panel data covering a ten year period, 1995-2004, and consists of 52 MFIs from Ghana. ROA and ROE is used as performance indicators, and total debt, short term debt and long term debt are used as indicators for capital structure of MFI. As control variables size, age and risk level are used (Kyereboah-Coleman, 2007).

Silva (2008) on “The effect of capital structure on MFIs financial performance” is consistent with the previous study by Kyereboah-Coleman (2007). This study found that total debt and short term debt ratio impacts positively and significantly on ROE while negatively and significantly on ROA. Long term debt ratio had a positively and significantly impact ROE but not significantly impact on ROA of MFIs. This shows that if MFIs use long term debt to finance their operations, there may not be a pressure on management of MFI. This further suggests that profitable MFIs depend more on long term debt financing. The study uses a dataset which consists of 290 MFIs from 61 countries. ROA and ROE is used as performance indicators, while debt to equity, long term debt to equity, short term debt to equity, debt to assets, long term debt to assets and short term debt to assets ratios are used as indicators of capital structure of MFIs. There are also used some control variables in the study (Silva, 2008). Silva (2008) used exactly the same research problem as in this study, he has also used the same dataset, but in this study the dataset contains more variables.

Kar (2012) seeks to answer the question “Does capital and financing structure have any relevance to the financial performance of microfinance institutions?” from an agency theoretic standpoint. The results of the study confirm the agency theoretic claim that an increase in leverage raises profit-efficiency. It also finds that cost efficiency decreases with decreasing leverage. Leverage have a negative significant impact on debt of outreach, but the study finds that capital structure does not have any noticeable impact on breadth of outreach. The study uses a panel dataset of 782 MFIs in 92 countries for the period 2000–2007. ROA, ROE and operating

expenses per dollar lent (OEPDL) are used as indicators for financial performance and some of the indicators for capital structure are capital-asset ratio, debt-equity ratio and loans-asset ratio.

Definitive empirical evidence regarding the relationship between capital structure and firm performance over the last decades is still contradictory and mixed. Studies results show a positive relationship between leverage level and firm performance by some authors like Taub (1975); Roden and Lewellen (1995); Champion (1999); Gosh et al., (2000); Berger and Bonaccorsi (2006) and Haldock and James (2002) and, also a negative relationship between leverage level and firm performance by studies done by Fama and French (1998); Gleason et al., (2000) and Simerly and Li (2000).

The other major studies undertaken by Mosquita and Lara (2003); Philips and Sipahioglu (2004); Haldock and James (2002); Arbabiyani and Safari (2009); Chakraborty (2010); Huang and Song (2006); Pandey (2004) came up with the findings which were conflicting in nature where some studies confirm positive relationship between capital structure and profitability while other studies confirm positive relationship between the variables.

Kyereboah-Coleman (2007) examines the impact of financial structure on the performance of MFIs. This study shows that most MFIs employ high leverage and finance their operations with long-term rather than short-term debt. Highly leveraged MFIs also perform better by reaching out to more clients, and enjoy scale economies; therefore, they are better able to deal with moral hazard and adverse selection, enhancing their ability to deal with risk.

In microfinance, Germaine and Natividad (2010) test the effects of asymmetric information on lending and the reductions in information asymmetries based on the assumption of Myers and Majluf (1984). They found that MFIs with highly efficient performance can easily access investment funds, and the increase in the number of MFIs made them provide better quality loans to the poor. A positive relationship between evaluations and financing suggests that evaluations lead MFIs to provide more loans to the poor. Their empirical results provide clear evidence of the impact of financing and investment on lending. The nature of MFIs varies greatly, as many of them maintain a non-profit status and rely on donations and subsidies. Lafourcade et al. (2005)

attempt to extend microfinance services to the poor, who are underserved by MFIs and classified as outreach. The findings also show that African MFIs fund only 25% of the total assets with equity. MFIs finance their activities with funds from various sources, both debts and equity.

2.7. Related Empirical studies in Ethiopia

In Ethiopia there are few studies in this related area such as : - Netsanet (2012) examined empirically the issue by taking evidence from 11 large construction companies residing in Addis Ababa city. This study after analyzing annual financial reports of these 11 companies, found a significant and negative relationship between profitability of the large construction companies and their level of leverage which again supported pecking order theory. Weldemikael's (2012) research result also agreed with these previous studies as he also concluded profitability has negative relation with leverage and it supported pecking order theory by taking and analyzing financial statements of eight commercial banks of Ethiopia.

Daniel (2011) investigated the determinants of capital structure and attempt to test the validity of dominant capital structure theories to these cooperatives. For this study the researcher used 13 small scale manufacturing cooperatives for time span of five year as a sample. Using their audited financial statements for analysis, the study found an inverse correlation with profitability which supported pecking order theory. Based on his finding he concluded profitability influences firms to maintain low leverage even if it was insignificant.

Another study Usman (2013) examined the determinants of capital structure of large taxpayer share companies in Ethiopia. The study covers a period of 2006–2010 for 37 listed companies. Nine conventional explanatory variables were adopted in the study. The result showed that size, age, tangibility, liquidity position and non-debt tax shield of a company are positively correlated with leverage, whereas profitability, earnings volatility and dividend payout ratio are negatively associated with leverage. Agency cost theory provide more convincing evidence than other capital structure theories in elucidating the capital structure of large taxpayer share companies in Ethiopia.

On the other hand, Amdemikael (2012) also assessed the factors that affect bank profitability in Ethiopia covering the period of 2000-2011. Mixed research approach (data obtained through the structured document reviews and in-depth interviews) were applied. The analysis also managed through the multiple linear regressions model, OLS. The dependent variable was ROA as a single measure of profitability and it was measured as net profit before tax divided by total assets. The independent variables includes; equity-to-total asset ratio (the inverse of the leverage ratio), Operational efficiency, Income diversification, Liquidity risk, Asset Quality, Real GDP growth and Inflation. The result indicated that capital strength is one of the main determinants of profitability of banks in Ethiopia.

Aragaw (2015) examine the effect of capital structure on profitability of commercial banks in Ethiopia. The study considered a sample of 8 commercial banks for 12 year (2001/02 – 2012/13). In his study a profitability measure of the core business operation of banks, Net Interest Margin (NIM) was taken as a dependent variable. Whereas, the Total Debt to Asset, Deposit to Asset, Loan to Deposit, Spread, Growth, and Asset size were used as independent variables. The result shows that -Capital structure/Leverage as measured by debt to asset ratio had statistically significant negative relationship with profitability. This result also supports the pecking order theory and prefers using internal finance before raising debt or equity. On the other hand, deposit to asset ratio had statistically significant positive relationship with profitability; similarly, liquidity (loan to deposit) had a positive and statistically significant relationship with profitability and the finding of the study suggests that capital structure had significant impact on profitability of core business operations of commercial banks.

To summarize the discussion, those shown above researches were focus on relationship between capital structure determinants (i.e. firm specific and external determinates) and profitability. Moreover, the relationship between capital structure and profitability has been tested indifferent studies on different companies. Accordingly, there is no any conclusive decision and specific result, which can be generalized on the extent of the relationship between capital structure and firm financial performance. Thus, there is a continual for new research in different context for achieving a more complete understanding for the changing aspects of the capital structure and firm financial performance relationship. Therefore, all the above issues have interests me to

conduct this research, with the belief that this study proposes possible explanations that might be relevant in the context of firm-specific characteristics, with particular regard to the impacts of capital structure on profitability of microfinance institutions in Ethiopia, of course which were not studied before in Ethiopia as long as the researchers knowledge

2.8. Chapter Summary and Knowledge Gap

In this chapter the discussion were about the essential theories namely: Trade-off theory, Pecking order theory and market timing theory and other related empirical studies that influence capital structure on firm financial performance. From the theoretical and empirical studies point view, there are contradicting conclusions existed between empirical studies about the effect of capital structure on financial performance of companies. In line with this theories and empirical studies, we observed that, capital structure affects the financial performance of firms in to positively or negatively.

Therefore, evaluating the effects of capital structure on the profitability of all business firms is important, especially for financial industry like microfinance institutions. The performance of MFIs can be affected by different factors such as company specific, macroeconomic and regulatory factors. From those factors the firm financing decision is the most crucial parts in these business activities.

According to the empirical studies, there is no direct empirical literature which is related with effect of capital structure on profitability of MFIs in Ethiopia. So far, as to the knowledge of the researcher, there is no study directly linked with it. Even the existing studies were concentrated on determinates of capital structure and financial performance of commercial banks, insurance company, construction, manufacturing companies and other listed firms. To this end, the researcher is very much interested to put his own contribution on the effect of capital structure on the profitability of microfinance institutions in Ethiopia.

Lastly, the next chapter discusses about the research methodology that are applied in this study along with proper justification for the selection of appropriate research methods.

CHAPTER THREE: Research Design and methodology

3.0. Introduction

The preceding chapter discusses about both theoretical and empirical studies and it tried to give a brief summary of the chapter and dig out the gap in the existing knowledge.

This chapter describes the research approach, study area, the sampling and its techniques for data collection and their administration. The chapter further shows research design, research approach, area of the study, population of study, sampling design and procedures, data collection methods, and instrumentation, and data analysis plans and expected results. It is also aimed in assisting the researcher to establish answers to research questions.

3.1. Research Approach

Research designs are plans and the procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis (Creswell 2009, p. 3). Therefore, in order to achieve the objective stated in the preceding section, considering the nature of the problem and the research perspective this study used research approach based on secondary data.

Accordingly, the quantitative method was used to find out the effect capital structure on financial performance of microfinance institutions in Ethiopia, and the financial data were collected through document survey. This is because quantitative approach is an inquiry that grounded in the assumption that features of social environment constitute an objective reality that is relatively constant across time and setting (Gall et al (1996) as cited in Manning and McMurray, 2010).

When they continued further, the dominant methodology of this is to describe and explain features of this reality by collecting numerical data on observable behavior of samples and by subjecting these data to statistical analysis, which is this study required. Moreover, quantitative researches test theories deductively from existing knowledge, through developing hypothesized relationships and proposed outcome. And to arrive at this point this research approach employs a

review of the existing literature to deductively develop theories and hypotheses to be tested and requires translating of the research problem to specific variables (Yesigat, 2009). As Yesigat further noted quantitative research approaches tests the theoretically established relationship between variables using sampled data with the intention of statistically generalizing for the population under investigation.

According to Stewart and Kamins (1993) cited in Li Yuqi (2007), secondary data have its own advantages. That is, secondary data generally provide a source of data that is both permanent and available in a form that can be checked relatively easily by others and increases the dependability of the data, hence ensure data quality. As a result, one of the data for the microfinance institutions capital structure and financial performance (profitability) indicator variables is obtained from audited financial statements that are presented in National Bank of Ethiopia, office of microfinance supervision directorate. In order to avoid the risk of distortion in the quality of data, the data is the audited financial statements particularly balance sheet and income statement.

The study includes a sample of 13 microfinance institutions from the total of 18 microfinance institutions categorized by National Bank of Ethiopia under category A and B. Accordingly, this study used panel data of thirteen microfinance institutions for six years (2010 to 2015) financial statements.

3.2. Study population, Sampling and Sample size

According to National Bank of Ethiopia (NBE), there are a total number of 34 microfinance institutions operational in Ethiopia, that categorized in to three (category A, B and C), which is based on their asset size, number of customers, number of branches and their institutional strength.

Therefore, in order to have better representative results and conclude for the entire population, the targeted population of microfinance institutions for this specific study is those MFIs under category A and B only, which contains 5 and 13 microfinance institutions, respectively. Thus from these eighteen microfinance institutions a total sample of 13 microfinance institutions are

taken, which of course represented 38% of even the entire 34 microfinance institutions. Unlike category C microfinance institutions, category A and B have relatively similar financial structure (asset size, number of customers, profitability etc.) and found better organized in financial and non-financial supporting materials useful to support the study. As Krishnaswami (2002:144) also recommended that, a sample size of 30% and above is enough to better conclude about the entire population.

Finally, from the selected total eighteen population of microfinance institutions, thirteen microfinance institutions (from category A and B) was selected as a sample, based on purposive sampling, due to the fact that, MFIs with relatively having nearby complete documentations useful for this specific study and submit their six years audited financial statements to NBE, (Microfinance Institutions Supervision Directorate), those MFIs are: Amhara Credit and Saving Institutions, Dedit Credit and Saving Institution, Oromia Credit and Saving Institution, Omo Micro Finance Institution, Addis Credit and Saving Institution, Specialized Financial and Promotional Institution, Vision Fund Microfinance Institution, Bussaa Gonofaa Micro Financing, Poverty Eradication & Community Empowerment Micro Financing Institution (PECE), ESHET Micro Finance Institution, Aagar Micro Finance, Wasasa Micro Finance Institution and Africa Village Financial Service.

3.3. Data Analysis Method

To achieve the objectives the study, panel data of thirteen microfinance institutions for six years (2010 to 2015) was used. This is because of that panel data has the advantage of giving more informative data as it consists of both the cross-sectional information, which captures individual variability, and the time-series information, that captures dynamic natures of the data. And hence it ensures more variability, more degrees of freedom, more efficiency, and less collinearity among variables (Gujarati, 2004).

Using statistical package EViews version 8.0 software, the collected panel data was analyzed using the descriptive statistics and multiple regressions.

In the analysis of the descriptive statistics, the mean, standard deviation, maximum and minimum values were used to analyze the trends of the data.

Furthermore, diagnostic tests were managed in order to check the validity of the model based on the assumption of the Classical Linear Regression Model. Specifically, the assumption tests that were managed in this study include Heteroskedasticity Test, Autocorrelation Test, and test for Multicollinearity and Normality.

Finally, the Hausman specification test was used to choose the appropriate model for this study between the random effect (RE) and fixed effect (FE) model. Thus, based on the result of this test, the fixed effects model was found to be appropriate and applied for the study.

Therefore, the multiple regression result of the fixed effect model used to analyze the effect of capital structure on profitability of microfinance institutions in Ethiopia, and to examine the relationship between the variables used in this study.

3.4. Model Specification and Variable Presentation

3.4.1. Variable Presentation

This study used explanatory variables such as: total debt to asset, deposit to asset, interest coverage, loan to deposit, firm size and firm age ratios, while the dependent variable was return on equity. The variables descriptions are stated below.

3.4.1.1. Dependent Variable

MFIs profitability is the dependent variable in this study. MFIs performance is usually measured by three alternative measures ROA, ROE or NIM. Studies conducted on this area use one or a combination of these ratios as a measure of performance in their analysis. According to Mohana et al. (2012), the choice of the financial performance ratios (ROA, ROE, NIM) depends on the

objective of the performance measure since the output of each of the performance measure differs.

3.4.1.1.1. Return on Equity (ROE)

Reason for choosing return on equity (ROE) as a proxy of financial performance is that, it measures the rate of return for ownership interest (shareholder equity) of common stock owners and it also measures the efficiency of a firm at generating profits from each unit of shareholder equity (Donaldson, 1961). From financial institutions, like MFIs profitability measures alternatives ROE was chosen because it has important accounting based and widely accepted measures of financial performance. Return on equity (ROE) has been used as a proxy of financial performance measurement by (Abor, 2005), (Cheng, Y.; Liu, Y.; Chien, 2007), (Karadeniz, E., Kandir, S. Y., and Balcilar, M., 2009) and (Akinyomi, 2013) in their previous studies.

Return on equity (ROE) is calculated by the following formula:

$$\text{ROE} = \frac{\text{Net Income}}{\text{Total Stockholders' Equity}}$$

3.4.1.2. Independent Variables

The explanatory (independent) variables in this study are debt to asset ratio, deposit to asset ratio and interest coverage ratio. These serve as a proxy for debt financing.

3.4.1.2.1. Debt to Asset Ratio (DTAR)

Debt to asset ratio is a ratio that indicates the proportion of a company's debt to its total assets. It shows how much the company depends on debt to finance the firm's asset. The debt to asset ratio gives users a quick measure of the amount of debt that the company has on its balance sheets compared to its assets. The higher the ratio, the greater the risk associated with the firm's

operation. A low debt ratio indicates conservative financing with an opportunity to borrow in the future at no significant risk.

Debt to asset ratio is similar to debt to equity ratio which shows the same proportion but in different way. The debt ratio is calculated by dividing total liabilities (i.e. long-term and short term liabilities) by total assets:

$$\text{Debt to Asset ratio} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

3.4.1.2.2. Deposit to Asset Ratio (DEPTA)

As the major source of external finance is deposits, deposit to asset ratio was used as an independent variable to examine the impact of deposit on profitability of microfinance institutions in Ethiopia. Since the total debt of MFIs composed of deposit and non-deposit liabilities, this variable intended to show the impact of deposit-financing and hence the non-deposit financing decision on profitability. Abbadi & Abu-Rub (2012) found positive relationship between deposit to asset and profitability. Based on the nature of financial institutions operation and empirical evidences, in this study a positive relationship between deposit to asset ratio and profitability of MFIs were expected.

$$\text{DEPTA} = \frac{\text{Total Deposit}}{\text{Total Asset}}$$

3.4.1.2.3. Interest Coverage Ratio

The interest coverage ratio (ICR) is a measure of a company's ability to meet its interest payments. The interest coverage ratio is a measure of the number of times a company could make the interest payments on its debt with its EBIT. It determines how easily a company can pay interest expenses on outstanding debt. Interest coverage ratio is also known as interest coverage, debt service ratio or debt service coverage ratio. The interest coverage ratio is calculated by dividing a company's earnings before interest and taxes (EBIT) by the company's

interest expenses for the same period. Pandey (2010) indicates the ratio of net operating income (or EBIT) to interest charge.

The lower the interest coverage ratio shows the higher the company's debt burden and the greater the possibility of bankruptcy or default. A lower ICR means less earnings are available to meet interest payments and that the business is more vulnerable to increases in interest rates. When a company's interest coverage ratio is only 1.5 or lower, its ability to meet interest expenses may be questionable. An interest coverage ratio below 1.0 indicates the business is having difficulties generating the cash necessary to pay its interest obligations (i.e. interest payments exceed its earnings (EBIT)). A higher ratio indicates a better financial health as it means that the company is more capable of meeting its interest obligations from operating earnings. On the other hand, a high ICR may suggest a company is "too safe" and is neglecting opportunities to magnify earnings through leverage. Due to the above stated facts in this study a positive relationship between interest coverage ratio and profitability was expected.

$$\text{Interest Coverage Ratio} = \frac{\text{EBIT}}{\text{Interest expense}}$$

3.4.1.3. Control Variables

There are a number of factors that affect the microfinance institutions financial performance (profitability) rather than capital structures effect; this is why control variables are included in the model. In this study the researcher employed loan to deposit ratio, firm size and firm age as a control variables.

3.4.1.3.1. Loan to Deposit (LTDR)

The Loan to deposit ratio (LTDR) serves as financial institutions liquidity measure. It measures the funds that MFIs utilized into loans from the collected deposits in the period under study. It validates the association between loans and deposits. Furthermore, as it is indicated in Makri (2014), it provides a measure of income source and the liquidity of bank asset tied to loan. Eltabakh, N gamkroeckjoti, & Siad (2014) found statistically significant positive relationship

between profitability and loan to deposit ratio. Since, the major source of interest income comes from loans and with reference to empirical studies, in this study it was expected to have positive relation with profitability of MFIs.

$$\text{LTDR} = \frac{\text{Total loan}}{\text{Deposit}}$$

3.4.1.3.2. Asset Size (FSIZE)

Asset size of MFIs was considered in this study as a control variable. In addition to its role as a control variable, size was introduced to determine whether economies or diseconomies of scale exist in the microfinance sector of Ethiopia.

Opoku et al. (2013) used as a control variable in the study of the impact of capital structure and profitability of financial institutions on the Ghana Stock Exchange. Arkhavein (1997) found a significantly positive association between size and financial institutions profitability. Moreover, Short (1979) suggested that since relatively large financial institutions tend to raise less expensive capital and hence appear more profitable, size is closely related to capital adequacy of a financial institutions. The implication is that as MFI size increases, profitability increases as well.

Nevertheless, many other studies suggested that little cost saving can be achieved by increasing the size of a company. Similarly, Berger (1987) contended that ultimately large financial institutions could face scale inefficiencies.

For the purpose of this study, MFIs size has been taken as the natural logarithm of their total assets of the institutions. The use of logarithm enables to get the real total assets of the MFIs due to its capability to standardize values thus bringing them on the same platform for a more efficient analysis to be done.

Since a statistically positive and significant association with the dependent variable, will imply the existence of the scale efficiency hypothesis in the MFIs sector of Ethiopia, and hence, based

on the above and theoretical ground, in this study a positive relationship between asset size and profitability was expected.

3.4.1.3.3. Age of the Firm (FAGE)

The age of the firm might also have an impact on the firm's performance. According to (CGAP, 2009) age has three important effects on MFIs; higher number of loans may drive scale economics, higher average loan sizes may improve the cost structure and more knowledge about customers may streamline processes.

The age of an MFI is calculated by subtracting the year that the organization started up with microfinance activities from the year of rating.

In this study a positive relationship between long aged firm and profitability expected, meaning the higher the age of MFI the more profitable would be.

$$\text{Age} = \text{Year}_{\text{rated}} - \text{Year}_{\text{start up}}$$

3.4.2. Model Specification

The study employs Return on Equity (ROE) as dependent variable which measures company's financial performance. Although there is no unique measurement of financial performance in the literature, ROE was chosen because it has important accounting base and widely accepted measures of financial performance; and the independent variables are Debt Asset Ratio (DTAR), Deposit to Asset Ratio (DEPTA), and Interest Coverage Ratio (ICR) to measure total debt level. These variables serve as proxies for capital structure. However, a number of factors could have effects on company's financial performance; hence, the need for control variables to include in the model is obvious. Therefore, the researcher added Loan to Deposit Ratio (LTDR), Firm size (FSIZE) and Firm Age (FAGE) as control variables, since they are found in many empirical researches of the issue.

The models for this study derived on the basis of prior studies such as Osuji and Oditia (2012), Memon et al (2010), Ahmed et al (2012) and Abor (2005) and this equation is believed to capture the essence of the subject under study. The general model of this study, as found in other empirical literature is represented by;

$$Y_{it} = \alpha + \beta X_{it} + \mu_{it}$$

Where:

Y = is the dependent variable.

α = is the intercept (constant variable)

β = is the coefficient of independent variable.

X = is the independent variable.

μ = are the error terms.

i = is the number of firms.

t = is the number of time periods.

The subscript i representing the cross-sectional dimension and t denote the time-series dimension.

$$ROE_{i,t} = \alpha + \beta_1 (DTAR)_{i,t} + \beta_2 (DEPTA)_{i,t} + \beta_3 (ICR)_{i,t} + \beta_4 (LTDR)_{i,t} + \beta_5 (FSIZE)_{i,t} + \beta_6 (FAGE)_{i,t} + \mu_{i,t}$$

Where, “ i ” denote the studied microfinance institutions and “ t ” represent the time period.

- a) DTAR is debt to asset ratio
- b) DEPTA is deposit to asset ratio
- c) ICR is interest coverage ratio
- d) LTDR is loan to deposit ratio
- e) FSIZE is the natural logarithm of total asset
- f) FAGE is the age of the microfinance institution

3.5. Summary of Variables, their Measures and Expected Sign

In this section, the summary of variables, their measure and expected sign was discussed. The dependent variable in this study is Return on Equity (ROE) and explanatory variables are; debt to asset ratio, deposit to asset ratio, interest coverage ratio, loan to deposit ratio and the control variables are firm size and firm age are used.

The selection measures for dependent variable is Return on Equity (ROE), which is proxy to MFIs profitability and for independent variables are detailed as follows, which is measure the level of debt on capital structure of the institution. The description of each variable and their expected signs are given below in the following tables.

Table 3.1. Summary of Variables, their Measures and expected sign

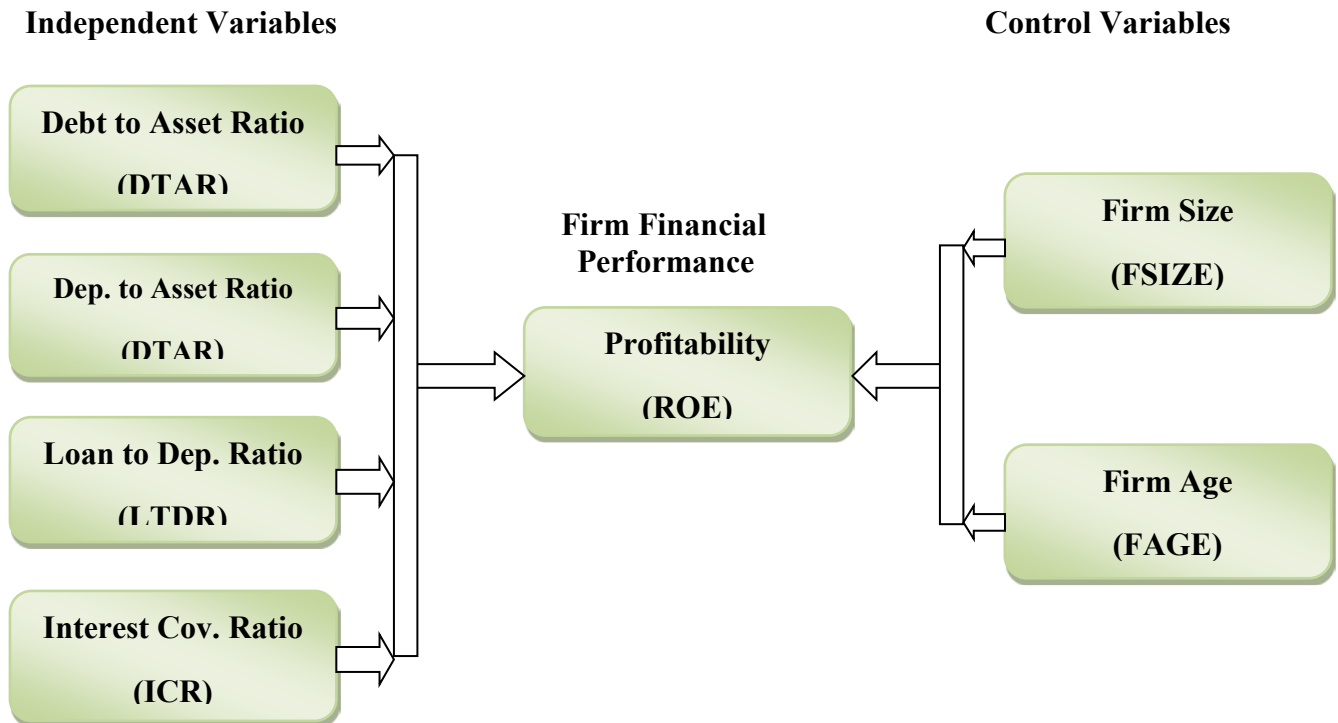
| Variable | | Definition | Mathematical Expiration | Expected Sign. |
|-----------------------------|--------------------------------|---|--|----------------|
| Explained Variable | Return on Equity (ROE) | The ratio of net income after tax divided by Equity | $ROE = \frac{\text{Net Income}}{\text{Total Asset}}$ | NA |
| Explanatory Variable | The debt to asset ratio (DTAR) | Total Debt Divided By Total Asset | $DTAR = \frac{\text{Total Debt}}{\text{Total Asset}}$ | + |
| | Savings (Deposit) to Assets | Total Savings divided by Total Assets | $DEPTA = \frac{\text{Total Savings}}{\text{Total Assets}}$ | + |
| | Interest Coverage Ratio | EBIT divided by Interest Expense | $ICR = \frac{\text{EBIT}}{\text{Interest Expenses}}$ | + |
| Control Variables | Loan to Deposit Ratio | Total Loan divided by Total Deposit | $LTD = \frac{\text{Total Loan}}{\text{Total Deposit}}$ | + |
| | Firm Size | Natural logarithm of Total Asset | $FSIZE = \text{Ln}(\text{Total Asset})$ | + |
| | Firm Age | Year rated Sub. by Year start up | $FAGE = \text{Year rated} - \text{Year startup}$ | + |

Source: compiled by researcher

3.6. Conceptual Framework

After careful study of literature review, the following conceptual framework is formulated to illustrate the effects of debt financing and its impact on the profitability of commercial banks in Ethiopia. The following diagram discusses about the conceptual framework:

Figure 3.1 Conceptual Framework



Source: Compiled by Researcher

3.7. Chapter Summery

In this chapter, which is presented above the research methodology, research approach, methods of data collection, procedure and data analysis techniques were discussed. The link of research model and conceptual framework adopted in this particular study is also presented with proper justification. The method selection is in line with the advantage and disadvantage of research approach and data analysis technique. For this study secondary research approach is adopted that helps the researcher to achieve the research objectives and the required data is collected through survey of documentary analysis. With this end, the next chapter discuss about data analysis and presentation.

CHAPTER FOUR: Data Analysis and Presentation

4.0. Introduction

The preceding chapter determined the way a researcher used to conduct an empirical analysis and discussion. Consequently, this chapter presents the results of the data analysis and the findings from the study in relation to the research objectives and in consistence with the literature reviewed in chapter two. The analyses are based on secondary data obtained from annual financial reports of the subject companies under study. The first subsection presents descriptive statistics of the surveyed data then the relationship between the variables was ascertained by various econometric methods. Finally, the findings were interpreted in relation to the research objectives.

4.1. Descriptive Statistics

This section presents the descriptive statistics of dependent and independent variables used in the study for the sample MFIs. The dependent variable used in this study was ROE while the independent variables are debt to asset ratio, deposit to asset ratio, interest coverage ratio, loan to deposit ratio, firm size and firm age. Thus, the total observation for each dependent and independent variable was 78 (panel data of 13 MFIs for 6 years). The table 4.1 demonstrates the mean, median, maximum, minimum and standard deviation values for dependent and independent variables for sample MFIs over the year 2010-2015. The descriptive statistics for the dependent and independent variables are presented in Table 4.1 below:

Table 4.1 Descriptive Statistics of Dependent and Independent Variables

| | ROE | DTAR | DEPTA | ICR | FSIZE | LTDR | FAGE |
|-----------|----------|----------|----------|----------|----------|----------|----------|
| Mean | 0.200679 | 0.627659 | 0.421781 | 3.525861 | 8.518984 | 1.742506 | 1.131330 |
| Median | 0.216217 | 0.616636 | 0.416936 | 3.277441 | 8.364111 | 1.717989 | 1.146128 |
| Maximum | 0.326816 | 0.784971 | 0.613379 | 6.163578 | 10.06874 | 3.224379 | 1.255273 |
| Minimum | 0.042741 | 0.370553 | 0.214710 | 1.099035 | 7.084347 | 1.178067 | 0.778151 |
| Std. Dev. | 0.066938 | 0.097015 | 0.083244 | 1.149170 | 0.774812 | 0.397457 | 0.091895 |
| Obs. | 78 | 78 | 78 | 78 | 78 | 78 | 78 |

Source: *Computed from Eviews result*

As measured in the above table 4.1, the mean value of ROE, a measure of profitability (dependent variable) which is measured by dividing Net Income by Total Equity of the institution has a mean value of 0.20. This result revealed that on average for every birr investment in MFIs equity would earn a 20 percent return. The other measure, median which is not affected by extreme values similarly shows that microfinance institutions have a returns of 21.6 percent financed through their equity. The higher ROE shows that the company is more efficient in using its resources and reflects the ability of management to generate profits from the MFIs equity. The maximum ROE was 0.32 and the minimum value was 0.042. This means the most profitable MFI earns 0.32 cents income and the list profitable MFI earns 0.04 cents income for a single birr investment in the firm's equity. The standard deviation 0.06 reflects the presence of variation in earned profit among across the sampled MFIs.

The independent variable, debt ratio, which is measured by total debt divided by total asset of MFIs have a mean and median value of 62.7 percent and 61.6 percent respectively, that means during the study period the sampled MFIs finance their assets by using 62.7 percent of debt. In addition the maximum and minimum values are 0.785 and 0.375 respectively. The values of debt asset ratio deviate from its mean to both side by 9.7 percent. In general, the mean value of 63.7 percent in debt asset ratio indicates that, microfinance institutions are one of highly levered institutions in the country.

The other independent variable, deposit to asset ratio measured by dividing total customers deposit to assets ratio of the sampled microfinance institutions during the study period was 37 percent, it reveals that total deposit represents on average 42.17 percent of total assets of microfinance institutions in Ethiopia. The highest deposit to asset ratio for a microfinance institution in a particular year was 61.3 percent and in the same way the minimum ratio of a MFI in a year was 21.5 percent. The value of deposit to asset ratio deviates from its mean to both sides by 8 percent.

As it is shown in table 4.1 above, the other variable used in the study was the interest coverage ratio, which is measured by earnings before interest and taxes (EBIT) divided by interest expenses during the study period of one year. The interest coverage ratio has a mean value of 3.52. This result shows that on average the sample MFIs are more capable to meeting its interest obligations from operating earnings. Taking into consideration the standard deviation of the MFIs under study, it is clear that standard deviation of 1.14, implying that MFIs are paying the interest payments on its debt with their earnings.

The mean of firm size was represented by natural logarithm of book value of total assets has a mean value of approximately 8.52, with a maximum and minimum value for the sample MFIs in the study period were 10.1 and 7.08 respectively. In addition the standard deviation of the size of the MFI was 0.77. This shows the variation in the total assets of MFIs in the study period.

Loan to deposit ratio represented by total loan divided by the customer deposit of the sample MFIs in the study period have a mean value of 1.74. It reveals that loan represents much more above the deposit of MFIs in Ethiopia. The maximum loan to deposit ratio for the MFI in a particular year was 3.22 and the minimum was 1.17 this result tells us that, MFIs loan advances to customers from deposit and non-deposit sources of finance. The value of loan to deposit ratio deviate from its mean on both sides by 0.39.

According to descriptive statistics shown in the above table 4.1, age variable which was represented by the logarithm value of MFIs firm age, the mean was 1.13 whereas the standard

deviation of age difference was 0.78. For the sample throughout a study period the maximum age of microfinance institution in terms of logarithm was 1.13 years while the minimum was 0.09.

4.2. Correlation Analysis

Correlation analysis provides the linear relationship between the dependent variable (financial performance) and explanatory variables including both the independent and control variables by using correlation matrix. Correlation matrix helps to quantify the extent to which two quantitative variables, dependent and independent variables, go together. Values of the correlation coefficient are always being in between -1 and +1. The sign of the correlation coefficient determines whether the correlation is positive or negative (direct or inverse); whereas, the magnitude of the correlation coefficient determines the strength of the correlation. Accordingly, the closer the correlation coefficient to +1, the stronger the positive correlation would be and if the correlation coefficient is close to -1, it indicates a strong negative correlation in between considered variables. However, if the coefficient of the correlation approaches to zero (0) it inform us, there would be little or no linear relationship exists among the variables. Hence, the analysis of the relationship between dependent variable (ROE) and independent variables (DTAR, DEPTA, ICR, FSIZE, LTDR and FAGE) is detailed in Table 4.2 as follows using the correlation matrix.

Table 4.2 Correlation Matrix for Dependent and Independent Variables

| | ROE | DTAR | DEPTA | ICR | FSIZE | LTDR | FAGE |
|-------|-----------|-----------|-----------|-----------|-----------|-----------|----------|
| ROE | 1.000000 | | | | | | |
| DTAR | -0.032889 | 1.000000 | | | | | |
| DEPTA | 0.561219 | 0.316653 | 1.000000 | | | | |
| ICR | 0.189793 | -0.346947 | 0.058545 | 1.000000 | | | |
| FSIZE | -0.223623 | 0.701907 | 0.129605 | -0.004178 | 1.000000 | | |
| LTDR | -0.284707 | -0.310219 | -0.698338 | 0.105569 | -0.075630 | 1.000000 | |
| FAGE | 0.188459 | 0.332626 | 0.495248 | 0.136924 | 0.499660 | -0.289254 | 1.000000 |

Source; Computed from Eviews result

4.3. Classical Linear Regression Model Assumptions and Diagnostic Test

To make the data ready for analysis and to get reliable output from the research, different tests were done. From those different tests, the five most critical assumptions related to classical linear regression model (CLRM) are the most critical on econometric analysis. Accordingly, the tests of CLRM assumptions are presented below.

4.3.1. Test for an average value of the error term is zero ($E(u_t) = 0$) assumption

The first assumption required is that the average value of the errors is zero. In fact, if a constant term is included in the regression equation, this assumption will never be violated. Therefore, since the constant term was included in the regression equation, the average value of the error term in this study is expected to be zero.

4.3.2. Test for homoscedasticity assumption ($\text{Var}(u_t) = \sigma^2$)

The assumption of homoscedasticity assumes that, the variance of the errors is constant. If the errors do not have a constant variance, they are said to be heteroscedasticity (Brooks, 2008). To test this assumption both white test were used to check either heteroscedasticity problem present or not. So that, the following table 4.3 present test of heteroscedasticity.

Table 4.3 Heteroscedasticity Test white's

Heteroskedasticity Test: White

| | | | |
|---------------------|----------|----------------------|--------|
| F-statistic | 1.331233 | Prob. F(27,50) | 0.1878 |
| Obs*R-squared | 32.62123 | Prob. Chi-Square(27) | 0.2099 |
| Scaled explained SS | 20.30744 | Prob. Chi-Square(27) | 0.8176 |

Source; Computed from Eviews result

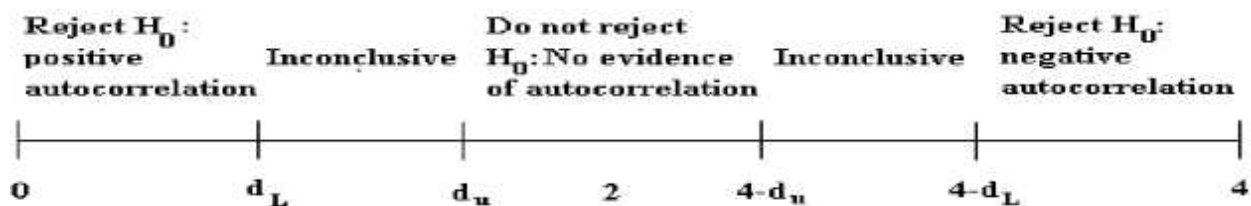
The above table show that Whit’s test of heteroscedasticity. The test shown in table 4.3, the F-statistic and Chi-Square versions of the test statistic gave the same conclusion that there is no evidence for the presence of hetroscedasticity, since the p-values were in excess of 0.05.

4.3.3. Test for absence of autocorrelation assumption ($cov(ui, uj) = 0$ for $i = j$)

This assumption states that the covariance between the errors term overtime or crosssectionally is zero or simply errors are uncorrelated with one another. But if the errors are not uncorrelated with one another, they are said to be autocorrelated or that they are “serially correlated”. (Brooks 2008)

To test the presence of autocorrelation, the Durbin-Watson test is used. As noted in Brooks (2008), Durbin Watson is a test for first order autocorrelation (it is a test for a relationship between an error and its immediate previous value). The null hypothesis for the DW test is no autocorrelation between the error term and its lag. According to Brooks (2008), DW has two critical values: an upper critical value (d_U) and a lower critical value (d_L), and there is also an intermediate region where the null hypothesis of no autocorrelation cannot be rejected. The rejection, non-rejection, and inconclusive regions are shown on the number line in figure 4.1 below.

Figure 4.1 Rejection and Non-Rejection Regions for DW Test



The study used the d_L and d_U values for 78 observations as approximation of 80 observations. As per the Durbin-Watson test (DW) table for 78 observations with 6 explanatory variables at

1% level of significance, the dL and dU values are 1.338 and 1.653, respectively. The DW values for model and for 78 observations were 1.741465. The relevant critical values for the test are $dL = 1.338$, $dU = 1.653$, and $4 - dU = 4 - 1.653 = 2.347$; $4 - dL = 4 - 1.338 = 2.662$. Accordingly, Durbin-Watson test value is clearly between 1.653 and 2.347 which is 1.741465 and the DW value lies in the non-rejection region, whereas the null hypothesis is not rejected. The Durbin-Watson test is an indication of the absence of autocorrelation. Therefore, the Durbin-Watson test of 1.741465 shows the absence of auto-correlation problem in the model.

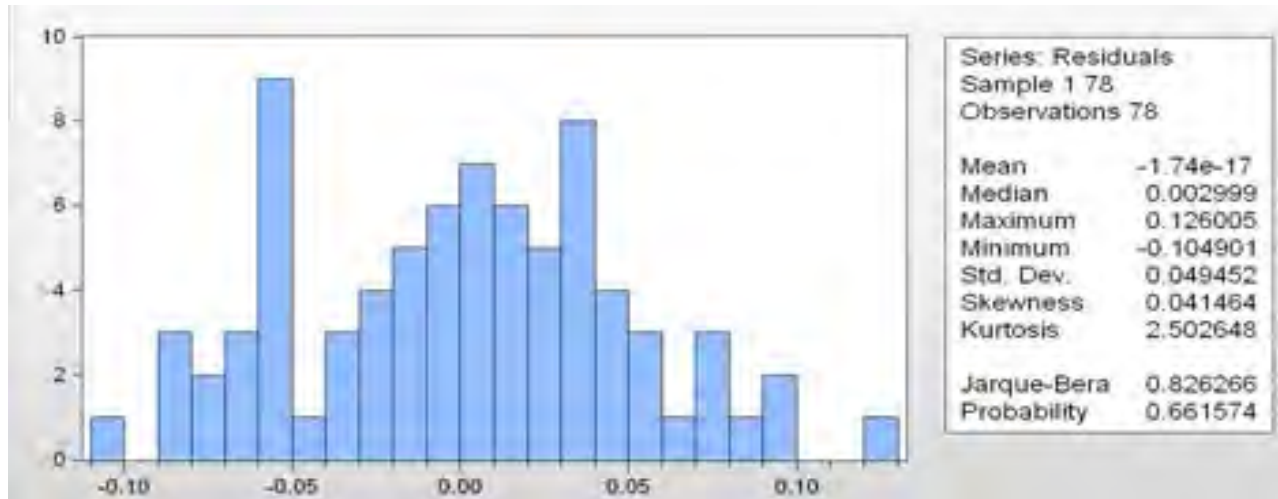
4.3.4. Test for normality assumption ($u_t \sim N(0, \sigma^2)$)

Normality, the most fundamental assumption in data analysis, refers to the shape of data distribution for an individual metric variable. Normality is tested using graphical and statistical tests.

This normality assumption ' $(u_t \sim N(0, \sigma^2))$ ' is required in order to conduct single or joint hypothesis tests about the model parameters (Brooks 2008). One of the most commonly applied tests for normality is the Bera-Jarque (BJ) test. Bera-Jarque uses the property of a normally distributed random variable that the entire distribution is characterized by the first two moments the mean and the variance (Brooks, 2008). In case of this study, the researcher used Bera-Jarque test to check normality assumptions.

As shown in the graph 4.2 below kurtosis approaches to 3 (i.e. 2.502648), and the Bera-Jarque statistic p-value was not significant even at 5% significance level as per the P values shown in the histogram below, has a P-value of 0.661574. Hence, the null hypothesis that is the error term is normally distributed should not be rejected and it seems that the error term in all of the cases follows the normal distribution. So, the residuals are normally distributed in this study, concluded that there is no the problem of normality on models.

Figure 4.2: Graphical Test of Normality Using Histogram



Source; Computed from Eviews result

4.3.5. Test for absence of series Multicollinearity assumption

Multicollinearity problem occurs when the explanatory variables are very highly correlated with each other, and this problem is known as multicollinearity. There are two classes of multicollinearity: perfect multicollinearity and near multicollinearity. Perfect multicollinearity occurs when there is an exact relationship between two or more variables. In this case, it is not possible to estimate all of the coefficients in the model. Perfect multicollinearity will usually be observed only when the same explanatory variable is inadvertently used twice in a regression. Whereas, near multicollinearity is much more likely to occur in practice, and would arise when there was a non-negligible, but not perfect, relationship between two or more of the explanatory variables.

In order to examine the possible degree of multicollinearity among the explanatory variables, and to test the independence of the explanatory variables or to detect any multicollinearity problem in regression model the study used a correlation matrix of independent variables.

As it is shown in Table 4.6 below, there is no strong correlation between the explanatory variables (DTAR, DEPTA, ICR, FSIZE, LTDR and FAGE). As noted by Gujarati, (2003), Hair

et al. (2006) and Pallant (2005) cited on Mohammed G. (2014), inter-correlation among independent variables is above from 0.9, causes serious multicollinearity problem but correlation coefficient below 0.9 not cause serious multicollinearity problem.

But, the first test for multicollinearity as indicated in the Annex shows the existence of Multicollinearity problem between the independent variables debt to asset ratio (DTAR) and debt to equity ratio (DTER). Hence, debt to equity ratio (DTER) dropped from the model, and debt to asset ratio used to represent the MFIs capital structure. After excluding the correlated variable, multicollinearity test was made for the remaining independent variables.

The result of the final test for multicollinearity of this study is presented in Table 4.4 below, so that no multicollinearity problem among existing explanatory variables shown.

Table 4.4 Correlation Matrix between Explanatory Variables

| | DTAR | DEPTA | ICR | FSIZE | LTDR | FAGE |
|-------|-----------|-----------|-----------|-----------|-----------|----------|
| DTAR | 1.000000 | | | | | |
| DEPTA | 0.316653 | 1.000000 | | | | |
| ICR | -0.346947 | 0.058545 | 1.000000 | | | |
| FSIZE | 0.701907 | 0.129605 | -0.004178 | 1.000000 | | |
| LTDR | -0.310219 | -0.698338 | 0.105569 | -0.075630 | 1.000000 | |
| FAGE | 0.332626 | 0.495248 | 0.136924 | 0.499660 | -0.289254 | 1.000000 |

Source; Computed from Eviews result

4.4. Model Selection; Fixed Effect versus Random Effect Models

As noted in Brooks (2008), there are two panel data estimator approaches that can be employed in financial research: fixed effects model and random effects model. The fixed effect regression model is the model to use when researcher wants to control for omitted variables that differ between cases but are constant over time. It allows using the changes in the variables over time to estimate the effects of the independent variables on dependent variables (Li Yuqi, 2007). It

allows us to estimate the effect of the omitted independent variables on the dependent variable. In contrast, if we have reasons to believe that some omitted variables may be constant over time but vary between cases and others may be fixed between cases but overtime, then we can include both types by using random effects (Li Yuqi 2007).

For choosing the best way for data analysis running the Hausman test distinguishes the appropriate model. The Hausman test checks a more efficient model against a less efficient but consistent model to make sure that the more efficient model also gives consistent results (Li Yuqi, 2007).

According to Brooks (2008), if the p-value for Hausman test is less than 5%, this shows the fixed effects model is appropriate than random effects model. According to Table 4.7 below, the Hausman specification test shows that the model has a p value of (0.0082). This indicates that the fixed effect model is preferred. Therefore, in this study fixed effect model was used to test the effect of capital structure on MFIs profitability.

Table 4.5 Hausman test for Fixed, Random Effect

Correlated Random Effects – Hausman Test

Equation: Untitled

Test cross-section random effects

| Test Summary | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob. |
|----------------------|-------------------|--------------|---------|
| Cross-section random | 17.316222 | 6 | 0.0082* |

Source; Computed from Eviews result

**Statistically significant in 1%*

4.5. Regression Analysis Results

As shown in chapter three, the model used to find out and explain the association between the dependent variable and the independent variables was:

$$\text{ROE}_{i,t} = \alpha + \beta_1 (\text{DTAR})_{i,t} + \beta_2 (\text{DEPTA})_{i,t} + \beta_3 (\text{ICR})_{i,t} + \beta_4 (\text{LTDR})_{i,t} + \beta_5 (\text{FSIZE})_{i,t} + \beta_6 (\text{FAGE})_{i,t} + \varepsilon_{i,t}$$

Where:

DTAR = debt to asset ratio

DEPTA = deposit to asset ratio

ICR = interest coverage ratio

LTDR = loan to deposit ratio

FSIZE = firm size

FAGE = firm age

ε = error term

Under the following fixed effect regression output the beta coefficients show positive and negative values. Beta coefficient indicates the level of influence of independent variables over dependent variable. The P-value indicates at what percentage or precision level of each variable is significant. R² values indicate the explanatory power of the independent variables over dependent variable. Therefore, the next part discusses the output of fixed effect model in detail.

As the below table 4.6 shows, the fixed effect panel data regression model was implemented to identify the relationship between the dependent variable and the independent variables.

Table 4.6 Results of the fixed effect panel data regression analysis

Dependent Variable: ROE

Method: Panel Least Squares

Date: 12/15/16 Time: 02:01

Sample: 2010 2015

Periods included: 6

Cross-sections included: 13

Total panel (balanced) observations: 78

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|----------|
| C | -0.065395 | 0.216260 | -0.302392 | 0.7634 |
| DTAR | 0.217640 | 0.085885 | 2.534090 | 0.0139** |
| DEPTA | 0.270054 | 0.075866 | 3.559624 | 0.0007* |
| ICR | 0.003554 | 0.004601 | 0.772412 | 0.4430 |
| FSIZE | -0.121755 | 0.042014 | -2.897948 | 0.0053* |
| LTDR | 0.033441 | 0.014445 | 2.315128 | 0.0241** |
| FAGE | 0.868003 | 0.155431 | 5.584487 | 0.0000* |

| Effects Specification | | | |
|---------------------------------------|----------|-----------------------|-----------|
| Cross-section fixed (dummy variables) | | | |
| R-squared | 0.904051 | Mean dependent var | 0.200679 |
| Adjusted R-squared | 0.874778 | S.D. dependent var | 0.066938 |
| S.E. of regression | 0.023687 | Akaike info criterion | -4.439753 |
| Sum squared resid | 0.033104 | Schwarz criterion | -3.865683 |
| Log likelihood | 192.1504 | Hannan-Quinn criter. | -4.209943 |
| F-statistic | 30.88373 | Durbin-Watson stat | 1.741465 |
| Prob(F-statistic) | 0.000000 | | |

Source; Computed from Eviews result

*Correlation Coefficient significant at 1%, and **Correlation Coefficient significant at 5%

The fixed effect regression result shown in the table 4.6 above, the R2 is 0.8747 which indicates that the independent variables that were used in this study explains 87.47 percent of the dependent variable. The remaining 12.53% is influenced by other factors that are not included in this study. Meaning that, other factors that are not studied in this research affects 12.53 percent of MFIs profitability, which is giving room for further research to investigate the other factors. Hence, this area is indicated as a scope for future research.

As the above table 4.6 presents, debt to asset ratio and loan to deposit ratio had a positive and statistically significant influence at 5% level on MFIs financial performance (profitability), deposit to asset ratio and firm age are statistically significant factors and affects financial performance (profitability) of MFIs in Ethiopia at 1% significant level, interest coverage ratio of which its effect is insignificant have a positive effect, but firm size had an effect of negative for financial performance (profitability) of MFIs in Ethiopia of which statistically significant influence at 1% level. However the coefficient sign should be positive from my expectation.

4.6. Discussion on Regression Results

The preceding section presents the overall results of the study, and this section discusses the general result of each explanatory variables based on fixed effect regression results indicated in the table 4.6 above.

4.6.1. Total Debt to Asset Ratio

The results of fixed effect model in table 4.6 indicated that debt to total asset ratio had a positive relationship with profitability, and statistically significant (p-value = 0.0139) at 5 percent significant level. Thus, the result was in accordance with the expected sign. This implies that every one percent change (increase or decrease) in MFIs debt to asset ratio keeping other things constant had a resultant change of 21.76 percent on the profitability in the same direction. This result also shows that, the level of external financing in Ethiopian MFIs increase the level of profit also increase. Besides, the result revealed the profitable MFIs have better access to external financing.

The result of this study indicates a positive relationship between debt to asset ratio and MFIs profitability based on tax considerations. The findings were consistent with the trade-off theory. In addition, a positive relationship between debt to asset ratio and profitability was observed in following empirical studies, such as (Bourke 1989), (Berger and Bonaccorsi 2006), (Margrate and psillaki 2007), (Kebewar 2012) and (Khalid et al 2013) were some of them.

4.6.2. Deposit to Asset ratio

The result of fixed effect model table 4.6 indicated that Deposit to asset had positive relationship with profitability with strongly statistically significant (p -value = 0.0007) at 1% level. And it was in accordance with the expected sign. This implies that every 1 birr change (increase or decrease) in MFIs deposit to asset ratio keeping other things constant had a resultant change of 27 cents (Coeff. = 0.270054) on the profitability in the same direction. This result also shows that financing with deposit have a positive impact on profitability of MFIs in Ethiopia. The possible reason could be that the cost (interest expense) associated debt financing through deposit mobilization is cheaper in the context of Ethiopia microfinance business operations.

The result of this study is consistent with the findings of Abbadi & Abu-Rub (2012). As the total debt of banks composed of deposit and non-deposit liabilities, this positive relationship of deposit side of debt financing is consistent with theories of capital structure. For instance, static trade off-theory states that a firm's optimal debt ratio is determined by a trade-off between the tax advantage and bankruptcy cost of borrowing, holding the firm's assets and investment plans constant. This theory assumes that higher profitability lower the expected cost of distress; hence, firms increase their leverage to take advantage from tax benefits. That is, profitability is positively related with leverage. Besides, due to the free cash flow theory of Jensen (1986) agency cost theory also supports this positive relation.

4.6.3. Interest Coverage Ratio

The results of fixed effect model in table 4.6 shows that the relationship between interest coverage ratio and profitability was, statistically insignificant with p -value = 0.4430, and it was in accordance with the expected sign.

Furthermore, the result implies that every one percent change (increase or decrease) in the MFIs interest coverage ratio keeping other things constant had a resultant change of 0.35 percent increase interest expense payments on its debt with its EBIT. On the other hand, the positive relationship indicates the MFIs in Ethiopia borrow the fund by low cost.

Even though this finding shows insignificant relationship between interest coverage ratio and profitability, it is consistent with various previous research findings like, (Khalid et al 2013), (Enugu and Amorji 2014) and (Enekwe, et al 2014) are some of them.

4.6.4. Loan to Deposit ratio

The result of fixed effect model table 4.8 indicated that loan to deposit had positive relationship with profitability (return on equity) and statistically significant with p-value = 0.0241 at 5% level, and it was in accordance with the expected sign. This implies that every 1 birr change (increase or decrease) in MFIs loan to deposit ratio keeping other things constant had a resultant change of 3 cents (Coeff.= 0.033441) on the profitability (return on equity) in the same direction.

This result also shows that an increase in a amount of loan advances to customers from deposit financing has a positive impact on profitability of Ethiopian microfinance industry. The possible reason could be that the interest income associated with loan advances financed by deposit sources was greater than the costs or interest paid to depositors. The result was consistent with previous empirical findings of, (Eltabakh et al., 2014), Kwast & Rose (1982), Vasiliou (1996), Hester & Zoellner (1966) and Asiri (2007)

4.6.5. Firm Size

The result of fixed effect model in table 4.8 indicated that firm size had negative relationships with the profitability of microfinance institutions, and statistically significant (p-value = 0.0053), even at 1% significant level. This implies that every one percent change increase in the MFI size keeping other things constant had a resultant in 12.17 percent change on the profitability in the opposite direction. The results suggested that as the MFI getting bigger in its asset size, the lesser profitable it becomes. The possible reason is that, larger firms are not that much more flexible than smaller ones for having a better return.

However, the negative coefficient of size indicates that microfinance institutions tend to be inefficient when they become too large (i.e. this finding is consistent with the diseconomies of scale theory). This is consistent with previous studies indicated a similarly negative relationship, for example, Zacharias, 2008.

On the contrary, Rajan and Zingales (1995) find that there is no evidence to support the effect of firm size on performance, based on a comparative study of firms in G7 countries. But others like (Zeitun and Tian 2007), (Lee 2009), (Velampany and Nimalathasan 2010) finds a positive relationship between firm size and profitability.

4.6.6. Firm Age

The result of the fixed effects model shown in Table 4.8 above, firm age have a positive and strong significant relationship with profitability of microfinance institutions in Ethiopia and this result had in accordance with expected sign, the coefficient of age variable in regression result had statistically significant at 1% level with p value of 0.8680.

Thus, the possible reason for this finding can be interpreted as; the more firms stay in business, they do have more customers with having larger scale of operation and they become known and mature so that, they can easily raise better profit. Similarly speaking, during the study period, older firms in Ethiopian microfinance industry earn better profit (return on equity) than newer one. This finding is consistent with empirical evidences of Bayeh (2011), Mahmoud (2013), Derbali (2014).

Therefore, based on this finding the relationship between firm age and profitability was in accordance with the expected sign. To conclude the presentation of fixed effect regression output results by discussing each explanatory variable by including the expected sign and actual sign. The summary of actual and expected sign is presented in the following Table 4.10 below:

Table 4.7 The Summary of expected and actual signs of explanatory variables

| Explanatory Variables | Expected Impact on Profitability | Explained Variable (ROE) Profitability |
|--------------------------------|----------------------------------|--|
| Debt to Asset Ratio (DTAR) | Positive and Significant | Positive and Significant |
| Deposit to Asset Ratio (DEPTA) | Positive and Significant | Positive and Significant |
| Interest Coverage Ratio (ICR) | Positive and Significant | Positive and Insignificant |
| Firm (Asset) Size (FSIZE) | Positive and Significant | Negative and Significant |
| Loan to Deposit Ratio (LTDR) | Positive and Significant | Positive and Significant |
| Firm Age (FAGE) | Positive and Significant | Positive and Significant |

4.7. Chapter Summery

This chapter discussed about the results of the data analysis and the discussions of these results using the appropriate method. Accordingly, the chapter discussed the descriptive statistics, the tests for the Classical Linear Regression Model (CLRM) assumptions, and through the regressions analyses; it illustrates the relationship between dependent and independent variables as well as the impact of capital structure on profitability of MFIs in Ethiopia. Hence, the result indicates that debt to asset ratio, deposit to asset ratio, firm size, loan to deposit ratio and firm age were statistically significant factors that impacted (positively/negatively) the profitability of MFIs in Ethiopia. However, the result indicates that interest coverage ratio were not significant explanatory variable of profitability in Ethiopian MFIs industry. The subsequent chapter presents conclusions and recommendations of the study.

CHAPTER FIVE: Conclusion and Recommendations

5.1. Conclusion

The previous chapter presented the results and finding of the study while this chapter discusses about conclusions and recommendations based on the results and findings. Accordingly this chapter is organized into two sub-sections. Section 5.1 presents the conclusions and section 5.2 presents the recommendations.

The main objective of this study was to examine the impact of capital structure on financial performance (profitability) of microfinance institutions in Ethiopia and additionally the relationships between other four explanatory variables and profitability of MFIs in Ethiopian. To achieve the intended objectives the study used quantitative approaches panel data analysis methodology. The panel data were collected from audited financial statements particularly balance sheets and income statements of a sampled thirty MFIs over the time period from 2010-2015. The collected data were analyzed through a fixed effect model using statistical package 'eview 8.0'.

In order to conduct the empirical analysis, one dependent variable and six independent variables were selected from prominent previous research works on the impact of capital structure on profitability of various industries through giving emphasis on finance sector specially microfinance sector. Return on Equity as a measure of profitability of MFIs were dependent variable, while the independent variables were debt to asset ratio, deposit to asset ratio, interest coverage ratio, firm size, loan to deposit ratio, and firm age.

It was observed that on average 62.8% of the total capital of MFIs in Ethiopia in the period under study was made up of debt. Of this, 42.18% constitute deposit, this high amount composed of deposit mobilized as compulsory and non compulsory savings from their clients, and the remaining was non-deposit liabilities. This has reaffirmed the fact that MFIs are highly levered institutions.

The results of the fixed effect estimation model showed the existence of the following relationship between profitability and six independent variables. Capital structure as measured by debt to asset ratio had statistically significant positive relationship with profitability, which was in line with prior expectation. This result also supports the tradeoff theory and prefers of using more borrowed funds to raise their assets so that to maximize their financial return, the other variable deposit to asset ratio had statistically significant and positive relationship with profitability, which was also in line with prior expectation. Similarly, loan to deposit had also a positive and statistically significant relationship with profitability, which was also in line the expected sign. Furthermore, the effect of other variable on profitability of MFIs in this study, the result shows that as there was positive and statistically significant relationship between firm age and profitability, which is in line with prior expectation.

But, the results of the study indicated that the size of MFIs calculated as logarithm of total asset, had statistically significant and negative relationship with profitability but not with expected sign, even though it was consistent with some prior empirical evidences, some evidences shows positive and some of them shows no relationship with profitability of firms.

In conclusion, the finding of the study suggests that capital structure had significant impact on profitability of microfinance institutions in Ethiopia. And implies managers need to consider this impact in their financing or capital structure decision.

5.2. Recommendations

Based on the findings obtained from the result of the study, the researcher forwards these recommendations;

Most empirical studies on capital structure reveal that a negative correlation between leverage and profitability of the firms. In this study microfinance institutions in Ethiopia are employing more debt than equity in their capital structures, which are significant positive effect on their financial performance (profitability). This indicates that increasing debt financing in their capital

structure make the profitability of the microfinance institutions to increase accordingly. This huge amount of debt is mainly composed of deposit from their customers, so MFIs should:-

- ✚ Employ more debt up to optimum level through borrowing from commercial banks, development bank, central bank or other international financial organizations to maximize their profit as well as their shareholders wealth and meet their prime objectives.
- ✚ Maximize their loanable fund from other sources such as international or local donors through soft loan to maximize their profitability through financing their clients
- ✚ As deposits are relatively stable and low cost source of fund, MFIs should mobilize more deposit from their customers in order to increase their financial earnings and alleviating poverty through financing the poor
- ✚ Increase their loan to their customers so as to increase their financial earnings to stay profitable, and to achieve their objective in alleviating poverty through satisfying their customer's financial demand

1. Thus, the concerned top management should give attention to the deposit collection in order to maximize the firm's profitability. This deposit is cheapest source of fund; it helps the microfinance institutions to expand their operation and creates better market share and more customers for them.

2. The cost benefit analysis dictates that the assets against the customers deposit had shown a positive effect on the company's profitability. A net interest coverage ratio would also be an indicator for this circumstance, as well as it is an indication of substantial additional debt capacity of which the management should plan to do for better earning to maximize the company's profitability.

5.2.1. for Future Researchers

This study paper had put some ground work to explore the effect of debt financing on profitability of microfinance business in Ethiopia, by using debt to asset ratio, deposit to asset ratio, interest coverage ratio, firm size, loan to deposit ratio and firm age, to measure their effects on firm's performance.

Further work is required to develop new hypotheses and design new variables by using other debt ratio measurements and variables which were not included in this research work with theory of capital structure.

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Appendices

Appendix I

Durbin-Watson Statistic: 1 Per Cent Significance Points of dL and dU

| n | k'=1 | | k'=2 | | k'=3 | | k'=4 | | k'=5 | | k'=6 | | k'=7 | | k'=8 | | k'=9 | | k'=10 | | |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| | dL | dU | dL | dU | dL | dU | dL | dU | dL | dU | dL | dU | dL | dU | dL | dU | dL | dU | dL | dU | |
| 6 | 0.390 | 1.142 | | | | | | | | | | | | | | | | | | | |
| 7 | 0.435 | 1.036 | 0.294 | 1.676 | | | | | | | | | | | | | | | | | |
| 8 | 0.497 | 1.003 | 0.345 | 1.489 | 0.229 | 2.102 | | | | | | | | | | | | | | | |
| 9 | 0.554 | 0.998 | 0.408 | 1.389 | 0.279 | 1.875 | 0.183 | 2.433 | | | | | | | | | | | | | |
| 10 | 0.604 | 1.001 | 0.466 | 1.333 | 0.340 | 1.733 | 0.230 | 2.193 | 0.150 | 2.690 | | | | | | | | | | | |
| 11 | 0.653 | 1.010 | 0.519 | 1.297 | 0.396 | 1.640 | 0.286 | 2.030 | 0.193 | 2.453 | 0.124 | 2.892 | | | | | | | | | |
| 12 | 0.697 | 1.023 | 0.569 | 1.274 | 0.449 | 1.575 | 0.339 | 1.913 | 0.244 | 2.280 | 0.164 | 2.665 | 0.105 | 3.053 | | | | | | | |
| 13 | 0.738 | 1.038 | 0.616 | 1.261 | 0.499 | 1.526 | 0.391 | 1.826 | 0.294 | 2.150 | 0.211 | 2.490 | 0.140 | 2.838 | 0.090 | 3.182 | | | | | |
| 14 | 0.776 | 1.054 | 0.660 | 1.254 | 0.547 | 1.490 | 0.441 | 1.757 | 0.343 | 2.049 | 0.257 | 2.354 | 0.183 | 2.667 | 0.122 | 2.981 | 0.078 | 3.287 | | | |
| 15 | 0.811 | 1.070 | 0.700 | 1.252 | 0.591 | 1.465 | 0.487 | 1.705 | 0.390 | 1.967 | 0.303 | 2.244 | 0.226 | 2.530 | 0.161 | 2.817 | 0.107 | 3.101 | 0.068 | 3.374 | |
| 16 | 0.844 | 1.086 | 0.738 | 1.253 | 0.633 | 1.447 | 0.532 | 1.664 | 0.437 | 1.901 | 0.349 | 2.153 | 0.269 | 2.416 | 0.200 | 2.681 | 0.142 | 2.944 | 0.094 | 3.201 | |
| 17 | 0.873 | 1.102 | 0.773 | 1.255 | 0.672 | 1.432 | 0.574 | 1.631 | 0.481 | 1.847 | 0.393 | 2.078 | 0.313 | 2.319 | 0.241 | 2.566 | 0.179 | 2.811 | 0.127 | 3.053 | |
| 18 | 0.902 | 1.118 | 0.805 | 1.259 | 0.708 | 1.422 | 0.614 | 1.604 | 0.522 | 1.803 | 0.435 | 2.015 | 0.355 | 2.238 | 0.282 | 2.467 | 0.216 | 2.697 | 0.160 | 2.925 | |
| 19 | 0.928 | 1.133 | 0.835 | 1.264 | 0.742 | 1.416 | 0.650 | 1.583 | 0.561 | 1.767 | 0.476 | 1.963 | 0.396 | 2.169 | 0.322 | 2.381 | 0.255 | 2.597 | 0.196 | 2.813 | |
| 20 | 0.952 | 1.147 | 0.862 | 1.270 | 0.774 | 1.410 | 0.684 | 1.567 | 0.598 | 1.736 | 0.515 | 1.918 | 0.436 | 2.110 | 0.362 | 2.308 | 0.294 | 2.510 | 0.232 | 2.174 | |
| 21 | 0.975 | 1.161 | 0.889 | 1.276 | 0.803 | 1.408 | 0.718 | 1.554 | 0.634 | 1.712 | 0.552 | 1.881 | 0.474 | 2.059 | 0.400 | 2.244 | 0.331 | 2.434 | 0.268 | 2.625 | |
| 22 | 0.997 | 1.174 | 0.915 | 1.284 | 0.832 | 1.407 | 0.748 | 1.543 | 0.666 | 1.691 | 0.587 | 1.849 | 0.510 | 2.015 | 0.437 | 2.188 | 0.368 | 2.367 | 0.304 | 2.548 | |
| 23 | 1.017 | 1.186 | 0.938 | 1.290 | 0.858 | 1.407 | 0.777 | 1.535 | 0.699 | 1.674 | 0.620 | 1.821 | 0.545 | 1.977 | 0.473 | 2.140 | 0.404 | 2.308 | 0.340 | 2.479 | |
| 24 | 1.037 | 1.199 | 0.959 | 1.298 | 0.881 | 1.407 | 0.805 | 1.527 | 0.728 | 1.659 | 0.652 | 1.797 | 0.578 | 1.944 | 0.507 | 2.097 | 0.439 | 2.255 | 0.375 | 2.417 | |
| 25 | 1.055 | 1.210 | 0.981 | 1.305 | 0.906 | 1.408 | 0.832 | 1.521 | 0.756 | 1.645 | 0.682 | 1.776 | 0.610 | 1.915 | 0.540 | 2.059 | 0.473 | 2.209 | 0.409 | 2.362 | |
| 26 | 1.072 | 1.222 | 1.000 | 1.311 | 0.928 | 1.410 | 0.855 | 1.517 | 0.782 | 1.635 | 0.711 | 1.759 | 0.640 | 1.889 | 0.572 | 2.026 | 0.505 | 2.168 | 0.441 | 2.313 | |
| 27 | 1.088 | 1.232 | 1.019 | 1.318 | 0.948 | 1.413 | 0.878 | 1.514 | 0.808 | 1.625 | 0.738 | 1.743 | 0.669 | 1.867 | 0.602 | 1.997 | 0.536 | 2.131 | 0.473 | 2.269 | |
| 28 | 1.104 | 1.244 | 1.036 | 1.325 | 0.969 | 1.414 | 0.901 | 1.512 | 0.832 | 1.618 | 0.764 | 1.729 | 0.696 | 1.847 | 0.630 | 1.970 | 0.566 | 2.098 | 0.504 | 2.229 | |
| 29 | 1.119 | 1.254 | 1.053 | 1.332 | 0.988 | 1.418 | 0.921 | 1.511 | 0.855 | 1.611 | 0.788 | 1.718 | 0.723 | 1.830 | 0.658 | 1.947 | 0.595 | 2.068 | 0.533 | 2.193 | |
| 30 | 1.134 | 1.264 | 1.070 | 1.339 | 1.006 | 1.421 | 0.941 | 1.510 | 0.877 | 1.606 | 0.812 | 1.707 | 0.748 | 1.814 | 0.684 | 1.925 | 0.622 | 2.041 | 0.562 | 2.160 | |
| 31 | 1.147 | 1.274 | 1.085 | 1.345 | 1.022 | 1.425 | 0.960 | 1.509 | 0.897 | 1.601 | 0.834 | 1.698 | 0.772 | 1.800 | 0.710 | 1.906 | 0.649 | 2.017 | 0.589 | 2.131 | |
| 32 | 1.160 | 1.283 | 1.100 | 1.351 | 1.039 | 1.428 | 0.978 | 1.509 | 0.917 | 1.597 | 0.856 | 1.690 | 0.794 | 1.788 | 0.734 | 1.889 | 0.674 | 1.995 | 0.615 | 2.104 | |
| 33 | 1.171 | 1.291 | 1.114 | 1.358 | 1.055 | 1.432 | 0.995 | 1.510 | 0.935 | 1.594 | 0.876 | 1.683 | 0.816 | 1.776 | 0.757 | 1.874 | 0.698 | 1.975 | 0.641 | 2.080 | |
| 34 | 1.184 | 1.298 | 1.128 | 1.364 | 1.070 | 1.436 | 1.012 | 1.511 | 0.954 | 1.591 | 0.896 | 1.677 | 0.837 | 1.766 | 0.779 | 1.860 | 0.722 | 1.957 | 0.665 | 2.057 | |
| 35 | 1.195 | 1.307 | 1.141 | 1.370 | 1.085 | 1.439 | 1.028 | 1.512 | 0.971 | 1.589 | 0.914 | 1.671 | 0.857 | 1.757 | 0.800 | 1.847 | 0.744 | 1.940 | 0.689 | 2.037 | |
| 36 | 1.205 | 1.315 | 1.153 | 1.376 | 1.098 | 1.442 | 1.043 | 1.513 | 0.987 | 1.587 | 0.932 | 1.666 | 0.877 | 1.749 | 0.821 | 1.836 | 0.766 | 1.925 | 0.711 | 2.018 | |
| 37 | 1.217 | 1.322 | 1.164 | 1.383 | 1.112 | 1.446 | 1.058 | 1.514 | 1.004 | 1.585 | 0.950 | 1.662 | 0.895 | 1.742 | 0.841 | 1.825 | 0.787 | 1.911 | 0.733 | 2.001 | |
| 38 | 1.227 | 1.330 | 1.176 | 1.388 | 1.124 | 1.449 | 1.072 | 1.515 | 1.019 | 1.584 | 0.966 | 1.658 | 0.913 | 1.735 | 0.860 | 1.816 | 0.807 | 1.899 | 0.754 | 1.985 | |
| 39 | 1.237 | 1.337 | 1.187 | 1.392 | 1.137 | 1.452 | 1.085 | 1.517 | 1.033 | 1.583 | 0.982 | 1.655 | 0.930 | 1.729 | 0.878 | 1.807 | 0.826 | 1.887 | 0.774 | 1.970 | |
| 40 | 1.246 | 1.344 | 1.197 | 1.398 | 1.149 | 1.456 | 1.098 | 1.518 | 1.047 | 1.583 | 0.997 | 1.652 | 0.946 | 1.724 | 0.895 | 1.799 | 0.844 | 1.876 | 0.749 | 1.956 | |
| 45 | 1.288 | 1.376 | 1.245 | 1.424 | 1.201 | 1.474 | 1.156 | 1.528 | 1.111 | 1.583 | 1.065 | 1.643 | 1.019 | 1.704 | 0.974 | 1.768 | 0.927 | 1.834 | 0.881 | 1.902 | |
| 50 | 1.324 | 1.403 | 1.285 | 1.445 | 1.245 | 1.491 | 1.206 | 1.537 | 1.164 | 1.587 | 1.123 | 1.639 | 1.081 | 1.692 | 1.039 | 1.748 | 0.997 | 1.805 | 0.955 | 1.864 | |
| 55 | 1.356 | 1.428 | 1.320 | 1.466 | 1.284 | 1.505 | 1.246 | 1.548 | 1.209 | 1.592 | 1.172 | 1.638 | 1.134 | 1.685 | 1.095 | 1.734 | 1.057 | 1.785 | 1.018 | 1.837 | |
| 60 | 1.382 | 1.449 | 1.351 | 1.484 | 1.317 | 1.520 | 1.283 | 1.559 | 1.248 | 1.598 | 1.214 | 1.639 | 1.179 | 1.682 | 1.144 | 1.726 | 1.108 | 1.771 | 1.072 | 1.817 | |
| 65 | 1.407 | 1.467 | 1.377 | 1.500 | 1.346 | 1.534 | 1.314 | 1.568 | 1.283 | 1.604 | 1.251 | 1.642 | 1.218 | 1.680 | 1.186 | 1.720 | 1.153 | 1.761 | 1.120 | 1.802 | |
| 70 | 1.429 | 1.485 | 1.400 | 1.514 | 1.372 | 1.546 | 1.343 | 1.577 | 1.313 | 1.611 | 1.283 | 1.645 | 1.253 | 1.680 | 1.223 | 1.716 | 1.192 | 1.754 | 1.162 | 1.792 | |
| 75 | 1.448 | 1.501 | 1.422 | 1.529 | 1.395 | 1.557 | 1.368 | 1.586 | 1.340 | 1.617 | 1.313 | 1.649 | 1.284 | 1.682 | 1.256 | 1.714 | 1.227 | 1.748 | 1.199 | 1.783 | |
| 80 | 1.465 | 1.514 | 1.440 | 1.541 | 1.416 | 1.568 | 1.390 | 1.595 | 1.364 | 1.624 | 1.338 | 1.653 | 1.312 | 1.683 | 1.285 | 1.714 | 1.259 | 1.745 | 1.232 | 1.777 | |
| 85 | 1.481 | 1.529 | 1.458 | 1.553 | 1.434 | 1.577 | 1.411 | 1.603 | 1.386 | 1.630 | 1.362 | 1.657 | 1.337 | 1.685 | 1.312 | 1.714 | 1.287 | 1.743 | 1.262 | 1.773 | |
| 90 | 1.496 | 1.541 | 1.474 | 1.563 | 1.452 | 1.587 | 1.429 | 1.611 | 1.406 | 1.636 | 1.383 | 1.661 | 1.360 | 1.687 | 1.336 | 1.714 | 1.312 | 1.741 | 1.288 | 1.769 | |
| 95 | 1.510 | 1.552 | 1.489 | 1.573 | 1.468 | 1.596 | 1.446 | 1.618 | 1.425 | 1.641 | 1.403 | 1.666 | 1.381 | 1.690 | 1.358 | 1.715 | 1.336 | 1.741 | 1.313 | 1.767 | |
| 100 | 1.522 | 1.562 | 1.502 | 1.582 | 1.482 | 1.604 | 1.461 | 1.625 | 1.441 | 1.647 | 1.421 | 1.670 | 1.400 | 1.693 | 1.378 | 1.717 | 1.357 | 1.741 | 1.335 | 1.765 | |
| 150 | 1.611 | 1.637 | 1.598 | 1.651 | 1.584 | 1.665 | 1.571 | 1.679 | 1.557 | 1.693 | 1.543 | 1.708 | 1.530 | 1.722 | 1.515 | 1.737 | 1.501 | 1.752 | 1.486 | 1.767 | |
| 200 | 1.664 | 1.684 | 1.653 | 1.693 | 1.643 | 1.704 | 1.633 | 1.715 | 1.623 | 1.725 | 1.613 | 1.735 | 1.603 | 1.746 | 1.592 | 1.757 | 1.582 | 1.768 | 1.571 | 1.779 | |

*k' is the number of regressors excluding the intercept

Appendix 2

| | | | ROE | DTAR | DTER | DEPTA | ICR | FSIZE | LTDR | FAGE | total asset '000 | FAGE |
|--------|---|------|--------|--------|--------|--------|--------|---------|--------|--------|-------------------|------|
| ACSI | 1 | 2010 | 0.1599 | 0.7219 | 2.5960 | 0.4153 | 5.9423 | 9.4037 | 1.6428 | 1.1139 | 2,533,221,000.00 | 13 |
| ACSI | 1 | 2011 | 0.2349 | 0.7211 | 2.5855 | 0.4164 | 4.7470 | 9.5158 | 1.6157 | 1.1461 | 3,279,192,200.00 | 14 |
| ACSI | 1 | 2012 | 0.2542 | 0.7206 | 2.5786 | 0.4100 | 5.0105 | 9.6417 | 1.6608 | 1.1761 | 4,382,488,200.00 | 15 |
| ACSI | 1 | 2013 | 0.2349 | 0.7333 | 2.7493 | 0.4169 | 3.8483 | 9.7690 | 1.7528 | 1.2041 | 5,875,241,300.00 | 16 |
| ACSI | 1 | 2014 | 0.2298 | 0.7600 | 3.1668 | 0.5216 | 3.5492 | 9.9274 | 1.1948 | 1.2304 | 8,460,216,400.00 | 17 |
| ACSI | 1 | 2015 | 0.2305 | 0.7698 | 3.3446 | 0.5475 | 3.2259 | 10.0687 | 1.2163 | 1.2553 | 11,715,009,400.00 | 18 |
| DECSI | 2 | 2010 | 0.0427 | 0.7649 | 3.2542 | 0.2935 | 2.8126 | 9.3299 | 2.3029 | 1.1139 | 2,137,258,700.00 | 13 |
| DECSI | 2 | 2011 | 0.0777 | 0.7597 | 3.1616 | 0.3611 | 2.4359 | 9.4320 | 1.8536 | 1.1461 | 2,704,178,200.00 | 14 |
| DECSI | 2 | 2012 | 0.1025 | 0.7540 | 3.0647 | 0.4150 | 2.0600 | 9.4758 | 1.5781 | 1.1761 | 2,990,760,400.00 | 15 |
| DECSI | 2 | 2013 | 0.0701 | 0.7782 | 3.5076 | 0.4682 | 1.6792 | 9.5520 | 1.3677 | 1.2041 | 3,564,333,200.00 | 16 |
| DECSI | 2 | 2014 | 0.1209 | 0.7850 | 3.6505 | 0.5169 | 2.0670 | 9.6231 | 1.2538 | 1.2304 | 4,198,502,200.00 | 17 |
| DECSI | 2 | 2015 | 0.1181 | 0.7754 | 3.4531 | 0.4889 | 1.9320 | 9.6621 | 1.3197 | 1.2553 | 4,593,154,100.00 | 18 |
| OCSSCO | 3 | 2010 | 0.1836 | 0.7584 | 3.1397 | 0.3338 | 3.9044 | 9.1428 | 2.2162 | 1.1139 | 1,389,291,800.00 | 13 |
| OCSSCO | 3 | 2011 | 0.1814 | 0.7366 | 2.7965 | 0.4016 | 3.1750 | 9.2281 | 1.9617 | 1.1461 | 1,690,984,600.00 | 14 |
| OCSSCO | 3 | 2012 | 0.2286 | 0.7288 | 2.6875 | 0.4749 | 3.9928 | 9.3251 | 1.6908 | 1.1761 | 2,113,878,300.00 | 15 |
| OCSSCO | 3 | 2013 | 0.2637 | 0.7492 | 2.9879 | 0.5088 | 4.6929 | 9.4627 | 1.5205 | 1.2041 | 2,901,897,900.00 | 16 |
| OCSSCO | 3 | 2014 | 0.2876 | 0.7629 | 3.2168 | 0.5286 | 4.6497 | 9.5759 | 1.9988 | 1.2304 | 3,766,489,200.00 | 17 |
| OCSSCO | 3 | 2015 | 0.2982 | 0.7448 | 2.9188 | 0.6134 | 3.8448 | 9.6742 | 1.2630 | 1.2553 | 4,723,190,700.00 | 18 |
| OMO | 4 | 2010 | 0.1389 | 0.7266 | 2.6579 | 0.3344 | 1.0990 | 8.8015 | 2.4312 | 1.1139 | 633,155,600.00 | 13 |
| OMO | 4 | 2011 | 0.1775 | 0.6196 | 1.6291 | 0.4138 | 1.5059 | 8.8675 | 1.9427 | 1.1461 | 737,095,000.00 | 14 |
| OMO | 4 | 2012 | 0.1014 | 0.7464 | 2.9436 | 0.3702 | 2.9765 | 9.1221 | 1.7447 | 1.1761 | 1,324,741,200.00 | 15 |
| OMO | 4 | 2013 | 0.0862 | 0.6668 | 2.0009 | 0.4169 | 2.6984 | 9.2700 | 1.6524 | 1.2041 | 1,862,146,100.00 | 16 |
| OMO | 4 | 2014 | 0.0961 | 0.7430 | 2.8913 | 0.4292 | 2.7387 | 9.4331 | 1.7009 | 1.2304 | 2,710,586,700.00 | 17 |
| OMO | 4 | 2015 | 0.1227 | 0.7424 | 2.8821 | 0.4128 | 3.1501 | 9.5542 | 1.7941 | 1.2553 | 3,582,264,900.00 | 18 |
| ADDIS | 5 | 2010 | 0.0702 | 0.3706 | 0.5887 | 0.2402 | 4.7864 | 8.7237 | 3.2244 | 1.0000 | 529,276,200.00 | 10 |
| ADDIS | 5 | 2011 | 0.1049 | 0.5090 | 1.0367 | 0.2660 | 4.3504 | 8.8836 | 2.6931 | 1.0414 | 764,868,300.00 | 11 |
| ADDIS | 5 | 2012 | 0.1226 | 0.6178 | 1.6164 | 0.3086 | 3.9417 | 9.0836 | 1.7234 | 1.0792 | 1,212,395,700.00 | 12 |
| ADDIS | 5 | 2013 | 0.1903 | 0.5939 | 1.4627 | 0.4841 | 4.3410 | 9.1831 | 1.2849 | 1.1139 | 1,524,476,400.00 | 13 |
| ADDIS | 5 | 2014 | 0.2115 | 0.6180 | 1.6178 | 0.5184 | 4.1046 | 9.3403 | 1.4115 | 1.1461 | 2,189,202,300.00 | 14 |
| ADDIS | 5 | 2015 | 0.2528 | 0.6155 | 1.6007 | 0.4743 | 3.6480 | 9.4355 | 1.7624 | 1.1761 | 2,725,972,700.00 | 15 |
| SFPI | 6 | 2010 | 0.1822 | 0.5519 | 1.2314 | 0.4208 | 3.9077 | 7.7879 | 1.6391 | 1.1139 | 61,356,700.00 | 13 |
| SFPI | 6 | 2011 | 0.2190 | 0.5385 | 1.1669 | 0.4710 | 2.8209 | 7.8444 | 1.5102 | 1.1461 | 69,884,200.00 | 14 |
| SFPI | 6 | 2012 | 0.2314 | 0.5733 | 1.3435 | 0.4256 | 2.3168 | 7.9683 | 1.9055 | 1.1761 | 92,953,800.00 | 15 |
| SFPI | 6 | 2013 | 0.2565 | 0.6399 | 1.7772 | 0.3500 | 2.4554 | 8.1492 | 1.7126 | 1.2041 | 140,984,300.00 | 16 |
| SFPI | 6 | 2014 | 0.2448 | 0.6153 | 1.5995 | 0.3787 | 2.3128 | 8.2158 | 1.5453 | 1.2304 | 164,347,200.00 | 17 |
| SFPI | 6 | 2015 | 0.2862 | 0.6638 | 1.9742 | 0.4037 | 2.3939 | 8.3502 | 1.7721 | 1.2553 | 223,949,900.00 | 18 |
| VISION | 7 | 2010 | 0.0750 | 0.5278 | 1.1176 | 0.2686 | 3.1611 | 8.0814 | 1.6924 | 1.0792 | 120,608,000.00 | 12 |
| VISION | 7 | 2011 | 0.1547 | 0.5191 | 1.0794 | 0.3251 | 4.7074 | 8.1422 | 1.9689 | 1.1139 | 138,728,400.00 | 13 |

| | | | | | | | | | | | | |
|----------|----|------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|----|
| VISION | 7 | 2012 | 0.1573 | 0.5235 | 1.0984 | 0.2999 | 6.0218 | 8.4052 | 1.9607 | 1.1461 | 254,225,000.00 | 14 |
| VISION | 7 | 2013 | 0.1398 | 0.5152 | 1.0627 | 0.2943 | 4.7371 | 8.5837 | 1.7826 | 1.1761 | 383,459,900.00 | 15 |
| VISION | 7 | 2014 | 0.2053 | 0.4799 | 0.9225 | 0.4041 | 5.6989 | 8.6391 | 1.5483 | 1.2041 | 435,619,100.00 | 16 |
| VISION | 7 | 2015 | 0.2199 | 0.4548 | 0.8342 | 0.4138 | 6.1330 | 8.6974 | 1.8968 | 1.2304 | 498,150,500.00 | 17 |
| BUS.GON. | 8 | 2010 | 0.1943 | 0.5055 | 1.0223 | 0.3101 | 2.9400 | 7.7791 | 2.5893 | 1.0414 | 60,137,500.00 | 11 |
| BUS.GON. | 8 | 2011 | 0.2098 | 0.4738 | 0.9003 | 0.2992 | 3.4116 | 7.9222 | 2.8425 | 1.0792 | 83,602,000.00 | 12 |
| BUS.GON. | 8 | 2012 | 0.2165 | 0.5350 | 1.1507 | 0.3213 | 3.1736 | 8.0939 | 2.7215 | 1.1139 | 124,146,400.00 | 13 |
| BUS.GON. | 8 | 2013 | 0.2628 | 0.6078 | 1.5494 | 0.4329 | 3.7240 | 8.2810 | 1.9424 | 1.1461 | 191,002,600.00 | 14 |
| BUS.GON. | 8 | 2014 | 0.2538 | 0.6289 | 1.6946 | 0.4620 | 3.3668 | 8.4176 | 1.6980 | 1.1761 | 261,567,700.00 | 15 |
| BUS.GON. | 8 | 2015 | 0.3066 | 0.6440 | 1.8092 | 0.5646 | 2.9086 | 8.5292 | 1.3216 | 1.2041 | 338,248,200.00 | 16 |
| PEACE | 9 | 2010 | 0.1415 | 0.5538 | 1.2413 | 0.3439 | 3.7626 | 7.7240 | 2.2380 | 1.0414 | 52,964,100.00 | 11 |
| PEACE | 9 | 2011 | 0.1852 | 0.5621 | 1.2837 | 0.4504 | 4.1077 | 7.7549 | 1.7389 | 1.0792 | 56,865,700.00 | 12 |
| PEACE | 9 | 2012 | 0.2337 | 0.5483 | 1.2140 | 0.4944 | 5.3364 | 7.8089 | 1.6305 | 1.1139 | 64,400,200.00 | 13 |
| PEACE | 9 | 2013 | 0.2461 | 0.5627 | 1.2867 | 0.4820 | 5.4667 | 7.9335 | 1.7862 | 1.1461 | 85,801,700.00 | 14 |
| PEACE | 9 | 2014 | 0.2599 | 0.5466 | 1.2054 | 0.5034 | 5.5787 | 7.9965 | 1.6435 | 1.1761 | 99,192,500.00 | 15 |
| PEACE | 9 | 2015 | 0.2931 | 0.5434 | 1.1903 | 0.4812 | 6.1636 | 8.0387 | 1.7269 | 1.2041 | 109,328,100.00 | 16 |
| ESHET | 10 | 2010 | 0.1634 | 0.5665 | 1.3067 | 0.4163 | 2.4691 | 7.6557 | 1.3265 | 1.0000 | 45,253,700.00 | 10 |
| ESHET | 10 | 2011 | 0.1364 | 0.5421 | 1.1837 | 0.4230 | 2.0462 | 7.6920 | 1.5170 | 1.0414 | 49,208,800.00 | 11 |
| ESHET | 10 | 2012 | 0.2527 | 0.5816 | 1.3900 | 0.4619 | 2.7928 | 7.7404 | 1.6303 | 1.0792 | 55,007,100.00 | 12 |
| ESHET | 10 | 2013 | 0.2746 | 0.6322 | 1.7185 | 0.5539 | 2.8433 | 7.8610 | 1.2301 | 1.1139 | 72,610,700.00 | 13 |
| ESHET | 10 | 2014 | 0.2886 | 0.6423 | 1.7954 | 0.5662 | 2.9719 | 7.9407 | 1.2117 | 1.1461 | 87,238,700.00 | 14 |
| ESHET | 10 | 2015 | 0.2515 | 0.5979 | 1.4871 | 0.5300 | 3.2540 | 8.0621 | 1.1781 | 1.1761 | 115,361,600.00 | 15 |
| AGGAR | 11 | 2010 | 0.1296 | 0.5879 | 1.4265 | 0.2147 | 2.6221 | 7.5717 | 1.7865 | 0.7782 | 37,296,400.00 | 6 |
| AGGAR | 11 | 2011 | 0.1632 | 0.6013 | 1.5084 | 0.3649 | 2.2537 | 7.6336 | 1.1942 | 0.8451 | 43,014,000.00 | 7 |
| AGGAR | 11 | 2012 | 0.2407 | 0.6359 | 1.7467 | 0.3983 | 2.2939 | 7.6937 | 1.5750 | 0.9031 | 49,402,100.00 | 8 |
| AGGAR | 11 | 2013 | 0.2267 | 0.6025 | 1.5157 | 0.3871 | 2.2949 | 7.8416 | 1.8670 | 0.9542 | 69,444,800.00 | 9 |
| AGGAR | 11 | 2014 | 0.2779 | 0.6086 | 1.5551 | 0.4185 | 2.7217 | 8.0103 | 1.8771 | 1.0000 | 102,402,600.00 | 10 |
| AGGAR | 11 | 2015 | 0.3029 | 0.5774 | 1.3661 | 0.3824 | 2.9604 | 8.1830 | 1.7418 | 1.0414 | 152,406,900.00 | 11 |
| WASASA | 12 | 2010 | 0.1976 | 0.6863 | 2.1878 | 0.4630 | 4.6054 | 7.9785 | 1.8333 | 1.0000 | 95,162,600.00 | 10 |
| WASASA | 12 | 2011 | 0.2052 | 0.6533 | 1.8847 | 0.4310 | 3.2499 | 8.1060 | 1.8469 | 1.0414 | 127,657,100.00 | 11 |
| WASASA | 12 | 2012 | 0.2160 | 0.6751 | 2.0779 | 0.3504 | 3.4320 | 8.2830 | 1.9108 | 1.0792 | 191,854,800.00 | 12 |
| WASASA | 12 | 2013 | 0.2355 | 0.6822 | 2.1464 | 0.3875 | 2.8380 | 8.3781 | 1.9655 | 1.1139 | 238,820,200.00 | 13 |
| WASASA | 12 | 2014 | 0.2841 | 0.7034 | 2.3718 | 0.3811 | 2.8297 | 8.4904 | 1.9117 | 1.1461 | 309,331,600.00 | 14 |
| WASASA | 12 | 2015 | 0.3268 | 0.7652 | 3.2591 | 0.5592 | 3.1849 | 8.6655 | 1.3299 | 1.1761 | 462,925,100.00 | 15 |
| AVFS | 13 | 2010 | 0.2164 | 0.5882 | 1.4282 | 0.4951 | 4.4467 | 7.0843 | 1.9787 | 1.0792 | 12,143,600.00 | 12 |
| AVFS | 13 | 2011 | 0.1770 | 0.5446 | 1.1957 | 0.4030 | 4.0147 | 7.2973 | 1.8620 | 1.1139 | 19,826,900.00 | 13 |
| AVFS | 13 | 2012 | 0.1936 | 0.4939 | 0.9759 | 0.4602 | 3.9931 | 7.3246 | 1.5998 | 1.1461 | 21,113,600.00 | 14 |
| AVFS | 13 | 2013 | 0.2313 | 0.5153 | 1.0633 | 0.4689 | 4.1603 | 7.4013 | 1.3894 | 1.1761 | 25,192,800.00 | 15 |
| AVFS | 13 | 2014 | 0.2453 | 0.5416 | 1.1816 | 0.4808 | 3.9204 | 7.4422 | 1.3342 | 1.2041 | 27,684,640.00 | 16 |
| AVFS | 13 | 2015 | 0.2459 | 0.5231 | 1.0967 | 0.4995 | 3.3009 | 7.4913 | 1.2285 | 1.2304 | 30,995,404.00 | 17 |

Source: computed from financial statements

Appendix 3

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

| Test Summary | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob. |
|----------------------|-------------------|--------------|--------|
| Cross-section random | 17.316222 | 6 | 0.0082 |

Cross-section random effects test comparisons:

| Variable | Fixed | Random | Var(Diff.) | Prob. |
|----------|-----------|-----------|------------|--------|
| DTAR | 0.217640 | 0.185600 | 0.000784 | 0.2524 |
| DEPTA | 0.270054 | 0.327457 | 0.000585 | 0.0177 |
| ICR | 0.003554 | 0.003400 | 0.000002 | 0.9101 |
| FSIZE | -0.121755 | -0.066400 | 0.001383 | 0.1366 |
| LTDR | 0.033441 | 0.037343 | 0.000029 | 0.4681 |
| FAGE | 0.868003 | 0.611585 | 0.015877 | 0.0418 |

Cross-section random effects test equation:

Dependent Variable: ROE

Method: Panel Least Squares

Date: 01/17/17 Time: 14:03

Sample: 2010 2015

Periods included: 6

Cross-sections included: 13

Total panel (balanced) observations: 78

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|--------|
| C | -0.065395 | 0.216260 | -0.302392 | 0.7634 |
| DTAR | 0.217640 | 0.085885 | 2.534090 | 0.0139 |
| DEPTA | 0.270054 | 0.075866 | 3.559624 | 0.0007 |
| ICR | 0.003554 | 0.004601 | 0.772412 | 0.4430 |
| FSIZE | -0.121755 | 0.042014 | -2.897948 | 0.0053 |
| LTDR | 0.033441 | 0.014445 | 2.315128 | 0.0241 |
| FAGE | 0.868003 | 0.155431 | 5.584487 | 0.0000 |

Effects Specification

Cross-section fixed (dummy variables)

| | | | |
|--------------------|----------|-----------------------|-----------|
| R-squared | 0.904051 | Mean dependent var | 0.200679 |
| Adjusted R-squared | 0.874778 | S.D. dependent var | 0.066938 |
| S.E. of regression | 0.023687 | Akaike info criterion | -4.439753 |
| Sum squared resid | 0.033104 | Schwarz criterion | -3.865683 |
| Log likelihood | 192.1504 | Hannan-Quinn criter. | -4.209943 |
| F-statistic | 30.88373 | Durbin-Watson stat | 1.741465 |
| Prob(F-statistic) | 0.000000 | | |

Source: Eview results

Appendix 4

Multicollinearity between Independent variables Debt Asset Ratio and Debt Equity Ratio

| | ROE | DTAR | DTER | DEPTA | ICR | FSIZE | LTDR | FAGE |
|-------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| ROE | 1.000000 | -0.032889 | -0.127823 | 0.561219 | 0.189793 | -0.223623 | -0.284707 | 0.188459 |
| DTAR | -0.032889 | 1.000000 | 0.971364 | 0.316653 | -0.346947 | 0.701907 | -0.310219 | 0.332626 |
| DTER | -0.127823 | 0.971364 | 1.000000 | 0.282691 | -0.300958 | 0.764509 | -0.243260 | 0.381975 |
| DEPTA | 0.561219 | 0.316653 | 0.282691 | 1.000000 | 0.058545 | 0.129605 | -0.698338 | 0.495248 |
| ICR | 0.189793 | -0.346947 | -0.300958 | 0.058545 | 1.000000 | -0.004178 | 0.105569 | 0.136924 |
| FSIZE | -0.223623 | 0.701907 | 0.764509 | 0.129605 | -0.004178 | 1.000000 | -0.075630 | 0.499660 |
| LTDR | -0.284707 | -0.310219 | -0.243260 | -0.698338 | 0.105569 | -0.075630 | 1.000000 | -0.289254 |
| FAGE | 0.188459 | 0.332626 | 0.381975 | 0.495248 | 0.136924 | 0.499660 | -0.289254 | 1.000000 |

Source: Eview Results