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STATEMENT OF THE PROBLEM

**OBJECTIVES** 

**HYPOTHESES** 

RESEARCH METHODOLOGY

**RESULTS & DISCUSSION** 

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### THE IMPACT OF CAPITAL STRUCTURE ON MICRO FINANCE INSTITUTION PERFORMANCE: EVIDENCE FROM ETHIOPIA

### GEMECHU FEYISSA GUDU LECTURER DEPARTMENT OF ACCOUNTING AND FINANCE COLLEGE OF BUSINESS & ECONOMICS WOLLEGA UNIVERSITY NEKEMTE

#### **ABSTRACT**

This paper examined the impact of capital structure on MFIs performance, using ROA and ROE as a proxy to measure financial performance. The study used a penal data of 16 sampled MFIs for the period 2003 to 2009 and a random effect GLS regression is employed as a method of data analysis. The study finds that a negative and significant relation between total debt and both ROA and ROE. The result also shows that a negative and significant relationship between capital adequacy, portfolio quality and ROA in similar manner, a negative and significant relationship between asset tangibility, liquidity and ROE are observed. However, firm age, ownership and both ROA and ROE are identified to have a significant positive impact on performance. Whereas, firm size measured by log of total asset has inconclusive result because of the complex objectives of the firm's. The study contributes to the relationship between capital structure and performance of MFIs, which has been, less explored in prior studies.

#### KEYWORDS

capital structure, Ethiopia, financial performance, microfinance institutions.

#### INTRODUCTION

icrofinance institutions (MFIs) are relatively small financial institutions that have traditionally provided small loans to low income citizens with the objective of helping them to engage in productive activities. The formal microfinance industry began in Ethiopia in 1994/1995 with the government, Proclamation No 40/1996 designed to encourage Microfinance Institutions to extend credit to both the rural and urban poor dwellers of the country. Since, the poverty reduction strategy, become the operational framework to translate the global Millennium Development Goals targeting to national action (UNDP, 2005). Ethiopian MFIs have made remarkable progress over the past decade, reaching almost two million clients in a country of 77 million people (Letenah 2009). It has made a positive impact on the quality of poor people by providing greater access to credit, savings, insurance, transfer, remittances and other financial services, which would otherwise, are unreachable by other formal institution. Currently, by shifting from their status as non-profit organizations to commercial enterprises, MFIs are evolving into organizations that acquire complex business structures like those found in any traditional bank. since, the donor agencies and loan providers want the MFIs to become independent of their help as they mature (World Bank, 2010). Therefore, it is not surprising that finding a new way to access capital by MFIs has become the trend in the industry as the lack of access to capital causes slower than optimal growth and large operational deficit. The purpose of almost all of the micro fiancé institutions in Ethiopia are poverty alleviation. To achieve these objectives micro-finance institutions should be financially viable and sustainable. Despite the increasing reliance on micro finance to reduce poverty in Ethiopia there has been surprisingly little work under taken to evaluate their performance. This may be due to a fear among interested parties in the industry that MFIs could not stay in the market to serve the poor without the immense support of government, donors and others (Alemayehu, 2008). Given the contribution of MFIs in the development process, factors that affect their performance have been overlooked by different empirical studies. Regardless of, the theoretical application of capital structure, a specific methodology has not been realized yet, which managers can use in order to determine an optimal debt level to achieve their goals. This may be due to the fact that theories concerning capital structure differ in their relative emphasis; for instance, the trade-off theory emphasizes taxes, the pecking order theory emphasizes differences in information, and the free cash flow theory emphasizes agency costs. The Performance of MFIs can be affected by several factors, among the factors capital structure is the most prominent one Abor, (2007); Colman, (2005); Ebaid (2009) and among others. The capital structure of a firm is basically a mix of debt and equity which a firm deems as appropriate to enhance its operations.

#### LITERATURE REVIEW

The impacts of capital structure on firm's value are among the most debatable issue in the area of corporate finance literature. Modigliani and Miller, (1958) argued that a change in capital structure has no longer effect on the value of the firm and the value of the firm is independent of its bond or stock market financing mix, The value of the firm will be the same, regardless of the type of capital structure that chosen.

Finally, MM preposition are no longer controversial as matter of two capital structure theory such as trade off theory and packing order theory. Too much theoretical works have been done, since Modigliani and Miller, (1958), however, no consistent predictions have been reached on the relationship between firm value and capital structure. Since tax-based models suggest that profitable firms should borrow more at ceteris paribus, as they have greater needs to shield income from corporate tax, pecking order theory suggests firms will use retained earnings first as investment funds and then move to bonds and new equity only if necessary, and. Agency-based models also give us conflicting predictions.

In contrast to theoretical studies, Different empirical Studies showed contradictory results regarding the relationship between increased use of capital structure and firms performance. Most empirical studies shows, the negative relationship between leverage and profitability. Friend and Lang, (1988) and Titman and Wessels, (1989) obtain such findings from US firms. Kester, (1986) finds that, leverage is negatively related to profitability in both the US and Japan. Other studies using international data also confirm this finding Rajan and Zingales, (1995) and Wald, (1999) for developed countries. However, in contrast, Taub, (1975); Roden and Lewellen, (1995); Champion, (1999); Ghosh et al, (2000) and Coleman, (2007) found leverage as, a positively related to profitability, but the relationship is not statistically significant. As Results, based on the above contradict idea Myers, (2001) and Eldomiaty, (2007) argued that capital structure is not the only way to explain financial decisions. But, it also explains the contradictory results of different studies that empirically tested the predictions of relationship between leverage and firm's performance. There are vast literatures that examine the relationship between capital structure and firm performance in developed nations. However, very less empirical tested in emerging economy as compared to the developed markets like, Europe, America etc. A study by Ebaid, (2009) based on a sample of non-financial Egyptian listed firms from 1997 to 2005 reveals that capital structure decision, in general terms, has a weak-tono impact on firm's performance. On the other hand, Colemen, (2007) on the impact of capital structure on performance of micro finance institution in Ghana showed that, leverage affect positively outreach. Hence, this is another study that contributes to the debate on capital structure and its application to a sector that has not been visited. Since, research on the impact of capital structure on firm performance have been few and in most of the cases have been carried out in developed economies on large and listed firms. However, there is no research done in Ethiopian on micro finance industry regarding the impact of capital structure and performance to the best of researcher knowledge. this paper seeks to fill the gap in the literature because of limited studies have been conducted so far, in performance of MFIs using only Cross sectional data. An attempt was made, by Befkadu, (2007) looked at the outreach and financial performance in six MFIs, Letenah, (2009) looked at performance analysis of a sample of MFIs, and Haileselase, (2009) looked at financing performance of micro and small enterprise

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owners in Tigray. However, some of them are weak in terms of statistical analyses and methodology as compared to this paper. Hence, Indicators of capital structure and no regression or any form of econometric exercise was carried out.

#### **NEED OF THE STUDY**

This study play an important role to contribution to the literature of the relationship between capital structure and performance of MFIs. Because it is significance for all MFIs in order to make informed judgments whether they have to apply decision regarding the proportion of debt to equity as they are or not, for the purpose of maximizing their financial performance. This study can also significantly contribute to other studies to be made in different financial sectors by providing image on the relationship between impact of capital structure and MFIs performance.

#### STATEMENT OF THE PROBLEM

As per the Basle Convention (the international capital adequacy standard for regulated financial institutions), the MFI has the potential to browe up to 11 times of its equity. But, the performance report of the Ethiopia industry analysis indicates on average, microfinance institution are obtained debt financing only equivalent to 0.95 times of their equity (AEMFI, 2010) This is one of the severe problem which lower down the performance of Ethiopia MFIs and the contributing factors should be studied.. This implies Ethiopian MFIs is totally under levered, which is much less than prescribed by Basle accord set for financial institution. This is due to the solution taken by the institution is still not based on appropriate study. Therefore, this paper tried to answer whether the leverage (debt-equity ratio) affect the performance of MFIs. As per the researcher knowledge, studying the effect of capital structure on MFIs performance in developing countries like Ethiopia remained an ignored area. Thus, with these serious shortcomings of literature, this study contributes to literature by studying the issue of MFIs in Ethiopia.

#### **OBJECTIVES OF THE STUDY**

The General objective of this study is to analyze the impact of capital structure on MFIs performance. **SPECIFICALLY** 

- To evaluate the interrelationship between capital structure and performance and
- to assess the impact of firms specific factors on performance.

#### **RESEARCH HYPOTHESES**

The following Research hypotheses are formulated for the study

- H<sub>1</sub> There is a significant negative relationship between performance and capital structure.
- $\mathbf{H}_{\mathbf{2}}~$  There is a significant positive relationship between performance and size.
- $H_3$  There a significant positive relationship between performance and, age
- $\mathbf{H_4}$  There is a significant negative relationship between performance and asset tangibility.
- $\ensuremath{\text{H}}_{\ensuremath{\text{s}}}$  There is a significant negative relationship between performance and portfolio quality.
- $\mathbf{H}_{\mathbf{6}}$  There is a significant positive relationship between performance and capital adequacy.
- $\ensuremath{\text{H}_{7}}\xspace$  There is a significant negative relationship between performance and liquidity.
- H<sub>8</sub> There is a significant positive relationship between performance and growth.
- $H_9\;$  There is a significant positive relationship between performance and ownership structure

#### **RESEARCH METHODOLOGY**

The populations from which the sample size drawn for this study includes all Ethiopian MFIs (30 as of 2011) operating in the country with seven years data starting from 2003 to 2009. The reason, why the study focused on the impact of capital structure on a single industry rather than comprehensive industries was that, the objective of MFIs are strictly different from other firms while MFIs maximize social objective the other financial institution focused on wealth maximization. I exclude other financial institution like insurance and Banks because their operating system and source of financing procedure is different from MFIs. To comply the objective of the research, the study was primarily based on quantitative research, which is constructed an econometric model to identify and measure the impact of capital structure on MFIs performance. The major data that was used in the empirical analysis is retrieved from www.mixmarket.org. Additionally, secondary data was also gathered from published bulletin, and reports of various governmental and nongovernmental organizations such as AEMFI (Association of Ethiopian Micro Finance Institutions) and National Bank of Ethiopia. Where missing values are filled to increase the quality of the data. As the MFIs with the required data are limited in number, the researcher selected MFIs that have seven years financial data and excluded MFIs with less than seven years operating life. Specifically, 16 MFIs were selected based on purposive sampling.

#### MODEL SPECIFICATION

This Regression Model employed following the previous capital structure and firm performance in banking and other non-financial firm's literatures, the study also used Panel Data Multiple Regression with generalized random effect model to investigate the relationship between the explanatory variables and performance. Panel data can also control for individual heterogeneity due to the hidden factors, which, if neglected in time-series or cross-section estimations leads to biased results (Baltagi, 2005)

#### **ANALYTICAL FRAME WORK**

#### $Y_{it} = \alpha_{+}\beta x_{it} + \mu_{it}$

Where, i denoted the individual micro finance institution and t denoting time. In this case, i represents the cross section and t represents the time serious component  $\alpha$  constant term,  $\beta$  is coefficient of variables and  $X_{it}$  is the <sub>it</sub>th observation on X explanatory variable.

 $\mu_i$  represents the unobservable individual specific effect and V<sub>it</sub> denotes the reminders of disturbance. Under this subsection, the researcher attempted to clearly select multiple regression models and discussed measures of variables. The model identified based on its potential measurement of MFIs performance as suggested in literature. Multiple regression analysis was adopted to measure the effect of capital structure on MFIs performance. Since the use of multiple regressions considers the simultaneous relationships (Cooper, 2005) amongst the multiple numbers of independent and dependant variables found across the regression model, therefore it is suited to the nature of the study. Following the econometric model by Miyajima et al. (2003) the researcher used the following specific multiple regression model:

Performance<sub>it</sub> =  $\alpha_i + \beta$  TTD<sub>it</sub>+ Control<sub>it</sub> +  $u_{it}$  -------3

Where TTD<sub>it</sub> represents the debt ratio of firm i in time t, and Control it represents the control variables of firm i in time t.

Following from equation 3, the following equations model for the empirical investigation is listed as follows:

 $Perf = \mathbf{B_0} + \beta_1 TTd_{it} + \beta_2 Sizeit + \beta_3 Ageit + \beta_4 Atgit + \beta_5 Cdqit + \beta_6 PQit + \beta_7 grwit + liq\beta_8 + \beta_9 own + \mu_{it-4} + \beta_8 Cdqit + \beta_8$ 

1

 $Perf = \textbf{B}_0 + \beta_1 TTd_{it} + \beta_2 Sizeit + \beta_3 Ageit + \beta_4 Atgit + \beta_5 Cdqit + \beta_6 PQit + \beta_7 grwit + liq\beta_8 \beta_9 OwnS + \mu_{it} \dots 5 Where$ 

Perf = performance measured by ROA and ROE

TTD <sub>it</sub> total debt/total capital for firm i in time t;

Size it = firm size (log of total assets) for firm i in time t;

Age it = measured as the natural logarithm of each year since inception to the date of observation,

Atg<sub>it</sub> = asset tangibility measured by net fixed asset divided by total asset

PQ<sub>it</sub> = *portfolio quality* is measured as portfolio at risk over 30 days (PAR >30 days).

 $\label{eq:liq_it} \mbox{liq}_{it} \mbox{= liquidity is measured by total current asset divided by total asset}$ 

 $Cdqt_{it}$  = capital adequacy is measured by equity to total assets

grw<sub>it</sub>= rate of growth which is the change in total asset scaled by the base year total asset of each MFI over their period.

 $\label{eq:owns} Owns \mbox{= ownership as a measure of dummy variable 1 for gov't block and 0 other wise}$ 

#### **RESULT AND DISCUSSION**

Table 1 presents a summary of descriptive statistics of the dependent and independent variables used in the study. The mean profitability ROA of MFI is 1.89%, which indicates the average return on asset of one birr investment in total asset the institutions are averagely getting 1.89% cents net income. The standard deviation of the ROA of the industry shows more variation (3.95%) among the firms in generating profit. The minimum and maximum value of profitability is - 6.91% and 9.85% respectively. Alternatively, ROE measures the contribution of net income invested by firms stock holder i.e. a measure of efficiency of the owners invested capital has the mean value 6.61% with standard deviation , minimum and maximum value of 15.98%, -101% and 36.45% respectively.

TABLE 1								
Variable	Obs	Mean	Std. Dev	Min	Max			
Roa	112	.0189012	.0395306	0691	.0985			
Roe	112	.0661562	.1598345	-1.0102	.3645			
De	112	1.862866	1.623764	.01	8.56			
Lnfsize	112	7.66464	.7907944	6.05	9.95			
Firmage	112	.8378903	.1722099	.047712	1.079181			
Atangib	112	.040335	.0372653	.003045	.196394			
Catadq	112	.4199313	.195918	.1046	.9943			
Liq	112	.1969813	.1113556	.0142	.6349			
Pq	112	.1236571	.1492419	.0014	.7462			
Grw	112 .3492058		.8863378	99689	6.58619			
Own	Own 112 .25		.4349588	0	1			

Source: Author's Own computation using Stata package 11

On the other hand, Leverage, measured as the ratio of debt-equity of each MFI over time, indicates how well the micro finance institution is able to leaverd its equity to increase asset through borrowing have a mean value of 186% the minimum, maximum and standard devation is 1%, 856% and 162% respectively. The average value of size of MFI is 7.66 (46, 269798.22) after total asset figure transformed in to In (natural logarithm). Age is measured as the natural logarithm of number of years the institution is established as MFI. The average value of total current asset to total asset (liqudity) is 19.69%. The average value of portfolio quality, measured as portfolio at risk over 30 days (PAR> 30 days) of MFI is 12.36%.

#### **CORRELATION ANALYSIS**

Table 2 shows, the Pearson product moment coefficient of correlation (also called the correlation coefficient or correlation) for pairs of variables. The correlation coefficient is a measure of the degree of linear relationship between two or more variables. The diagonal of the matrix has values of 1.00 because a variable always has a perfect correlation with itself. The matrix is symmetric about the diagonal because X correlated with Y is the same as Y correlated with X (Gujarati, 2001). This analysis was performed to investigate the possible degree of colinearity among the variables. Correlation explains the dependence of one variable to other. When one variable are highly correlated they both express the same information.

TABLE 2. OPEARSON	CORRELATION MATRIX	COEFFICIENTS FOR ROA AND ROE
	CONTRELITION	

Variables	1	2	3	4		5	6	7	8	9	10
1.	1.0000										
2	0.0789	1.0000									
	0.4085										
3.	0.2683*	0.2506*	1.0000								
	0.0042	0.0077									
4.	0.2050*	0.2521*	0.2933*	1.0000							
	0.0301	0.0073	0.0017								
5.	-0.2821*	-0.2572*	-0.5057*	-0.2707*		1.0000					
	0.0026	0.0062	0.0000	0.0039		1.10					
6.	-0.3248*	-0.7108*	-0.4710*	-0.3824*	0.0000	0.5433*	1.0000				
	0.0005	0.0000	0.0000			0.0000					
7.	-0.2588*	-0.1704	-0.1217	-0.4362*		0.1833	0.3700*	1.0000			
	0.0059	0.0724	0.2012	0.0000		0.0530	0.0001				
8.	-0.3104*	0.0450	-0.0078	0.0415		-0.0518	-0.0044	0.1465	1.0000		
	0.0009	0.6377	0.9351	0.6643		0.5876	0.9630	0.1232			
9.	0.1142	-0.0176	-0.0024	0.1898*		-0.1438	-0.0285	-0.1481	-0.0381	1.0000	
	0.2307	0.8541	0.9801	0.0450		0.1304	0.7656	0.1191	0.6901		
10.	0.2008*	-0.0119	0.3858*	0.1140		-0.0135	0.1246	0.0037	0.0423	0.2733*	1.0000
	0.0337	0.9013	0.0000	0.2313		0.8879	0.1905	0.9689	0.6581	0.0036	

Note: asterisk (\*) denote significant at 1% level

	TABLE 3	: REGRESSION RESULT USING	G GLS (CLUSTER ROBUST)					
	The impact of debt and other explanatory variables on performance of MFI							
Independent	Model	1	Model 2 Return on equity (Dependent Variable)					
Variables	Return on asset(dep	endent variable)						
	Coefficients	z-value	Coefficients	z-value				
	(Robust. std err)	(p-value)	(Robust. std err)	(p-value)				
De	00779	-2.47	0264	-1.918				
	(.003 )	(0.014) **	(.013)	(0.050)**				
Infsize	0046	-0.78	.0250	1.13				
	(.005)	(0.430)	(.022)	(0.259)				
Firmage	.0082	1.86	0.1698	1.98				
	(.022)	(0.063)***	(.0857)	(0.048)**				
Atangib	0969	-0.87	8179	-1.95				
	(0.11)	(0.38)	(.4205)	(0.052) ***				
Catadq	1064	-3.15	-0.0322	-0.22				
	(.0337)	(0.002)*	(.145)	(0.825)				
Liq	0242	-0.71	4149	-3.22				
	(0.034)	(0.476)	(.128)	(0.001)*				
pq.	-0.0747	-3.32	0625	-0.68				
	(0.022)	(0.001)*	(.091)	(0.449)				
Grw	0.001	0.28	.0120	0.5897				
	(0.003)	(0.781)	(.013)	(0.376)				
Own	0.0283	2.74	.0192	2.33				
	(0.010)	(0.006)*	(.056)	(0.020)**				
Numb ob	112	112	112	112				
Wald chi2(6)	41.68		53.23					
R-square	33.41		28					
Firms	16		16					
Sig.	Level of significance *refers statistically significant at 1%, ** statistically significant at 5% and *** statistically significant at 10%							

As per the regression result, the effect of firm size on performance showed an inconclusive result. This implies that, because of the complex nature of the organization with a multi dimensional objective to pursue at different times. In one breadth, they target outreach to reach the poor and in other breadth, they targeting profit for institutional sustainability. This issue has always been seemingly conflicting idea regarding social, institutional, and profitability objectives to enhance the MFIs outlook. The firms age has a positive and significant effect on performance measured by ROA and ROE. This implies that the longer the age of MFIs operating in the country the higher the performance. As per descriptive statics, the average value of capital adequacy is very high. However, the high the capital ratio is not surprising because the sampled Ethiopian micro finance institution hold three times more than the minimum statutory ratio i.e 12% set by national bank of Ethiopia (2011). This result affects significantly and negatively performance of firms measured by return on asset and return on equity. In general, this implies that Ethiopian MFIs on average operated above minimum statutory level. The relation between portfolio quality (credit risk) and return on asset is negative and significant at 1% level. However, the relationship between portfolio quality and return on equity is negative but not significant. This also reveals that an increase credit risk result decrease in ROE. The relationship between liquidity and ROE is negative and statically significant. This implies that, most of MFIs in Ethiopia maintained excess liquid which is non earning (idle cash) that is bad as luck of cash to advance loan, therefore, management should monitor cash flow closely and ensure fund that left to lie idle. The ownership structures are also the most important factors for Ethiopian MFI performance. As per regression result, MFIs that are government backed are positively related with performance of the institution, since the

#### RECOMMENDATION

Even though, the institutions debt equity ratio is under levered, as prescribed by Basle accord (the international capital adequacy standard for regulated financial institutions) and the institutional report benchmark, the existing debt-equity ratio negatively affects the performance of the firms. This may be due to in proper use of debt such as, poor management, reckless lending particularly to the poor without collateral and others. Therefore, the, policy makers, regulators and the concerned parties should consider the MFIs governing rules and regulations of debt so as to, make them profitable.

The capital adequacy ratio of most MFIs in Ethiopia are more than the statutory requirement set by regulatory requirement i.e. 12% and affected negatively the firm performance. This may be due to the more the equity providers to Ethiopian MFIs, the higher the claim from the institutions retained earnings in the form of dividends. These may leads to less retained funds to the institution and erode the profit. Therefore, the high officials of the Ethiopian MFIs should set a clear rules and regulations when and what amount of percent of dividends should go to the equity providers of the MFIs and the MFIs also, should use the capital adequacy up to the requirements.

The relationship between liquidity and performance of Ethiopian MFIs is negative and statically significant. This implies that, most of Ethiopian MFIs maintained excess liquid which is none earning (idle cash), that is bad as luck of cash to advance loan. Therefore, management of the MFIs should monitor cash flow closely and ensure fund that left to lie idle and invest as per the regulation of the institutions.

#### CONCLUSION

This study examined the impact of capital structure on micro finance institutions performance, as measured by return on assets and equity. A vast literature investigates the effect of capital structure on firm's financial performance since the seminal work of Modigliani and miller (1958). Most of these studies cared out in developed countries and documented that, a positive or negative relation between capital structure and firms performance (Abor, 2005; Berger and Dipatti, 2002; Akintoye, 2008). However, almost all of these studies conducted on large firms operating within well organized capital in developed economy. From such findings, it is difficult to generalize the same result on the effect of capital structure on firms' financial performance for relatively small size MFIs in Ethiopia.

Therefore, to fill the gap the researcher used only secondary data obtained from mix market and audited annual financial reports over the period of 2003-2009 (seven years financial data) of 16, sampled MFI

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#### SCOPE FOR FURTHER RESEARCH

Performance can be, affected by micro and macro economic factors that can easily manageable and/or unmanageable factors such as inflation, interest rate, GDP, market power, exchange rate and others. The researcher only used some of the micro factors that can easy be manageable. However, Future research could incorporate macro economic variables and other regulatory indicators so as, to make MFIs profitable and effective.

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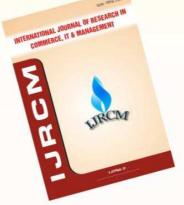
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