

# Factors Affecting Profitability of Microfinance Institutions (A Study of MFIs in Southern Nation Nationalities Peoples Regional State)

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## Abstract

This study examined internal and external factors affecting profitability of microfinance institutions of southern nations nationalities people's regional state (SNNPRS) covering the period of 2009-2013. In doing so, the study adopted quantitative research method mainly focused on secondary document analysis and financial statement of the period, and the study used multiple linear Regression model, descriptive statistics and excel sheet for three MFIS data analysis to measure profitability; Return on Asset (ROA). Linear regression model was applied to investigate the impact of financing structure (FAS), Operating efficiency (OPE), size, Age, and Gross domestic product (GDP) on major MFI profitability. The outcome of the study shows that Financing structure and age of microfinance institutions has a positive and statistically significant effect on their profitability. However, Operating efficiency and, Size have a negative and statistically insignificant effect and, gross domestic product (GDP) had a Positive coefficient and was also statistically insignificant, implying that the improvement in economic condition measured in terms of GDP growth did not affect profitability of SNNPRS MFIs and additionally age of MFIs was used to check whether the learning effect can determine profitability of SNNPRS MFIs. The result showed a positive coefficient and statistical significant; indicating that the more MFIs become mature, the higher their profitability, so that as age going longer the profitability of SNNPRS MFIs will increase. The study suggested that management of microfinance institutions need to search available ways to reduce the operating costs and employ a good credit management policy. And also the study suggest that the management of MFIs should look for another funding source rather than depending on donation to measure their efficiency and stand by on their own feet. On top of this, the government needs to improve different facilities which enable microfinance institutions to be efficient and stable source of finance for the poor peoples of the region.

**Keywords:** Profitability, Microfinance institutions

## 1.1 Background of the Study

Microfinance consists of the provision of financial services in small increments, typically to very poor people. Formal credit and savings institutions for the poor have also been around for decades, providing customers who were traditionally neglected by commercial banks a way to obtain financial services through cooperatives and development finance institutions. One of the earlier and longer-lived micro credit organizations providing small loans to rural poor with no collateral was the Irish Loan Fund system, initiated in the early 1700s by the author and nationalist Jonathan Swift. Swift's idea began slowly but by the 1840s had become a widespread institution of about 300 funds all over Ireland. Their principal purpose was making small loans with interest for short periods. At their peak they were making loans to 20 of all Irish households annually, (Calgagovski et al., 1991)

Ethiopia is one of the poor African nations with a total population of 91.73 million out of which 85 percent is residing in the rural parts with agriculture as a primary economic activity (CSA, 2012). The poverty in the country is believed to be worse in the rural areas. In the NDS (New Development strategy) of the government, these parts of the community are given due attention. One of the areas of the improvement areas is their livelihood. Livelihood is a comprehensive concept that involves access to resources, activities that households undertake in order to secure their means of living and strategies that they pursue under both normal or abnormal/crisis situations. MFIs are often defined in terms of the following characteristics: targeting the poor (especially the poor women); promoting small businesses; building capacity of the poor; extending small loans without collaterals; combining credit with savings; and charging commercial interest rates (Dejene, 1998 cited in Alemayehu 2008).

## 1.2 Statement of the Problem

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

The Microfinance industry, along with all the players in it, is rapidly changing. Nowadays, the microfinance industry has become both more crowded and multifaceted. First of all, the concept of microfinance no longer just covers microcredit, but also includes the possibilities of saving, insurance, and money transfer and pension remittances. Although MFI's are characterized as one type when it comes to financial services, there is a great variety of MFI's in terms of legal form, profit status, degree of sustainability and funding sources. Study by (Dieckmann, 2007) has shown that MFIs are undergoing an actual transformation from the traditional donor-driven non-governmental organizations (NGO) framework towards a greater degree of capital market involvement. There are many hypotheses as to why this transformation is happening; one of them being that it is difficult to count on donations, subsidies and grants by development agencies or private donors and local government. In 1995, the donor community arrived at a consensus that all MFIs should in principle become profitable after seven to ten years of start-up support. However, it is questionable that whether the MFIs attain the stated objective of profitability given their different diversity from poverty reduction to profitability (Muriu, 2011).

MFIs profits are also an important source of equity. If profits are reinvested, this may promote financial stability. Moreover, market sources of funding are accessible only to MFIs that have demonstrated that they can generate a profit. By minimizing the probability of financial crisis, impressive profits are vital in reassuring MFI's stakeholders, including investors, borrowers, suppliers and regulators. At the macro level, a profitable microfinance industry is better placed to overcome negative shocks and contribute meaningfully to the stability of the overall financial system (Muriu, 2011).

In Southern Nation Nationalities People's Regional State as the rest of the world, studies in relation to Factors that affect MFIs profitability considering both internal and external factors are rare.

In country level Studies regarding performance of MFIs has been done by different scholars for example Birhanu (2007), Alemayehu, (2008) and Letenah, (2009) tried to study the performance of Ethiopian MFIs; even though the findings are controverting with each other. In addition, Melkamu (2012), Yonas (2012) and Sima, (2013) tried to see the determinants of financial and operational sustainability of Ethiopian MFIs.

Since it is believed that MFIs must be profitable for their healthy operation and attainment of the long run goal which is mitigation of poverty, the main purpose of this study was attempt to find out the internal and external factors affecting profitability of MFIs in Southern nations nationalities peoples regional state (NNPRS) and fill the gap in the context of Ethiopian MFIs. In addition, to examine the relationship among Variables such as, financial structure, Operating, efficiency, Size, Age and GDP and to discuss their impact on MFIs profitability which measured by Return on Asset (ROA).

### **1.3 Objectives of the Study**

#### **General Objective**

The primary objective of this study is to evaluate factors affecting the profitability of Microfinance institutions in SNNPRS.

#### **Specific Objectives**

The specific objectives of this research include;

1. To identify the impact of Capital structure on profitability of Microfinance institutions.
2. To evaluate the Role of operating efficiency on profitability of Microfinance institutions.
3. To analyze the impact of age and size of MFI on profitability of Microfinance institutions.
4. To examine the relationship between Macroeconomic variables (GDP) and profitability Of Microfinance institutions.

### **1.4. Review of related literature**

#### **1.4.1. Concepts of "microfinance"**

Microfinance is a source of financial service for entrepreneurs and small businesses lacking access to banking and related services. The two main mechanisms for the delivery of financial services to such clients are: (1) relationship-based banking for individual entrepreneurs and small businesses; and (2) group-based models, where several entrepreneurs come together to apply for loans and other services as a group. The concept of micro credit became prominent in the 1980s, even though it has been in existence long before then in Bangladesh, Brazil and a few other countries (The Microfinance Gateway, 2005). The recent decade has however seen an increasing interest in microfinance and it is regarded as one of the promising tools to address poverty in the developing world. In an effort to put the concept of microfinance into perspective, an extension to the definition of microfinance pointed out earlier in the study is presented in the following section. Robinson (2001:9) refers to microfinance as all types of financial intermediation services (savings, credit funds transfer, insurance, pension remittances, etc.) offered to low-income households and enterprises in both urban and rural areas,

including employees in the public and private sectors and those who are self-employed. Mukama (2005:10) says that the Women's World Banking defined MFIs as organizations that provide:

- i) Financial services to a significant number of people.
- ii) Provide Microfinance service that is efficient and financially sustainable.
- iii) Services that have a high impact on reducing the poverty of clients integrated into domestic financial systems, through savings mobilization as well as through mobilizing funds from commercial sources.

#### **1.4.2. Empirical Review**

Dissanayake (2012) tried to investigate the determinants of profitability proxied by ROE for eleven MFIs in Sri-Lanka for the period covering 2005-2011. He tried to see the relationship between different internal or MFI specific factors and ROE; for the study he used data from MIX market database and performed regression analysis. The finding shows that, debt to equity ratio and operating expense ratios have negative statistical significance relation with ROE. Write-off ratio and cost per borrower ratios have a positive and statistically significant relationship with ROE. The personnel productivity ratio is not statistically significant determinant of ROE.

Jordan (2008) studied the impact of macroeconomic environment on sustainability of Latin American MFIs by selecting 85 MFI from MIX database for the period from 1999-2005. The study included four macro-economic factors namely; unemployment rate, per capita GDP, interest rates and inflation. The sustainability of the MFIs is measured by ROE and repayment rates; for which regression analysis is done using random effect model. The result shows that none of the macro economic factors have significant impact on repayment rate. In contrast, ROE is highly influenced by per capita GDP. To see the effect of per capita GDP, two divisions were set; one is low income developing nations and the other is high income developing nations. In this regard per capita GDP has no impact on low income developing nations but, there is a high significant impact of per capita GDP on high income nations. Apart from other macroeconomic indicators Inflation was not statistically significant.

Jorgensen (2012) studied profitability and connection with yield on gross profit by taking sample of 879 MFIs all over the world. The objective was to find factors that determine profitability and to find whether high interest rates go hand in hand with high profits for MFIs. The study focused on factors such as outreach, financing structure, expense, revenue, efficiency, quality of portfolio and different peer group comparisons like age, deposit taking, legal status and profit status. The data source was MIX for the 879 MFIs for the study year i.e. 2009 and ROA and profit margin were used as the proxies for profitability and gross yield portfolio respectively. The outcome of the study revealed that number of active borrowers, cost per borrower, deposit and legal status have negative significant relation with ROA. The factors having positive and significant impact on ROA includes gross loan portfolio, capital to asset ratio, gross loan portfolio to asset, operating expense to gross loan portfolio and age of new MFI. In conclusion Jorgensen put; yield on gross portfolio did not show a significant explanatory variable for profitability, hence, there is no general trend between increase in interest rate and increase in profitability.

The pioneer empirical study on determinants of profitability of African MFIs is done by Muriu (2011). Muriu, under the study "what explains the low profitability of MFIs in Africa" tried to find the factors contributing to profitability of MFIs. He used Generalized Method of Moments (GMM) system using an unbalanced panel data set comprising of 210 MFIs across 32 countries operating from 1997 to 2008. The proxies for profitability were both ROA and ROE. The factors studied are classified into three categories: Firstly, MFI specific including capital, credit risk, size, age efficiency and gearing ratio; secondly, Macro economic factors including Gross national Income (GNI) per capita and inflation; thirdly, institutional developments proxied by freedom from corruption. The data were gathered from MIX database, world development indicator and Heritage foundation for the three categories of determinants. In concluding his study Muriu stated that; capital, size (scale of economy) and freedom from corruption had significant positive relationship with profitability. Factors such as credit risk and efficiency have significant negative relation with profitability. Further, the study revealed that Gearing ratio, inflation, GNI per capita and age were insignificant factors.

#### **1.4.3. Conclusion and Knowledge Gap**

The review of the literature reveals the existence of many gaps of knowledge in respect of the factors affecting profitability of MFIs, particularly in the context of Ethiopia. Some of the existing literatures abroad (Muriu 2011, Jorgensen 2012, Dissanayake 2012) are also developed from the retail banking theories since there are no developed theories for the MFIs profitability. As per the review of the literature, most of the empirical studies have been conducted with the aim of measuring the performance of MFIs by using only internal factors. External factors are not integrated much into their models so that macroeconomic and industry related factors which possibly can affect profitability of the institutions are ignored the study made by Birhanu (2007) on performance of Ethiopian MFIs used few internal factors and didn't show determinants of profitability. Alemayehu (2008) on his part tried to see the performance of the institutions in case of six MFIs where he considered profitability and

sustainability, asset and liability management and efficiency and productivity but ignored portfolio quality of the institutions and external factors also; which are of more importance. Letenah (2009) on his study compared the performance of Ethiopian MFIs with the micro banking bulletin bench marks; where he concluded that Ethiopian MFIs are poor performers. Melkamu (2012) studied about the determinants of operational and financial self sufficiency of Ethiopian MFIs. His study considered only 12 MFIs in the country and his conclusion ended up by saying Ethiopian MFIs are performing good compared with their African peers but he failed to mention the bench mark used. Yonas (2012) tried to determine the determinants of financial sustainability of Ethiopian MFIs using 6 years data for 12 institutions these studies are limited in that; for one thing they haven't considered external factors like macroeconomic and industry factors. Secondly, the studies used observation for limited number of years than they should have considered; that's why there we find different contradicting results. Thirdly, in all the studies the independent variable was either operational self-sufficiency or financial self-sufficiency as a proxy for performance. None of the studies focused on profitability and used ROA or ROE as a dependent variable. It is for this reason that the current study tried to fill the gap by considering internal and external factors affecting profitability of SNNPRS MFIs as it is the first of its kind to the knowledge of the researcher.

### **1.5 Research methodology**

The researcher used quantitative research methods for this study. Quantitative research is one in which the researcher mainly used was post positivist claims for developing knowledge, (Creswell, 2009). Post positivism on which quantitative research design is based holds a deterministic philosophy in which causes probably determine effects or outcomes. Thus, the problems studied by post positivists reflect the need to identify and assess the causes that influence outcomes. As a result, quantitative research is a means for testing objective theories by examining the relationship among variables. The main reason for adopting quantitative method is that the objective of the research is to analyze the relationship between profitability of MFIs and factors affecting it then to generalize about the population. In order to collect the necessary data, the study used secondary documents and journals of the whole population.

#### **1.5.1. Population of Study**

The target population for the study consists of 3 MFIs registered by National bank of Ethiopia (NBE) that found in the study area. The study selected all of the population of 3 MFIs which are under operation in the SNNRS, at least for the last five years, such as, Omo microfinance (OMFI), Sidama Microfinance (SMFI), and Wisdom Microfinance institution (WMFI).

#### **1.5.2. Sources of Data**

The study used secondary data sources and published documents to collect data. This was helping the researcher to get pertinent data related to the study at hand. The relevant documents that assists the researcher were the financial reports of MFIs, annual report concerning Loan distribution for Clients and loan repayment from customers, client register book, Head quarter fund injection report, Microfinance related government report, NB Report, NGOs report , plan and evaluation documents, policy guideline documents and reports of the government, books, journals, research articles, national and local specific statistics, Ministry of Finance and Economic Development (Mo FED) for the macro- economic data website information from the internet that help to improve profitability of Micro finance institutions.

#### **Hypotheses and determinants selection**

- H1.** There is a significant positive relationship between Capital Structure and profitability of MFIs.
- H2.** There is a significant Positive/ negative relationship between operational efficiency and MFIs profitability
- H3.** There is a significant positive relation between size and profitability of MFIs.
- H4.** There is a significant positive/ negative relationship between age and MFIs profitability.
- H5.** There is a significant positive relationship between gross domestic product (GDP) growth and profitability of MFIs.

For this study multiple regression models was selected. The multiple regression equation describes the average relationship between these variables and this relationship is used to predict dependent variable.

Table 1 Regression result for factors affecting profitability of SNNPRs MFIs

| Variables                    | Measure   | Notation | Expected Sign |
|------------------------------|---|----------|---------------|
| <b>Dependent Variable</b>    |   |          |               |
| Profitability                | Adjusted operating income, net of tax/adjusted average total assets | ROA      |               |
| <b>Independent variables</b> |   |          |               |
| Financing Structure          | total equity/ total assets  | FAS      | +             |
| Operating Efficiency         | operating expenses/average gross loan portfolio                     | OPE      | -             |
| Size                         | Natural log of total assets   | SIZE     | +             |
| Age                          | Number of years of operation  | AGE      | -             |
| <b>Macroeconomic Factor</b>  |   |          |               |
| Economic growth              | GDP growth (in %)   | GDP      | +             |

The Regression model;

$$Y = \alpha + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + \epsilon_i$$

Where:

Y= Profitability ROA (Dependent variable)

$\alpha$  =Constant

X1=Fin

ancing

structur

e

X2=Op

erating

efficien

cy

X3=Siz

e

X4=Age

X5=Macroeconomic Variable (GDP)

$\epsilon$  = Error term

1to 5= regression coefficient

### 1.5.3. Dependent variable and Independent variables

For the purpose of this study, return on assets (ROA) was used as proxy of MFI Profitability. The Microfinance Financial Reporting Standards recommends the use of ROA and ROE as measures of profitability rather than financial self-sufficiency (FSS) and operational self-sufficiency (OSS) (Muriu 2011). ROA may be biased due to off balance-sheet items; It can however be argued that such activities may be negligible in MFIs. It is known that most of the studies undertaken in similar industries like banking and insurance employ ROA as a measure of profitability. Even though much is not done in case of MFIs, Muriu(2011) and Jorgensen (2012) used the same approach for microfinance. Therefore, this study will measure profitability using ROA similar to the aforementioned researches. According to AEMFI, ROA is measured as adjusted net operating income, net of tax, divided by adjusted average total assets.

The following are factors that affecting the profitability of MFIs financing structure, efficiency, risk and liquidity, size and learning effect (Age).and macroeconomic variables

**Capital structure:** the study used this variable to measure how much of the MFIs assets are funded with owner's fund (inverse to leverage ratio).The ratio selected to measure the capital structure of MFIs is capital to asset ratio measured as adjusted total equity divided by adjusted total assets (AEMF 2007). The risk return trade off assumes high leverage (more debt financing) do have higher return whereas signaling and bankruptcy hypothesis says high equity ratio leads to high profitability due to signaling effect and lower financial distress.

**Operating efficiency:** Efficiency in expense management should ensure a more effective use of MFIs loan able resources, which may enhance profitability. Higher ratios of operating expenses to gross loan portfolio imply a less efficient management.

**Size:** This variable is included to capture the economies or diseconomies of scale. There is consensus in academic literature that economies of scale and synergies arise up to a certain level of size. Beyond that level, financial organizations become too complex to manage and diseconomies of scale arise. The effect of size could therefore be nonlinear (Amdemikael 2012). Natural logarithm of total asset of MFIs is used as a proxy of size. The study will suggest that since the dependent variable in the model (ROA) can be deflated by total assets it would be appropriate to log total assets before including it in the model. Since the expected sign of the effect



of size on profitability is unpredictable

**Age:** Age is another variable that influences profitability. There has been an enormous progress in the existence of MFIs and client outreach. As more and more MFIs start up, it is also interesting to investigate whether only the mature MFIs have found their way to profitability, or whether the new MFIs entering the industry has different set of goals and operational set of skills leading to profitability, (Jorgensen 2012). Therefore, the expected sign of age is unpredictable. Age is denoted by the number of years MFI has been in operation in order to capture learning effect in MFI performance.

#### **Macroeconomic variable**

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

#### **1.5.4 Instruments of Data Collection**

The instrument of data collection of the research is reviewing various documents. The study used secondary data like performance report, financial report; NB report, MO FED report and other relevant information from the institution head quarter, branch office as well as sub branches offices. The researcher used books, articles and journals. Moreover, the researcher collected information from Omo Microfinance, sidama microfinance and Wisdom microfinance official documents, and discussion.

#### **1.5.5 Methods of Data Analysis**

Descriptive and quantitative technique was employed in the analysis of the study data. Regression analysis is a statistical tool for the investigation of relationships between variables. It is used when we want to predict the value of a variable based on the value of two or more other variables. The variable we want to predict is called the dependent variable (or sometimes, the outcome, target or criterion variable). The variables we are using to predict the value of the dependent variable are called the independent variables (or sometimes, the predictor, explanatory or regressors variable), Multiple regression analysis is in fact capable of dealing with an arbitrarily large number of explanatory variables. So here is that the researcher used regression to study the relationship between multiple variables that affecting profitability of MFIs.

This study also used correlation; Correlation refers to any of a broad class of statistical relationships, between dependent and independent variables ,like age and size with ROA Other dependent or independent .Additionally the researcher used ordinary least square method to estimate of the intercept and slope in the population regression of credit and savings.

#### **1.6. Data analysis and discussion**

The secondary data for the analysis purpose are collected through structured documentary review from financial report Audited and published by OMFI, WMFI and SMFI from 2009-2013 G.C. The following discussion presents respectively the tests for the regression model assumptions, the descriptive statistics, the correlation analysis among the dependent and independent variables and the outcomes of the panel data regression analysis.

Test results for the regression model assumptions

The following is the tests were carried out to ensure that the data fits the basic assumptions of regression model. Hence, the results for model misspecification tests are presented as follows:

#### **Descriptive statistics**

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

As it is shown table 2, below, profitability of SMFIs measured in terms of ROA for the total 5 observations showed up averagely a positive value of 1.4% during the study Period of (2009-2013), with a maximum value of 5% and a minimum of -3%. This indicates the profitable SMFIs earned maximum 5 cents of profit after tax for a single birr investment they made on total asset. On the other hand, The SMFI lost 3 cents from profit for 1 birr investment made on total assets of the firm. The standard deviation statistics for ROA was 3.36% indicating that the profit variation of SMFI is higher when it compared with, OMFI and WMFI.

The overall statistical result for ROA suggests that the OMFIs need to efficiently utilize their assets to increase their profitability and try to utilize idle resource. In other word assets that are held idle increases the loss for the MFIs.

Table 2. Descriptive Statistics of SMFI

|                        | N | Minimum | Maximum | Mean    | Std. Deviation |
|------------------------|---|---------|---------|---------|----------------|
| Return on Asset        | 5 | -.03    | .05     | .0140   | .03362         |
| Financing Structure    | 5 | .10     | .19     | .1280   | .03633         |
| Operating efficiency   | 5 | .02     | .22     | .1100   | .08307         |
| Size                   | 5 | 17.26   | 18.95   | 18.0120 | .70553         |
| Age                    | 5 | 11.00   | 15.00   | 13.0000 | 1.58114        |
| Gross Domestic Product | 5 | .09     | .12     | .1040   | .01342         |
| Valid N (listwise)     | 5 |         |         |         |                |

Source: Result of SPSS based on the data

Whereas, as it is shown in table 3, below, profitability of OMFI's measured in terms of ROA for the total 5 observations showed up averagely a positive value of 1.8% during the study Period of (2009-2013), with a maximum value of 3% and a minimum of 0%. This indicates the profitable OMFIs earned Maximum 3 cents of profit after tax for a single birr investment they made on total asset. On the other hand, The OMFI lost nothing from profit for 1 birr investment made on total assets of the firm. The standard deviation statistics for ROA was 1.01% indicating that the profit variation of OMFI is lower when it compared with, SMFI and WMFI's.

The overall statistical result for ROA suggests that the OMFI's need to efficiently utilize their assets to increase their profitability. In other word assets that are held idle increases the loss for the MFIs So that the management of OMFI needs improvement in idle resource management.

Table 3. Descriptive Statistics of OMFI

|                        | N | Minimum | Maximum | Mean    | Std. Deviation |
|------------------------|---|---------|---------|---------|----------------|
| Return on Asset        | 5 | .00     | .03     | .0180   | .01095         |
| Financing Structure    | 5 | .10     | .17     | .1480   | .02864         |
| Operating efficiency   | 5 | .05     | .15     | .1060   | .03578         |
| Size                   | 5 | 20.05   | 22.34   | 20.8160 | .92170         |
| Age                    | 5 | 11.00   | 15.00   | 13.0000 | 1.58114        |
| Gross Domestic Product | 5 | .09     | .12     | .1040   | .01342         |
| Valid N (listwise)     | 5 |         |         |         |                |

Source: Result of SPSS based on the data

Profitability of WMFI's measured in terms of ROA for the total 5 observations showed up averagely a positive value of 7.20% during the study Period of (2009-2013), with a maximum value of 10% and a minimum of 4%. This indicates the profitable Wisdom MFIs earned Maximum 10 cents of profit after tax for a single birr investment they made on total asset. On the other hand, The Wisdom MFI was lost 4 cents from profit for 1 birr investment made on total assets of the firm. The standard deviation statistics for ROA was 3.03% indicating that the profit variation of WMFI is lower when it compared with, SMFI and higher when it compared with OMFI's. The overall statistical result for ROA suggests that the WMFIs need to efficiently utilize their assets to increase their profitability. In other word assets that are held idle increases the loss for the MFIs So that the management of WMFI needs improvement in idle resource management and observing for other capital sources.

Table 4 Descriptive Statistics of WMFI

|                        | N | Minimum | Maximum | Mean    | Std. Deviation |
|------------------------|---|---------|---------|---------|----------------|
| Return on Asset        | 5 | .04     | .10     | .0720   | .03033         |
| Financing Structure    | 5 | .25     | .54     | .3640   | .11971         |
| Operating efficiency   | 5 | .11     | .19     | .1420   | .04382         |
| Size                   | 5 | 18.23   | 20.35   | 19.2820 | .75635         |
| Age                    | 5 | 11.00   | 15.00   | 13.0000 | 1.58114        |
| Gross Domestic Product | 5 | .09     | .12     | .1040   | .01342         |
| Valid N (listwise)     | 5 |         |         |         |                |

Source: Result of SPSS based on the data

#### Test for Heteroscedasticity

One of the RM (Regression Model) assumptions says that the variance of the errors is constant. This is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they are said to be heteroscedastic (Brooks, 2008). In this study the F-statistic and Chi-Square versions of the test statistic gave the same conclusion that there is no evidence for the presence of Heteroscedasticity, since the p- values were in excess of 0.010.

Table 5 Heteroscedasticity Test

| ANOVA <sup>a</sup>  |            |                |    |             |       |                   |
|---|------------|----------------|----|-------------|-------|-------------------|
| Model   |            | Sum of Squares | df | Mean Square | F     | Sig.              |
| 1   | Regression | .015           | 5  | .003        | 6.021 | .010 <sup>b</sup> |
|   | Residual   | .004           | 9  | .000        |       |                   |
|   | Total      | .019           | 14 |             |       |                   |
| a. Dependent Variable: Return on Asset  |            |                |    |             |       |                   |
| b. Predictors: (Constant), Gross Domestic Product, Financing structure, Size, Operating Efficiency, Age |            |                |    |             |       |                   |

Source: Result of SPSS based on the data

**Test for Multicollinearity**

The correlation between two variables measures the degree of linear association between them. If it is stated that y and x are correlated, it means that y and x are being treated in a completely symmetrical way. Thus, it is not implied that changes in x cause changes in y, or indeed that changes in y cause changes in x. rather, it is simply stated that there is evidence for a linear between the two variables, and that movements in the two are on average related to an extent given by the correlation coefficient.

This test is made to check whether the independent variables are correlated or not. If the correlation coefficient is low it indicates there is no problem of Multicollinearity. Correlation of all independent variables is low and this indicating the absence of Multicollinearity in this study; making the regression analysis more reliable.

Table 6 Correlation matrixes of independent variables

| Correlations <sup>a</sup> |                     |                      |                      |       |       |       |
|---------------------------|---------------------|----------------------|----------------------|-------|-------|-------|
|                           |                     | Fainancing structure | Opreating Efficiency | Size  | Age   | GDP   |
| Fainancing structure      | Pearson Correlation | 1                    | .441                 | .059  | .056  | -.017 |
|                           | Sig. (2-tailed)     |                      | .100                 | .834  | .842  | .953  |
| Opreating Efficiency      | Pearson Correlation | .441                 | 1                    | .001  | .322  | -.022 |
|                           | Sig. (2-tailed)     | .100                 |                      | .997  | .241  | .939  |
| Size                      | Pearson Correlation | .059                 | .001                 | 1     | .395  | -.193 |
|                           | Sig. (2-tailed)     | .834                 | .997                 |       | .145  | .490  |
| Age                       | Pearson Correlation | .056                 | .322                 | .395  | 1     | -.178 |
|                           | Sig. (2-tailed)     | .842                 | .241                 | .145  |       | .526  |
| GDP                       | Pearson Correlation | -.017                | -.022                | -.193 | -.178 | 1     |
|                           | Sig. (2-tailed)     | .953                 | .939                 | .490  | .526  |       |
| a. Listwise N=15          |                     |                      |                      |       |       |       |

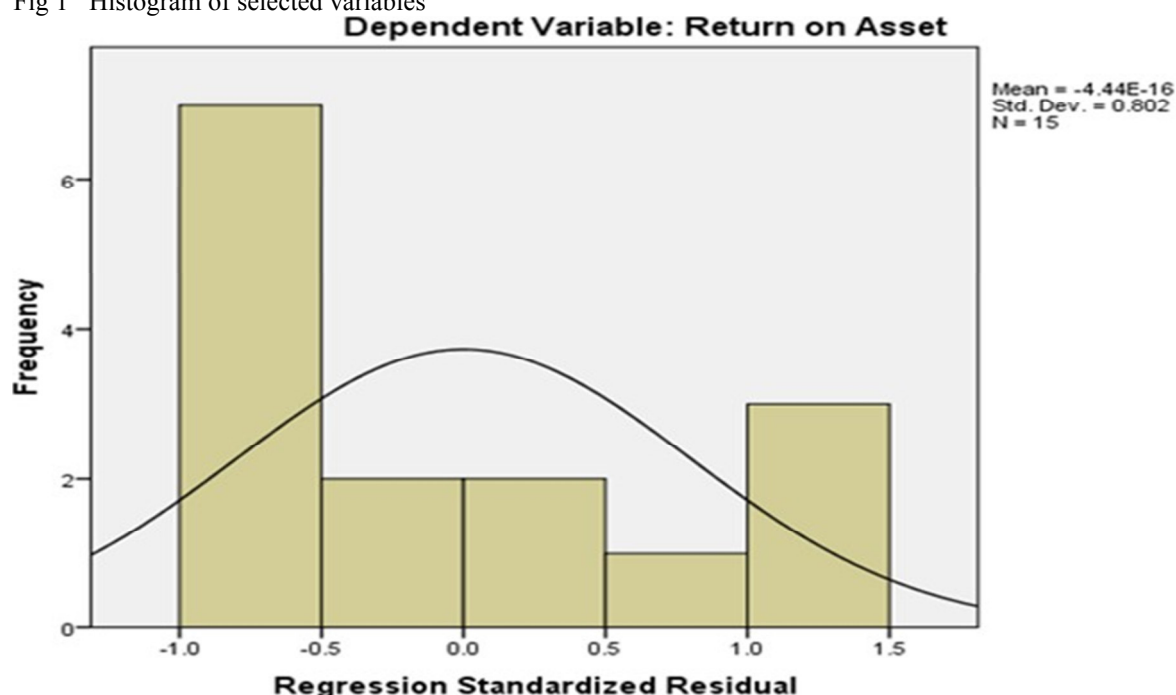
Source: Result of SPSS based on the data

**Testing for normality**

In figure 1 below the estimated histogram of the selected variables are shown. These graphs are useful to investigate the shape of the variables in the model.



Fig 1 Histogram of selected variables



Source: Result of SPSS based on the data

### Results of regression analysis

So far the different tests made to check RM assumptions, descriptive statistics results and correlation analysis among variables were presented. This section presents result of the regression output. As it is indicated in chapter three, the Regression model to identify factors affecting profitability of MFIs in SNNPR is presented as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon_i$$

R-squared statistics and the adjusted-R squared statistics of the model were 77.8% and 65.5% respectively. The result indicates that the changes in the independent variables explained 65.5% of the changes in the dependent variable. That is capital to total asset ratio, financing structure, operational efficiency, size, age of MFIs and GDP growth collectively explained 65.5% of the changes in ROA. The remaining 34.5% of change is explained by other factors which are not included in the model. Thus these variables collectively, are good explanatory variables of the profitability of MFIs in SNNPR as the R-square is at least more than 50%. The null hypothesis of F-statistic (the overall test of significance) that the  $R^2$  is equal to zero was rejected at 1% as the p-value was sufficiently low. F value of 0.000 indicates strong statistical significance, which enhanced the reliability and validity of the model. Looking into the results in table 4.6, among the MFIs specific independent variables, Financing Structure, and age had statistically significant impact on profitability whereas Operating efficiency and size are insignificant factors. On the other hand the external factor (macroeconomic) variable used, GDP was insignificant. Among the statistically significant variables, Financing structure and age are significant at 1% and 5% significance level respectively whereas operating efficiency, size and GDP statistically insignificant as per this research. Regarding the coefficient figures of the independent variables under the coefficient of two independent variables were negative against ROA. This was indicated by the coefficient value of -0.0229, and -0.390, for Operating efficiency and, size respectively

This indicates that there was an inverse relationship between the aforementioned two independent variables and ROA. Thus the increase of those variables will lead to a decrease in ROA. On the other hand, financing structure, age and GDP of the MFIs was the independent variable which had a positive relationship with profitability with a positive coefficient value of 0.722, 0.638, and 0.242. This revealed that there was a direct relationship between Financing structure, age, GDP and profitability. In general per the regression results provided in table 7 among the five regressors used in this study two of them were significant.

**Table 7** Regression Results for factors affecting profitability of SNNPRs MFIs

| Model                      | Coefficients <sup>a</sup>   |            |                           |        |        |           | Collinearity Statistics |  |
|----------------------------|-----------------------------|------------|---------------------------|--------|--------|-----------|-------------------------|--|
|                            | Unstandardized Coefficients |            | Standardized Coefficients | T      | Sig.   | Tolerance | VIF                     |  |
|                            | B                           | Std. Error | Beta                      |        |        |           |                         |  |
| 1 (Constant)               | -0.256                      | 0.112      |                           | -2.291 | 0.048  |           |                         |  |
| Financing structure        | 0.205                       | 0.050      | 0.722                     | 4.068  | 0.003  | 0.811     | 1.233                   |  |
| Operating Efficiency       | -0.151                      | 0.124      | -0.229                    | -1.216 | 0.255  | 0.719     | 1.390                   |  |
| Size                       | -0.001                      | 0.005      | -0.039                    | -.220  | 0.831  | 0.812     | 1.232                   |  |
| Age                        | 0.016                       | 0.005      | 0.638                     | 3.376  | 0.008  | 0.715     | 1.398                   |  |
| Gross Domestic Product     | 0.722                       | 0.494      | 0.242                     | 1.461  | 0.0178 | 0.930     | 1.075                   |  |
| Model Summary              |                             |            |                           |        |        |           |                         |  |
| Model                      | 1                           |            |                           |        |        |           |                         |  |
| R                          | 0.877 <sup>a</sup>          |            |                           |        |        |           |                         |  |
| R Square                   | 0.770                       |            |                           |        |        |           |                         |  |
| Adjusted R Square          | 0.642                       |            |                           |        |        |           |                         |  |
| Std. Error of the Estimate | 0.02214                     |            |                           |        |        |           |                         |  |
| F-statistic                | 6.021                       |            |                           |        |        |           |                         |  |

a. Predictors: (Constant), Gross Domestic Product, Financing structure, Size, Operating Efficiency, Age a. Dependent Variable: Return on Asset

Source: Result of SPSS based on the data

$$ROA = -0.256 + 0.722FAS - 0.229OE - 0.039Size + 0.638Age + 0.242GDP$$

### 1.6.1 Analysis and Discussion

#### Research hypothesis

- H1.** There is a significant positive relationship between Capital Structure and profitability of MFIs.
- H2.** There is a significant negative relationship between operational efficiency and MFIs profitability
- H3.** There is a significant positive relation between size and profitability of MFIs.
- H4.** There is a significant negative relationship between age and MFIs profitability.
- H5.** There is a significant positive relationship between gross domestic product (GDP) growth and profitability of MFIs.

#### Analysis of the results

The analyses were made based on the theoretical frameworks and the results of regression analysis for the collected data. The study included internal and external factors that can affect profitability in the study area. The internal factors include; financing structure, operating efficiency, Size and Age. The external factor selected was economic growth (GDP growth).

**Financing Structure;** Financing Structure ratio measured in terms of adjusted total equity to adjusted total asset was used to measure the Source of equity and capital strength of SNNPRs MFIs. The ratio showed up a Positive coefficient (0.722) and it is statistically significant variable at 0.3% significance level. This implies that for the study period (2009-2013) capital strength of SNNPR MFIs has strong relationship with their profitability. Hence, the hypothesis saying there is a significant Positive relationship between Financing structure and profitability of MFIs is not rejected or the data supports the hypothesis. The result of this study is supporting the findings of Muriu (2011), Jorgenson (2012) and Ayayi (2009). In general, capital strength can affect profitability positively; the current study proved that there is significant relationship between the two.

**Operating efficiency:** - Efficiency of the MFIs management measured in terms of adjusted annual operating expense to adjusted average gross loan portfolio showed up a coefficient of -0.229 and it was statistically insignificant at 2.25% significance level. The implication is that there was a negative relationship between operating efficiency and profitability of SNNPRs MFIs during the study period. The outcome is in line with x-efficiency theory which says efficient firms (lower cost) tend to earn higher profit. Therefore, the study do not rejecting the hypothesis saying there is a significant negative/Positive relationship between efficiency and profitability. The result was similar with the findings of Dissanayake (2012), Muriu (2011) and it was Opposite to Jorgenson (2012).

Generally, the current study investigated that operating efficiency was not a key determinant of profitability of SNNPR MFIs for the study period of 2009-2013.

**Size :-**Size of MFIs measured in terms of natural logarithm of their total asset had a negative Coefficient of (-0.390) and was statistically insignificant even at 83.1% significance level which indicating insignificant relationship between profitability of MFIs and their size for period of 2009-2013 in the study area of this research. The result was in contrary with prior expectations and also with relative market power theory and scale

efficiency theory; implying SNNPRs MFIs did not benefit from economies of scale. Previous studies was opposite to the outcome of this study include Cull et.al. (2007), Muriu (2011), Letenah (2009) and Melkamu (2012). Therefore, the hypothesis saying there is positive significant relationship between size and profitability of SNNPRs MFIs is rejected or data did not support the result. Even though, the real practice in SNNPRs reveals that the large MFIs constitute the largest portion of the market share from the industry, the current study found that size was not a key Factor of SNNPRs MFIs for the period of 2009-2013.

**Age:** Age of MFIs was used to check whether there is a learning effect in SNNPRs MFIs. The coefficient was positive (0.638) and as well statistically significant at 0.8% significance level. This implies that age was a key determinant of Profitability of SNNPRs MFIs having a positive signal with ROA; therefore the study to reject the hypothesis saying there is a significant negative relationship between age and MFIs profitability for the study period. The outcome is similar with Yonas (2012). Finally the current study concluded that age is one of internal factors affecting Profitability in positive direction. This is also practical in SNNPRs where matured MFIs earn high profit compared to new MFIs.

**Gross domestic product:** The only external factor used for this study, GDP, had a Positive coefficient of 0.242 and was also statistically insignificant even at 1.78% significance level implying that the improvement in economic condition measured in terms of GDP growth did not affect profitability of SNNPRs MFIs for the study period.

The result was inconsistent with Jordan (2008) and Muriu (2011). Therefore, the current study found that GDP growth is not a key determinant of SNNPRs MFIs profitability as per this research. Hence, the hypothesis saying there is a significant positive relationship between profitability and gross domestic product is not rejected but it was not statistically significant.

From the above analysis one can identify that the MFIs specific variables affecting their profitability includes Financing structure, and age. Whereas operating efficiency and size are insignificant variables. External factor included, GDP was also insignificant factor for profitability as per this research. But financing structure, operating efficiency and GDP are not rejected, and size and age are rejected.

### 1.7. Conclusions

For the given selected Microfinance the Study result provided the following conclusions.

1. Financing structure showed a Positive coefficient which is in line with the prior expectation with ROA and also the variable was statistically significant indicating that as the SNNPRs MFIs hold high quality asset, even though the source of all of their asset were donation and borrowing their profitability will increase as per this research.
2. Operating efficiency measured in terms of operating expense to average loan portfolio, revealed a negative coefficient and statistically insignificant result, it is not as it was expected. The result indicates that the Higher the cost, the lower the profitability of SNNPRs MFIs. The coefficient was indicating the real evidence for SNNPRs MFIs which are less efficient in managing their expenses and operating costs.
3. Age of MFIs was used to check whether the learning effect can determine profitability of SNNPRs MFIs. The result showed a positive coefficient and statistical significant; indicating that the more MFIs become mature, the higher their profitability, so that as age going longer the profitability of SNNPRs MFIs will increase.

### 1.8. Recommendations

Financing structure and Age are key factors affecting the profitability of MFI in SNNPR The management may need to develop good Lending and borrowing policy and also try to manage challenges from past experience, as we can see from this research the main source of MFIs asset is donation that means the MFIs do not measure their effectiveness of their operation, so that the management may need to operate by borrowing fund and membership contribution to increases profit that help the MFIs to come out from being dependent on donated funds. In addition, the management need to insure the efficiency of operations from year to year as learning effect positively affects profitability and minimize those factors affects profit negatively.

The other recommendation is that, MFIs that operate in study area do not have research based documented evidence that shows them their strength and weakness of operation, so that, the management may need to establish research and development department structurally and by capacitating and strengthen them create a way to measure annually strength and weakness that make them to identify other factors that affect profitability of MFIs

To make MFIs competitive and profitable, increasing the capacity and skill of the Employee and management through continuous trainings, experience sharing from successful MFIs, and

provision of advice and consultancy are crucial. Moreover, improved provision of necessary infrastructure and enabling the environment for business operations is generally an imperative. Uninterrupted fund supply for loan and quick transportations to rural area are basic to effective performance of these MFIs.

The role of government in insuring the development of infrastructures and other facilities like technological advancements to reduce poverty is crucial in addition to the role of MFIs. Therefore, to keep the MFIs efficient at a reduced cost, the government needs to enhance the development of the different areas where difficulties are being faced on the way to provide microfinance services.

Finally this study investigated only limited internal and external variables by using 5 years data. There are other variables like lending methodology, loan size, interest rate on loan, type of institution, quality of portfolio, loan period, repayment rate, types of product Such as (Agricultural loan, General loan, Micro and Small business Loan, Handicrafts and services loans, Petty trades and House loan and outreach from internal and inflation, fiscal policy, and industry concentration from external variables which are not included in the study. Therefore, further investigation which includes the above variables might have a better role in identifying other factors contributing to profitability of MFIs SNNPRs.

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