Performance Analysis of a sample Microfinance Institutions of Ethiopia

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March 2009

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Abstract

The purpose of this study is to appraise the performance of Ethiopian MFIs in terms of various criteria by comparing with the Micro banking Bulletin (MBB) benchmark and for some relative ratios comparison among themselves.

The MF industry as a whole is challenged by the need to reach the poorest customers and at the same time being financially self sufficient. Although the industry as a whole is growing at a faster pace still the two critical questions of reaching the poor and building a financially sustainable MF industry that walk on their own leg freely are empirical questions. This research, although will not solve these crucial questions, will at least contribute to researchers, practitioners and policy makers by showing where the Ethiopian MFIs are lying on the outreach to the poor, sustainability, and a couple of other performance dimensions.

Data for the research are taken from the MIX MARKET website. Although the actual number of Ethiopian MFIs is around 27 as per National Bank of Ethiopia database, I have data access online only for 16 MFIs from the MIX MARKET website. Hence the sample constitutes these 16 MFIs. For data analysis, I have used one sample t test, one way ANOVA with Scheffe Post Hoc Comparison tests, Kruskal-Wallis test and Pearson correlation coefficients.

The result of the study indicates that Ethiopian MFIs in general are poor performers on depth of outreach. They are not reaching the poorest of the poor. They are also poor in terms of the ratio of GLP to assets, allocating a lower proportion of their total assets in to loans. They also are not using their debt capacity properly. The large and small MFIs are allocating more loan loss provision expense than the industry average and the related PAR is high for these MFIs.

All the MFIs are good at breath of outreach, cost management, efficiency and productivity. They also charge low interest rates. The profitability and sustainability of the MFI depend on their size. From a simple correlation analysis it is found that there is a tradeoff between serving the poor and being operationally self sufficient. MF age correlates positively with efficiency, productivity, the use debt financing (commercialization) and OSS. It is also found that the use of debt financing makes firms more efficient and productive.

I. Introduction

Microfinance is the provision of financial serves to the poor people with very small business or business projects (Otero, 1999 cited in Marzys, 2006). Only a small fraction of the world population has access to financial instruments, essentially because commercial banks consider the poor people as unbankable due to their lack of collateral and information asymmetries.

There are a number of studies in the MF industry because it has got the attention of academicians and practitioners as an innovative method of fighting poverty. The studies mostly concentrate on three key areas. The first one is impact assessment of the MF programs on the lives of the poor. It is to mean that whether the provision of financial service mostly of credit and saving has improved the lives of the poor in terms of economic, social and political indicators of poverty. Using much type of quasi experimental designs the studies about the impact of the microfinance in changing the lives of the poor have shown mixed results (Hishigsuren, 2004). Sebstand and Chen, 1996 cited in Hishigsuren, 2004 summarized the key findings from thirty two impact studies and revealed varying degree of positive impact on program participants notably increase in household and enterprise income and assets. Mixed effects were found in employment, children schooling and women's empowerment. So the evidence on whether Microfinance can alleviate poverty is of highly debated issue.

The second hot area in the MF industry among researchers is whether MF reaches the poorest of the poor who is in need of financial services. There are studies that show that MF doesn'treach the poorest of the poor. Rather they are reaching the marginally poor or non-poor. Besides most MFIs have no clear rules and criterion to target the poorest of the poor. (Hishigsuren, 2004). This indicates that the MFIs are drifting away from their original mission of reaching and serving the poor.

The third area that got the attention in the MF industry is the issue of financial sustainability of MFIs. Historically MF has started operation with donor funds and now the industry has almost aged around 30 years. There is an intense debate on whether MFIs should continue to be donor supported or get relived from donation and stand on their own leg. There are one school of thought which say MF should can be sustainable with donor funds (called welfarists) and the others say the MF should generate enough revenue to cover their own costs as donors funds are unpredictable (called institutionsist) (Basu &Woller, 2004). Hence the issue of building a sustainable MF industry that can operate without a donor funds is of an empirical enquiry.

The purpose of this specific research is to assess the performance of a sample of MFIs in Ethiopia. There is no enough research done in Ethiopian MF industry. Some of them such as (Kereta, 2006 and Kidane, 2007) are also poor in terms of statistical analysis. Hence this study, by using statistical test of significance, will try to appraise the performance of these institutions using many indicators such as capital structure, asset allocation, breadth of outreach, depth of outreach, profitability and sustainability, revenue performance, expense management, efficiency, productivity and portfolio quality. However it has to be noted that the performance analysis of MFIs don't include impact studies as there are not available data about the impact of MFIs on the lives of the poor from the data source I used. More about the data source will be explained in section three.

The rest of the study is organized as follows: section two discuss the relevant literature, section three will look at data and methodology; section four is devoted to the discussion of empirical findings and the last section six concludes.

II. Review of Literature

What is Microfinance Institutions?

The definition of Microfinance institutions proposed by some authors and organizations are seemingly different from one another. However the essence of the definition is usually the same in which microfinance refer to the provision of financial services primarily savings and credit to the poor and low income households that don't have access to commercial banks. (Arsyad, 2005).

Legerwood (1999 p. 1) defines it as the provision of financial services (generally saving and credit) to low income clients. Robinson (2001 p. 9) defines it as small scale financial services primarily credit and saving provided to people who farm or fish or herd who operate small enterprises or microenterprises where goods are produced, recycled, repaired or sold; who provide services; who work for wage and commission; who gain income from renting out small amount of land, vehicles, draft animals, or machinery tools; and other individual and groups at the local level of developing countries both rural and urban area.

Performance measurement in Microfinance Institutions

Performance of an institution shall be measured from the objectives of the organization angel. Microfinance's goal is to eradicate poverty. In the early days when MFI started they were financed by donor funds that have a poverty eradication goal. Hence the performance of the MFI was measured on how much MFI reach to the poor (outreach) and impact (how far the live of those who get financial services are changing as compared to those who don't get these services). But as the MF industry grows in size, the need for increased financing coupled with unpredictability of donor funds trigger the issue of building a sustainable MFIs that stand on their own leg i.e. MFIs shall start covering their own cost of operation from their program revenues. Sustainability is loosely defined as the ability of a MFI to cover its operating and other costs from generated revenue and provide for profit. It is an indicator which shows how the MFI can run independent (free) of subsidies. This change in emphasis has created a different perspective on the analysis of performance of the MFIs. Today many key plays in the industry use sustainability as one core criteria to evaluate the performance of MFIs besides the outreach and impact measures described earlier.

The different perspective on which the MF performance is to be measured has created two opposing but having the same goals school of thought about the MF industry. The first one are called welfarists and the second one institutionist.

Welfarists argue that MFIs can achieve sustainability without achieving financial sustainability. They contend that donations serve as a form of equity and as such donors can be viewed as social investors. Unlike private investors who purchase equity in publicly traded firm, social investors don't expect to earn monetary returns. Instead these donor investors realize a social (intrinsic) return. (Basu and Woller, 2004).Welfarists tend to emphasize

poverty alleviation, place relatively greater weight on depth of outreach relative to breadth of outreach and gauge institutional success according to social metrics. This is not to say that neither breadth of outreach nor financial metrics matter. Welfarists feel these issues are important, but they are less willing than institutionist to sacrifice depth of outreach to achieve them (Basu and Woller, 2004).On the contrary, institutionists argue that unless we build sustainable MFI that are capable of running independent of subsidies the promise of MFI of eradicating world poverty will not be met. They argue that sustainable MFI helps to expand outreach and reach more poor people.

Hence even if the two schools of thought seem contradictory, they are actually not. Their goal is eradicating poverty. Their difference lies on how to go about it. Welfarists say we have to target the very poor and profitability shall be secondary. They prefer to charge subsidized and low interest rates by relying on donor funds. Institutionist argues donor funds are unreliable and MFI must by themselves generate enough revenues to reach more poor people in the future. They favor marginally poor customer. They charge higher interest rates and focus on efficiency of MFIs to generate profit and reach more poor.

The debate between the two schools of thought is endless and today many players in the MF industry use both the welfarists and instututionist perspective to assess the performance of MFIs. From the welfarists we use outreach as we outlined in the scope of the study as impact studies are costly and time consuming and sustainability from the institutionist paradigm.

For many years the MFI industry was operating with subsidy from donors and governments but there is now a pressure on these organizations to be financial sustainable. However, it seems that serving the poor and being financially self sufficient seems contradictory. Various arguments are forwarded: the poor can't pay high interest rate, if the poor consume it has no collateral, there is big transaction cost in serving the poor. But these assumptions are falsified in the last 20 years and the poor is seen as capable of paying high interest as ROI of small projects are larger than large projects, the poor don't consume the money the money rather use it for financing his/her business, transaction cost barriers are mitigated by the creation of group lending, absence of physical collateral is mitigated by social capital. Hence contrary to the expectations the MFI industry has shown significant repayment rate although high repayment rates can't be translated into financial sustainability.

However there seem many unresolved problems. Many MFI can't reach a significant portion of the world poor; they can't be free from subsidies. Mixed results are read on the impact of the microcredit on lives of the poor. Can we serve the poor but still financially self sufficient? Is the MFI model correct? If so what are hindering them to achieve the targets set? What optimal solution is available for the MFI in reaching the poor and being financially self-sufficient?

According to Ledgerwood (1999), the performance of MFI is measured in many parameters. This includes:

- ✔ **Portfolio Quality indicators:** Portfolio quality ratios provide information on the percentage of non-earning assets, which in turn decrease the revenue and liquidity position of MFIs. Some of the measures used include the repayment rates, arrears rate, Portfolio at risk, delinquent borrowers, loan loss reserve ratio, and loan loss ratio.

- ✔ **Productivity and efficiency ratios:** Productivity and efficiency ratios provide information about the rate at which the MFI generate revenue to cover their expense. Productivity refers to the volume of business that is generated (output) for a given resource or asset (input). Common measures of productivity include the number of active loans per credit officer, and average portfolio outstanding per credit officer. On the other hand efficiency refers to the cost per unit of output. Common efficiency ratios includes operating cost ratio, salaries and benefits to average portfolio outstanding, average credit officer salary as a multiple of per capita GDP, cost per unit of currency lent, and cost per loan made.
- ✔ **Financial viability indicators:** Financial viability refers to the ability of the MFI to cover its costs with earned revenue. A financially viable MFI will not rely on donor funding to subsidize its operation. Common indicators here include financial spread, Operational Self Sustainability (OSS), Financial Self Sustainability (FSS) and Subsidy dependence index.
- ✔ **Profitability indicators:**These indicators measure the MFI net income in relation to the structure of its balance sheet. Common measures include Return on Equity, Return on Assets, and Return on Business
- ✔ **Leverage and capital adequacy ratios:**Leverage refers to the extent to which a MFI borrows money relative to its amount of equity. In other words, it answers the question of how many additional dollars can be mobilized from commercial sources for every dollar worth of funds owned by the MFI. The most widely used measure of leverage is the debt equity ratio. Capital adequacy refers to the amount of capital a MFI have relative to its assets. Capital adequacy means there is a sufficient level of capital required to absorb potential losses while providing financial sustainability. The measure used for capital adequacy is the ratio of capital to risk weighted assets.
- ✔ **Scale and depth of outreach indicators**. These are nonfinancial indicators of performance. Scale of outreach indicate the scale of the MFI activities as measured by the number of clients served with different type of instruments such as saving and credit. Depth of outreach measures the type of clients served and their poverty level. The proxy for depth of outreach used in various studies (such as Cull et al, 2008; Hartarska, 2004; Mersland and Storm, 2007; Smith, 2006) is average loan size per GNI per capita, the percentage of women borrowers and percentage of rural clients.

Empirical Evidence

Studies conducted by Lafourcade et al, 2005 on the outreach and financial performance of Microfinance institutions in Africa shows that in terms of breadth of outreach, sub-Saharan MFI have a higher number of savers than other regions of the world. However, in terms of number of borrowers, Africa is lagging behind South Asia and East Asia and the Pacific. In terms of depth of outreach measured by the percentage of women borrowers, sub-Saharan Africa has 61% women borrowers as compared to 86% in south Asia and 80% in Middle East and North Africa (MENA) and 76% in East Asia and Pacific. Sub-Saharan Africa MFI has the lowest financial performance of ROA of 2% as compared to 7.6%-10% of Eastern Europe and Central Asia.

One of the well done studies in the global microfinance industry is the study by Cull et al (2007). In their study they have used data from 124 MFIs from 49 developing countries. They

have not compared the performance of the MFIs with a benchmark but the result of their studies can be summarized as follow: the average Financial Self Sufficiency (FSS) is found to be 1.035 meaning MFIs are becoming financially self sufficient, OSS is a bit greater 1.165, whereas Adjusted ROA is negative (-0.027). The adjusted ROA shows that most MFIs have no positive return on their investment. Depth of outreach indicators such as average loan size per GNI per capita is 0.676 and percentage of women borrowers is found to be 64.9%. Lastly they found that Average interest rate around as high as 35% and GLP to assets of 68.9%.

Hartarska in 2004 has studied Microfinance governance in Central and Eastern European region. She found that the average ROA is 3.038 indicating profitable MFIs in this region, and OSS of 91.99. They do have an average number of 7268 borrowers.

Ethiopian Scenario

The quality literatures on the Ethiopian MFIs industry sustainability and outreach are not as such available. However the study by Kereta in 2007, on which I have accessed to, is worth mentioning. He studied the industry's outreach and financial performance using simple descriptive analysis using graphs and percentage growth rates. The result of his study showed that in terms of breadth of outreach, MFIs are serving an increasing number of clients in each year from 2003-2007. The industry's growth rate in terms of number of clients is 22.9%. In terms of depth of outreach measured by average loan size Ethiopian MFIs have a loan size which is on average nearer to the standard $150. So they can be considered pro-poor. However he indicated that the MFIs reach to the disadvantages particularly to the poor is limited (38.4%). From sustainability angel, the MFIs are operationally sustainable as measured by ROA and ROE and the industry's profit performance is improving overtime. Dependency ratio as measured by the ratio of donated equity to capital decline and the ratio of retained earnings to total capital is rising letting the industry to be financially self sufficient. The study also found that PAR is at 3.2% for the period from 2005-2007 which is in comfort zone. Regarding the tradeoffs between depth of outreach and profit of MFIs the result is not clear.

The study by Kidane (2007) on one of the largest MFIs in Ethiopia Amhara Credit and Saving Institution (ACSI) shows that ACSI has served more than half a million clients. Over 1.6 million loans have been disbursed worth Birr 1.5 billion. By 2005, the institution was operationally and financially self sufficient at 119.9% and 115.3% respectively. ACSI is among a few MFIs that is able to achieve the highest efficiency at the lowest cost per borrower. The operating cost was as low as five cents in 2005.ACSI also has a high portfolio quality, as delinquency rates are around 1.9%.

Ethiopian microfinance has made remarkable progress over the past decade, reaching almost two million clients in a country of 77 million people. Nevertheless, financial services for the low-income population, poor farmers and MSMEs are still characterized by limited outreach, high transaction costs for clients, a generally weak institutional base, weak governance and a nominal ownership structure as well as dependence on government and mother NGOs. (Pfister et al, 2008).

No study, to the best of my knowledge, has compared the performance of MFIs with a standard. Even if they report the result of some performance measures, they don't compare with a standard. The only thing they say is across time some indicators are improving or worsening, even without doing statistical test of significance. This is very silly way of analyzing performance. It is known that across time indicators will change. So the best way to analyze performance is to compare it with a suitable and dynamic industry benchmark and comment on the results after doing statistical test of significance. Hence the merit of this study is to compare the performance of the Ethiopian MFIs with some standard and comment on the result after statistical manipulation.

III. Data and Methodology

The data used for this study is purely secondary taken from the MIX Market Inc. website (www.themixmarket.com). The Mix Market is a not-for profit initiative that works in for the dissemination of information among the MFIs institutions.

The data reported by the MFIs is irregular, but most of them have reported from 2001 onwards. I have used all the data available till 2007. Some have data as early as 1998 whereas most started from 2001 onwards. Even if the data have many missing points I left it as is because in averaging SPSS will take care of the missed data.

There are 16 Ethiopian MFIs in the MIX market website to which I have access to their data, although their actual number as per the National Bank of Ethiopia (NBE) database are nearly 27. I believe that there is no need to sample from the 16 MFIs as they are already small. For meaningful analysis I have stratified the MFIs based on their size because the Ethiopian MFIs shows high variability (measured by coefficient of variation as different unit of measurement exist for different variables such as age is measured in years whereas GLP in dollar terms) in terms of size rather than age, legal status, financial intermediation, and lending method. The standard classification of MFIs in terms of size according to the Micro banking Bulletin (MBB) is those having a GLP of less than 2 million dollars are small, those having a GLP of between 2 and 8 million dollars are medium and those above 8 million dollar GLP are large. Based on this scheme,

- the largest MFIs in this sample are Amhara Credit and Saving Institutions (ACSI), Dedebit Credit and Saving Institution (DECSI), Oromia Credit and Saving Share Company (OCSSO) and OMO,
- the medium sized are Busa Gonofaa (BG), Poverty Eradication and Community Empowerment(PEACE),Addis Credit and Saving Institution (ADCSI) and Wisdom, and
- The smallest MFIs are Metemamen, Wasasa, Meklit, Eshet, Gasha, Specialized Financial and Promotional Institution (SFPI), Africa Village Financial Service (AVFS), and Sidama.

As a data analysis strategy I have used one sample t tests (for comparing each category of MFIs with the MBB benchmark), ANOVA and Kruskal Wallis test (for comparing each

category of MFIs) and Pearson correlation coefficients (to see some patters of relationships among key variables). But the real challenge faced in the choice of parametric approach such as t tests, ANOVA and Pearson correlation coefficient is that the data has to meet certain assumptions such as normality and homogeneity of variance.

For conducting the t test I checked normality using the Kolmogorov-Smirnovtest. The test is run for each category of MFIs: large, mid sized and small. For those variables which don't meet the normality assumption I have used Ln (natural logarithm) transformations. The respective MBB benchmark values are also Ln transformed. For small MFIs I have got certain variables such as debt equity ratio, ROA, loan loss provision, operating expense ratio and operating expense to GLP even after Ln transformation don't meet the normality assumption. I can't use non-parametric tests for these variables as they have to be meaningfully categorized and the MBB benchmark is a unique value which can't be assigned to categories for a chi-square test. So the only solution for these variables is to ignore them in the analysis and possibly by increasing the sample size they will be normal and future research shall consider this.

For ANOVA and Pearson correlation tests, the assumption of normality and homogeneity of variance are checked at the total data set including the large, midsized and small MFIs. When found not normal and with a heterogeneous variance the same Ln transformations are used. For those variables which are not found to be normal and with a heterogeneous variance even after transformations (this includes scope, average loan size, GLP to assets, ROA, ROE, Financial Revenue Ratio, total expense ratio, financial expense ratio, and yield), I have used the Kruskal Wallis test.

IV. Results

a. Comparison with the MBB Standard

The Micro Banking Bulletin (MBB) in 2007 has come up with different benchmarks within which MFIs different performance parameters can be compared to. This include benchmark based on the age of the MFI, Charter type, the level of financial intermediation, lending methodology, outreach, profit status, region, scale, sustainability and target market.

I have tested for statistical difference on whether the selection of a benchmark would have an effect on the performance of the MFI using the dummy variable technique of multi-nominal logit. I have assigned the age of the MFI as a base category and coded the Charter of the MFI, the outreach, the region of the MFI, the scale and the target market to compare with the age of the MFI. The dependent variable used is the MFI performance coded as "-1" for low performance below the industry average (using one sample t test), "0" for a performance at par with the industry average and "1" a performance above the industry average. The result shows that the performances of the MFIs don't change with the selection of the benchmark. For instance Amhara Credit and Saving Institution (ACSI) have outperformed the industry average in terms of ROA in all benchmarks. So I conclude the selection of the criteria is a

futile exercise and decide to use the scale of the MFI (small, medium and large) as criteria for doing ratio analysis and comparison with the industry average.

The following discussion will pertain to the various performance criterions of the MFIs as compared to the MBB benchmark in each category of MFIs in terms of size.

The details of the tests are found in Table 1, 2 and 3 of the Appendix.

[Insert Table 1]

[Insert Table 2]

[Insert Table 3]

1. **Capital Structure and Asset allocation**

The large and midsized MFIs have a lower debt equity ratio than the industry average. The small MFIs debt equity ratio can't be normal even after Ln transformations. So it is left for further study by increasing sample size. So we can say that the large and midsized MFIs are not properly using their debt capacity. This might be due to the fear of commercial sources of capital such as commercial banks in lending to MFIs or due to negligence on the part of MFIs managers to tap these sources of finance or due to leverage limits imposed by the National Bank of Ethiopia. Any ways the result shows that these two MFIs are not properly levered when compared to their industry standard.

All MFIs allocate a lesser proportion of their assets in to loans. This indicates they are not productively using their assets to generate more interest income and a lower proportion of loans in the total asset portfolio is not good for financial sustainability as interest are lost and for more outreach to the poor.

2. **Depth of Outreach**

Depth of outreach is measured by average loan size, average loan size per GNI per capita for cross country comparisons and the percentage of women borrowers. The lower value for the previous two variables indicate MFIs are good at reaching the poor and a larger value for percentage of women borrowers indicate a good depth of outreach as women are considered to be poor than men.

In this regard, the large and small MFIs serve little women customers from their portfolio of customers as compared to the industry average whereas the midsized MFIs serve a proportion that is at par with industry average.

All MFIs have low average loan size. So it seems that Ethiopian MFIs are good at depth of outreach. This is probably because Ethiopia is so poor that it extends very meager loans as compared to many countries. The small absolute size of the loans doesn't make Ethiopian MFIs to be better performers in reaching the poor rather we have to use a good measure for cross country comparison i.e. average loan size per GNI per capita. On this measure it is found that all MFIs are poor performers as they extend larger loans than the MBB benchmark. This indicates that on depth of outreach parameter Ethiopian MFIs are poor performers with respect average loan size per GNI per capita as they are not reaching the poorest. The percentage of women borrowers served also triggers this.

3. **Breadth of Outreach**

Depth of outreach is measured by number of borrowers and GLP. All MFIs have large number of borrowers so they are good.

In terms of GLP the large MFIs have more GLP than the industryaverage. This is probably because of the large average loan size per GNI. The midsized MFIs have low GLP than their industry average and the small MFIs have a GLP at par with the industry standard. The result of the midsized and small MFIs should have been greater than the industry average provided that they serve large number of borrowers and have a large average loan size per GNI. However, the result becomes different than the expectation may be because the loan terms are different for these MFIs which could have an effect on GLP.

4. **Profitability and Sustainability**

The large MFIs have high ROA, ROE and OSS as compared to MBB benchmark. The midsized MFIs are at par with their benchmark whereas the small are at par in ROE and low in OSS than the respective benchmark. The ROA of small MFIs is not normally distributed even after Ln transformation. So it is left for further study by increasing sample size. From this we can roughly understand that size clearly affects profitability and sustainability positively.

5. **Revenue performance**

All MFIs charge low interest rates and hence they all have low financial revenue ratio. On a priori we can't say something here. Interest rates have positive and negative effect for the twin goals of sustainability and outreach that MFIs have to balance for. From the above results we see that Ethiopian MFIs are poor performers on depth of outreach and their sustainability seems to go hand in hand with their size. So still it seems that they have to lower down their interest rates even further to reach more poor as they will secure their sustainability from economies of scale and size effect rather than from charging high rates from the upper end of the market.

6. **Cost Management**

In total expense ratio and financial expense ratio all MFIs are better than the industry average. This indicates good cost management practices. In operating expense ratio the large MFIs are better than their industry average and the midsized are at par with the norm. The operating expense ratio of small MFIs is not normally distributed even after Ln transformation. So it is left for further study by increasing sample size.

In terms of loan loss ratios the large and small MFIs allocate more loan loss provisioning than the benchmark indicating a possible area for taking corrective actions as PAR might be rising in this MFIs. The Midsize MFIs on the opposite have low provisioning indicating their good portfolio quality.

7. **Efficiency**

Efficiency is measured in terms of operating expense to GLP ratio and cost per borrower. But cost per borrower is a poor indicator for cross country comparisons. Ethiopian cost profile is low as compared to other countries because salary levels and payments to other inputs are also low.

The large MFIs are better in all efficiency measures. The midsized are at par in operating expense to GLP but better in cost per borrower. The small are better in cost but operating expense to GLP require more sample size as it is not normal even with transformations..

So we can generalize Ethiopian MFIs are good at efficiency.

8. Productivity

All MFIs are productive in the sense that they serve a large number of borrowers per staff. But care has to be taken that large number of borrowers per staff also signals lower service quality delivered to customers as loan officer will give less attention to the need of each customer and thereby quality of outreach will decline.

9. Portfolio Quality

The portfolio quality of large and small MFIs measured by Portfolio at Risk (PAR) is large as compared to their industry standard whereas the PAR of the midsized MFIs is at par with the industry average. This is a warning signal for the large and small MFIs. And even for the midsized MFIs.

b. Comparison Among the different sizes of MFIs

Looking at the results of one way ANOVA and Kruskal Wallis test, the three sizes of the MFIs are similar in terms of GLP to assets only. In all other variables they are different.

[Insert Table 4]

[Insert Table 5]

- The large MFIs are better than the other MFIs in terms of scope of financial service provided, their use of commercial capital sources such as debt, total expense ratio, loan loss provisioning, operating expense ratio, and efficiency and productivity measures. They also charge low interest rate. Despite charging low interest rates they are the leader in ROA, ROE and OSS. This is clearly the effect of size of MFIs on the profitability and sustainability of MFIs.
- The midsized MFIs are better than the other MFIs in terms of percentage of women clients served, financial revenue ratio, financial expense ratio, and PAR. So especially serving women clients seems to be correlated with low PAR as women are good credit risk borrowers than men. The small MFIs are better than the other MFIs in terms of average loan size and average loan size per GNI. It is thought that loan to women borrowers are small in size as women as considered poor than men. But here we found that these two variables are two different things. Being good at reaching women clients doesn't mean the MFIs also extend small loan.

c. Correlation between variables

To see the interrelationships among variables, I run the following correlation matrix. Special interest is seen on the tradeoff that is expected to occur between depth of outreach and sustainability, depth of outreach and breadth of outreach and breadth of outreach and sustainability.

[Insert Table 6]

The result indicates that

- Serving women leads to low GLP, low average loan size per GNI, low OSS, inefficiency, low productivity, low PAR, and low leverage in capital structure. Young MFIs also serve more proportion of women than old MFIs. The relations we observe here generate the following hypothesis to be tested with large sample size. We can associate these relationships with the form of the MFIs: NGOs form of structures rely mostly on equity financing, have low GLP that is they are small MFIs, have low average loan size, they target women, they are not operationally sustainable, inefficient, unproductive, their age is young. But surprisingly they have good portfolio quality. So it can be inferred that NGOs form of MFIs structures are good at depth of outreach and they command high portfolio quality even though not operationally sustainable.
- High GLP is the result of high average loan size per GNI. High GLP leads to good OSS, better efficiency, high productivity, and high leverage. Old MFIs have also large GLP. So high GLP is indicator of the *Microfinance commercialization* which is advocated by the many actors in the MF industry.
- High average loan size result in good OSS, leads to efficiency, and high leverage. Old MFIs have high average loan size. This indicates us that there is a clear tradeoff between serving the poor and being operationally sustainable. So there should be clear market segmentation in the MF industry. The win-win approach advocated by many authors shall be abandoned.

- Better efficiency, high productivity, more leverage, and more MFIs age (experience) all leads to good OSS. These relationships seem to be consistent with commonsense and other prior theories.
- Higher productivity leads to higher efficiency. Debt financing makes firms efficient and productive. This is a generated hypothesis to be tested in the future. Also the correlations indicates that old MFIs are efficient.
- Old MFIs use more debt. This indicates that as the MF industry matures it will definitely come to commercialization which is hugely advocated by policy makers, donors and other participants.

V. Conclusions and Recommendations

The following are the main findings of the study

- The MFIs are not levered properly as compared to their benchmarks, although the large MFIs are more levered than the others.
- The MFIs are no allocating more proportion of assets in to loans. This has a dual effect. It means lost interest revenue and lesser outreach.
- In serving women borrowers we can say MFIs are poor performers especially the large and the small MFIs. Serving more women also correlates with poverty alleviation mission indicated by low average loan size and NGO form of structure and less commercialization of the MF industry. All MFIs are also poor performers at average loan size per GNI criteria as they extend large loans which are not consistent with the mission of MFIs. Within them small MFIs extend smaller loans than the other MFIs. It is also found that there is tradeoff between serving the poor and being operationally sustainable as the correlation between average loan size per GNI per capita and women borrowers with OSS is positive in the former case and negative in the latter case.
- In terms of breadth of outreach measured by number of borrowers all MFIs serve large number of borrowers than their industry average. This is what should be encouraged. High GLP is correlated with high efficiency, sustainability and commercialization of the MF industry.
- It seems that the profitability and sustainability of MFIs go hand in hand with their size i.e. size of the MFIs affect profitability and sustainability positively.
- All MFIs charge low interest rates which is consistent with their poverty eradication mission. Within them the large MFIs charge low rate.
- All MFIs are good at cost management as they have low expense ratios as compared to their industry benchmarks. Within them the large MFIs have clear cost management superiority. However the loans loss provision of the large and small MFIs and the related PAR is high warranting careful scrutiny.
- Ethiopian MFIs are efficient as measured by operating expense to GLP and cost per borrower ratio and also productive measured by borrower per staff. As explained earlier cost per borrower is a poor indicator and Ethiopian salary levels and other

payments to inputs are so low that they will lead to false conclusion when compared to other countries as a measure of efficiency.

- MF age correlate positively with efficiency productivity, the use debt financing (commercialization) and OSS. It is also found that the use of debt financing makes firms more efficient and productive.

Recommendations

- The MFIs have to use commercial sources of credit such as debt properly. For this they have to adopted better risk management strategies for the lenders to see them as credit worthwhile and the management has to be vigilant in searching commercial source of capital.
- The MFIs has to allocate more of their assets in to productive uses such as loans rather than current assets or fixed assets. They have to see their balance sheet properly.
- Ethiopian MFIs are blamed to have poor depth of outreach measured by the proportion of women customers served and their average loan size per GNI. So they have revise their client targeting criteria and as failure to see this would be a total mistake for the MF industry with which it was originally constituted for.
- The midsized and small MFIs shall go for massive scaling up strategies as size has a clear impact on profitability and sustainability. But here the opposite also can be argued. As I advocate there shall be clear market segmentation in the MF industry because of tradeoff between depth of outreach indicators and sustainability indicators.. So scaling up could mean mission drift as it is found that the large MFIs don’t serve women and extend large loans. Hence detailed studies shall be made on the poverty profile of clients and there shall be clear market segmentations one that cater for the very poor and the other for the marginally poor or non-poor which aims for sustainability.
- The portfolio quality and the related loan loss provision for the large and small MFIs ahs to be carefully watched for by their respective managers.

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Appendix

Table 1 Large MFIs: ACSI, DECSI, OCSSO and OMO

	Level values				Ln values			
Variable	**Mean**	**MBB**	**t value**	**Sign.**	**Mean**	**MBB**	**t value**	**Sign.**
Debt Equity Ratio	346.07	350			5.46	5.86	-2.073	**0.049**
GLP to assets	68.83	77.8	-4.1	**0.000**				
No of Borrowers	224257	13214	7.025	**0.000**				
Percentage of Women Borrowers	34	65.2	-9.47	**0.000**				
GLP	31130830	6979679			16.7	15.76	4.6	**0.000**
Average Loan Size	117.85	582	-45.8	**0.000**				
Average Loan Size Per GNI per capita	77.15	37.3	8.17	**0.000**				
ROA	3.5	0.9	4.5	**0.000**				
ROE	12.76	4.5	3.66	**0.001**				
OSS	154.47	115	4.23	**0.000**				
Financial Revenue Ratio	11.1	23.6	-29.27	**0.000**				
Portfolio Yield	14.63	28.7	-14.18	**0.000**				
Total Expense Ratio	7.56	22.1	-34.67	**0.000**				
Financial Expense Ratio	1.89	6.5	-45.9	**0.000**				
Loan Loss Expense Ratio	0.7	1.5	-5.39	**0.000**				
Operating Expense Ratio	5.01	12.5	-19.84	**0.000**				
Operating Expense to GLP	7.6	17.2	-13.52	**0.000**				
Cost per Borrower	7.72	117	-216.36	**0.000**				
Borrower per Staff	218	120	6.73	**0.000**				
PAR	7.17	3	2.19	**0.041**				

Bold sign. shows values significant at 5%

Table 2 Medium MFIs: BG, PEACE, ADCSI and Wisdom

	Level values				Ln values			
Variable	**Mean**	**MBB**	**t value**	**Sign.**	**Mean**	**MBB**	**t value**	**Sign.**
Debt Equity Ratio	151.8	290			4.41	5.67	-5.3	**0.000**
GLP to assets	67.67	79	-3.6	**0.001**				
No of Borrowers	20109	10776	2.4	**0.023**				
Percentage of Women Borrowers	63.18	66.3	-0.84	0.411				
GLP	2781932	4696767			14.11	15.36	-4.8	**0.00**
Average Loan Size	109	542	-43.7	**0.000**				
Average Loan Size Per GNI per capita	76.5	33.9	6.3	**0.000**				
ROA	0.87	0.6	0.25	0.804				
ROE	-1.56	2.7			4.41	0.99	14.38	**0.000**
OSS	107.8	114	-0.77	0.448				
Financial Revenue Ratio	16.49	24.7	-5.5	**0.000**				
Portfolio Yield	20.6	31.4			3.09	3.45	-3.23	**0.004**
Total Expense Ratio	15.6	24.8	-6.1	**0.000**				
Financial Expense Ratio	1.24	6.7	-28.9	**0.000**				
Loan Loss Expense Ratio	1.49	1.5			-0.53	0.41	-2.42	**0.026**
Operating Expense Ratio	12.89	15.9	-2.1	0.053				
Operating Expense to GLP	20.45	20.6	-0.051	0.960				
Cost per Borrower	18.1	120	-79.5	**0.000**				
Borrower per Staff	150	120			4.98	4.79	3.72	**0.001**
PAR	3.4	2.5			1.07	0.92	0.85	0.407

Bold sign. shows values significant at 5%

Table 3: Small MFIs: AVFS, Metemamen, Sidama, Eshet, Gasha, Meklit, SFPI and Wassasa

	Level values				Ln values			
Variable	**Mean**	**MBB**	**t value**	**Sign.**	**Mean**	**MBB**	**t value**	**Sign.**
Debt Equity Ratio	*101*	*180*			*It is not normally distributed even after Ln transformation. So increase in sample size is recommended.*			
GLP to assets	64.75	72.6	-3.1	**0.003**				
No of Borrowers	9389	2766	6.4	**0.000**				
Percentage of Women Borrowers	52	75.9	-10	**0.000**				
GLP	928274	1043069	-0.95	0.347				
Average Loan Size	89	305	-51.6	**0.000**				
Average Loan Size Per GNI per capita	62.9	22.5	13.6	**0.000**				
ROA	*-1.3*	*0*			*It is not normally distributed even after Ln transformation. So increase in sample size is recommended.*			
ROE	0.18	0.6	-0.2	0.83				
OSS	92	109	-3.34	**0.002**				
Financial Revenue Ratio	15.5	26.1	-12.8	**0.000**				
Portfolio Yield	21.3	35.4	-11.4	**0.000**				
Total Expense Ratio	17.1	29.2			2.78	3.37	-12.15	**0.000**
Financial Expense Ratio	2.07	6.6	-14.43	**0.000**				
Loan Loss Expense Ratio	*2.1*	*1.6*					*4.48*	***0.000***
Operating Expense Ratio	*12.9*	*19.5*			*0.92*	*0.47*		***0***
Operating Expense to GLP	*23.5*	*29.8*			*They are not normally distributed even after Ln transformation. So increase in sample size is recommended.*			
Cost per Borrower	18	85			2.8	4.44	-27.32	**0.000**
Borrower per Staff	139	99	5.1	**0.000**				
PAR	10.7	2.9	4.7	**0.000**				

Bold sign. shows values significant at 5%

Table 4: One-way ANOVA

	ANOVA						Kruskal Wallis Test		
Variable		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**	**Chi-Square**	**df**	**Asymp Sig.**

Scope							*60.76*	*2.00*	***0.0***
Women	Between Groups	10233.76	2.00	5116.88	18.50	**0.00**			
	Within Groups	25174.16	91.00	276.64					
	Total	35407.92	93.00						
AvLnSzGNI	Between Groups	4478.94	2.00	2239.47	3.81	**0.03**			
	Within Groups	52347.53	89.00	588.17					
	Total	56826.47	91.00						
AvLnSz							*7.34*	*2.00*	***0.0***
DebtEquity	Between Groups	1053791.99	2.00	526895.99	15.88	**0.00**			
	Within Groups	3284438.82	99.00	33176.15					
	Total	4338230.80	101.00						
GLPtoAsets							*0.57*	*2.00*	*0.75*
ROA							*10.02*	*2.00*	***0.0***
ROE							*15.82*	*2.00*	***0.0***
OSS	Between Groups	69538.65	2.00	34769.33	20.90	**0.00**			
	Within Groups	166393.01	100.00	1663.93					
	Total	235931.66	102.00						
FinancialRevenueRatio							*13.27*	*2.00*	***0.0***
TotalExpenseRatio							*40.56*	*2.00*	***0.0***
FinancialExpenseRatio							*8.20*	*2.00*	***0.0***

LoanLoss	Between Groups	30.43	2.00	15.21	3.71	**0.03**
	Within Groups	331.75	81.00	4.10		
	Total	362.17	83.00			
OperatingExpenseRatio	Between Groups	1050.66	2.00	525.33	16.02	**0.00**
	Within Groups	2721.58	83.00	32.79		
	Total	3772.24	85.00			
OperatingExpenseGLP	Between Groups	3888.38	2.00	1944.19	4.60	**0.01**
	Within Groups	35113.64	83.00	423.06		
	Total	39002.02	85.00			
Cost	Between Groups	1805.34	2.00	902.67	15.40	**0.00**
	Within Groups	4922.42	84.00	58.60		
	Total	6727.76	86.00			
BorrowerperStaff	Between Groups	107173.13	2.00	53586.57	16.62	**0.00**
	Within Groups	312678.91	97.00	3223.49		
	Total	419852.04	99.00			
Yield					*20.69*	*2.00*	***0.00***
PAR	Between Groups	697.60	2.00	348.80	5.56	**0.01**
	Within Groups	4325.90	69.00	62.69		
	Total	5023.50	71.00			

Bold sign. shows values significant at 5%

Table 5: **Descriptive**s for ANOVA Kruskal Wallis Test

		Mean/*Mean Rank*s
Scope	*Small*	*37.17*
	Medium	*48.52*
	Large	***86.39***
Women	Small	52.05
	Medium	**63.18**
	Large	34.01
AvLnSzGNI	**Small**	**62.91**
	Medium	76.53
	Large	77.15
AvLnSz	***Small***	***44.61***
	Medium	*58.38*
	Large	*62.26*

DebtEquity	Small	100.96
	Medium	151.88
	Large	**346.08**
GLPtoAsets	*Small*	*49.92*
	Medium	*52.78*
	Large	*55.20*
ROA	*Small*	*35.95*
	Medium	*40.53*
	Large	***55.89***
ROE	*Small*	*35.17*
	Medium	*37.80*
	Large	***59.65***
OSS	Small	92.00
	Medium	107.77
	Large	**154.47**
FinancialRevenueRatio	*Small*	*48.90*
	Medium	***50.53***
	Large	*27.30*
TotalExpenseRatio	*Small*	*55.51*
	Medium	*50.05*
	Large	***15.35***
FinancialExpenseRatio	*Small*	*45.69*
	Medium	***30.10***
	Large	*51.07*
LoanLoss	Small	2.14
	Medium	1.49
	Large	**0.70**
OperatingExpenseRatio	Small	12.92
	Medium	12.89
	Large	**5.01**
OperatingExpenseGLP	Small	23.51
	Medium	20.46
	Large	**7.60**
Cost	Small	18.03
	Medium	18.09
	Large	**7.72**
BorrowerperStaff	Small	138.84
	Medium	150.44
	Large	**218.50**

Yield	*Small*	*51.72*
	Medium	*49.05*
	Large	***23.30***
PAR	Small	10.73
	Medium	**3.39**
	Large	7.17

*The figures in brackets are Kruskal-Wallis test.

Table 6: Correlation Matrix

	Lnwomen	LnGLP	LnAvLnSz GNI	LnOSS	LnOperating expenseGLP	LnBorrower perStaff	Ln PAR	LnDebt Equity	Lnage
Lnwomen	1.00								
LnGLP	**-0.46**	1.00							
LnAvLnSz GNI	**-0.41**	**0.49**	1.00						
LnOSS	**-0.31**	**0.70**	**0.47**	1.00					
LnOperating expenseGLP	**0.41**	**-0.86**	**-0.63**	**-0.79**	1.00				
LnBorrower perStaff	**-0.28**	**0.59**	*0.09*	**0.59**	**-0.57**	1.00			
LnPAR	**-0.25**	*0.05*	*0.00*	*-0.03*	*0.02*	*0.00*	1.00		
LnDebtEquity	**-0.28**	**0.58**	**0.43**	**0.62**	**-0.62**	**0.37**	*-0.02*	1.00	
Lnage	**-0.31**	**0.59**	**0.38**	**0.41**	**-0.43**	*0.10*	*0.03*	**0.55**	1.00

Bold sign. shows values significant at 5%