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Determinants of Financial Distress in Microfinance Institutions in Ethiopia

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Abstract

In developing nations, Micro-Finance Institutions (MFIs) are essential to the financial system because they offer financial services to those who are unable to access traditional banking services. Examining the factors that contribute to financial distress in the context of certain MFIs in Ethiopia was the primary goal of this study. Twenty microfinance institutions from the total population of fifty-three microfinance institutions operating in the nation were included in the sample, which spanned the years 2019–2020 and 2023–2024. The data were analyzed using balanced fixed effect panel regression. The study measured the financial healthiness of MFIs using their Altman's Z score, which served as a stand-in for financial distress. According to the study, the age of microfinance institutions, capital adequacy, earning capacity, and liquidity all significantly worsen their financial distress. Although statistically minor, MFIs' operational efficiency, as determined by operating expenditure to gross loan portfolio, has a detrimental impact on their financial health. The financial distress of MFIs in Ethiopia is not significantly impacted by macroeconomic factors like as GDP or inflation. Based on the results, the study suggests that MFI managements make sure that frequent loan monitoring is strictly followed and that MFI credit regulations are revised on a regular basis. Additionally, MFI management should place a high priority on appropriately managing the capital to asset ratio. Because well-capitalized MFIs are better equipped to handle issues resulting from unforeseen losses, regulators and policymakers must also establish minimum capital adequacy criteria for MFIs.

Key Words: Altman’s z-score, Determinants, Ethiopia, Financial Distress, Microfinance Institutions,

1. Introduction

A company's financial situation when it has short-term liquidity problems and hurdles might be negatively described by the phrase "financial distress." The creditor and the debtor are the two parties that are always having financial troubles; examples of these parties include suppliers, employees, stakeholders, and outside funding sources (Beaver, 1966).

According to Altman (2006), a business is seen to be in financial distress if it encounters any of the four problems listed below: bankruptcy, insolvency, failure, or default. A financial institution will be considered to have failed if it is recapitalized by a government agency or central bank, requires a liquidity injection from the monetary authority, or is shut down by the government.

At the forefront of Africa's development plan, microfinance institutions have been recognized as one of the policy tools to end poverty (Tehulu, 2013). The primary role of microfinance institutions is to offer long-term loans to various sectors since money is a very powerful instrument for promoting economic opportunity and combating poverty (Rupa & Manoharan, 2014).

Some academics contend that reducing poverty is MFIs' primary objective. They argue that by giving the economically active poor access to financial services that are otherwise unavailable to formal financial institutions; their objective should not be to make money. They firmly believe that the primary objective of microfinance institutions should be to alleviate poverty, and as such, it should take precedence over all other objectives. Because MFIs are essential in ending extreme poverty, governments and non-governmental organizations should support them in order to accomplish their stated objectives.

However, some contend that MFIs must be successful and financially independent in order to provide better and long-lasting credit services to a significant number of the impoverished and fight poverty (Robinson, 2001). Because commercial MFIs could serve a large number of active poor members of the community by remaining a viable institution with their own resources rather than heavily relying on donor subsidies, Muriu (2011) and Jorgensen (2012) discussed that the concept of profitability is equally applicable for micro credit institutions.

The rapid growth, aggressive drive to scale, wide geographic coverage, dominance of government-backed MFIs, promotion of both credit and savings products, strong emphasis on sustainability, and Ethiopian ownership and drive are characteristics of the Ethiopian microfinance sector, according to Ebisa et al. (2013). Nevertheless, this does not guarantee the institutions' continued existence, nor does it imply that all businesses exhibiting quick expansion are sound enough to meet their immediate and long-term commitments (Pranowo et al., 2010).

Since an effective flow of funds between savers and investors cannot be maintained without a stable financial sector, the health of microfinance institutions is essential to a nation's sustained economic growth (Masud & Haq, 2016). Therefore, a number of financial studies back up the necessity of forecasting the financial soundness and likelihood of financial distress in institutions since doing so early and accurately allows businesses to take steps to lower bankruptcy costs, prevent failure for all parties involved, and contribute to the stability of the business and financial environment (Mahama, 2015).

In keeping with this perspective, the current study aimed to investigate the key elements influencing MFI financial distress while taking into consideration a few chosen MFIs functioning in Ethiopia in order to make microcredit a feasible source of funding for the greater impoverished.

2. Literature Review

This research component offers relevant literature and splits it up into three components. In particular, the elements that leads to financial distress, the conceptual framework and the methods for evaluating it.

2.1 Determinants of financial distress

According to Brown, James, and Mooradian (1992) and Andrade and Kaplan (1998), financial distress is a fundamental occurrence that distinguishes between a company's period of financial health and its period of financial illness. It necessitates the implementation of corrective measures in order to resolve the problematic circumstance.
The phrase "financial distress" is typically used negatively to characterize a company's financial status when it faces a short-term liquidity shortage and the ensuing challenges of meeting its financial obligations fully and on time (Gordon, 1971). Depending on the underlying technique and the overall study goals, financial distress is sometimes defined in terms of failure, default and bankruptcy.

The following are the firm-specific factors that influence MFIs' financial distress:

Capital Adequacy

The Capital Adequacy ratio (CAR) examines the link between the MFI's capital base and asset base to determine how strong and stable it is. The capacity to have enough cash on hand over the long run to pay bills on time is known as solvency. As a result, the ratio calculates how much capital is needed to cover further unforeseen losses in order to guarantee that the MFI has adequate capital for any shocks. (AEMFI 2015)

Operational Efficiency

A performance metric called operational efficiency indicates how efficiently MFIs streamline their operations while accounting for input and/or output costs. Effective cost control should guarantee a more efficient use of MFIs' loanable

resources, potentially increasing their profitability. Operating expenditure to gross loan portfolio ratios that are higher indicate less effective management. The likelihood of experiencing financial difficulties decreases with a lower ratio.(Ongore and Gemechu 2013) .

Earning Ability

A MFI's capacity to make enough money from its loan portfolio to pay for its operations and financial expenses is the basis for evaluating its financial success. The ability to generate money from assets, shareholders' equity, and a percentage of gross income is indicated by the institution's earning ability. A very simple metric for evaluating financial institutions' profits performance is return on assets (ROA), which includes net income, main portfolio yield, cost of funds, and operational efficiency. ROA evaluates how successfully an organization uses all of its resources (AEMFI, 2013).

Liquidity

The capacity of an asset to be swiftly and affordably turned into cash is known as a firm's liquidity. It is easy and inexpensive to turn liquid assets into cash, Meyers and Brealey (2000). A company's ability to meet its short-term commitments on time is a measure of its liquidity. The ability of the business to pay its debts easily and the solvency of its overall financial situation are both referred to as liquidity. These ratios are thought to be strong leading indicators of cash flow issues as low or falling liquidity is frequently a prelude to financial trouble and insolvency. Gitman (1991). Because cash-constrained businesses are more susceptible to external negative shocks to cash flow, they are more prone to encounter financial difficulties (Altman 1968).

Microfinance Institutions Age

As MFIs get older, the institutions grow and serve more underprivileged consumers, according to the evidence presented by Coleman (2007). Repayment issues are exacerbated by the rise in low-income consumers, leading to an increase in default rates. It is also believed that MFIs have a better chance of achieving financial sustainability as they get older and gain expertise in their industry. This is explained by the fact that MFIs progressively increase their influence over every aspect of microcredit issuance. To achieve financial sustainability, MFIs with a great deal of expertise in the microfinance industry have used credit risk management and other effective management strategies with diligence (Ayayi, 2010).

The micro economic elements that affect MFIs' financial distress are as follows:

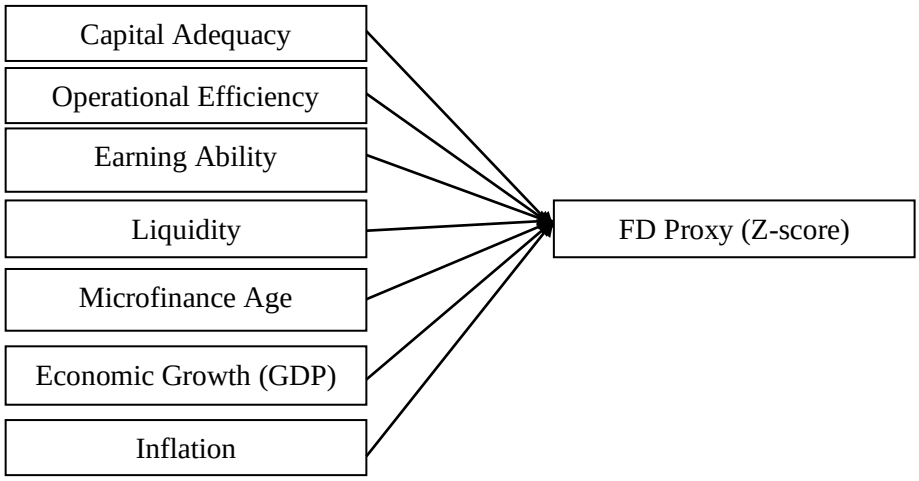
Economic Growth (GDP)

According to the World Bank (2014), GDP is the total gross value contributed by all domestic producers in the economy, plus any product taxes and less any subsidies that are not part of the product's value. Real GDP growth was employed in the study as a stand-in for the macroeconomic climate. This is arguably the most illuminating indication of economic growth advancement. The quality of the loan portfolio may deteriorate due to unfavorable economic conditions, which would lower profitability. On the other hand, MFI profitability is positively impacted by improved economic conditions (Muriu, 2011).

Inflation

When the general level of prices is growing, inflation is assessed by the proportionate changes over time in some appropriate price index, usually a consumer price index. Inflation is calculated using the consumer price index, which shows the yearly percentage change in the average cost of purchasing a basket of goods and services over time, as defined by the World Development Indicator (World Bank, 2014).

2.2 Conceptual framework



2.3 Measurement proxy for financial distress

Numerous academics have studied the Altman equation in three different versions: the 1968 original model, the 1983 enhanced model, and the 1993 revised model with four variables. Altman's Z-Score model, which is based on Altman's original Z-Score model, was modified to develop the emerging market scoring (EMS) approach. As a result, Altman et al. (1995) will be used to quantify the financial distress of Microfinance Institutions in Ethiopia using models for distress classification or as a predictor of capacity of failure, as seen below.

$Z'' = 3.25+6.56X1+ 3.26X2 + 6.72X3 + 1.05X4$
Where:
Z"= financial distress measure of Ethiopian Microfinance Institutions
X1= Working capital / total assets,
X2= Retained Earning / total assets,
X3= EBIT / total assets (where EBIT is earnings before interest and taxes),
X4= BVE / total debt (where BVE is the book value of equity and total debt is book value of total liabilities)

Zones of discrimination
Z>2.6-Safe zone
1.10<Z<2.6-Grey zone
Z<1.10 - Distress zone

3. Methodology

In order to achieve its stated goals, the study, which looked at the factors that contribute to financial distress in Ethiopian microfinance institutions, employed a panel research design and a quantitative research methodology.

Assuming a cause-and-effect link between known variables of interest, the study used a quantitative research technique. Accordingly, quantitative research uses sample data to examine the theoretically stated link between variables in order to statistically generalize for the population being studied. Therefore, the important predictors of financial distress of MFIs in Ethiopia were examined using the Ordinary Least Square (OLS) approach, specifically multiple regression models. Altman's Z score was used as the dependent variable to gauge the financial distress of MFIs in Ethiopia.

All fifty-three microfinance institutions operating in Ethiopia from 2019–2020 to 2023–2024 are the study's target population. Purposive sampling is one technique the researcher use to choose sample units from a population. As a result, the researcher selects a sample of twenty micro finance institutions that are currently operating in Ethiopia. In addition to

the availability of the required data in their audited financial statements for the research period covered, the selection of sample microfinance institutions from the entire population is primarily based on the minimum ten years of service.

The data used in this study came from secondary sources. The study's industry-specific variables came from the audited profit and loss statements and balance sheets of twenty microfinance institutions: Harbu, Benshangul Gumz, Wassa, Eshet, Gasha, Metemamen, Buusa Gonefaa, Africa Village, Vision Fund, Kendil, Meklit, Peace, One, Dire, Aggar, Tesfa, Lefayda, Digaf, Gambella and Dynamic.

The Ministry of Finance (MoF), National Bank of Ethiopia (NBE), and Association of Ethiopian Microfinance Institutions (AEMFI) provided secondary data on the corresponding MFIs for the study.

The study created the following model, which was assessed to meet the research objectives: description of variables, proxy, and expectation of sign, based on the theoretical discusses in the preceding section.

FD it= β0+β1 (CAR) it +β2 (OPPEFF) it +β3 (EAR) it +β4 (LIQ) it +β5 (AGE) it +β 6(GDP) it +β 7 (INF) it +ε it

Here, FD represents each microfinance financial distress score, ε represents the error term, and β1–7 represents the coefficient for the relevant explanatory variables for X1–X7. In this scenario, i represent individual MFIs, t for time, and β0 for the constant.

Table1: Description of variables

Variable	Measurement	Notation	Exp.sign
FD	Z" = 3.25+6.56X1+ 3.26X2 + 6.72X3 + 1.05X4	Z-score	
Capital Adequacy Ratio	Equity/Total Asset	CAR	+
Operational Efficiency	Operational Expenses/ Gross Loan Portfolio	OPPEFF	-
Earning Ability	ROA	EAR	+
Liquidity	Current Asset/Current Liabilities	Liq	+
MFIs Age	Natural Logarithm of age of MFIs	Age	+
Gross Domestic Product	Gross domestic Product Growth Rate	GDP	+
Inflation	Yearly Inflation Rate	INF	-

4. Result & Discussions

4.1 Descriptive statistics of variables

The secondary data used in this study was collected from 20 MFIs between 2019/2020 and 2023/2024. Since all of the data was collected, 100 observations were made.

Table 2: Summary of descriptive statistics

Variable	Minimum	Maximum	Mean	Std. Deviation
Z-score	0.4172	3.9726	1.8317	0.8461
CAR	0.0908	0.7127	0.3216	0.1763
OPPEFF	0.0108	0.8328	0.1265	0.0265
EAR	-0.0827	0.2381	0.0384	0.0952

Liq	0.4972	2.5426	1.1327	0.4339
Age	1.7812	2.8809	2.4465	0.2486
GDP	0.0798	0.1012	0.0940	0.0821
INF	0.0625	0.3273	0.1120	0.0645
Observation	100	100	100	100

The selected MFIs are classified as being in the grey zone by Altman (2000), as shown by the above table, where the Z-score mean is 1.8317. Additionally, the Z-score had a standard deviation of 0.8461 and varied between 0.4172 and 3.9726.

The mean, minimum, and highest values of the variable capital adequacy ratio are 32.16%, 9.08%, and 71.27%, respectively. According to the mean figure of 32.16%, 32.16% of MFIs in Ethiopia were funded by shareholder funds, with deposits and liabilities accounting for the remaining 67.84%.

The ratio of all operational costs to the institutions' gross loan portfolio was used to gauge operational efficiency. The average operational efficiency of MFIs in Ethiopia was 12.65%, meaning that for every birr in the gross loan portfolio, they are on average spending 0.1265 cents on operating expenses.

Return on Asset, which gauges how successfully microfinance organizations employ all of their resources, is a measure of their earning capacity. The study's findings showed that the ROA had a mean of 3.84%, a maximum of 23.81%, and a low of -8.27%. This demonstrates that, on average, the MFIs throughout the research period received a return of 0.0384 cents for each birr investment they made on total assets.

Current ratios were used to gauge the institutions' level of liquidity. The study's findings showed a mean of 1.1327, a maximum of 2.5426, a minimum of 0.4972, and a standard deviation of 0.4339. According to this, MFIs' current assets typically cover their current obligations by 113.27%.

The variable microfinance institutions' age has the following mean, minimum, and maximum values: 2.4465, 1.7812, and 2.8809, respectively. MFIs with greater natural logarithms of age will gain experience in their industry and have a better chance of achieving financial sustainability, according to the results.

Inflation and GDP are macroeconomic factors that have the potential to influence the financial distress of MFIs over time. The average real growth rate of the nation's economy during the previous ten years was 9.40%, which is the mean value of the real GDP growth rate. During the time in question, the mean, minimum, and highest rates of inflation were 11.20%, 6.25%, and 32.73%, respectively. The MFI may be losing money even if they are showing profits if inflation is strong. The cost of financing is often equal to the sum of the commercial finance rate and the inflation rate in nations with high rates of inflation.

4.2 Correlation analysis

In this study, Pearson correlation analysis was utilized to ascertain the degree of correlation between the independent variables and the dependent and explanatory components. The following table is used to show how independent and dependent variables relate to one another.

Table 3: Correlation analysis matrix

	Z-score	CAR	OPPEFF	EAR	Liq	AGE	GDP	Inf
Z-score	1.000	0.532	0.163	0.443	0.249	0.194	-0.248	-0.036

Using the correlation finding shown above, the independent factors are compared to the dependent variable (Z-score) during the research period of 2019–2020 to 2023–2024. GDP and INF, as seen in the above table, exhibited negative correlations with Z-scores, with corresponding coefficients of correlation of -0.248 and -0.036. The Z-score was positively correlated with the MFIs' CAR, OPEFF, EAR, LIQ, and AGE, with correlation coefficients of 0.532, 0.163, 0.443, 0.249, and 0.194, respectively. Therefore, it is necessary to interpret the data in reverse: a positive coefficient sign indicates a negative linear connection with financial distress, and vice versa.

4.3 Regression Analysis

The following empirical model is used to assess the financial distress components and the values for the regression equation that predicts the dependent variable from the independent variable:

Table 4: Regression analysis results

Variable	Coefficient	Prob.
CAR	3.4248	0.0000***
OPEFF	-0.1276	0.7217
EAR	5.2254	0.0000***
Liq	0.4154	0.0246**
AGE	1.2574	0.0000***
GDP	-0.9085	0.8951
INF	-0.0054	0.9206
R-square 0.8412		
Adjusted R-square 0.7934		
Prob (F-statstics) 0.0000		
Durbin Watson Stat 1.7485		
***Significant at 1%,**Significant at 5% and Significant at 10%		

The R-square numbers show that the models' explanatory capacities were inferred, as was the adjusted R-square value, which accounts for the loss of degrees of freedom that comes with including more variables. The model's R-squared and adjusted-R-squared statistics are 84.12% and 79.34%, respectively, in accordance with the regression result shown in table 4. According to this, changes in the independent variables—capital adequacy, operational efficiency, earning ability, liquidity, age of microfinance, GDP, and inflation—collectively account for 79.34% of changes in the dependent variable, Z-score, which is a proxy for financial distress. Other variables not included in the model account for the remaining 20.66% of changes. Therefore, taken as a whole, these factors provide a good explanation for Ethiopian microfinance companies' financial distress. Strong statistical significance is shown by Prob (F-Statistic) 0.000000, which improved the model's validity and dependability.

The regression model's beta value shows how much each explanatory variable's coefficient influences the dependent variable, either favorably or unfavorably. Additionally, each explanatory variable's P-value shows whether or not it is significant at the percentage level. Given the findings in Table 4, the Z-score, a measure of financial distress, is positively and statistically significantly impacted by the capital adequacy, earning capacity, and age of MFIs at 1%. At the 5% level of significance, liquidity has a positive and statistically significant effect on the Z-score, which is a proxy for financial distress. On the other hand, Z-score, a measure of the financial distress of MFIs in Ethiopia, is not significantly impacted by operational efficiency, GDP, or inflation.

5 Conclusion, Recommendation & Future studies

5.1 Conclusion

The study's primary goal was to investigate the factors that contribute to Ethiopian microfinance institutions financial distress. Sample Twenty microfinance institutions were selected using panel data over a five-year period (2019/2020 to 2023/2024). According to the results of the descriptive statistics, Ethiopian MFIs throughout the research period had an average Zscore of 1.8317, which falls into the "Grey zone." The Z-score gauges the institutions' level of financial distress; a higher Z-score indicates a lower level of financial distress.

5.2 Recommendation

Providing financial services to the impoverished that lacks access to banks' financial services and are unable to furnish suitable security for loans is the primary goal of microfinance firms. In light of this, the researcher offers the following suggestions that are based on the results.

MFI financial soundness is significantly positively correlated with capital adequacy. This suggests that MFIs with enough capital are better equipped to handle issues brought on by unforeseen losses. The financial health of MFIs has been hindered by weak capitalization; although the loan portfolio has been growing, providing the institutions with adequate money continues to be a significant concern. In this sense, MFI management should place a high priority on appropriately controlling the capital to asset ratio. Additionally, regulators or policymakers must establish the minimum capital adequacy standards for MFIs and ensure that the regulations are properly implemented.

The institutions' ability to cover an immediate disruption to the MFIs' financial stability is determined by their liquidity position. The incapacity of current assets to satisfy current liabilities, or liquidity issues, is one of the factors contributing to financial distress. As a result, it is reasonable to anticipate that MFI management will be routinely reviewed in order to evaluate the MFI's liquidity and create backup financing plans to cover unforeseen liquidity requirements. Because trust in financial institutions was lost and lending to them was regularly reduced when liquidity issues occurred on a regular basis.

The management of MFIs and policymakers should focus on the main factors that contribute to MFIs' financial distress in order to maintain their financial stability.

5.3 Future studies

The results of this study demonstrate that a small number of macro and micro components extracted from the variables exhibited a high degree of correlation and an even greater ability to evaluate the financial distress of Ethiopian microfinance institutions. Future investigations can look at macro and micro variables that include a variety of elements not covered in this study as contributing to financial distress in the banking sector. Future studies, for instance, may consider a number of elements not covered here, such as company governance and cash flow.

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