Determinants of Financial Distress in Ethiopia's Private Banking Sector

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Abstract

The goal of this study was to determine the elements that contribute to financial distress in Ethiopia's private banking industry. Between 2019/2020 and 2023/2024, the study predominantly employed a quantitative research approach, drawing on sample data from 13 private banks. To achieve the study's objectives, the researcher relied on secondary data sources. Multiple regression analysis was performed to estimate the influence of various factors on financial distress. The findings show that Altman's z-score is positively and strongly influenced by profitability and liquidity. In contrast, inflation, firm size, and solvability all have a negative and significant influence on Altman's z-score. As a result, it was determined that the macro and micro components that were taken from the variables had a strong correlation and were even more capable of identifying the financial distress of the private banking sector in Ethiopia.

Key Words: Altman's z-score, Determinants, Ethiopia, Financial Distress, Private Banks,

Introduction

One of the first scholars to note that financial distress might manifest itself in a variety of ways was Beaver (1966). "The inability of a firm to pay its financial liabilities on time" is how he described financial distress and declaring bankruptcy is a legal event that is greatly impacted by the conduct of banks and other creditors. Financial distress, as defined by Andrade and Kaplan (1998), is the state in which a business is unable to satisfy its commitments to creditors or to third parties.

Altman (2006) states that a company is considered financially distressed if it experiences any of the following four issues: failure, insolvency, default, and bankruptcy. In the event that a government agency or central bank recapitalizes a financial institution, or if the financial institution needs a liquidity injection from the monetary authority, or if the government closes the financial institution the financial institution will be deemed to have failed.

Financial distress can be broadly interpreted as a pejorative term used to characterize a company's financial status when it faces short-term liquidity issues and challenges. The two parties that are always engaged in financial difficulties are the creditor and the debtor in which Stakeholders, workers, suppliers, and external capital sources are a few examples (Beaver,1966).

The foundation of Ethiopia's economy is the banking sector. One of the key financial pillars of the financial institution, it provides the capital required to manufacture products and services that raise people's level of living and general well-being. It is essential to the growth and advancement of the economy and permits the flow of funds from savers to investors. All parties involved in the economy and the global business communities have been extremely concerned about the issue of financial distress in the banking sector. As a result, the problem of financial distress is more important in the banking industry than in other industries. There is a good likelihood

that widespread economic crises will result if a nation's banking sector has a financial crisis (Demiguca and Detraigaialche, 1998).

The majority of earlier research on financial distress in the banking industry focused on the financial health of the chosen commercial banks and the factors that were projected to contribute to their financial health. However, other researchers concentrate on the causes and consequences of financial distress, the connection between financial distress and firm performance, financial distress and bankruptcy, and other related topics (Ebiringa et al., 2011),(Memba,F.andNyanumba,J.A.,2013),(Tan,T.K.,2012,),(Ephrem.G.,2015),and(Pranowo.K,etal.,2010).

Various scholars have identified various factors as the causes of corporate financial distress in their earlier research. Pranowo et al. (2010), for example, qualitatively examined the data and classified the factors that contribute to financial distress in emerging market economies into eight categories: liquidity, leverage, profitability, solvability, efficiency, good corporate governance, macroeconomic conditions, and financial condition status.

Furthermore, one of the well known study on this topic carried out in Ethiopia was by Ephrem G. (2015), who attempted to examine the factors that contribute to financial distress conditions on a few private commercial banks by taking into account the ratio of nonperforming loans, capital adequacy, interest income to total revenue, efficiency, and size. However, he only used data from one year (2012/2013) and a small sample size of six were chosen from private commercial banks.

Therefore, the researcher filled this knowledge gap by using more recent data (2020-2024, a five-year period) and larger sample size than before. Additionally, the macroeconomic and microeconomic factors contributing to the financial distress in Ethiopia's private banking sector were also identified in this study. The study's following section is set up and arranged as follows. The background of the banking sector in Ethiopia is covered in Section 2, which is followed by a review of the literature, methodology and result & discussion. The paper's conclusion, recommendation, and future studies are presented in the last section.

1. **Background of Ethiopian Banking Sector**

Based on an agreement between the Ethiopian government and the National Bank of Egypt, the Bank of Abyssinia was established in 1905, marking the beginning of banking in Ethiopia in the first decade of the 19th century. In 1932, Emperor Haile Selassie shut down the Bank of Abyssinia, compensated its owners, and founded the Bank of Ethiopia, which was entirely owned by Ethiopians and had a 750,000 pound sterling capital.

The Bank of Ethiopia's operations were suspended from 1936 to 1941, during which time several Italian financial organizations operated in the nation. Banca Nazionale del Lavoro, Banco Di Roma, and Banco Di Napoli were these. The Agricultural Bank was founded in 1945, and in 1951 it was succeeded by the Development Bank of Ethiopia. In 1970, it was renamed the Agricultural and Industrial Development Bank.

The State Bank of Ethiopia split into the National Bank of Ethiopia and the Commercial Bank of Ethiopia in 1963 with the intention of separating the roles of central banking from those of commercial banking. All private banks and thirteen insurance firms were nationalized and put under the administration of the National Bank of Ethiopia in 1974, following the overthrow of Emperor Haile Selassie and the arrival of the Dergue regime on January 1, 1975.

Thus, the National Bank of Ethiopia (the Central Bank), the Commercial Bank of Ethiopia, the Housing and Savings Bank, the Development Bank of Ethiopia, and the Ethiopia Insurance Corporation were the four state-owned banks and the one state-owned insurance company that existed from 1975 until 1994. In the early 1990s, a number of private banks were established following the EPRDF's overthrow of the Dergue regime.

The National Bank of Ethiopia (NBE), two government-owned banks (Development Bank of Ethiopia and Commercial Bank of Ethiopia), and thirty private banks (Abay Bank, Addis International Bank, Awash Bank, Amhara Bank, Ahadu Bank, Bank of Abyssinia, Berhan Bank, Bunna Bank, Cooperative Bank of Oromia, Dashen Bank, Enat Bank, Global Bank Ethiopia, Gadda Bank, Hibret Bank, Lion Bank, Hijira Bank, Omo Bank, Oromia Bank, Nib Bank, Oromia Bank, Ramis Bank, Sinqe Bank, Sidama Bank, Siket Bank, Shaballe Bank, Tsehay Bank, Tsedey Bank, Zemzem Bank, Wegagen Bank, Zemen Bank) make up Ethiopia's banking sector today.

3. Literature Review

This component of the research presents pertinent literature and divides it into three sections. Specifically, the factors that contribute to financial distress, conceptual framework and how to assess it (a proxy).

3.1 Determinants of financial distress

Liquidity for a firm is the capacity of an asset to be swiftly and affordably transformed into cash. Brealey et al. (2000) assert that liquid assets may be swiftly and affordably turned into cash. The capacity of a company to stop short-term liabilities as they arise is referred to as liquidity. According to Gitman (1991), these ratios are considered to be strong leading indicators of cash flow issues since low or falling liquidity is a frequent prelude to financial distress and insolvency.

The company, which bears the fraction of the fixed expenses, was exposed to risk when it used leverage. In the income statement of the company, operating leverage refers to fixed running costs and a measure of operating risk; in contrast, financial leverage measures financial risk and finances a portion of the company's assets to increase return to common stockholders. Increased financial leverage translates into increased financial risk and higher cost of capital, according to (Change, 2006).

The company's return on investments is measured by its profitability ratios (Brealey et al. (2000). According to Chang-e (2006), a study on financially distressed firms recommends taking steps to change the business in order to boost profitability. Some scholars, like Hotchkiss (1995), focused on profitability and examined the success of bankrupt restructuring enterprises in the United States. Through cost implications, such as increased debt costs (also known as indirect financial distress costs) or administrative and legal expenses related to the bankruptcy process (also known as direct financial distress costs), financial distress has a significant impact on a company's operations and profitability (Beaver, 1966).

Solvability is the state of being able to pay off all of your debts. To put it another way, it's the ability to resolve something and the simplicity with which it may be done so. In order to determine who was most vulnerable to financial distress, the researcher utilized equity to total assets. Another factor that influences financial distress is size. Since the quantity of total assets should be sensitive to the likelihood of financial distress, the researcher additionally takes into account the natural logarithm of total assets (Hotchkiss, 1995).

Brealey et al. (2000) state that turnover ratios, often known as firm efficiency, measure how well a company uses its resources. The asset turnover, average collection period, and average payment period are used to assess the effectiveness of the company. These factors show how successful the company is and how quickly its assets are turned over each year, which indicates how distressed the company is financially.

The real GDP growth rate, which is used to quantify GDP, is thought to have a positive or negative impact on the financial distress of the banking sector. This is because, according to Kevin et al. (2001), the default risk is lesser in an upturn than in a downturn economy.

Both greater revenue and higher expenses are associated with a high rate of inflation. Inflation is predicted to have a favorable impact on financial distress if the banking sector's income grows faster than its expenses. However, when expenses rise more quickly than revenue, a negative coefficient is anticipated (Kevin et al, 2001).

3.2 Conceptual framework
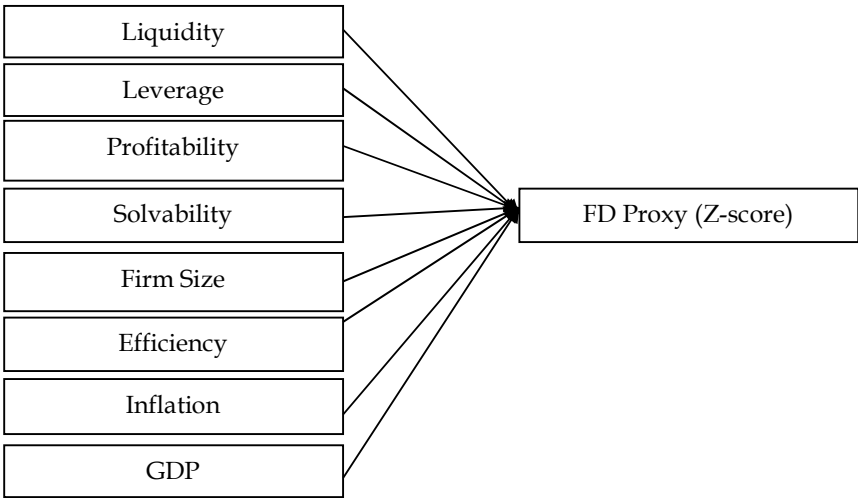
3.3 Measurement proxy for financial distress

The Altman equation has been used in study by a number of scholars in three different iterations: the original model from 1968, the improved model from 1983, and the revised model with four variables from 1993. The emerging market scoring (EMS) method was created by modifying Altman's Z-Score model, which is based on Altman's original Z-Score model. Due to its the financial distress of private banks in Ethiopia will be measured using Altman et al. (1995) as a predictor of capacity of failure or distress categorization models, as shown below.

$$Z'' = 3.25 + 6.56X1 + 3.26X2 + 6.72X3 + 1.05X4$$

Where:

Z''= financial distress measure of Ethiopian private banks

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

4. Methodology

This study's research problem is primarily explanatory, as demonstrated by the panel research technique used to assess and explain the connection between financial distress and its causes. The study's target demographic is all the thirty private banks working in Ethiopia between 2019/2020 and 2023/2024. One method the researcher uses to choose sample units from a population is called purposive sampling. Consequently, the researcher chooses thirteen already operating private banks in Ethiopia as a sample. The minimum ten years of service serves as the primary foundation for selecting sample private banking firms from the whole population and also the availability of the necessary information in their audited financial statements for the research period covered is another factor that goes into choosing the sampled private banks.

This study employed secondary sources to obtain its data. The audited balance sheets and income and loss statements of thirteen private banks served as the source of the study's industry-specific variables: Awash Bank, Abay Bank, Berhan Bank, Bunna Bank, Bank of Abyssinia, Cooperative bank of Oromia, Dashen Bank, Hibret Bank, Lion Bank, Nib Bank, Oromia Bank, Wegagen Bank and Zemen Bank.

Along with the industry and macroeconomic variables, the data was gathered from the Ministry of finance (MOF), which oversees the nation's macroeconomic matters, and the National Bank of Ethiopia (NBE), which oversees the financial institutions sector.

The Altman's-Z-Score EMS model was used as a stand-in for financial distress with its fixed effect estimate and descriptive statistics, correlation analysis, as well as regression analysis were also used to assess a number of hypotheses derived from the literature review.

Based on the theoretical discussions in the previous section, the study developed the following model, which was evaluated to satisfy the research objectives: description of variables, proxy, and expectation of sign.

FD it= β0+β1 (Liq) it +β2 (Lev) it +β3 (Prof) it +β4 (Solv) it +β5 (Fsize) it +β 6(Eff) it +β 7 (INF) it+ β8 (GDP) it+ε it

In this case, i stands for individual private banks, t for time, and β0 for the constant; FD stands for each private bank financial distress score, ε for the error term, and β1–8 for the coefficient for the corresponding explanatory factors for X1–X8.

1.1 Table1: Description of variables

Variable	Measurement	Notation	Exp.sign
FD	Z" = 3.25+6.56X1+ 3.26X2 + 6.72X3 + 1.05X4	Z-score	
Liquidity	Current asset / current liabilities	Liq	+
Leverage	Total asset / Total liabilities	Lev	-
Profitability	Net income / Average total asset	Prof	+
Solvability	Equity / Total asset	Solv	-
Firm Size	Logarithm of total asset	Fsize	-
Efficiency	Earnings before Interest and Tax / Total asset	Eff	+
Inflation	Yearly inflation rate	INF	-
Gross domestic product	Gross domestic product growth rate	GDP	+

5. Result & Discussions

5.1 Descriptive statistics of variables

This study was carried out using secondary data that was gathered from thirteen private banks between 2019/2020 and 2023/2024. Since the data was gathered completely, 65 observations were made.

Table 2 Summary of descriptive statistics

Variable	Minimum	Maximum	Mean	Std.Deviation
Z-score	0.3221	2.6326	1.3812	0.3841
Liq	1.1108	1.5451	1.2215	0.1216
Lev	0.7241	0.9317	0.7412	0.0345
Pro	0.0152	0.0756	0.0314	0.0297
Solv	0.0378	0.4122	0.1732	0.0442
Fsize	8.3415	11.7612	9.9485	0.5084
Eff	0.3214	2.2651	1.1271	0.3217
INF	0.0625	0.3273	0.1120	0.0645
GDP	0.0798	0.1012	0.0940	0.0821
Observation	65	65	65	65

According to Altman's (2000) classification, the sampled private banks fall within the grey zone, as indicated by the above table mean of Z-score is 1.3812. The Z-score also ranged from 0.3221 to 2.6326, with a standard deviation of 0.3841.

According to the descriptive statistics of the liquidity variables, the mean and standard deviation for liquidity are 1.2215 and 0.1216, respectively, while the lowest and maximum values are 1.1108 and 1.5451, respectively. This suggests that the banking industry's liquid assets can be swiftly turned into cash.

In contrast, the mean leverage ratio (TL to TA) is 0.7412 with a standard deviation of 0.0345. The minimum and greatest values of the leverage ratio are 0.7241 and 0.9317 respectively. This shows that the banking sector's ratio of total liabilities to total assets is 74.12%, indicating that debt still accounts for the majority of the sector's assets.

The average profitability for the Ethiopian private banks throughout the study period was around 0.0314, and the standard deviation was 0.0297. This suggests that there were moderate differences in the profitability values of the private banks that were part of this study.

The solvability of the banking industry over the research period displays a mean of 0.1732, a maximum of 0.4122, and a low of 0.0378. The standard deviation is 0.0442, which suggests that there was less variation or variance in the private banking businesses' financial distress over the study period.

The average firm size is 9.9485. Therefore, as we will show in the regression findings; the very variable firm size among various private banking institutions may have a considerable influence on z-score value in the private banking sector. The banking industry is effective in covering its debt, as indicated by the efficiency standard deviation of 0.3217 from the mean.

The average inflation for the sampled private banks throughout the study period was around 0.1120, and the average GDP growth rate was 0.0940 and their effect in financial distress will be summarized in regression analysis part.

5.2 Correlation analysis

Gujarati (2004) states that determining the degree of linear relationship between two variables is the aim of correlation analysis. To determine the degree of correlation between the dependent and explanatory factors as well as the degree of correlation between the independent variables, Pearson correlation analysis was used in this study. To illustrate the relationship between independent and dependent variables, the following table is utilized.

2. Table2: Correlation analysis matrix

Variables	Z-score	Liq	Lev	Pro	Solv	SI	Eff	AINF	GDP
Z-score	1.000								
Liq	0.413	1.000							
Lev	-0.058	-0.471	1.000						
Pro	0.439	0.038	0.124	1.000					
Solv	0.054	0.344	-0.458	-0.141	1.000				
SI	-0.324	-0.324	0.436	0.051	-0.472	1.000			
Eff	0.241	0.278	-0.067	0.492	0.073	-0.076	1.000		
AINF	0.184	-0.037	-0.124	0.452	0.224	-0.231	0.364	1.000	
GDP	0.323	0.276	-0.028	-0.071	0.026	-0.084	0.231	-0.124	1.000

The link between the variables is indicated via correlation analysis, as the table above illustrates. If r = +1, all correlations are perfect; if r = -1, all correlations are perfect; if r<+0.5, all correlations are positive and low degree; if r>0.5, all correlations are positive and high degree; if r<-0.5, all correlations are negative and low degree; if r >-0.5, all correlations are negative and high degree. Stated otherwise, a greater correlation denotes a stronger degree of link between the variables, whilst a lower correlation denotes a weaker affinity. According to the criteria, the outcome indicates that there is little correlation between any of the variables.

5.3 Regression Analysis

The factors of financial distress and the values for the regression equation that predicts the dependent variable from the independent variable are tested using the following empirical model:

3. **Table3: Regression analysis results**

Variable	Coefficient	Std.Error	t-Statistic	prob.
(Constant)	3.372	1.213	2.437	0.021
Liquidity	0.736	0.371	2.213	0.038
Profitability	10.384	3.647	3.104	0.002
Solvability	-2.586	0.873	-2.632	0.006
Firm Size	-0.324	0.083	-3.354	0.012
Efficiency	0.114	0.145	0.871	0.325
Inflation	-1.572	0.641	-2.136	0.024
GDP	3.254	4.173	0.723	0.318

Weighted	Statistics
R-squared	0.8730
Adjusted R-squared	0.8172
Std.E. of the Estimate	.24621
F-statistic	12.215
Prob(F-statistic)	0.000
Durbin-Watson	1.238
Level of sig.	0.050

Regression analysis findings in the above table show that while Z-score has a statistically significant impact on inflation, firm size, solvability, liquidity, and profitability, statistically insignificant correlation between GDP and efficiency, and overall, the regression model is practicable, as indicated by the F-statistic 12.215 with p-value 0.0000. According to the Adjusted R square value of 0.8172, the independent factors account for 81.72% of the variation in the dependent variable.

There is a positive correlation when the variable liquidity coefficient is positive. Z-score and liquidity do, however, have a statistically significant relation. A firm's capacity to meet its fixed costs and likelihood of experiencing financial distress are positively correlated with its level of liquid assets. Given the strong and positive correlation between the private banking industry's in Ethiopia Z-score and profitability, a more profitable banking sector is less likely to experience financial crisis.

Solvability and firm size, have negative coefficient signs. However, the Z-score shows a substantial relationship with company size and solvability, which are statistically significant with lower p-values. According to this, big banks will perform better than small banks in resolving financial crisis, and the more solvable the banking industry is, the more likely it is to be able to pay off all of its obligations and avoid financial distress.

GDP and efficiency both have positive coefficient signs, but the high p-values indicate that they are not statistically significant. Consequently, GDP and efficiency are not regarded as being as potent explanatory factors to identify the factors that contribute to financial distress in the private banking industry of Ethiopia during a five year period.

On average with lower p-values, inflation is statistically significant and has a negative coefficient sign. Inflation is predicted to have a favorable impact on financial distress and if the banking sector's revenue increases faster than its expenses.

6. Conclusion, Recommendation & Future studies

6.1 Conclusion

Examining the factors that led to the financial distress of particular private banks in Ethiopia was the main objective of the study. A sample of thirteen private banks was examined using panel data during a five-year period (2019/2020 to 2023/2024). Industry-level parameters include liquidity, profitability, solvability, firm size and efficiency; explanatory variables from macroeconomic factors include GDP growth rate and inflation, with Z-score serving as the dependent variable. Regression analysis and descriptive statistics were used in the study to arrive at the aforementioned findings. According to the results of the descriptive statistics, the average Z-score for private banks over the research period was 1.3812, indicating that a subset of Ethiopian private banking businesses fell into the "Grey zone" at that time.

6.2 Recommendation

Future research in this field has a number of prospects. First, using a sample size that includes all banks might improve the study's outcomes. All Ethiopian banks can be examined in an investigation by future academics. In order to lower the likelihood of financial distress and failure that primarily stem from liquidity issues, management of the private banking sector should keep an eye on financial variables that affect financial distress, starting with early impairment as a symptom of financial distress, deterioration, and cash flow problems. When operational cash flow is negative, they should also maintain and improve liquidity by improving cash collection through aggressively working on deposit mobilization or reducing the long-term loan portfolio.

The report also suggests that the NBE and other regulatory agencies should closely monitor the financial standing of private banks and financial institutions in general, as the bankruptcy of a financial institution might result in the collapse of a nation's economy.

6.3 Future studies

The current study's findings show that a few macro and micro components that were taken from the variables had a strong correlation and an even higher capacity to assess the private banking industry's financial distress. Future research can examine both macro and micro variables that encompass a range of factors not included in this study as determinants of financial distress in the banking industry. For example, future research might take into account several factors that are not included here, such as cash flow, corporate governance, company age and bank regulation.

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