ProBusiness: Management Journal, 15 (4) (2024) pp. 492-499

Published by:Jonhariono Research, Publication and Consulting Institute

ProBusiness: Management Journal

The Effect of Company Size and Financial Ratios on the Level of Financial Distress in Banking Sector

Eko Agus Prasetyo Endarto[1], Mulyono[2]
[1]Universitas Multimedia Nusantara, Tangerang, Indonesia
[2]Bina Nusantara University, Jakarta, Indonesia

ARTICLEINFO

Article history:

Received July 15, 2024
Revised July 22, 2024
Accepted July 30 2024

Keywords:

Altman Z-Score
Financial ratio
Financial distress
Firm size

ABSTRACT

Banking is an essential sector that improves a country's economy. The world economy has been shaken since the onset of the COVID-19 pandemic, along with global conflicts, which have caused many problems for banks. Banks in Indonesia also feel the impact, so banks need to survive well so as not to experience losses that lead to financial difficulties. This study uses financial ratios and company size to measure the effect of financial distress using the Altman Z-Score. The sample used is a bank listed on the Indonesia Stock Exchange from 2018 – 2022. Data processing using multiple regression with the help of SPSS statistical software. The results of this study found that the ratio of BOPO, ROA, and SIZE had a significant effect on financial distress. In contrast, the NPL, LDR, and BETA ratios did not have a significant effect. The following study can include environmental, social, and governance variables or ESG so that the application of sustainability activities can be measured in relation to financial distress.

Corresponding Author:

Mulyono
Management Department,
BINUS Business School Undergraduate Program,
Bina Nusantara University, Jakarta, Indonesia 11480.
Email: mulyono@binus.ac.id

1. INTRODUCTION

Banking plays an important role in improving the country's economy. In addition, banking is one of the institutions that is directly or indirectly responsible for the movement or direction of the country's economy. Banking plays an important role in society and the economy by assisting in the implementation of national development through equity, economic growth, and national stability to increase the population. In addition, banks are also responsible for maintaining socio-economic welfare (Rowland and Fitriningrum, 2021). Its ability to maintain and increase Gross Domestic Product (GDP) is a key component of banks' contribution to the financial services sector, which shows that the sector is highly sensitive to economic changes (Lutfie and Priansa, 2019).

The COVID-19 pandemic that hit around the end of 2019 has caused damage to the global economy. Since then, there have been many changes around the world that have had a significant impact, especially on the economic sector. The first case of COVID-19 appeared in China, and the first case in Indonesia appeared in early March 2020. Large-scale social Restrictions, which restrict the activities of the public, caused Indonesia's economic weakness. The bank's revenue is currently declining. In addition, this has an impact on capital, decreased profits, and the amount of third-party funds in banks (Purwanto et al., 2023). Due to the restrictions imposed by each country, people have

become more conservative and choose to save money during the COVID-19 pandemic. This caused the prices of various goods to soar, causing inflation in the United States (Paul, 2023).

The trade war and the Russia-Ukraine war are two other factors that cause high inflation. This economic pressure caused many banks in many countries to go bankrupt. The June 2023 edition of the Global Economic Prospects report states that although developed countries will not experience significant impacts like developing countries, the impact will be considerable if global credit distribution is increasingly limited (Rachman, 2023). Banks serve as financial intermediaries and are largely responsible for short-term deposits and long-term loans to companies and customers. As a result, if the value of the bank's assets is lower than the value of its debts, the bank will not be able to pay its obligations and will experience financial difficulties (Hasas Yehaneh et al., 2018).

Knowing what causes financial distress can help prevent financial distress (Condello et al., 2017). Financial distress is defined as when a company's total assets are lower than the creditors' claims. In this case, the money generated from the company's operations cannot compensate for the company's diminished wealth. The study of financial bankruptcy is very important if this condition continues (Balasubramanian et al., 2019). First, it improves regulators' ability to predict possible crises and allows for better oversight, coordination, and management. Second, it will be easier to take the right action to prevent failure and protect a healthy bank if it already knows which ones problematic and which ones are healthy.

Using Altman Z-Score, you can measure your level of financial distress. Failure prediction models are a very important tool for bankers, investors, asset managers, rating agencies, and even companies that are experiencing problems or distress. As the economy's main financial provider, banks are keen to reduce the rate of bad credit to maximize their profits and possibly also to reduce the likelihood of default. The likelihood of a company experiencing a financial crisis is smaller with a higher Altman Z-Score (Altman et al., 2017).

One effective way to find out how real economic activities are in the economy is to assess the performance of the banking sector. No one hides how important the banking industry is to the national economy today. Banks and financial institutions feel the need for new tools and technologies for credit management due to increased competition and the emergence of new business opportunities. Asset quality indicates the risk of bank and financial institution assets. It is measured based on assets or creditworthiness, which can be an important factor in determining a bank's solvency level. As a result, asset quality is usually calculated by the non-performing debt (NPL) ratio. Banks that have bad assets are more likely to experience bad loans, which eliminate their profits (Trung, 2021).

Efficiency management refers to the quality of management that is important for every organization, including banks. Operating expenses from operating income (BOPO) is a ratio used to compare operating expenses with operating income to measure the ability of banks to carry out operational activities (Kurniasari, 2017). Revenue quality analyzes the strength or solidity of the revenue expected by the company and shows the company's revenue trends. To survive in the long term, businesses must also generate revenue (Saeed et al., 2019). Return on assets (ROA), which is the ratio of net revenue to a company's total assets, is one metric used to determine a business's ability to make a profit. The bank's income from its assets is positively correlated with the ratio value.

Liquidity is the ability of a bank to convert its financial assets into cash or funds to meet its obligations. Banks often use loan-to-deposit (LDR) ratios to calculate their liquidity. This ratio compares the amount of funds given to the community (credit) to the amount of community funds and capital used. This ratio shows how well banks can pay off their deposited funds by using the loans provided as a source of liquidity. Stock beta can be used to calculate banking sensitivity (Paidar et al., 2021). Stock beta can show how a company reacts to market changes. The beta value of a stock can be calculated by comparing the return of the stock with the return of the market. If the stock beta is less than one, it indicates that the company is more sensitive to the market, if the stock beta is more than one, it indicates that the company is more volatile than its market, and if the stock beta is less than one, it indicates that the company is moving against the market (Purwanti, 2022).

This study analyzes the financial ratios of companies and the size of companies in banks listed on the Indonesia Stock Exchange. The research began by discussing the phenomenon of the COVID-19 pandemic and its impact on banking in Indonesia. It also discusses the previous literature on financial ratios and company size. The research methods section discusses the methods used to

collect samples and the statistics used to draw hypothetical conclusions. The results and discussion section discusses the results of data processing, and the conclusion section presents the results and recommendations for further research.

2. RESEARCH METHODS

Banks listed on the Indonesia Stock Exchange are the population used in this study. It is unlikely that every element of the population has the same chance of being used as a research sample. On the contrary, the research criteria needed determine the non-probability sampling technique (Malhotra, 2020). The sample parameters set for the study were:

1. Banks listed as issuers on the Indonesia Stock Exchange (IDX)
2. Banks that have stock price movements in each period of the research year.
3. The Bank publishes annual financial statements in the period 2018 – 2022.
4. Banks are included in the category of commercial banks in Indonesia.

Based on the criteria, there are 20 banks that were selected as a sample in the study according to Table 1.

Table 1. Research Sample

No	Company Name	Code
1	Bank Raya Indonesia Tbk.	AGRO
2	Bank MNC Internasional Tbk.	BABP
3	Allo Bank Indonesia Tbk.	BBHI
4	Bank KB Bukopin Tbk.	BBKP
5	Bank Tabungan Negara (Persero)	BBTN
6	Bank Neo Commerce Tbk.	BBYB
7	Bank Pembangunan Daerah Jawa Barat	BJBR
8	Bank Pembangunan Daerah Jawa Timur	BJTM
9	Bank QNB Indonesia Tbk.	BKSW
10	Bank Maspion Indonesia Tbk.	BMAS
11	Bank CIMB Niaga Tbk.	BNGA
12	Bank Negara Indonesia (Persero)	BNII
13	Bank Permata Tbk.	BNLI
14	Bank Sinarmas Tbk.	BSIM
15	Bank Victoria International Tbk.	BVIC
16	Bank Mayapada Internasional Tbk.	MAYA
17	Bank China Construction Bank Indonesia Tbk.	MCOR
18	Bank Mega Tbk.	MEGA
19	Bank OCBC NISP Tbk.	NISP
20	Bank Woori Saudara Indonesia 1906	SDRA

Asset Quality (NPL), Management Efficiency (BOPO), Earning Quality (ROA), Liquidity (LDR), Sensitivity to Market Risk (BETA), and Size of Firm are variables that affect financial distress in banks in Indonesia. The purpose of this study is to find out the factors that affect financial distress. In this study, multiple regression analysis was used to determine whether or not independent variables (NPL, BOPO, ROA, LDR, BETA, and SIZE) affected the dependent variable (FD). Multiple regression analysis is used to determine whether or not the independent variable affects the dependent variable. This is the regression function equation:

$$FD = \alpha + \beta 1NPL + \beta 2BOPO + \beta 3ROA + \beta 4LDR + \beta 5BETA + \beta 6SIZE + e$$

The bank's credit risk is determined by the quality of the assets calculated by the NPL ratio (Galán, 2021). In other words, the lower the NPL value, the smaller the risky credit owned by the bank (Yuhasril and Dwiarti, 2020). Therefore, the possibility of banks experiencing a financial crisis is also greater if the NPL value is higher. In other words, banks should be in danger of financial distress if poor credit or loan management continues (Kowanda, Pasaribu, and Firdaus, 2015). It is possible that the bank only has bad loans or high NPL values. Bad credit means that the loan is not repaid by the borrower. It is very likely that banks will experience financial difficulties at this point (Fadoua and Brahim, 2020). The first research hypothesis (H1) is:

H1: There is an effect of Asset Quality on the level of Financial Distress of the Bank

Banks that incur less expenses than their income are considered to have effective management (Fadoua and Ibrahim, 2020). A higher BOPO value indicates that the bank's operating expenses are greater than its revenue, and larger revenues will inevitably have smaller profits (Yuhasril and Dwiarti, 2020). Therefore, an increase in the value of BOPO increases the risk of banks facing financial problems (Yuhasril and Dwiarti, 2020). According to Bashatweh and Ahmed (2020), banks that have a lot of operational expenses should strive to reduce costs. Banks will be in financial danger due to ineffective management. According to research conducted by AlAli and Al-Yatama in 2019, efficient management will strive to reduce operational costs. The second hypothesis (H2) of the study is as follows:
H2: There is an effect of Management Efficiency on the level of Financial Distress Bank

One of the very important components to deal with a crisis that threatens the health of banks is revenue. One of the most important abilities for a bank is their ability to generate revenue (Fadoua and Brahim, 2020). One of the financial ratios that helps to see the ability of banks to generate profits by using the assets they own is Return on assets (ROA). Based on Ferdiansyah and Widyarti, 2022 If a business could generate good profits, it can maximize the revenue they want to achieve consistently (Bashatweh and Ahmed, 2020). Therefore, the possibility of banks experiencing financial distress is reduced by an increase in the ROA value (Ferdiansyah and Widyarti, 2022). The third hypothesis (H3) of the study is as follows:
H3: There is an effect of Earning Quality on the Bank's Financial Distress level

The use of LDR to calculate bank liquidity shows the amount of bank credit compared to the amount of deposits the bank has. Yuhasril and Dwiarti (2020) also stated the same thing. A high LDR value indicates that a bank's more liquid assets are less easily liquidated, which means that its assets are easier to liquidate, especially in unforeseen situations. Banks may not properly supervise their liquidity levels (Kowanda and Firdaus, 2015). Therefore, the possibility of banks experiencing greater financial problems with higher LDR values. The fourth hypothesis (H4) of the study is as follows:
H4: There is an effect of Liquidity on the level of Financial Distress of the Bank

A bank can be affected by the changes that occur in the financial markets because they are usually involved in the financial industry. According to AlAli and Al-Yatama (2019), the exponent will have an impact on the level of financial stress of banks. According to Bashatweh and Ahmed (2020), the likelihood of banks experiencing a financial crisis decreases along with bank sensitivity. Saaed et al. (2019) stated the same thing. Banks can control market risks and face risks that banks may experience when economic changes occur, because they are sensitive to small markets (Bashatweh and Ahmed, 2020). The fifth research hypothesis (H5) is:
H5: There is an effect of Sensitivity to Market Risk on the level of Financial Distress of Banks

Company size or Firm size is a measure that determines how big or small a company is (Wangsih et al., 2021). The size of a company can be calculated using the natural logarithm of the company's total assets (Boubaker et al., 2020). Research conducted by Wangsih et al. (2021) found that the larger the firm size, the lower the likelihood of experiencing financial distress. This was also found in the research of Waqas and Md-Rus (2018). However, Ikpesu's research (2019) found that companies with greater value are considered more vulnerable to financial distress due to their tendency to increase their debt as a result. The sixth hypothesis (H6) in the study is as follows:
H6: Firm Size affects the level of financial distress in banks in Indonesia

3. RESEARCH RESULTS

Based on the results of the descriptive analysis, the twenty banks tested had FD (Financial Distress) values for 2018–2022. Table 2 shows the average values of NPL, BOPO, ROA, LDR, BETA, and SIZE. The standard deviation value of the banking FD in the sample is 0.715.

Table 2. Descriptive Statistics

	Mean	Std. Deviation
FD	0.042	0.715
NPL	1.750	1.389
BOPO	89.776	27.754
ROA	0.888	2.545
LDR	83.877	23.639
BETA	0.831	1.882
SIZE	13.721	0.574

The determination coefficient (R Square) is a metric that measures the model's ability to account for variations in dependent variables. The value of the determination coefficient ranges between 0 and 1, and the higher the value, the more able the independent variable is to explain the variation of the dependent variable (Handriani, Ghozali, and Hersugodo, 2021). Table 3 shows that the Adjusted R Square value is 0.386. These results show that the independent variables included in the study (NPL, ROA, BOPO, BETA, LDR, and SIZE) can explain 38.6% of the dependent variables (FD), while the rest are explained by variables outside the study.

Table 3. Coefficient of Determination Test

R	R Square	Adjusted R Square
0.626	0.392	0.386

The results of the F statistical test of 63.114 with a significance value of 0.000 and a significance value of less than 0.05 or 5% showed that all independent variables, namely NPL, ROA, BOPO, BETA, LDR, and SIZE, had an influence on the dependent variable (FD) simultaneously. Table 4 shows the results of the F test.

Table 4. Statistical F Test

	Sum of Squares	df	Mean Square	F	Sig.
Regression	19.815	1	19.815	63.114	0.000
Residual	30.767	98	0.314		
Total	50.582	99			

Based on the results of the t-statistical test used in the study, table 5 shows how much the influence of each independent variable, namely NPL, ROA, BOPO, BETA, LDR, and SIZE on the explanation of the variation of the dependent variable (FD). It can be seen that the NPL variable has a negative and insignificant effect, the BOPO variable has a negative and significant effect, the ROA variable has a positive and significant effect, the LDR variable has a positive and insignificant effect, the BETA variable has a negative and insignificant effect, and the SIZE variable has a positive and significant effect.

Table 5. Statistical T Test

	B	t	Sig,
Constant	-1.132	-7.161	0.000
NPL	-0.062	-0.775	0.440
BOPO	-0.287	-3.887	0.000
ROA	0.275	3.666	0.000
LDR	0.046	0.585	0.560
BETA	-0.064	-0.811	0.419
SIZE	0.171	2.063	0.042

The regression equation in the research model is as follows:
FD = – 1.132 – 0.062NPL – 0.287BOPO + 0.275ROA + 0.046LDR – 0.064BETA + 0.171SIZE + e

The NPL variable has a negative and insignificant effect on the financial distress of banks, so the first hypothesis or H1 is rejected. An increase in the value of NPLs will reduce the value of Altman Z-Score, so the possibility of banks experiencing financial distress is higher. The BOPO variable has a negative and significant effect on the financial distress of banks, so the second hypothesis or H2 is accepted. When the BOPO value increases, banks experience higher operating expenses.

The ROA variable has a positive and significant effect on banking financial distress, so the third hypothesis or H3 is accepted, an increase in the ROA value will increase the Altman Z-Score value, so that the possibility of banks experiencing financial distress is lower. The LDR variable has a positive and insignificant effect on banking financial distress, so the fourth hypothesis or H4 is rejected. The LDR variable is a measure of the amount of funds placed in the form of credit derived from funds collected by the bank; The higher the LDR value, the more likely the bank is to experience financial distress.

The BETA variable has a negative and insignificant effect on banking financial distress, so the fifth hypothesis or H5 is rejected. An increase in the BETA score will lower the Altman Z-Score so that the possibility of the bank experiencing financial distress is higher. The SIZE variable has a positive and significant effect on banking financial distress, so the sixth hypothesis or H6 is accepted. An increase in the SIZE value will increase the Altman Z-Score score so that the possibility of banks experiencing financial distress is lower.

4. CONCLUSION

As an important part of the economy, banks must be well supervised so that they remain healthy and can continue to support economic growth. By knowing the level of financial stress of banks, supervision can be carried out. Using Altman Z-Score, the influence of financial ratios and company size on the level of financial distress can be measured. Asset Quality (NPL) is measured by the ratio of non-performing loans, Earning Quality (ROA) is measured by the ratio of asset income, Management Efficiency (BOPO) is measured by the ratio of operating expenditure to operating income, Sensitivity to Market Risk (BETA) is measured by stock beta, Liquidity (LDR) is measured by the ratio of loans to deposits, and Firm Size (SIZE) is measured by the natural logarithm of total assets. An increase in the value of NPLs will lower the value of Altman Z-Score, increasing the likelihood of the bank experiencing a financial crisis. Channeling schemes—collaborations with strategic partners—can be used to suppress non-performing loans. The purpose of this cooperation is to share risks with other companies. BOPO affected the financial crisis. The banking sector relies on operating income, so changes to the BOPO will greatly affect the value of the financial crisis. The Altman Z-Score will increase drastically with an increase in ROA value. With the increase in profitability, the possibility of banks experiencing financial distress is reduced. LDR does not have a major impact on financial matters. This may be because the average LDR of banks is still in a good range. While the banking data used in this study show that most banks have LDRs below the required value, central bank regulations stipulate that the maximum LDR value is 100%. The Altman Z-Score value will decrease if the BETA value increases, which indicates that the value is better if the stock moves according to the market or is conservative against the market rather than moving against the market and not too far from the market price. If the SIZE value increases, the Altman Z-Score value will increase, which increases the likelihood of the bank experiencing financial distress. To measure the impact of ESG implementation on financial crises, variables related to ESG (Environmental, Social, and Governance) can be included in future research.

REFERENCE

AlAli, M., & Al-Yatama, S. (2019). Analyzing the financial soundness of Kuwaiti banks using CAMELS framework. Financial Risk and Management Reviews, 5(1), pp 55 - 69.

Altman, E. I., Iwanicz-Drozdowska, M., Laitinen, E. K., & Suvas, A. (2017). Financial distress prediction in an international context: A review and empirical analysis of Altman's Z-score model. Journal of International Financial Management & Accounting, 28(2), pp 131 - 171.

Balasubramanian, S. A., Radhakrishna, G.S., Sridevi, P, & Natarajan, T. (2019). Modeling corporate financial distress using financial and non-financial variables: The case of Indian listed companies. International Journal of Law and Management, 61(3/4), pp 457 - 484.

Bashatweh, A. D., & Ahmed, E. Y. (2020). Financial Performance Evaluation of the commercial banks in Jordan: Based on the CAMELS Framework. International Journal of Advanced Science and Technology, 29(5), pp 985 - 994.

Condello, S., Del Pozzo, A., Loprevite, S., & Ricca, B. (2017). Potential and limitations of DEA as a bankruptcy prediction tool in the light of a study on Italian listed companies. Applied Mathematical Sciences, 11(44), pp 2185-2207.

D. J. Lutfie, Harrie. dan Priansa, (2019) Manajemen Bisnis Perbankan Kontemporer. CV Pustaka Setia, Bandung.

Fadoua, J., & Brahim, D. (2020). Financial stability of Islamic and conventional banks of the MENA region: post and pre-crisis of CAMELS framework. International Journal of Islamic Banking and Finance Research, 4(2), pp 38 - 48.

Ferdiansyah, F., & Widyarti, E. T. (2022). Analysis of CAMEL ratio on financial distress banking companies in Indonesia. Diponegoro International Journal of Business, 5(1), pp 47 - 56.

Galán, J. (2021). CREWS: a CAMELS-based early warning system of systemic risk in the banking sector. Banco de Espana Occasional Paper, 2132.

Handriani, E., Ghozali, I., & Hersugodo, H. (2021). Corporate governance on financial distress: Evidence from Indonesia. Management Science Letters, 11(6), pp 1833 - 1844.

Hasas Yehaneh, Y., Habibi, R., & Nazi, B. (2018). Impact of Asset Quality on Financial Distress in Banks. Quarterly Studies in Banking Management and Islamic Banking, 3(6,7), pp 25 - 58.

Ikpesu, F. (2019). Firm specific determinants of financial distress: Empirical evidence from Nigeria. Journal of Accounting and Taxation, 11(3), pp 49 - 56.

Kowanda, D., Pasaribu, R., & Firdaus, M. (2015). Financial distress prediction on public listed banks in Indonesia stock exchange. Interdisciplinary Behavior and Social Sciences, pp 333 - 338.

Kurniasari, R. (2017). Analisis Biaya Operasional Dan Pendapatan Operasional (BOPO) Terhadap Return on Assets (ROA). Perspektif: Jurnal Ekonomi dan Manajemen Akademi Bina Sarana Informatika, 15(1), pp 71 - 78.

Malhotra, N. K. (2020). Marketing research: an applied prientation. Pearson.

Paidar, A., Shafiee, M., Avazzadeh, F., & Valipour, H. (2021). Predicting Banks' Financial Distress by Data Envelopment Analysis Model and CAMELS Indicators. Journal of System Management, 7(3), pp 213 - 240.

Paul, T. (2023, August 15). Why is inflation so high? An economist explains why everyday essentials cost more. CNBC. https://www.cnbc.com/select/why-is-inflation-so-high/

Purwanti, T. (2022, November 9). 4 bank Aman, 19 Lainnya "Terancam" Merger atau Likuidasi. CNBC Indonesia. https://www.cnbcindonesia.com/market/20221109081010-17-386238/4-bank-aman-19-lainnya-terancam-merger-atau-likuidasi

Purwanto, S., Perkasa, D. H., & Abadi, F. (2023). Assessment of Banking Conditions on Financial Distress During the Period of COVID-19 in Indonesia. WSEAS Transactions on Business and Economics, 20, pp 467 - 474.

Quoc Trung, N. K. (2021). Determinants of bank performance in Vietnamese commercial banks: an application of the camels model. Cogent Business & Management, 8(1), 1979443.

Rachman, A. (2023, June 7). Awas Krisis Perbankan 2023, Negara Maju Bisa Bangkrut! CNBC Indonesia. https://www.cnbcindonesia.com/news/20230607101642-4-443720/awas-krisis-perbankan-2023-negara-maju-bisa-bangkrut

Rowland, T. Setiawan, and A. Fitriningrum, (2021) Jurnal Bisnis dan Akuntansi Unsurya Rasio Keuangan dan Umur Bank (Studi Pada Perbankan Yang Terdaftar di BEI 2016 - 2019) Jurnal

Bisnis dan Akuntansi Unsurya, Jurnal Bisnis dan Akuntansi Unsurya, vol. 6, no. 2, pp 82 – 93.

Saeed, H., Shahid, A., & Tirmizi, S. M. A. (2020). An empirical investigation of banking sector performance of Pakistan and Sri Lanka by using CAMELS ratio of framework. Journal of Sustainable Finance & Investment, 10(3), pp 247 - 268.

Wangsih, I. C., Yanti, D. R., Yohana, Y., Kalbuana, N., & Cahyadi, C. I. (2021). Influence of leverage, firm size, and sales growth on financial distress. International Journal of Economics, Business and Accounting Research (IJEBAR), 5(4).

Waqas, H., & Md-Rus, R. (2018). Predicting financial distress: Importance of accounting and firm-specific market variables for Pakistan's listed firms. Cogent Economics & Finance, 6(1), 1545739.

Yuhasril, Y. T. W. S., & Dwiarti, S. R. (2020). The Effect of Camel Ratio in Predicting Financial Distress Conditions in Banking Companies Registered in Indonesia Stock Exchange (BEI), European Journal of Business and Management, Vol.12, No.18, pp 90 – 96.