

## ANALYSIS OF THE EFFECT OF BANK SOUNDNESS AND MACROECONOMICS ON FINANCIAL DISTRESS IN CONVENTIONAL COMMERCIAL BANKS

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### Abstract

This research aims to analyze the effect of bank soundness and macroeconomics on the financial distress of conventional banking in Indonesia in the 2015-2019 period. The bank soundness is measured using the Risk-Based Bank Rating or RGEC method which is proxied by the ratio of non-performing loan (NPL), size of board directors, return on asset (ROA), capital adequacy ratio (CAR). The macroeconomic variable was measured using exchange rate while the dependent variable was measured by Altman Z-Score modification. The population of this research is all conventional banking companies listed on the Indonesian Stock Exchange in 2015-2019. The method used for selecting the sample is purposive sampling. The sample obtained was 37 banks with a five years observation period. This research is using multiple linear regression analysis. The result of this research indicates that the size of the board direction, return on asset, and capital adequacy ratio harms the financial distress of conventional banking in Indonesia in the 2015-2019 period. While the non-performing loan and exchange rate do not affect the financial distress of conventional banking in Indonesia in the 2015-2019 period.

**Keywords:** Financial Distress, Altman Z-Score, Capital Adequacy Ratio, Non-Performing Loan, Macroeconomics.

### I. INTRODUCTION

The economic instability that occurred in 1997-1998 as a result of the monetary crisis also had an impact on the banking sector in Indonesia. The exchange rate crisis in 1997 made the health of the financing system, especially the banking sector, face chronic times. The declining rupiah exchange rate and high-interest rates caused various problems in the economy which also affected banking performance in Indonesia. These problems have forced the banking sector as one of the institutions that have control over the economy, to restructure so that the economy will return to stability.

The restructuring was carried out to stabilize the economy using bank restructuring because banking is closely related to macroeconomic aspects. The success of the real sector also affects the performance of banks in achieving profits, so that banking restructuring does not only take into account aspects of bank health but also macroeconomic aspects. Therefore, banking restructuring must run well without threatening economic stability [1]. In restructuring efforts, banks must be able to rebuild the level of public trust. This makes a balance between funding sources and financing from customers is very necessary so that banks do not experience financial difficulties.

Companies are considered to be experiencing financial or financial difficulties when their finances are considered unhealthy or can be said to be in a crisis condition [2]. According to Almilia [3], if the operating profit obtained by the bank is negative within a period of approximately two consecutive years, the bank is considered to

be in a state of financial distress. The impact of financial distress is losses on a large or small scale experienced by companies and can result in bankruptcy [4]. The financial condition of a bank can be identified through the soundness of the bank.

BI Rule 13/1/PBI/2011 states, banks are required to independently assess the soundness of banks or called self-assessment. In this regulation, BI stipulates that the CAMEL assessment is changed to a more risk-focused approach, namely the Risk-Based Bank Rating (RBBR). The risk approach is called RGEC (risk profile, Good Corporate Governance, earnings, capital). Banks will be considered healthy if they can meet all the indicators contained in the RGEC. Assessment of bank health can also be used as a warning if the financial condition of the bank is not good so that treatment can be carried out from the start to prevent financial distress.

In addition to the soundness of the bank, other factors cause financial distress, one of which is external factors. These external factors include several things including politics, disasters, and macroeconomic conditions of a country. Macroeconomic conditions can affect the financial performance of a bank, so these things need to be considered and analyzed. One of the macroeconomic factors that affect banking performance is the exchange rate or exchange rate. The exchange rate or the so-called exchange rate is the unit price of foreign currency in domestic money. Many studies related to exchange rates have been carried out in Indonesia, one of which is research by Hatta [5] which shows that the exchange rate affects long-term balance and stock returns. Tirapat and

Nittayagasetwat [6] prove that the more sensitive the company to macroeconomic factors, the higher the probability of the company going bankrupt. This strengthens the prediction that macroeconomics may influence the occurrence of bankruptcies.

There are many studies related to bankruptcy prediction that use financial ratios to assess the financial distress condition of companies or banks. The model for predicting bankruptcy that is widely used for research is the Altman Z-score model. Edward I. Altman [7] with the Multiple Discriminant Analysis (MDA) method or commonly called the Z-Score using five financial ratios. Over time, Altman refined the prediction model he developed, Altman changed the Z-Score by removing the Sales to Total Assets (STA) ratio. The existence of the Z-Score analysis as described above will help in predicting the potential financial distress of a bank. The potential for financial distress is a warning of bankruptcy. A high Z-Score value indicates that the bank's performance or finances are considered good, so it can be said that the probability of the bank experiencing financial distress will be smaller.

According to Andari and Wiksuana [8], the ROA ratio affects determining the occurrence of financial distress in banking companies, while other variables, namely LDR, NPL, size of the board of directors, and CAR are considered to have no effect. Furthermore, Zahronyana and Mahardika [9] conducted a similar study with the results of CAR and LDR significantly affecting financial distress in commercial banks, while NPL, NIM, BOPO had no effect. In contrast to the research of Haq and Harto [10], this study finds that NPL, LDR, ROA, and GCG affect banking financial distress. In addition to the indicators already mentioned, macroeconomics is one of the causes of financial distress. Research by Lestari [11] proves that macroeconomic proxies for exchange rates and interest rates have a significant positive effect on financial distress and inflation has a significant negative effect on financial distress. In contrast to Indriyani and Nazar [12] who get the results that macroeconomics does not affect financial distress.

Based on the background explanation and various types of previous research results encourage researchers to try to test whether there is an influence on the soundness of the bank which will be proxied by the ratio of Non Performing Loans (NPL), size of the board of directors, Return on Assets (ROA), Capital Adequacy Ratio (CAR) and macroeconomic which will be proxied by the exchange rate against financial distress. So this study aims to analyze the effect of bank soundness and macroeconomics on financial distress in conventional commercial banks for the 2015-2019 period. This study is different from previous studies because it uses the soundness of the bank as an internal factor that affects financial distress and macroeconomics as an external factor that affects financial distress.

## II. THEORETICAL FRAMEWORK & HYPOTHESES

### A. Signaling Theory

The signaling theory developed by Ross [13] explains that companies that know information about their company tend to provide the information they have for potential investors, this is done to increase the company's stock price. This theory explains how important information from the company is to investment decisions. Banks can convey information regarding the description of the condition of the bank through reports that are published annually. Prospective investors will get information about the performance achievement of a company through financial reports so that they can predict the existence of financial distress [14]. After receiving information from the company, investors will first analyze the information. Investors will make further decisions if the information is considered good, the decision of investors who choose to invest their capital will increase public confidence in banking and the bank is considered to be in good condition.

### B. Effect of Risk Profile on Financial Distress

The risk profile, in this case, uses the credit ratio, namely NPL (Non-Performing Loan) by comparing the number of non-performing loans with total loans. The research of Haq and Harto [10] and Indriyani and Nazar [12] found that the NPL ratio had a significant effect on bank financial distress. Meanwhile, research conducted by Andari and Wiksuana [8] said that NPL had no significant effect. The high NPL ratio means that the credit quality of a bank is getting worse because the amount of credit that is considered to have problems is getting bigger [15]. The amount of non-performing loans will affect the performance and finances of banks which in turn will have an impact on the soundness of the bank. If the NPL ratio of a bank is high, it means that the bank's profitability decreases and the reserve costs incurred by the bank will increase, if this is not handled immediately, the bank will experience financial distress PR [15]. Thus, the hypothesis in this study is:

**H1:** Risk profile has a positive effect on financial distress in conventional commercial banks.

### C. Effect of Good Corporate Governance (GCG) on Financial Distress

Good Corporate Governance (GCG) in this study uses a proxy for the size of the board of directors. The Board of Directors has the duties and responsibilities to manage and make decisions in banking operations. Research by Mayangsari and Andayani [16] states that the board of directors variable harms financial distress. In contrast to the results of Prianti and Musdholifah [15], the results of the size of the board of directors have a positive effect on the probability of banking distress. The size of the board of directors can be calculated through the number of boards of directors in a company [8]. The more the

board of directors in the bank, it is hoped that all decisions that will be taken will be of higher quality so that they can prevent financial distress in the future [16]. Thus, the hypothesis in this study is:

**H2:** Good corporate governance harms financial distress in conventional commercial banks.

#### D. *Effect of Earnings (Rentability) on Financial Distress*

Earnings in this case by proxy ROA (Return on Assets). ROA is used to find out how the bank makes a profit through the comparison of net income that is free from taxes with all assets. Andari and Wiksuana [8] and Haq and Harto [10] research stated that ROA can affect banking financial distress on the IDX. Meanwhile, research by Prianti and Musdholifah [15] got different results, namely, ROA does not affect banking distress. ROA can be used to determine the effectiveness of the company in earning profits through existing assets [10]. The high ROA ratio means that the productivity of assets in earning profits is getting higher [17]. The higher the ROA ratio means the profit earned by a large bank so that the occurrence of financial distress will be smaller. Thus, the hypothesis in this study is:

**H3:** Earnings harm financial distress in conventional commercial banks.

#### E. *Effect of Capital (Capital) on Financial Distress*

Capital in this study uses the CAR (Capital Adequacy Ratio) proxy. Banks use CAR to find out whether the capital owned is sufficient to support risky assets, one example is the credit risk provided [15]. Research by Zahronyana and Mahardika [9] finds that CAR has a significant effect on financial distress in banks. Different results are shown by Andari and Wiksuana [8] and Haq and Harto [10] that CAR does not affect the occurrence of financial distress. The high CAR value of a bank means that the bank is more solvable or it can be said to be healthier. The high level of solvency means that the capital owned by the bank can bear the existing losses will improve the bank's performance [18]. If the bank's performance increases, the bank's health will also be considered good, thereby reducing the occurrence of financial distress in the bank. Thus, the hypotheses in this study is:

**H4:** Capital harms financial distress in conventional commercial banks.

#### F. *Effect of Macroeconomics (Exchange Rate) on Financial Distress*

Macroeconomics in this study is proxied by the exchange rate or commonly referred to as the exchange rate. The exchange rate is money that comes from a certain currency that can be exchanged with one unit of another country's currency [19]. Lestari [11] gets exchange rates positively and significantly affects financial distress. Meanwhile, Indriyani and Nazar [12] and Nirmalasari [20] stated that macroeconomic exchange rate variables

did not affect banking financial distress. The exchange rate will change or fluctuate according to changes in the demand and supply of the currency. Setiyawan and Musdholifah [21] explain that the exchange rate makes the operational costs borne by companies high and will affect financial performance, the weakening of the rupiah makes the debt burden calculated by the rupiah value even greater, this will make the company's profitability decline. The decline in the company's profitability will increase the possibility of financial distress. Thus, the hypothesis in this study is:

**H5:** Macroeconomics has a positive effect on financial distress in conventional commercial banks.

### III. METHODS

The method used in this study is quantitative using the scope of conventional commercial banks. Conventional commercial banks were chosen as objects because the number of conventional commercial banks is very large in Indonesia and is also widely used by the public in financial activities. The required data is obtained through ([www.idx.co.id](http://www.idx.co.id)). The population in this study are all conventional commercial banks listed on the Indonesia Stock Exchange ([www.idx.co.id](http://www.idx.co.id)) in the 2015-2019 period. The data used is the type of secondary data in the form of the bank's annual financial statements. The purposive sampling technique was used to select samples based on two criteria. The first criteria are conventional commercial banks listed on the Indonesia Stock Exchange in the 2015-2019 period and the second criteria are conventional commercial banks that publish complete financial reports on the Indonesia Stock Exchange in the 2015-2019 period. From the results of data collection, 37 banks were sampled because they met two sample criteria.

This study uses multiple linear regression analysis method with equation:

$$Y = \alpha + \beta_1 (X_1) + \beta_2 (X_2) + \beta_3 (X_3) + \beta_4 (X_4) + \beta_5 (X_5) + e \quad (1)$$

Where Y is financial distress which is calculated by the formula  $Z = 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$ . X1 is Working capital/ Total assets (WCTA), X2 is Retained earnings/ Total assets (RETA), X3 is Earnings before interest and taxes/ total assets (EBITTA), X4 is Market value equity/ Book value of total debt (MVETL), and Z is the Over-all Index. Tests in this study were conducted using the classical assumption test consisting of normality test, multicollinearity test, heteroscedasticity test using scatterplot and Glejser test, and autocorrelation test. Hypothesis testing was carried out using the F simultaneous significance test, the coefficient of determination test, and the t partial significance test.

### IV. RESULTS AND DISCUSSION

This study takes a distance or span of 5 years, namely 2015-2019 so that it obtains a sample of 185 samples (37 x 5). From the entire sample, some sample data are considered too extreme or different from other data (outliers)

so that the data must be deleted. Methods to detect outlier samples in this study are casewise diagnostics and box-plot. In addition, in the autocorrelation test, the Cochran Orcutt method is used which makes one data must be removed. After deleting the data, the final sample obtained is 148.

Based on the results of the descriptive statistics in table 1, it is known that the standard deviation value of the independent and dependent variables is greater than the mean or average value so that the distribution of this research data is considered relatively small. Furthermore, the classical assumption test in this study has been fully fulfilled. Judging by the normality test that gets the Asymp value. Sig. (2-tailed) 0.573 is greater than the significance value of 0.05, which means that the data in this regression model is normally distributed. Multicollinearity testing in this study obtained tolerance values  $> 0.1$  and  $VIF < 10$ , so it can be said that there is no multicollinearity. The next test, namely heteroscedasticity using the scatterplot test, shows that the points do not form a certain pattern and spread randomly both above and below the Y-axis so that there is no heteroscedasticity. In addition, the Glejser test found that the significance value of all independent variables was more than 0.05, indicating that none of the independent variables significantly affected the absolute residual value (ABSRESID) variables. So it can be concluded that there is no heteroscedasticity symptom. The last classical assumption test is the autocorrelation test with a DW value of  $1.8016 < 2.067 < 2.1984$ , so it can be said that there is no autocorrelation in this study.

Table 2 shows the results of hypothesis testing in this study using the dependent variable financial distress (FIND) while the independent variables are Non-Performing Loans (NPL), the size of the board of directors, Return on Assets (ROA), Capital Adequacy Ratio (CAR), and exchange rates.

The first hypothesis in this study is that the risk profile has a positive effect on financial distress. Based on the results of statistical testing, the beta coefficient value is negative at -0.002, which means that the Risk profile (NPL) has a significant negative effect on the Z-Score value or in other words, the higher the NPL value, the lower the Z-score value, which is meaning that the greater the possibility of financial distress in conventional commercial banks. With a significance of  $0.974 > 0.05$ , which means that NPL does not significantly affect financial distress. Susanto and Njit [22] explain that the type of bank credit in this case only uses credit to third parties, while there are other types of credit such as loans given to other banks so that it makes NPLs not affect the occurrence of financial distress. This is following the results of this study, that a bank's credit is not only channeled to third parties, namely the public but also credit to other banks that need funds so that a high NPL value does not necessarily cause financial distress in conventional commercial banks. These results are consistent with the research of Andari and Wiksuana [8], and Prianti and Musdholifah [15] also Zahronyana and Mahardika [9] which state that NPL does not affect financial distress.

TABLE I. DESCRIPTIVE STATISTIC

	N	Minimum	Maximum	Mean	Std. Deviation
NPL	148	0,00	8,80	2,8395	1,45214
DRKSI	148	3,00	12,00	7,1149	2,64838
ROA	148	-4,90	4,00	1,4970	1,34319
CAR	148	10,22	39,46	21,1055	5,03520
KURS	148	13436,00	14481,00	13830,5135	368,95146
FIND	148	-0,36	2,31	1,2683	0,45228
Valid N (listwise)	148				

TABLE III. HYPOTHESIS TESTING RESULT

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Hypothesis	Conclusions
	B	Std. Error	Beta				
I (Constant)	0,014	0,313		0,045	0,964		
NPL	-0,001	0,018	-0,002	-0,033	0,974	Positive	Not supported
DRKSI	0,029	0,013	0,131	2,299	0,023	Negative	Supported
ROA	0,185	0,022	0,558	8,397	0,000	Negative	Supported
CAR	0,033	0,004	0,409	7,426	0,000	Negative	Supported
KURS	3.61E-006	0,000	0,004	0,079	0,937	Positive	Not supported

The second hypothesis in this study is that Good Corporate Governance (board of director's size) harms financial distress. Based on the results of statistical testing, the beta coefficient value is positive at 0.131 with a significance of  $0.023 < 0.05$ , which means that the size of the board of directors has a significant positive effect on the Z-Score or in other words, the more the board of directors, the higher the Z value. -score, which means that there is less possibility of financial distress. A large number of boards of directors in banks make decisions that are later taken to be of higher quality [16]. The results of the analysis in this study explain that if decision-making in banking operational activities is getting better, then the performance of a bank can run well, this will later affect financial performance to reduce the condition of financial distress. These results are following the research of Mayangsari and Andayani [16] Prianti and Musdholifah [15] which state that the board of directors variable has a negative influence on financial distress.

The third hypothesis in this study is that earnings (ROA) harm financial distress in conventional commercial banks. Based on the results of statistical testing, the beta coefficient value is positive at 0.558 with a significance of  $0.000 < 0.05$ , which means that earnings (ROA) have a significant positive effect on the Z-Score value or in other words, the higher the ROA value, the higher the Z-score value. , which means that the less likely the occurrence of financial distress. ROA describes the company's effectiveness in gaining profits through its assets {Haq, 2019 #13}. The level of income obtained by a bank can be seen through the ROA ratio. The increase in banking profits indicates that the financial performance of banks is getting better so that the company's profitability increases. The results of the analysis explain that a high ROA ratio means that the profits obtained by banks are large so that the possibility of financial distress is getting smaller. The results of this study are following the research of Andari and Wiksuana [8]; Alvidianita and Rachmawati [23]; and Lestari [11] who get the results of the ROA ratio harming financial distress.

The fourth hypothesis in this study is that capital (CAR) harms financial distress in conventional commercial banks. Based on the results of statistical testing, the beta coefficient value is positive at 0.409 with a significance of  $0.000 < 0.05$ , which means that capital (CAR) has a significant positive effect on the Z-Score value or in other words, the higher the CAR value, the higher the Z-score value. , which means that the less likely the occurrence of financial distress. The CAR ratio can describe the adequacy of capital owned by a bank to earn a profit. Banks with large capital are considered to be able to channel more credit so that they can generate greater profits. The high CAR means that banking is solvable or it can be said to be healthier. The results of the analysis in this study explain that the high level of solvency means that the existing bank capital can absorb losses that must be borne by the bank so that banking performance can increase. If the bank's performance increases, the bank's

health will also be considered good so that the possibility of financial distress in the bank is getting smaller. The results of this study are similar to those of Zahronyana and Mahardika (2018) and Rustandi (2019) which found that CAR harms financial distress.

The fifth hypothesis in this study is that macroeconomics (exchange rate) has a positive effect on financial distress in conventional commercial banks. Based on the results of statistical testing, the beta coefficient value is positive at 0.004 which means the exchange rate has a positive effect on the Z-Score value or in other words, the higher the exchange rate, the higher the Z-score value, which means the smaller the possibility of financial loss. distress in conventional commercial banks. With a significance of  $0.974 > 0.05$ , which means that the exchange rate does not significantly affect financial distress. The exchange rate that does not affect financial distress in this study can be caused by hedging practices in international trade so that banks can avoid the risk of losses arising from exchange rate fluctuations. Hedging practice is a technique used by companies to reduce the risk that is expected to occur as a result of price fluctuations in financial markets. In addition, an increase in the exchange rate or exchange rate tends to make foreign investors sell their shares to be placed in banks [12](Indriyani & Nazar, 2020). This will make banks raise interest rates, which means financial performance can improve. This research is supported by Indriyani and Nazar [12] also Nirmalasari [20] who get the exchange rate results do not affect financial distress.

## V. CONCLUSIONS

This study aims to analyze the effect of bank soundness and macroeconomics on financial distress in conventional commercial banks for the 2015-2019 period. The independent variables used in this study are Non Performing Loans (NPL), size of the board of directors, Return on Assets (ROA), Capital Adequacy Ratio (CAR), and exchange rates. Based on the results of statistical testing, it is known that the variable size of the board of directors, ROA, and CAR harms financial distress in conventional commercial banks for the 2015-2019 period. Meanwhile, the NPL variable and the exchange rate have no effect on financial distress in conventional commercial banks for the 2015-2019 period.

The limitations found from this study include the assessment of the soundness of the bank, this study only takes one ratio in each indicator while there are still many other ratios that can be added to strengthen the results of the study. In addition to macroeconomic variables, this study only uses one macroeconomic indicator, while macroeconomics has many indicators that can be used as research variables to get better results. Based on the limitations found, for further research, the researcher gives suggestions to add other types of banks besides conventional commercial banks so that the sample is more diverse, adding ratio variables to indicators of bank soundness assessment such as BOPO, LDR, or ROE so that it

can better explain the possible occurrence of financial distress, and adding other macroeconomic variables such as inflation, BI rate, or SBI (Bank Indonesia Certificate) which are wider and varied.

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