



Prediction Financial Distress in The Influence of Indonesian Banking Camel Ratio

Azaluddin^{1*}

¹Faculty of Economics, Muhammadiyah University of Buton

*Korespondensi: azaluddin@umbuton.ac.id

Article Info

Received 16
October 2023

Approved 01
November 2023

Published 13
November 2023

Keywords:
Prediction,
Financial Distress,
Ratio Perbankan

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Abstrak

This study aims to analyze the effect of financial ratios CAR (Capital Adequacy Ratio), NPL (Non Performing Loan), ROA (Return on Assets), ROE (Return on Equity), BOPO (Operational Cost/Operational Income), LDR (Loan to Deposit Ratio) to financial distress bankingin 2016- 2019. The example of this study used purposivesampling as many as 9 companies in accordance with predetermined criteria with a research period of 2016-2019, informasi obtained from the Indonesia Stock Exchange (IDX). The analytical method used to test the research hypothesis is logistic regression. The results showed that the financial ratios of CAR, NPL, ROA, ROE, BOPO and LDR had predictive power for the condition of banks experiencing financial distress. The resulting regression equation is $Y = 924,779 - 17,499 \text{ CAR} + 6,186 \text{ NPL} + 39,350 \text{ ROA} + 32,091 \text{ ROE} + 8,081 \text{ LDR} - 25,516 \text{ BOPO}$. The results of the clarification partially show that the CAR, BOPO and LDR variables have a negative and significant result on financial distress. While the variables NPL, ROA serta ROE have a positive but not significant effect on financial distress.

1. Introduction

The performance of a company can be assessed using financial reports. Financial reports not only describe the condition of a company in the past but can also be used to predict the financial condition of a company in the future. One of the techniques used to assess companies is financial ratio analysis (Rokhayati et al., 2022). Performance indicators of a bank can be seen from the liquidity ratio, profitability ratio, bank business risk ratio, capital ratio and business efficiency ratio (Chabachib et al., 2019). The financial difficulties of a company can be reflected in

performance indicators, namely if the company experiences short-term financial difficulties (liquidity) which are not immediately resolved, it will result in long-term financial difficulties (solvency) which can lead to bankruptcy of a company (Daniella & Lukman, 2023).

The phenomenon of bank bankruptcy in Indonesia has been visible since banking deregulation in 1983, where competition between banks, both government, private, joint venture and foreign banks, has become increasingly high (Utami et al., 2021). Banks that have small capital and no market experience financial difficulties and are ultimately liquidated, frozen or taken over by the government. With liquidation, the level of public trust in banking has decreased and people prefer to invest their funds abroad, which can result in banks experiencing a lack of funds (Yusra & Bahtera, 2021). Therefore, an Early Warning System is needed that can provide information about problems that occur in the banking industry. With early detection of banking conditions, financial difficulties can be anticipated before they reach a crisis (Bukhori et al., 2022).

Bankruptcy will quickly occur in a country that is experiencing economic difficulties, because economic difficulties will stimulate the rapid bankruptcy of industries that may have previously been sick and then continue to become sick and go bankrupt (Wardani & Rachman, 2022).

In 2018, banking performance, as reflected in a number of indicators, slowed growth, although in general banking performance was still relatively well maintained. Based on Indonesian banking statistics (SPI) data released by the Financial Services Authority (OJK), banking credit distribution until September 2018 reached IDR 5,120 trillion, or an increase of around 12.7% compared to the same period in the previous year. This condition reflects that the intermediation performance of the banking sector is still positive. The profits reaped by banks from lending have actually shrunk. OJK SPI data shows that the average net interest margin (NIM) of banks in September 2018 was only 5.14%. This NIM position decreased from the same period in 2017 of 5.33%.

It's not just OJK data that shows a decline in banking NIM. Research by the Deposit Insurance Corporation (LPS) as of September 2018 at several banks as a reference showed that the average bank NIM had fallen to 4.4% from the previous year's 4.6%. Of course, it is not without reason that banking NIMs have eroded. The trend of increasing interest rates that occurred throughout this year is one of the triggers for banks' NIM to decline. Finally, in November 2018, Bank Indonesia (BI) again raised its benchmark interest rate by 25 basis points (bps) to 6%. If calculated, the increase in BI's benchmark interest rate has increased by 175 bps during 2018.

2. Methods

The type of data in this research is quantitative data (Pratama & Aisjah, 2016). Data analysis is quantitative with the aim of testing predetermined hypotheses (Edi & Eilyn, 2023). This research uses secondary data, namely data that has been collected by data collection institutions and published to the data user community. The type of data used in this research is secondary data (Fadhilah et al., 2023). The data is in the form of financial ratios of government, private banks (foreign exchange and non-foreign exchange) and foreign banks on the Indonesia Stock Exchange (BEI) for the 2016-2019 period. To obtain the information needed in this research, the following information collection procedure was used: Information was obtained

by studying data from secondary information sources, followed by recording and calculating. This data was obtained from the Bank News magazine for the 2016-2019 period, and was tested by disbursement or viewing daily data from the bank's official website, illustrations or other websites.

The statistics used are based on the likelihood function. Likelihood L of the model is the probability that the hypothesized model describes the input data. To test the null and alternative hypotheses, L is transformed into 2LogL. Cox and Snell's R Square are dimensions that attempt to imitate the R2 dimension in multiple regression which is based on a likelihood estimation procedure with a maximum value of less than 1 (one) so it is difficult to interpret (Dharmaputra Juliyan & Lina Kusrina, 2018). If the statistical value of Hosmerand Lemeshow's Goodness of Bugat Test is greater than 0.05, then the empty hypothesis cannot be rejected and this means that the model is able to predict the observed value or it can be said that the model is acceptable because it matches the observational information (Purwantini et al., 2023).

3. Findings and Discussions

3.1 Findings

Statistik Deskriptif Variabel Independen

Descriptive statistical information on independent variables which shows the minimum value, maximum value and average value of the variables CAR, NPL, ROA, ROE, long distance relationship and BOPO can be reviewed in the table.

Table 1. Statistik Deskriptif Variabel CAR, NPL, ROA, BOPO, serta LDR
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
CAR	36	15.90	24.59	20.7219	2.27902
NPL	36	.09	9.29	2.5614	1.79815
ROA	36	.40	5.22	2.3042	1.09853
ROE	36	2.09	18.57	10.5072	4.93633
LDR	36	72.74	101.16	88.3914	6.22894
BOPO	36	39.69	95.76	54.9178	14.15618
Valid N (listwise)	36				

Information: After processing with SPSS

Sourced from the results of descriptive statistical calculations for the independent variables in the table. above can be described as CAR variable has a minimum value of 15.90% and a maximum value of 24.5%, whereas the average value is 20.7219%. Based on this information, it indicates that on average the total number of banks registered on the IDX for the 2016-2019 period had a very large CAR, namely 20.7219%. This shows the bank's high ability to cover asset depreciation. The ROA variable has a minimum value of 0.40% and a maximum value of 5.22%, whereas the average value is 2.3042%. The total average of banks registered on the IDX for the 2016-2019 period shows that the bank management's skill in gaining profits (profit) in total is relatively high which can be seen from the value of 2.3042%. This also shows that the bank's position continues to be good in

terms of heritage use. The ROE variable has a minimum value of 2.09% and a maximum value of 18.57%, whereas the average is 10.5072%. On average, the total number of banks registered on the IDX for the 2016-2019 period earned large profits as seen from the value of 10.5072%. On average, all banks listed on the IDX for the 2016-2019 period earned high profits as seen from the value of 10.5072%.

The LDR variable has a minimum value of 72.74%, a maximum value of 101.16% and an average value of 88.3914%. Based on this descriptive information, it indicates that there are banks that do not pay attention to their liquidity, it can be seen from the maximum value of 101.16%, more than 100%, which indicates that the bank is unable to market the funds it has in the form of credit. On the other hand, the average value of the total number of banks registered on the IDX for the 2016-2019 period was 88.3914%, which shows that the average bank has the expertise to market the funds it has, even though it is not optimal.

The BOPO variable has a minimum value of 39.69% and a maximum value of 95.76%, whereas the average value is 54.9178%. With a maximum value of the BOPO variable of 95.76%, it indicates that there are banks that have not implemented efficiency and expertise in carrying out operational activities. However, on average, the total number of banks registered on the IDX for the 2016-2019 period have a good level of efficiency and bank expertise in carrying out operational activities. This can be seen from the average value of 54.9178%.

Model Feasibility Test (*Goodness of Fit*)

Table 2. Homers and Lemeshow’s Goodness of Fit
Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	.000	6	1.000

Source: Information after processing with SPSS

The test results using a prediction model with observations obtained a chi square value of 0.000 with a significance of 1.000. Where the significant value is greater than 0.05, it means the null hypothesis can be accepted and means the model is able to predict the observed value or it can be said that the model is acceptable because it is in accordance with the observation information. Cross tabulation as confirmation of the absence of significant differences between observed data and predicted data can be seen in the following table:

Table 3. Cross classification
Classification Table^a

		Predicted		
		FINANCIALDISTRESS		
Observed		Potential Bankruptcy	Healthy	Percentage Correct
Step 1	Financialdistress	Potential Bankruptcy	1	100.0
		Healthy	0	100.0
Overall Percentage				100.0

a. The cut value is, 500

Source: Information after processing with SPSS

Based on the table above, it is known that observations of the number of banks registered on the IDX for the 2016-2019 period that are experiencing problems (Financial Distress) are 2 banks. Thus, the accuracy of the model in predicting banks facing problematic situations reaches an accuracy level of 100.0%. The results of healthy bank observations show 7 banks. The model's accuracy in predicting healthy banks reaches an accuracy level of 100.0% and an overall accuracy level of 100.0%.

Test Overall Model Fit

Overall Bugat Model testing is carried out by equating the value between - 2 Log Likelihood (- 2LL) at the beginning (Block Number = 0) with the value - 2 Log Likelihood at the end (Block Number = 1) to identify the bug model with information. If there is shrinkage, it can be concluded that the model displays good regression. Overall Bugat Model testing can be seen in the following table:

**Table 4. -2 Log Likelihood (-2LL) In the First Block
(Block 0: BEGGINING BLOCK)
Iteration History^{a,b,c}**

Iteration	-2 Log likelihood	Coefficients
		Constant
Step 0 1	18.355	-1.778
2	15.684	-2.498
3	15.452	-2.789
4	15.448	-2.832
5	15.448	-2.833

a. Constant is included in the model.

b. Initial- 2 Log Likelihood: 15, 448

c. Estimation terminated at iteration number 5 because parameter estimates changed by less than, 001.

Source: Information after processing with SPSS

**Table 5. -2 Log Likelihood (-2LL) In the First Block
(Block 1: METHOD = ENTER)
Iteration History^{a,b,c,d}**

Iteration	-2 Log likelihood	Coefficients						
		Constant	CAR	NPL	ROA	ROE	LDR	BOPO
Step 1 1	15.593	-9.015	.014	.124	.120	.008	.081	-.017
2	9.979	-18.700	.009	.211	.376	-.002	.186	-.037
3	7.563	-29.677	-.059	.185	.923	-.045	.322	-.062
4	6.425	-40.985	-.201	.084	1.780	-.117	.478	-.094
5	5.885	-47.203	-.371	-.001	2.630	-.228	.603	-.153
6	5.068	-31.948	-.544	-.029	2.881	-.510	.627	-.415
7	3.732	74.837	-1.387	-.123	3.575	-2.169	.618	-2.064
8	1.660	105.507	-2.176	-.291	6.556	-3.335	.957	-3.000
9	.737	163.826	-3.319	-.184	9.475	-5.209	1.420	-4.529
10	.273	233.763	-4.613	.556	11.425	-7.499	1.952	-6.313
11	.100	304.274	-5.934	1.214	13.624	-9.828	2.504	-8.135

12	.037	374.577	-7.256	1.826	16.012	-12.188	3.072	-9.983
13	.014	444.314	-8.562	2.405	18.625	-14.601	3.664	-11.871
14	.005	513.312	-9.849	2.957	21.489	-17.077	4.284	-13.804
15	.002	581.961	-11.125	3.497	24.456	-19.578	4.916	-15.755
16	.001	650.541	-12.400	4.035	27.434	-22.081	5.549	-17.707
17	.000	719.105	-13.675	4.573	30.413	-24.583	6.182	-19.660
18	.000	787.665	-14.950	5.111	33.392	-27.086	6.815	-21.612
19	.000	856.222	-16.224	5.649	36.371	-29.588	7.448	-23.564
20	.000	924.779	-17.499	6.186	39.350	-32.091	8.081	-25.516

- Method: Enter
- Constant is included in the model.
- Initial- 2 Log Likelihood: 15, 448
- Estimation terminated at iteration number 20 because parameter estimates changed by less than. 001

Source: Information after processing with SPSS

The value - 2LogL Block Number = 0 is 15, 448. After entering the 6 independent variables, there is a shrinkage of 0, 000. According to Santoso (2014), this shrinkage of likelihood (- 2LL) shows a better regression model because the model is fixed with information.

Table 6. Coefficient Model of Test Omnibus Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	15.448	6	.017
	Block	15.448	6	.017
	Model	15.448	6	.017

Source: Information after processing with SPSS

The results of the omnibus test obtained a chi-square value of 15.448 and a degree of freedom of 6 and a significance of 0.017. This means that if the significance value is greater than 0.05, it can be concluded that the independent variables are CAR, NPL, ROA, ROE, long distance relationship and BOPO together have no influence on predicting financial distress conditions in banks listed on the IDX for the 2016-2019 period.

To find out how much the independent variable influences the dependent variable, this is done by looking at the Cox and Snell's R Square and Nagelkerke R Square values contained in the following data test table:

Table 7. Model Summary Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	.000 ^a	.349	1.000

- Estimation terminated at iteration 20 because parameter estimates changed by less than. 001

Source: Information after processing with SPSS

Based on the table above, it can be seen that the Cox& The Snell R Square is 0.349 and the Nagelkerke R Square value is 1.000. This shows that the combination of independent variables, namely the CAR, NPL, ROA, ROE, LDR and BOPO ratios, explains the variation of the dependent variable, namely the financial distress condition, which is 1,000 or 1. % while the remaining 99% is due to other factors not included in the model.

3.2 Discussions

Hypothesis testing to identify CAR, NPL, ROA, ROE, long distance relationship and BOPO on Financial Distress can be explained as follows:

1. Based on Variables in the Equation, it can be seen that the constant has a value of 924, 779 which shows that the independent variable is considered constant, so that the probability of an industry in a state of Financial Distress increases by an aspect of 1,000 for each increase in the constant.
2. Based on Variables in the Equation, it can be seen that CAR has a negative coefficient with a value of -17.499 and does not have a significant influence on the prediction of the formation of financial distress. This is indicated by significance = 0.985 which is greater than 0.05. Hypothesis 1 (H1) is rejected. From the regression results, it can be explained that the relationship between the odds (probability) of financial distress and the CAR variable is that if the NPL, ROA, ROE, Long Distance Relationship and BOPO are considered constant, then the odds of a bank experiencing Financial Distress will decrease by a factor of 0.985 (e- 17, 499) for each unit increase in CAR.
3. Based on Variables in the Equation, it can be seen that NPL has a positive coefficient with a value of 6.186 and has no influence on predictions of financial distress. This is indicated by significance = 0.997 which is greater than 0.05. Hypothesis 2 (H2) is rejected. From the regression results, it can be explained that the relationship between the odds (probability) of financial distress and the NPL variable is that if CAR, ROA, ROE, Long distance relationship and BOPO are considered constant, then the odds of banks experiencing Financial Distress decrease by a factor of 4, 123 (e6, 186) for each unit increase in NPL.
4. Based on Variables in the Equation, it can be seen that ROA has a positive coefficient with a value of 39.350 and has an influence on predictions of financial distress. This is indicated by significance = 0.046 which is smaller than 0.05. Hypothesis 3 (H3) is accepted. From the regression results, it can be explained that the relationship between the odds (probability) of financial distress and the ROA variable is that if CAR, NPL, ROE, Long Distance Relationship and BOPO are assumed to be constant, then the odds of banks experiencing Financial Distress decrease by a factor of 1.227 (e39, 350) for each unit increase in ROA.
5. Based on Variables in the Equation, it can be seen that ROE has a negative coefficient with a value of -32.091 and has an influence on predictions of financial distress. This is indicated by significance = 0.039 which is smaller than 0.05. Hypothesis 4 (H4) is accepted. From the regression results, it can be explained that the relationship between the odds (probability) of financial distress and the ROE variable is that if CAR, NPL, ROA, Long Distance Relationship and BOPO are considered constant, then the odds of a bank experiencing Financial Distress will decrease by a factor of 0.100 (e- 32, 091) for each unit increase in ROE.

6. Based on Variables in the Equation, it can be seen that BOPO has a negative coefficient with a value of -25.516 and has no influence on predictions of financial distress. This is indicated by significance = 0.988 which is greater than 0.05. Hypothesis 5 (H5) is rejected. From the regression results, it can be explained that the relationship between the odds (probability) of financial distress and the BOPO variable is that if CAR, NPL, ROA, ROE and LDR are assumed to be constant, then the odds of a bank experiencing Financial Distress will decrease by an aspect of 0.092 (e- 25, 526) for each unit increase in BOPO.

Based on Variables in the Equation, it can be seen that long distance relationships have a negative coefficient with a value of 8.801 and have no influence on the prediction of financial distress. This is indicated by significance = 0.993 which is greater than 0.05. Hypothesis 6 (H6) is rejected. From the regression results, it can be explained that the relationship between the odds (probability) of financial distress and the LDR variable is that if CAR, NPL, ROA, ROE and BOPO are assumed to be constant, then the odds of banks experiencing Financial Distress will decrease by a factor of 3, 233 (e9, 081) for each unit increase the LDR.

4. Conclusion

Based on the results of data analysis and discussions carried out in the previous chapter, the following conclusions can be drawn: 1) CAR (Capital Adequacy Ratio) has a significant negative effect on Financial Distress in banks listed on the IDX in 2016-2019. This is proven by a significant value of 0.985 which is greater than 0.05, so hypothesis 1 (H1) is rejected; 2) NPL (Non Performing Loans) has a positive but not significant effect on Financial Distress in banks listed on the IDX in 2016-2019. This is proven by a significant value of 0.997 which is greater than 0.05, so hypothesis 2 (H2) is rejected; 3) ROA (Return on Assets) has a significant positive effect on Financial Distress in banks listed on the IDX in 2016-2019. This is proven by the significant value of 0.046 which is smaller than 0.05, so hypothesis 3 (H3) is accepted; 4) ROE (Return on Equity) has a positive but not significant effect on Financial Distress in banks listed on the IDX in 2016-2019. This is proven by the significant value of 0.039 which is smaller than 0.05, so hypothesis 4 (H4) is accepted; 5) BOPO (Operating Costs/Operational Income) has a negative but not significant effect on Financial Distress in banks listed on the IDX in 2016-2019. This is proven by a significant value of 0.988 which is greater than 0.05, so hypothesis 5 (H5) is rejected; 6) LDR (Loan to Deposit Ratio) has a negative but not significant effect on Financial Distress in banks listed on the IDX in 2016-2019. This is proven by a significant value of 0.993 which is greater than 0.05, so hypothesis 6 (H6) is rejected.

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