INDICATORS OF BANK DEFAULT: EMPIRICAL STUDY OF RURAL BANKS IN INDONESIA

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Abstract

This study aims to know the indicators of Bank Default, empirical study of rural bank in Indonesia. The method used in this study uses logit. The data used are secondary data obtained from Bank publication reports during period 2014 - 2018. The population used in this study is rural banks in East Java and sample selection based on purposive sampling. The results found that rural banks need to pay attention to capital adequacy and non-performing loans. High non-performing loans can reduce bank profitability so that profits will also decrease. If this condition continues, it will erode capital. This research will be useful to find out indicators of bank soundness which are reflected in financial ratios to ensure the sustainability of bank business, especially rural banks by incorporating macroeconomic indicators.

Keywords: default risk, bank default, rural banks

Introduction

In the macroeconomic setting, the bank is a transmission belt that transmits monetary policy. On the other hand, in the micro environment, banks are a source of financing for business and individual needs [1]. The role of the bank in meeting the needs of business people and individuals is very vital, which at the same time carries

out its role as an intermediary institution. The importance of the role of the bank, the performance of the bank must be maintained so that every function can run well, if the bank's functions do not run well, one of the problems that will arise is the difficulty of getting fresh funds for MSME actors who want to develop or start their business, where this has an influence on the wheels of the economy in society. The government has sought various regulations to keep the condition of the health of banks well maintained, but until now there are still many banks that have failed, including rural banks.

During the period from 2014 to 2018, the number of rural banks decreased to 1,631 rural banks. In June 2019 there were 1,578 rural banks, this number has continued to decline for the last 5 years, in June 2014 the number of rural banks has decreased to 1,631 BPR. The decline in the number of rural banks mainly occurred in rural banks in the asset group of IDR1-5 billion and the asset group of IDR5-10 billion. In June 2020, the number of rural banks was 1,529 rural banks. This is an anomaly due to the fact that rural banks are an important and needed institution for the community as a placeto get funds and are one of the institutions used by the government to improve the regional economy, but in reality the number of rural banks continues to decline. Therefore, this study aims to investigate indicators of failure in rural banks in Indonesia.

Literature Review

Bank default is a condition where the bank is unable to run its business. The health of a bank can be seen from the bank's financial ratios which reflect the soundness level of the bank that has been set by the regulator [2]. Good bank governance and the application of risk management in carrying out bank operations are factors that come from internal banks [3]. While the influence caused by external factors is the economic condition of the country, the policies that the state sets and the conditions of the economic growth of a country. Bank liquidation can also be referred to as bank bankruptcy, standard operating bank, failed bank or bank with very poor performance[4, 5].

This study uses variable indicators from internal and external factors of the bank referring to previous studies. Based on research conducted by [2, 6] found that NPL had a significant positive effect on bank defaults. The results of this study are in line with [1, 4, 7-13]. Non-performing loan (NPL) is one of the measurements of a bank's business risk ratio which shows the magnitude of the risk of non-performing loans in a bank. NPL reflects the quality of assets in the loan portfolio and the risk of failure of the bank. A high NPL indicates the size of the bank's non-performing loans so that it is at risk of experiencing bank failure[3, 14] in his research reveals that NPL has a significant negative effect on the bankruptcy of rural banks. Meanwhile, [8, 15] found that NPL had a significant effect on bank defaults and strengthened the research findings of [10, 15-18].

The selection of the variable Capital Adequacy Ratio (CAR) as an indicator of variables that affect bank failure is in line with the research results of [2, 6, 13] a bank with a good capital adequacy ratio is alleged to have a good probability of profitability. According to several previous studies, it was found that CAR has insignificant results on the risk of bank default [7, 15, 17, 19-22]. Different things were found in several studies that CAR did not have a significant effect [1, 7, 8, 12, 19, 23, 24].

The next indicator found to have an effect on bank failure is Return on Assets. ROA is the ratio used to measure the company's ability to generate profits from investment activities. The greater the ROA, the greater the level of profit achieved by the company in terms of asset use. [2] found in their study that ROA has a significant positive effect on bank failure. This is in line with the results of research by [11, 14,

25] and Arfiyanti and Pertiwi (2020) revealed that ROA does not have a significant effect. Banks with small and medium scale will have low ROA and most of them fail.

The next indicator is the Loan to Deposit Ratio (LDR). This ratio shows the composition of the amount of credit given by using the amount of funds from the public. Based on research conducted by [22] found that LDR had a significant and positive effect on bank failure. This finding strengthens the findings of research conducted by [2, 6, 13, 18].

[10] found different findings where LDR had a significant and negative effect. Meanwhile, found that LDR has a significant effect on bank failure. When a bank passes the threshold set by the regulator (>110%) then the bank will have the potential to fail [2].

In this study, based on previous research indicators from external factors used Gross Domestic Product (GDP). GDP is the most important economic statistic because it is considered the best single measure of people's welfare. This is because GDP measures 2 things at the same time, namely the total income of everyone in the economy and the total state spending on goods and services from the economy.

The reason GDP can measure total income and expenditure is because for an economy as a whole, income must equal expenditure [26]. Annual GDP growth can be used to reflect the business cycle [21]. GDP is the representative of the most widely used macroeconomic indicators to identify the effect of exogamous factors from bank liquidations [19]. The findings from previous studies found that [15, 16, 24] found that the assessment of economic growth exerts a large influence on GDP. This is a rational thing and can be proven by activity and growth that has a negative impact on bankruptcy. All indicators used in this study are shown in Table 1.

Table 1

Variable Definition

Variable	Concept	Scale	Measurement
Bank default	A condition where a company or individual cannot generate sufficient income	Nominal	Bank health grouping by category 0 and 1 Category 0 = bank with a good soundness and fair soundness level Category 1 = bank with poor soundness level and less soundness bank
Independent variable			
NPL	A credit category classified as non-performing	Ratio	Total NPL NPL = ----------x100% Total Amount of Outstanding Loan
CAR	The ability of banks to provide their own capital funds in meeting funds to overcome the risk of loss.	Ratio	Capital CAR = ---------- x 100% Risk weighted asset
ROA	The ability of banks to generate profits that compare net income with assets owned	Ratio	Net Imcome ROA = ---------- x 100% Average Total Asset
LDR	Bank's ability to meet short-term obligations by dividing total credit to total third party funds	Ratio	Total Amount of Loans LDR = ---------- x 100% Total Amount of Deposits
GDP	The value of the price of goods and services in the market of a country in a certain period	Ratio	GDP = C + I + G + (X - M)

Methodology

The research method used is verification research where the research is carried out on the basis of a number of theories. The method of analysis starts with descriptive statistics and continues with logistic regression analysis and calculations. Logistic regression is an approach for making prediction models with a dichotomous scale. In this study, the classification of the categories of soundness banks and unsound Banks is carried out.

The unit of observation of this research is rural banks in East Java, considering that the largest number of rural banks in Indonesia are in East Java. The sampling technique used is purposive sampling. The independent variables in this study are financial ratios which are divided into two groups. Two groups of variables have been determined, namely Internal and External Factors, where internal factors consist of NPL, CAR, ROA, and LDR and external factors, namely GPD. The dependent variable used in this study is bank default at rural banks. The data used in this study is secondary data, namely BPR data in the East Java region as many as 204 rural banks during the period 2014 to 2018. Based on the above variables, there is a logistic regression equation as follows:

$$\text{Ln}\ \frac{P}{1\text{-}P} = a + \beta 1\ \text{CAR} + \beta 2\ \text{ROA} + \beta 3\ \text{NPL} + \beta 4\ \text{LDR} + \beta 5\ \text{GDP}$$

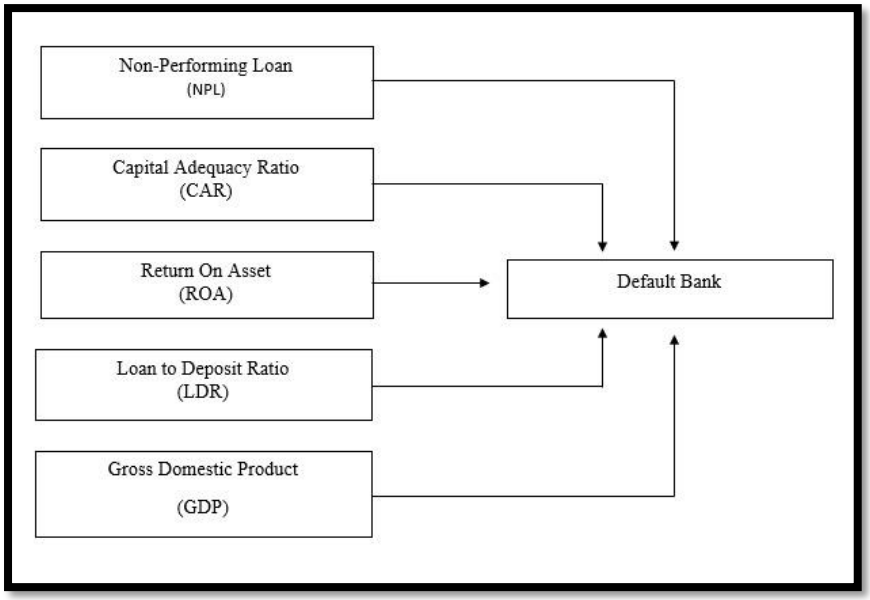

Figure 1. Framework

Result and Discussion

Based on the results of data processing using logistic regression, the SPSS system data processing detected that the GDP ratio indicator could not affect bank defaults. Therefore, the factor analysis of these variables cannot be used in this study.

Table 2

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	46.857	4	.000
	Block	46.857	4	.000
	Model	46.857	4	.000

Based on the results from Table 2. Omnibus Test of Model Coefficients shows the Chi Square number of 46,857 which is smaller than the table in DF4 which is 197.0639 with a significance level of 1%, thus indicating that there is no relationship between one variable and another variable. Thus, the variables of NPL, CAR, ROA and LDR can be used in further data processing.

Table 3

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	4.941	5	.764

Based on the results from Table 3. Hosmer and Lemeshow Test shows that the Chi Square value is 4.941 where this value is smaller than in Table DF 5 with a Chi Square value of 9.488 with a significance level of 0.764 greater than 5%, thus indicating that the model test can accepted and fit with the data, which means the data is the same as the observation.

Table 4

Classification results

	Observed		Y		TOTAL BANK	Predicted Percentage Correct
			0	1		
Step 1	Y	0	156	9	165	94.5
		1	28	11	39	28.2
	Overall Percentage					81.9

a. The cut value is ,500

Based on Table 4. Classification Result obtained as many as 165 banks are predicted to be soundness and 39 banks are predicted to be unsound. After conducting the Alpha and Beta Test which showed the number of Banks predicted to be in the soundness and truly soundness category, as many as 156 banks and default bank as many as 9 banks with a percentage of prediction correctness of 94.5 percent, then Banks that were predicted to be unsound but in fact entered in the soundness category as many as 28 banks and 11 banks in the unsound category. It can be concluded that the overall percentage value is 81.9%.

Based on table 6 of the variables in the equation above, not all values of the independent variables affect bank failure, namely ROA and LDR. The results of data testing show that CAR and NPL have a significant and positive effect on failure. CAR has an effect on bank failure at rural banks in Indonesia with a significance level of 10% and NPL has an effect on bank failures at rural banks in Indonesia with a significance level of 1%. The other variables (ROA and LDR) have an insignificant effect with a significance level of 1%.

Table 5

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1a	CAR	.039***	.020	3.728	1	.054	1.040	.999	1.083
	NPL	.148*	.028	27.137	1	.000	1.160	1.097	1.226
	ROA	-.083*	.053	2.412	1	.120	.921	.829	1.022
	LDR	-.011*	.021	.262	1	.609	.989	.949	1.031
	Constant	-3.236	1.846	3.072	1	.080	.039		

Sig *** = 10%

Sig * = 1%

$$\text{Ln}\ \frac{P}{1\text{-}P} = 3{,}236 + \beta 1\ 0{,}039 + \beta 2\ 0{,}083 + \beta 3\ 0{,}148 + \beta 4\ 0{,}011$$

Based on the value of the Odds Ratio (Exp(B)) the order of the variables that have the most influence on bank default sequentially, namely (1) NPL, (2) CAR, (3) LDR, and (4) ROA. The NPL variable has an effect on bank failure of 1.16 times, the CAR variable has an effect on bank failure of 1.04 times, the LDR variable has an effect on bank defaults of 0.989 times and the ROA variable has an influence on bank defaults of 0.921. The results of this study found that NPL and CAR were significantly positive for bank defaults, thus strengthening the research conducted by [4, 6, 7, 9, 18, 26-28]. This is because the NPL can measure the soundness of assets that can affect bank defaults from Rural Banks, the higher the NPL level indicates the soundness of assets in the loan portfolio and the risk of failure of rural banks. For the CAR variable, strengthening the research conducted. This is because the higher the CAR, the better the ability of banks to face the risk of loss, banks that have sufficient capital have the potential to have good profitability. The results of this study also show that ROA and LDR have an insignificant effect on bank defaults.

Conclusion

This study shows that Rural Banks should pay more attention to the NPL and CAR variables so that the two variables do not exceed the authority threshold, because these two variables have been shown to have an influence on the bank defaults of rural banks. If rural banks have NPL and CAR that exceed the authority threshold, then the bank will experience a decline in profitability, corporate liquidity and obstruction of the company's cash flow, ROA will also be affected as a result of the NPL value exceeding the threshold. Banks may lose customers as a result of non-current CAR turnover, resulting in a decrease in customer confidence in the bank. This research is expected to provide information, especially rural banks in order to avoid the risk of default.

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