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Research Paper

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Capital Adequacy Ratio Mediates the Effect of Non-Performing Loan on Returns on Assets in Public Commercial Banks

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ABSTRACT : The purpose of this study is to analyze the effect of non-performing loans on return on assets with a capital adequacy ratio as a mediator. This research is conducted at banking companies listed on the Indonesia Stock Exchange, with a total sample of 24 banks. Collecting data by observing the company's financial statements. The analysis technique used is path analysis. The results show that there is a negative and significant relationship between non-performing loans and capital adequacy ratio. The capital adequacy ratio has a positive and significant relationship with return on assets. Non-performing loan has a negative and significant relationship with return on assets. Based on the research results, it is proven that the Capital Adequacy Ratio mediates the effect of non-performing loans on return on assets.

Keywords: *non-performing loan, return on asset, capital adequacy ratio.*

I. INTRODUCTION AND HYPOTHESIS DEVELOPMENT

The banking sector is the driving force for a country's economy, banking mediates between people who have excess funds and people who need funds. Bank is a business entity that collects funds from the public in the form of deposits and distributes funds to the public in the form of credit and / or other forms. Banks are an industry engaged in services, so they rely on public trust (Brastama & Yadnya, 2020). Bank performance greatly affects the level of public trust, so it is important for banks to maintain good performance (Safitri et al., 2020). Poor bank performance will lead to failure and lead to financial crises that will have negative consequences for economic development (Nuhui et al., 2017). Bank financial performance can be assessed from several indicators. One of the main indicators used to assess bank financial performance is financial reports (Anwar & Murwaningsari, 2017). Banks must be able to build trust from the community. Public trust can be built with the soundness of the bank (Pratiwi & Wiagustini, 2016). Bank soundness is a qualitative assessment of various aspects that affect the condition or performance of a bank through quantitative and / or qualitative assessments of the factors of capital, asset quality, management, profitability, liquidity and sensitivity to market risk. Bank soundness is the bank's ability to carry out operational activities and be able to properly fulfill all obligations in accordance with existing regulations (Yuliawati & Dana, 2020).

Banks are required to carry out an assessment of the soundness of the bank using a risk approach (Risk Based Bank Rating). The RBBR (Risk Based Bank Rating) assessment system is a system established to assess the soundness of a bank by self-assessment based on an assessment of the risk profile, good corporate governance (GCG), profitability (earnings), and capital. The risk profile consists of eight risks, of which only two can be measured by financial ratios, namely credit risk and liquidity risk. Credit risk is measured using the ratio of non-performing loans (NPL) and liquidity risk is measured using the loan to deposit ratio (LDR). The good corporate governance factor takes into account the assessment of the implementation of self-assessment. The profitability factor (earnings) is measured by the indicators of return on assets (ROA) and net interest margin (NIM). The capital factor is measured by the capital adequacy ratio. Bank Indonesia, through Bank Indonesia Regulation Number 13/1 / PBI / 2011 concerning bank soundness assessment, expects that the bank will always be in a good condition so that it does not harm the customers and the bank itself (Dewi & Badjra, 2020).

Rentability is one of the factors assessed in assessing the soundness of a bank according to Bank Indonesia Regulation Number 13/1 / PBI / 2011. Profitability is important information for investors, the public, and the bank itself (Supiyadi & Meta Arief, 2019). Profitability plays a dominant role in improving the corporate image of a bank, because it creates a win-win situation between the bank and its stakeholders, especially investors (Adedeji & Adedeji, 2018). Bank profitability is usually expressed as a function of internal and external determinants. Internal determinants are factors that are mostly influenced by bank management

decisions and objective regulations such as liquidity, capital adequacy, expenditure management, and bank size (Ghebreorgis & Atewebhran, 2016)

In accordance with the RBBR approach, measurement of earnings can be done using return on assets (ROA) and net interest margin (NIM) (Pramiswari & Dewi, 2020). ROA is used to measure the earnings of banking companies because ROA focuses on calculating the effectiveness of a banking company in managing its assets to generate profits. Return on assets can be influenced by the loan to deposit ratio, capital adequacy ratio, non-performing loans, and operating costs and operating income as well as third party funds (Sawitri, 2018). During 2016 to 2018, there were fluctuations in banking financial ratios. The return on assets of publicly traded banks in the period 2016 to 2018 has decreased. The decline in average ROA for three consecutive years shows that companies are increasingly ineffective in managing their assets to generate profits (Atmoko et al., 2018). The decrease in the average ROA indicates that the performance of publicly traded commercial banks in managing assets for profit has decreased continuously for three years.

The average movement of return on assets of go public commercial banks in Indonesia for 3 years, from 2016 to 2018 shows the results that the average return on assets of banks is above 1.25%, the average return on assets of banks has decreased from 2016. Until 2018, in 2016 the average return on assets of banks was 1.57%, in 2017 it was 1.53%, and in 2018 it was 1.47%. In 2016 and 2017 the ROA of publicly traded commercial banks was above 1.5% on average, this indicates that the ROA in 2016 and 2017, ROA in 2018 was between 1.25% and 1.5%, namely is at 1.47%. Return on assets above 1% in the period 2016 to 2018 indicates that the average banking performance is good. The average non-performing loan fluctuated during the period 2016 to 2018. In 2016, the average non-performing loan was at the level of 2.57%, and increased in 2017 to 2.87%, but decreased in 2018 to 2.82%, however, non-performing loans are still at normal limits. Capital adequacy is an important indicator in assessing bank performance. The average capital adequacy ratio of banks in Indonesia from 2016 to 2018 was at a ratio of 22%, the average capital adequacy ratio has increased from year to year, in 2016 the CAR was 22.43% to 22.65% in 2017 and in 2018 amounted to 22.75%. The average bank's capital adequacy ratio has exceeded the minimum capital requirement

Lending is the main income from bank operations, poor credit quality contributes greatly to bank failure (Mendoza & Rivera, 2017). The greater the NPL level indicates that the bank is not professional in credit management which will have an impact on bank losses. So it can be said that NPL has a negative effect on ROA. Haryanto (2016), Irawati & Maksum (2018), Kadioglu et al. (2017), Octaviani & Andriyani (2018), Riyanto & Surjandari (2018), Septiani & Lestari (2016), and Yudha et al. (2017) found that NPL has a negative effect on ROA, while Akbar & Djazuli (2018), Permatasari & Amboningtyas (2016), Pangestika & Musdholifah (2018), found that NPL has no effect on ROA. Credit risk not only affects return on assets but also affects bank capital. High credit risk causes banks to provide more funds to cover possible losses. An ever-increasing NPL will affect bank capital, because banks must provide funds to meet the allowance for earning assets losses formed. Bank capital that should have been used for other investments was reduced, so that the effect of NPL on CAR was negative. Octaviani & Andriyani (2018) and Septiani & Lestari (2016) found that the greater the NPL, the lower the CAR (negative relationship). Different results were found by Akbar & Djazuli (2018) and Permatasari & Amboningtyas (2016) where NPL has a positive and insignificant effect on CAR.

CAR is the capital ratio that shows the bank's ability to provide back-up funds if the bank experiences difficulties and the bank management's ability to identify, measure, supervise and control risks that arise which can affect the amount of capital. Banks that have high capital will achieve high profits because they are more careful in choosing sources of financing so that CAR has a positive effect on ROA (Septiani & Lestari, 2016). Haryanto (2016), Irawati & Maksum (2018), Pangestika & Musdholifah (2018) found that the capital adequacy ratio has a positive effect on return on assets, while Riyanto & Surjandari (2018) found that CAR has an effect negative to ROA. CAR as a mediating variable between the influence of NPL on ROA, because CAR as the capital ratio is a determining factor for the operation of bank operations in raising funds and channeling them back. CAR reflects how much the bank's ability to face unexpected risks (Anggari & Dana, 2020). Septiani & Lestari (2016) found that the capital adequacy ratio could mediate between the effect of non-performing loans and return on assets, whereas Febriyono (2015) found that non-performing loans in their effect on return on assets were not mediated by a capital adequacy ratio. Based on problems, and previous research, the hypothesis that can be formulated is as follows:

H1: Non-performing loans have a negative effect on return on assets

H2: Non-performing loans have a negative effect on the capital adequacy ratio

H3: Capital adequacy ratio has a positive effect on return on assets

H4: Non-performing loans have significant effect on return on assets with capital adequacy ratio as mediator

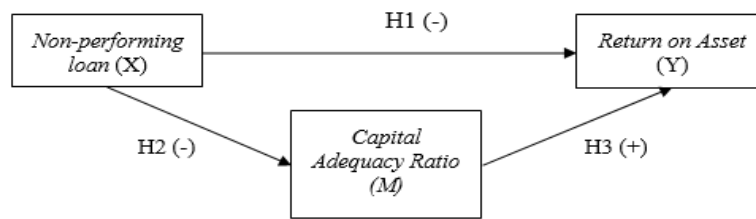


Figure 1. Conceptual Framework

II. METHODS

This type of research is quantitative research. Quantitative research means that data analysis activities include data processing and data presentation, performing calculations to describe data and testing hypotheses using statistical tests. This research was conducted at banks listed on the Indonesia Stock Exchange through the bank's annual financial reports. The object of this study is the effect of non-performing loans on return on assets mediated by the capital adequacy ratio of go public commercial banks. In this study, the endogenous variable is return on assets (ROA), the exogenous variable is non-performing loans (NPL) and the mediating variable is the capital adequacy ratio (CAR).

Return on assets (ROA) is a comparison between profit before tax and the average total assets of publicly traded banks for the period 2016-2018, which is measured using a percentage ratio scale. ROA can be calculated by the following formula:

$$ROA = \frac{\text{profit before tax}}{\text{total assets}} \times 100\% \dots\dots\dots(1)$$

Non-performing loans (NPLs) are a comparison between the number of non-performing loans, non-performing loans including substandard, doubtful, and non-performing loans, with total loans extended to publicly traded commercial banks for the 2016-2018 period measured using a percentage ratio scale.

$$NPL = \frac{\text{credit wit h a collectability of 3-5}}{\text{total credits granted}} \times 100\% \dots\dots\dots(2)$$

Capital adequacy ratio is a comparison between the amount of core capital and supplementary capital with risk weighted assets (RWA) in publicly traded banks for the period 2016-2018, which is measured using a percentage ratio scale.

$$CAR = \frac{\text{capital}}{RWA} \times 100\% \dots\dots\dots(3)$$

The quantitative data from this study are the financial statements of publicly traded banks in 2016-2018. This study uses secondary data in the form of financial reports and annual reports of publicly traded banks from 2016 to 2018. Financial report data and annual reports analyzed in this study were 2016-2018 which were obtained from the Indonesia Stock Exchange. The population in this study were 45 companies in the banking sector listed on the Indonesia Stock Exchange for the period 2016-2018. Sampling was done using purposive sampling method. Based on the sampling technique with purposive sampling, a sample of 24 companies was obtained. This study uses data collection methods in the form of observation. The analysis technique used is path analysis

III. RESULTS AND DISCUSSION

Based on the results of descriptive statistical analysis, non-performing loans have a minimum value of 0.00. The maximum value is 8.47 and the average is 2.7525 with a standard deviation of 2.04877. The average NPL of 2.7525 indicates that the average non-performing loan is still within normal limits. The capital adequacy ratio has a minimum value of 10.52. The maximum value is 66.43 and the average is 22.9018 with a standard deviation of 8.59775. The average CAR of 22.9018 indicates that the average bank's capital adequacy ratio has exceeded the minimum capital requirement that a bank must have. Return on assets has a minimum value of 0.04. The maximum value is 3.97 and the average is 1.5232 with a standard deviation of 1.09494.

The Kolmogorov Sminarnov (K-S) value is 0.094 and the Asymp value. Sig. (2-tailed) of 0.184. These results indicate that the regression equation model is normally distributed because of the Asymp value. Sig. (2-tailed) is greater than an alpha value of 0.05 (0.184 > 0.05). The tolerance and VIF values of the non-performing loan variables were 0.620 and 1.614, respectively, the tolerance and VIF values of the capital adequacy ratio variable were 0.620 and 1.614, respectively, all showed the tolerance value for each variable was greater than 0.1 and the VIF value was smaller. of 10 which means the regression equation model is free of multicollinearity.

The Durbin Watson value (d-count) is 1.866. With a significance of 0.05 and N = 72 and the number of independent variables k = 1, the value of du = 1.589 is obtained, the value of (4 - du) is 4 - 1.589 = 2.411. Therefore, the Durbin Watson value (d-count) of 1.866 is between 1.589 and 2.411 so it can be concluded that there is no autocorrelation. The significance value of the non-performing loan variable is 0.585, the significant value of the capital adequacy ratio variable is 0.189 so it can be concluded that there is no heteroscedasticity problem

Table 1. Result of Path Analysis 1

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	Beta	Std.Error			
(Constant)	30,352	1,465		20,720	0,00
NPL	-2,588	0,395	-0,617	-6,555	0,00

Source: Secondary data processed, 2020

Based on the results of the substructure path analysis 1 as presented in Table 1, the following structural equations can be made:

$$Y1 = \alpha + \beta_1 X1 + e1$$

$$Y1 = 30.352 - 0.617X1 + 0.395 \dots \dots \dots (4)$$

The regression coefficient value of the non-performing loan variable is negative with a t-test significance value of less than 0.05. This shows that the non-performing loan variable has a significant negative effect on the capital adequacy ratio variable. The magnitude of the influence of the independent variable on the dependent variable as indicated by the total determination value (R Square) of 0.372 means that 37.2% of the variation in the capital adequacy ratio is influenced by non-performing loans, while the remaining 62.8% is explained by other factors that are not put in the model

Table 2. Result of Path Analysis 2

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	Beta	Std.Error			
(Constant)	1,201	0,506		2,372	0,020
NPL	-0,176	0,065	-0,329	-2,709	0,008
CAR	0,044	0,015	0,348	2,863	0,006

Source: Secondary data processed, 2020

Based on the results of the path analysis for substructure 2 as presented in Table 2, the following structural equations can be made:

$$Y2 = \alpha + \beta_2X1 + \beta_3M + e_2$$

$$Y2 = 1.201 - 0.329 X + 0.044M + 0.015 \dots \dots \dots (5)$$

The regression coefficient value of each independent variable is positive with a t test significance value of less than 0.05. This shows that all independent variables have a significant positive effect on the dependent variable. The magnitude of the influence of the independent variables on the dependent variable as indicated by the total determination value (R Square) of 0.352 means that 35.2% of the variation in return on assets is influenced by variations in non-performing loans and capital adequacy ratios, while the rest is 64.8%. explained by other factors not included in the model.

The total determination value of 0.594 means that 59.4% of the variation in return on assets is influenced by variations in non-performing loans and capital adequacy ratios, while the remaining 40.6% is explained by other factors not included in the model. The direct effect of the capital adequacy ratio variable on Return on Assets is 0.348, while the indirect effect of the non-performing loan variable on return on assets through a capital adequacy ratio is -0.215 and the total effect of the non-performing loan variable on return on assets through a capital adequacy ratio is amounting to -0.543. So it can be concluded that the total effect of non-performing loans on return on assets through the capital adequacy ratio is greater than the direct effect of non-performing loans on return on assets without going through the variable capital adequacy ratio.

Based on the results of the analysis of the effect of non-performing loans on the capital adequacy ratio, a significance value of 0,000 was obtained with a beta coefficient of -0.617 that was negative. A significance value of 0.000 <0.05 indicates that hypothesis is accepted. This result means that non-performing loans have a negative effect on the capital adequacy ratio. Increasing non-performing loans will lower the capital adequacy ratio by 0.617. The effect of non-performing loans on return on assets has the significance value is 0.008 with a beta coefficient value of -0.329 is negative. Significance value 0.008 <0.05 indicates that the hypothesis is accepted. This result means that non-performing loans have a negative effect on return on assets. The effect of the capital adequacy ratio on return on assets has significance value of 0.006 with a beta coefficient value of

0.348 is positive. Significance value $0.006 < 0.05$ indicates the hypothesis is accepted. This result means that the capital adequacy ratio has a positive effect on return on assets. Increasing the capital adequacy ratio by 1 will increase the return on assets by 0.348.

Therefore, $Z \text{ count} > 1.96$. This means a capital adequacy ratio, which mediates the relationship between non-performing loans and return on assets. A high NPL ratio indicates lower credit quality which can lead to lower bank income. The low quality of credit also has an impact on bank capital adequacy, the greater the credit risk faced by a bank will increase the formation of allowance for earning assets losses so that the share of equity is a component of capital adequacy, so that non-performing loans have a significant negative relationship to the capital adequacy ratio. High capital adequacy shows a bank's ability to be able to provide greater credit which can increase bank income. This implies that return on assets, non-performing loans and capital adequacy ratios are taken into consideration in making investment decisions for investors by considering banks that have high return on assets and capital adequacy ratios as well as low non-performing loans, and so that commercial banks going public considering the rate of return on assets, non-performing loans, and the bank's capital adequacy ratio to comply with applicable regulations.

IV. CONCLUSION

Non-performing loans have a negative effect on the capital adequacy ratio. This means that if the level of the ratio of non-performing loans compared to all loans extended increases, the lowering of the ratio between core capital and supplementary capital compared to RWA. Capital adequacy ratio will have a positive effect on return on assets. This means that if the level of the ratio of core capital and supplementary capital compared to RWA is increasing, it will increase the ratio of return on assets. Non-performing loans have a negative effect on return on assets. This means that if the level of the ratio of non-performing loans compared to all loans extended increases, it will decrease the return on assets ratio. The capital adequacy ratio mediates the effect of non-performing loans on return on assets. This shows that non-performing loans have a significant impact on return on assets if mediated by a capital adequacy ratio, which means that return on assets is highly dependent on the level of the capital adequacy ratio and also the level of non-performing loans.

To increase ROA, banks must reduce non-performing loans by applying strict credit analysis principles. In addition to affecting ROA, the level of non-performing loans also affects the level of bank capital, so the bank must reduce the level of non-performing loans by applying strict credit analysis principles. Banks must also pay attention to the level of capital adequacy, so that banks can channel more credit and so that banks can finance assets that contain risk. So that the ROA of a bank is not affected by the level of non-performing loans, the bank must pay attention to the level of capital, so that if there is an increase in non-performing loans, the level of capital can finance the credit risk, so that the ROA will be stable. Further researchers should develop this research by adding other variables that affect return on assets, such as net interest margin, loan to deposit ratio, and BOPO (operating costs to operating income) which researchers have not been able to reach in this study

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