

THE IMPACT OF CREDIT RISK ON THE PROFITABILITY OF CONVENTIONAL BANKS IN INDONESIA

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Abstract. This study aims to examine the effect of Non-Performing Loans on profitability, to examine the effect of Capital Adequacy Ratio on profitability, to examine the effect of Total Loan to Assets Ratio on profitability, and to examine the effect of Total Loan to Deposit Ratio on profitability. The approach used in this study is quantitative with secondary data obtained from the Indonesia Stock Exchange and annual reports of companies listed on the Indonesia Stock Exchange during the period 2018 to 2023. Based on this study, it is concluded that Non-Performing Loans have a significant negative effect on bank profitability. Capital Adequacy Ratio does not affect bank profitability. Total Loan to Asset Ratio does not affect bank profitability. Total Loan to Deposit Ratio also does not affect bank profitability.

Keywords: Non Performing Loan; Profitabilitas Bank; Capital Adequacy Ratio; Total Loan to Asset Ratio

I. INTRODUCTION

The banking sector plays an important role in the Indonesian economy. Both at the micro and macro levels, the state of a country's economy is greatly influenced by this sector. If the banking sector is stable, this will have a positive impact because it can support the financial system in Indonesia. In Law Number 10 of 1998, it is stated that one of the main roles of banks is as an intermediary institution. Banks function as a liaison between parties who have funds (such as deposits, current accounts and savings from the public) and parties who need funds (such as individuals or companies that need loans). Banking generates income, mainly by providing credit or loans to customers. However, banks will face high credit risk when the possibility of increased default will affect the bank's performance (Mithila & Kengatharan, 2024; Dung, et al., 2024). Banks are a key element in a country's financial system. If a bank experiences problems, this can have a wide-ranging negative impact and disrupt the economy as a whole through what is known as the contagion effect and will affect the bank's profitability. Therefore, it is very important to manage the credit risk faced by banks in the country (Naili & Lahrichi, 2020).

Bank performance is important because it shows the bank's efforts in managing its assets and capital in order to gain profits (Anindiansyah, Sudiyatno, Puspitasari, & Susilawati, 2020). For banks, maintaining good performance is very important, especially maintaining profitability because it indicates that the bank has good prospects so that the company's development can be guaranteed (Anatasya & Susilowati, 2021).

This study refers to previous research conducted in Sri Lanka by G. Mithila and L. Kengatharan (2024). The study aims to systematically investigate the impact of credit risk on the profitability of commercial banks in Sri Lanka, using independent variables, namely the Non-Performing Loan ratio (NPL), Capital Adequacy Ratio (CAR), Total Loan to Assets Ratio (LTA) and Total Loan to Deposit Ratio (LTD) and the dependent variable, namely Return on Equity (ROE).

Return on Equity shows how effectively a company generates profits from the capital invested by its shareholders. The higher the ROE value, the better the company is at generating profits and is efficient in using equity capital (Arifaj & Baruti, 2023). Bad debts will reduce the value of bank assets, because the receivables are considered uncollectible. The decrease in asset value will have a negative impact on the calculation of ROE. Credit risk describes the risk of borrower default or potential loss to the bank if the borrower fails to meet debt obligations on the loan maturity date (Saleh & Afifa, 2020). Credit risk explains the potential for bad debts arising from any funds provided in the form of loans or credit. The credit risk ratio is used in assessing the risk of credit disbursed by comparing bad debts with disbursed loans. Fluctuations in credit risk can indicate changes in the health of a bank's loan portfolio, which can be detrimental to the bank's performance. When a company's exposure to high-risk loans increases, it will increase the cumulative amount of outstanding loans, thereby limiting the bank's profitability (Nurfritria, Putri, Lestari, & Leon, 2023). Based on data obtained from Bank Indonesia, credit growth in 2023 reached 8.96%, and continued to increase until now in 2024 with a credit growth percentage reaching 12.36%.

This increase indicates the optimism of economic actors towards the growth prospects and confidence in the stability of the financial system in Indonesia.

Non Performing Loans show that decreasing NPL will increase investment profit and vice versa if NPL increases it will decrease investment profit (Nurfritria, Putri, Lestari, & Leon, 2023). In a study conducted by Nelson, (2020) stated that NPL has a significant negative effect on ROE because if the NPL value increases, it will give a bad signal to bank management because it indicates a high possibility that the funds lent to customers will not be returned. Banking is expected to be able to maintain credit risk so that profitability can increase.

A capital adequacy ratio with a higher value indicates better protection against financial risk and potential economic downturn (Dung, et al., 2024). The results of a study conducted by Paudel (2018) showed that CAR has a positive effect on profitability. Meanwhile, a study conducted by Mithila & Kengatharan (2024) stated that CAR does not have a significant effect on profitability. This may be because this ratio is directly related to capital adequacy and the bank's ability to absorb risk. Higher CAR is important to meet regulatory compliance and financial stability requirements, this may not be directly related to ROE.

The higher the Loan to Assets Ratio (LTA), the better the credit performance, because the credit component is larger in the asset structure owned by the bank (Sanger et al., 2016). Research conducted by Mithila & Kengatharan (2024) said that LTA has a positive relationship with ROE. This positive effect may occur when LTA is at a certain level, because higher LTA can increase interest income. By evaluating and managing credit risk effectively, banks can generate higher income without significantly increasing the possibility of default.

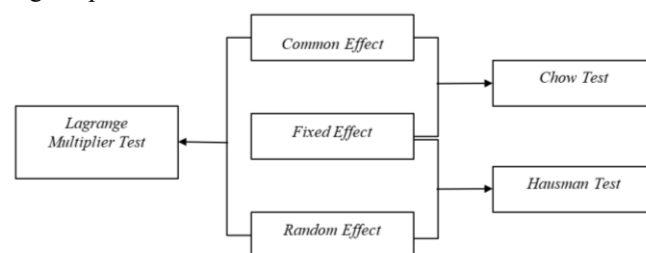
Loan to Deposit Ratio (LTD) This ratio is used to measure the bank's ability to meet withdrawals made by customers (depositors) by relying on loans as a source of liquidity. The higher this ratio, the lower the bank's liquidity ability to repay withdrawals by customers (Mahesta, 2022). Research conducted by Mithila & Kangetharan (2024) stated that Loan to Deposit (LTD) showed a negative effect on ROE, which contradicts the research results of Bandara, Jameel, & Haleem, (2021) which concluded that there was no significant relationship between the two variables. This can be explained by the high proportion of loans compared to deposits. Although increasing loans can increase interest income, it also increases the risk of loan default, which can ultimately lead to an increase in NPL and have a negative impact on ROE.

Based on the description of the results of previous studies, the researcher is interested in conducting research in Indonesia with the title "The Impact of Credit Risk on the Profitability of Conventional Banks in Indonesia".

Based on the background above, the research objectives to be achieved are to test the effect of Non Performing Loans on profitability, to test the effect of the Capital Adequacy Ratio on profitability, to test the effect of the Total Loan to Assets Ratio on profitability, and to test the effect of the Total Loan to Deposit Ratio on profitability.

II. RESEARCH METHOD

This study aims to test the effect of independent variables, namely Non Performing Loan, Capital Adequacy Ratio, Total Loan to Assets, Total Loan to Deposit Ratio, Inflation, and Gross Domestic Product on Return on Equity (ROE) as the dependent variable. The approach used in this study is quantitative with secondary data obtained from the Indonesia Stock Exchange and annual reports of companies listed on the Indonesia Stock Exchange during the period 2018 to 2023. The research sample was selected using a purposive sampling technique with the criteria of conventional banks listed on the Indonesia Stock Exchange and having complete data during that period, resulting in a sample of 43 conventional banks. The total observation data used in this study is 258 data, consisting of 43 banks for 6 years. The analysis method used is panel data regression using Eviews 9 software. In panel data regression analysis, there are three models tested, namely the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). To select the most appropriate model, several tests were conducted, such as the Chow Test to select between Fixed Effect or Common Effect, the Hausman Test to select between Fixed Effect or Random Effect, and the Lagrange Multiplier Test (LM Test) to select between Common Effect or Random Effect. By using these tests, this study aims to obtain the most appropriate model in measuring the influence of independent variables on Return on Equity in banks listed on the Indonesia Stock Exchange during the period 2018 to 2023.



1. Chow Test

The Chow test is used to determine the right model between common effect or fixed effect. This test tests the null hypothesis which states that there is no difference in data behavior between individuals and time, and the alternative hypothesis which states that there is a difference in data behavior between individuals and time (fixed effect).

The decision is made based on the chi-square probability value: if it is less than 0.05, H_0 is rejected and the selected model is fixed effect, so it is continued with the Hausman test. If it is greater than 0.05, H_0 is accepted and the selected model is common effect, which can then be tested with the Lagrange Multiplier.

Table 1. Chow Test Results

| Dependent Variable | Chi-Square | Prob | Decision |
|--------------------|------------|------|----------------------------------------------------------|
| Return on Equity | 151,893 | 0,00 | H_0 is rejected, so the accepted model is fixed effect |

Source: Results by Eviews 9.

Based on the chow test results table, the cross-section probability value of chi-square is $0.0000 < 0.05$. This means that the decision obtained is that H_0 is rejected so that the selected model is Fixed effect. Furthermore, the Hausman test is used to test whether the selected model is Fixed effect or random effect.

2. Hausman Test

The Hausman test is used to determine a more appropriate model between fixed effect and random effect in this study. The purpose of this test is to determine whether there is heterogeneity in the characteristics of each model. The hypothesis in the Hausman test is as follows:

The null hypothesis (H_0) states that there is no correlation of error with the independent variable, while the alternative hypothesis (H_a) states that there is a correlation of error with the independent variable.

The test decision is taken based on the chi-square probability value. If the chi-square probability value is less than 0.05, then H_0 is rejected, which means that there is a correlation of error with the dependent variable and the selected model is fixed effect. On the other hand, if the chi-square probability value is greater than 0.05, then H_0 is accepted, which means there is no correlation of error with the independent variable and the selected model is random effect.

Table 2. Hausmen Test Results

| Dependent Variables | Chi-Square | Prob | Decision |
|---------------------|------------|-------|------------------------------------------------------------|
| Return on Equity | 7,786 | 0,099 | H_0 is accepted, then the model chosen is random effect. |

Source: Results by Eviews 9.

Based on the results table, the Hausman test has a probability value of $0.099 > 0.05$. This means that the decision obtained is that H_0 is accepted, so the selected model is a random effect. Thus, a Lagrange multiplier test is needed.

3. Lagrange Multiplier Test

The Lagrange Multiplier Test is used to determine the best model between the common effect model and the random effect model. The hypothesis in this test is as follows:

The null hypothesis (H_0) states that there is no correlation of error with the independent variable, while the alternative hypothesis (H_a) states that there is a correlation of error with the independent variable.

The test decision is based on the probability value of the Breusch-Pagan test. If the cross-section probability value of Breusch-Pagan is less than 0.05, then H_0 is rejected, which means that there is a correlation of error with the dependent variable and the selected model is a random effect. Conversely, if the probability value is greater than 0.05, then H_0 is accepted, which means that there is no correlation of error with the independent variable and the selected model is a common effect.

Table 3. Lagrange Multiplier Test Results

| Dependent Variable | Breusch-pagan | Prob | Decision |
|--------------------|---------------|-------|------------------------------------------------------------|
| Return on Equity | 59,1919 | 0,000 | H_0 is rejected, so the accepted model is random effect. |

Source: Results by Eviews 9

Based on the table of results of the lagrange multiplier test, it has a probability value of $0.000 < 0.05$. This means that the decision obtained is that H_0 is rejected, so the right decision in determining the model is random effect. The results of the lagrange multiplier test also determine that the model used in this study is random effect.

F Test

The F test is a test that can determine and determine the influence between The F test is used to measure the influence between independent variables and dependent variables, and to determine whether the regression model used is feasible or not. The hypothesis in the F test is as follows: the null hypothesis (H_0) states that there are no independent variables that have an influence on the dependent variable, while the alternative hypothesis (H_a) states that there is at least one independent variable that has an influence on the dependent variable.

The test decision is based on the F-statistic probability value. If the F-statistic probability value is less than 0.05, then the null hypothesis (H_0) is rejected, which means that there is at least one independent variable that has an influence on the dependent variable. On the other hand, if the probability value of the F-statistic is greater than 0.05, then the null hypothesis is accepted, which means that no independent variables have an effect on the dependent variable.

Table 4. F-Test Results

| Dependent Variable | F-Statistic | Prob | Decision |
|--------------------|-------------|--------|----------------|
| Return on Equity | 2,884 | 0,0231 | H_0 Rejected |

Source: Results by Eviews 9.

Based on the F test results table, the F-statistic probability value is $0.0231 < 0.05$, meaning that the decision chosen is H_0 is rejected. This means that there is at least one independent variable in the bank-specific factor or macroeconomic factor that has an influence on the dependent variable, namely bank profitability. The F test results explain that the regression model in this study is feasible to use.

Goodness of Fit Test (Adjusted R^2)

The F test is used to measure the influence between the independent variable and the dependent variable, as well as to determine the feasibility of the regression model used. In the F test, the null hypothesis (H_0) states that there are no independent variables that affect the dependent variable, while the alternative hypothesis (H_a) states that there is at

least one independent variable that has an influence on the dependent variable.

The decision to accept or reject the hypothesis is based on the F-statistic probability value. If the F-statistic probability value is less than 0.05, then the null hypothesis (H_0) is rejected, which means that there is at least one independent variable that affects the dependent variable. On the other hand, if the probability value of the F-statistic is greater than 0.05, then the null hypothesis is accepted, indicating that no independent variables affect the dependent variable.

Table 5. Goodness of Fit Test Results (Adjusted R^2)

| Dependent Variable | R^2 | Adjusted R^2 |
|--------------------|--------|----------------|
| Return on Equity | 0,0436 | 0,0284 |

Source: Results by Eviews 9.

Based on the results of the goodness of fit test, the Adjusted R^2 value is 0.0283. This means that the independent variable is able to explain the variation of the dependent variable (bank profitability) is able to explain the variables of the dependent variable (bank profitability) by 2.83% and the remaining 97.09% can be influenced by other factors contained in this research model.

Data Analysis Method

Panel data regression analysis is used to test the effect of independent variables, namely non-performing loan capital adequacy ratio, loan to asset ratio, loan to deposit ratio, inflation and gross domestic product on the dependent variable, namely return on equity

T test is used to measure the significance of the effect of each independent variable on the dependent variable with the assumption that other variables remain constant. The hypothesis in the T test is as follows

H_0 The independent variable has no significant effect on the dependent variable

H_a The independent variable has a significant effect on the dependent variable

T test test decision

If the sig t value $< \alpha$ 0.05 then H_0 is rejected and H_a is accepted, which indicates that the independent variable has a significant effect on the dependent variable

If the sig t value $> \alpha$ 0.05 then H_0 is accepted and H_a is rejected, which means that the independent variable has no significant effect on the dependent variable

III. RESULTS AND DISCUSSION

Description of Research Objects

The data description provides a brief explanation of the company data as the object of research. The object of research in this study is conventional banking listed on the Indonesia Stock Exchange for six years (2018-2023 period). Research data was obtained from the bank's Annual Financial Report and www.idx.co.id. The sampling method in this study used

purposive sampling based on the criteria, including: (1) The research sample is conventional banking listed on the Indonesia Stock Exchange for six years (2018-2023 period); (2) Conventional banking has not been delisted for six years (2018-2023 period); (3) Conventional banking has the data needed for the research variables in the financial and annual reports stated in Rupiah. Of the 47 banking populations, only 42 conventional banks were used as research samples so that there were 252 total observation data (42 conventional banks x 6 years). The research sample data is presented in the appendix.

Results of Descriptive Statistical Analysis

Descriptive statistical analysis contains a summary of research data containing minimum, maximum, mean, and standard deviation values. The minimum value is the lowest value of each variable, the maximum value is the highest value of each variable, the mean value shows the average value of each research variable, and the standard deviation is the value of the distribution of research data that shows whether it is homogeneous or heterogeneous which is fluctuating. The results of the descriptive statistical test can be explained as follows:

Table 6. Results of Descriptive Statistical Analysis

| Variabel | Observation | Minimum | Maximum | Mean | Std. Dev |
|-----------------------------|-------------|-----------|----------|----------|----------|
| Return on Equity | 258 | -1,239300 | 0,209400 | 0,024800 | 0,133608 |
| Non-Performing Loan | 258 | 0,000000 | 0,222700 | 0,030844 | 0,026160 |
| Capital Adequacy Ratio | 258 | 0,090100 | 2,838800 | 0,335820 | 0,300730 |
| Total Loan to Asset Ratio | 258 | 0,103500 | 0,869500 | 0,572635 | 0,121863 |
| Total Loan to Deposit Ratio | 258 | 0,123500 | 4,837000 | 0,920164 | 0,453968 |

Source: Output Panel Data Eviews 9.0

Based on the descriptive statistical analysis in table 4.1, the interpretation results can be explained as follows:

Return on Equity has an average value (mean) of 0.024442 and a standard deviation of 0.133608. The minimum value of Return on Equity of -1.239300 is owned by PT. Bank Raya Indonesia Tbk. in 2021, while the maximum value of 0.209400 is owned by PT. Bank Mega Tbk. in 2021.

Non-Performing Loan has an average value (mean) of 0.030844 and a standard deviation of 0.026160. The minimum value of Non-Performing Loan of 0.000000 is owned by PT. Bank Maspion Indonesia Tbk. in 2018-2023, while the maximum Non-Performing Loan value of 0.222700

is owned by PT. Bank Pembangunan Daerah Banten Tbk. in 2020.

The Capital Adequacy Ratio has an average value (Mean) of 0.335820 and a standard deviation of 0.300730. The minimum Capital Adequacy Ratio value of 0.090100 is owned by PT. Bank Pembangunan Daerah Banten Tbk. in 2019, while the maximum Capital Adequacy Ratio value of 2.838800 is owned by PT. Bank Krom Indonesia in 2022.

The Total Loan to Asset Ratio has an average value (Mean) of 0.572635 and a standard deviation of 0.121863. The minimum Total Loan to Asset Ratio value of 0.103500 is owned by PT. Bank Capital Indonesia Tbk. in 2021, while the maximum value of 0.869500 is owned by PT. Bank Neo Commerce Tbk. in 2018.

Total Loan to Deposit Ratio has an average value (Mean) of 0.920164 and a standard deviation of 0.453968. The minimum value of Total Loan to Deposit Ratio of 0.123500 is owned by PT. Bank Capital Indonesia Tbk. in 2021, while the maximum value of 4.837000 is owned by PT. Bank Krom Indonesia in 2023.

Data Analysis

Panel Data Regression Analysis Results

This study uses panel data regression analysis with the aim of testing the effect of independent variables, including non-performing loans, capital adequacy ratio, total loan to asset ratio, and total loan to deposit ratio on the dependent variable, namely bank profitability as measured by return on equity.

The results of the regression equation in this study are as follows:

$$ROE = 0.019860 + 1.110939NPL + 0.018384CAR + 0.054742LTA + 0.001831LTD$$

T-Test Results

The T-test aims to test the significance of the influence of each independent variable, such as non-performing loans, capital adequacy ratio, total loan to asset ratio, and total loan to deposit ratio on the dependent variable, namely bank profitability.

Based on the T test in table 7, the results can be explained as follows:

1. Non-Performing Loan has a probability value of 0.0004 < 0.05 with a coefficient of -1.110939. This means that Non-Performing Loan has a negative effect on bank profitability.
2. Capital Adequacy Ratio has a probability value of 0.3485 > 0.05 with a coefficient of 0.018384. This means that Capital Adequacy Ratio has no effect on bank profitability.
3. Total Loan to Asset Ratio has a probability value of 0.2945 > 0.05 with a coefficient of 0.054742. This means that Total Loan to Asset Ratio has no effect on bank profitability.
4. Total Loan to Deposit Ratio has a probability value of 0.4743 > 0.05 with a coefficient of 0.001831. This means that the Total Loan to Deposit Ratio has no effect on bank profitability.

Based on the results of hypothesis testing that has been carried out using the T test (partial), the effect of the independent variable on the dependent variable can be explained as follows:

The Effect of Non-Performing Loans on Bank Profitability

The Regression test in this study provides results that non-performing loans have a negative effect on return on equity. This can be interpreted that with increasing NPL, the bank's capital used for investment and operational activities decreases, thereby affecting the decline in bank profitability. The results of this study are in line with research conducted by Dung, Salimi, et al., (2024); Nurfitri, et al., (2023); Ekinci & Poyraz (2019); and Nabilah & Sutiman (2024) that non-performing loans have a negative effect on return on equity. This finding explains that increasing bank credit risk can reduce the level of bank profitability, where the bank's equity used for investment decreases and when NPL continues to increase the bank will not get income from interest that should be received from the problematic loan. With reduced interest income, the bank will experience a decrease in total income which can affect its profitability. ROE itself is calculated by dividing net income by equity, so that a decrease in net income due to an increase in NPL directly reduces ROE.

The Effect of Capital Adequacy Ratio on Bank Profitability

The Regression Test in this study provides results that the capital adequacy ratio has no effect on return on equity. This can be interpreted that when CAR continues to increase, it increasingly shows that the bank has sufficient capital to absorb losses, but it does not mean that the bank will automatically generate higher profits. On the contrary, ROE depends on how effective the bank is in generating profits using existing equity, not just how much capital it has. The greater the amount of capital provided by the bank (CAR) does not affect the bank's profitability. The results of this study are in line with research conducted by (Nurfitri, Putri, Lestari, & Leon, 2023), Singh, (2024), Mithila & Kengatharan (2024), (Henry & Ruslim, 2022) that CAR has no effect on ROE. This finding shows that the capital adequacy ratio is related to the adequacy of bank capital and the ability to absorb high risks to maintain financial stability

Table 7. T-Test Results

| Independent Variables | Variabel Dependen | | |
|-----------------------------|-------------------|--------------|----------------------|
| | Return on Equity | | |
| | Koefisien | Probability* | Conclusion |
| Konstanta | 0,019860 | 0,3655 | - |
| Non-Performing Loan | -1,110939 | 0,0004 | Negative Significant |
| Capital Adequacy Ratio | 0,018384 | 0,3485 | No Effect |
| Total Loan to Asset Ratio | 0,054742 | 0,2945 | No Effect |
| Total Loan to Deposit Ratio | 0,001831 | 0,4743 | No Effect |

Source: Output Panel Data Regression Eviews 9.0

and compliance with regulations but does not directly increase bank profitability.

Effect of Total Loans to Asset Ratio on Bank Profitability

The regression test in this study shows that the loan to asset ratio has no effect on return on equity. This shows that the larger the credit component in the asset structure, the greater the likelihood that the quality of the credit provided is not entirely good, so that the bank's potential to generate profits is not optimal. This study is in line with research conducted by (Serly, Juliani, Susanto, Candra, & Nollivia, 2022), (Rani & Zergaw, 2017) and (Olalere, Omar, & Kamil, 2017). This finding can be interpreted as an increase in the bank's asset quality ratio tends to be followed by an increase in NPL, which reduces the bank's interest income and net profit. The lower the net profit, the lower the ROE, because ROE is the comparison between net profit and total equity.

The Effect of Total Loans to Deposit Ratio on Bank Profitability

The regression test in this study shows that the loan to deposit ratio has no effect on return on equity. This shows that LTD does not always have a direct effect on increasing bank profitability. Banks with LDRs that are too high can face liquidity risks, which actually hinder the increase in profitability in a comparable manner. However, on the contrary, banks with moderate LDRs tend to have better liquidity stability, so they are better able to maintain profitability consistently. This study is in line with research conducted by (Satriandi, Yulia, & Pranamulia, 2024), (Nurfritia, Putri, Lestari, & Leon, 2023), (Nabilah & Sutiman, 2024), and Kumarlita & Purwanto (2019). Not all banks that have low LDR levels are able to create high profits.

IV. CONCLUSION

This study aims to test whether the independent variables, namely non-performing loans, capital adequacy ratio, total loan to asset ratio, and total loan to deposit ratio, have an effect on the dependent variable, namely bank profitability as measured by return on equity in 42 conventional banks on the Indonesia Stock Exchange for six years (2018-2023 period). Based on the analysis and discussion that has been carried out, the conclusions of the results of this study are as follows: Non-Performing Loans have a significant negative effect on bank profitability. Capital Adequacy Ratio does not affect bank profitability. Total Loan to Asset Ratio does not affect bank profitability. Total Loan to Deposit Ratio also does not affect bank profitability.

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