



The Effect of Credit Risk on the Financial Performance of Banking in Indonesia

Hanifah Roihana Labibah¹

¹ Universitas Wijaya Putra, Surabaya, Indonesia

Abstract

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This study aims to analyze the effect of credit risk on the financial performance of banking institutions in Indonesia. The Non-Performing Loan ratio measures credit risk, while Return on Equity represents financial performance. The research employed a quantitative approach using secondary data from the Indonesian Banking Statistics published by the Financial Services Authority (*Otoritas Jasa Keuangan/OJK*) from August 2022 to August 2023. Data were analyzed using SPSS software through classical assumption tests and simple linear regression. The results indicate that Non-Performing Loan has a negative and significant effect on Return on Equity, with a regression coefficient of -0.373 and a determination value (R^2) of 0.834 . This means that 83.4% of the variation in financial performance is explained by changes in Non-Performing Loan. The findings highlight that an increase in credit risk reduces bank profitability, implying that effective credit risk management is essential to maintaining the financial stability and performance of Indonesian banks.



1. Introduction

Banking has a vital role in maintaining economic stability and encouraging the growth of the real sector in Indonesia. As an intermediary institution, the bank functions to collect public funds and redistribute them in the form of credit to productive sectors. Healthy banking performance is a prerequisite for the sustainability of the national financial system, especially in the face of global economic dynamics and domestic fluctuations that have an impact on financing risks. One of the main challenges faced by the banking industry is credit risk, which is the potential for losses due to the debtor's inability to meet payment obligations according to the agreement. Credit risk is often measured using the Non-Performing Loan (NPL) ratio, which reflects the level of asset quality of a bank. An increase in NPLs indicates a high level of non-performing financing and can reduce banks' ability to generate profits.

According to Nurfitria et al. (2023), effective credit risk management has a significant influence on the bank's profitability and financial stability. Meanwhile, Wahyudi and Muharam (2023) emphasized that increasing operational efficiency and decreasing NPLs are the main factors in improving the financial performance of banks, both conventional and sharia. A bank's financial performance is often measured through financial ratios such as Return on Equity (ROE), which describes management's ability to generate a profit from the capital invested by shareholders. ROE is an important indicator for investors and regulators in assessing the effectiveness of banking business strategies. Research by Verawati et al. (2023) found that an increase in NPLs significantly lowered the ROE of banks listed on the

Indonesia Stock Exchange, showing a negative relationship between credit risk and profitability.

Data from the OJK's Indonesian Banking Statistics (SPI) for the period August 2022-August 2023 shows fluctuations in the NPL ratio in the range of 2.4–2.9%, with a stabilizing trend after the COVID-19 pandemic. However, some bank groups still recorded an increase in NPLs, especially in the MSME sector, which had an impact on the decline in industrial ROE in aggregate. This indicates that even though the economy is starting to recover, asset quality and credit risk management remain key factors in determining the financial performance of banks. Mahisi et al. (2023) also emphasized that credit risk along with leverage has a negative influence on the financial performance of commercial banks in Indonesia.

Research gaps are still visible in the post-pandemic period, particularly after 2022, where many previous studies used pre-pandemic or early recovery data. Recent research by Maharani et al. (2021) shows that although the variables NPL, LDR, and BOPO simultaneously affect ROE, the influence of NPLs can partially vary depending on macroeconomic conditions. Therefore, the study with the latest data from the OJK SPI August 2022-August 2023 is important to provide the latest empirical picture of the relationship between credit risk and banking financial performance in Indonesia. Thus, this study aims to analyze the influence of credit risk, which is proxied through the NPL ratio, on the financial performance of banks, measured using ROE, using the latest post-pandemic data. The results of the research are expected to make an empirical contribution to the risk management

literature and provide practical input for regulators and banking industry players in maintaining national financial stability.

2. Literature Review

2.1 Credit Risk and Its Measurement

Credit risk is a potential loss experienced by a bank due to the debtor's failure to meet payment obligations according to the agreement. In the context of Indonesian banking, credit risk is the main risk that affects financial health and operational stability. One of the main indicators used to measure credit risk is Non-Performing Loan (NPL), which is the ratio between total non-performing loans and total loans granted. The higher the NPL, the greater the potential for bank losses because the funds disbursed cannot be returned on time.

According to Tahira and Widiastuty (2023), effective credit risk management plays an important role in maintaining bank profitability, as an increase in NPLs has a direct impact on a decrease in net profit. Wahyudi and Muharam (2023) added that operational efficiency and credit portfolio supervision can suppress the increase in NPLs, especially in microfinance institutions and BPRs. In addition, Agustin and Arimbawa (2019) concluded that high NPLs not only reduce interest income, but also increase loan loss provision, which has an impact on decreasing the value of the company. Thus, credit risk measurement through NPL ratios is an important instrument in assessing the effectiveness of bank risk management and the resilience of financial institutions in the face of economic uncertainty.

2.2 Bank Financial Performance and the Influence of Credit Risk

A bank's financial performance reflects the ability of a financial institution to generate profits and maintain its operational efficiency. One of the main indicators used is Return on Equity (ROE), which shows the extent to which banks are able to utilize their own capital to make a profit. ROE is considered more representative for shareholders because it reflects the rate of return on investment made. Verawati et al. (2023) found that an increase in NPLs has a significant negative relationship to ROE, as an increase in non-performing loans reduces the potential for net interest income.

In addition, Puspitasari et al. (2021) explained that the BOPO, LDR, and NPL variables simultaneously affect ROE, indicating the importance of controlling operational costs and credit risk simultaneously. Mahisi et al. (2023) emphasized that poor credit risk management leads to a decline in investor confidence and has an impact on the market value of bank shares. Good financial performance requires careful credit risk management so that banks are able to maintain profit stability and capital efficiency. The negative relationship between NPLs and ROE shows that increased credit risk will erode banks' ability to generate profits for shareholders.

Hypothesis 1 (H1): Credit risk as measured by the NPL ratio has a negative effect on the financial performance of banks in Indonesia.

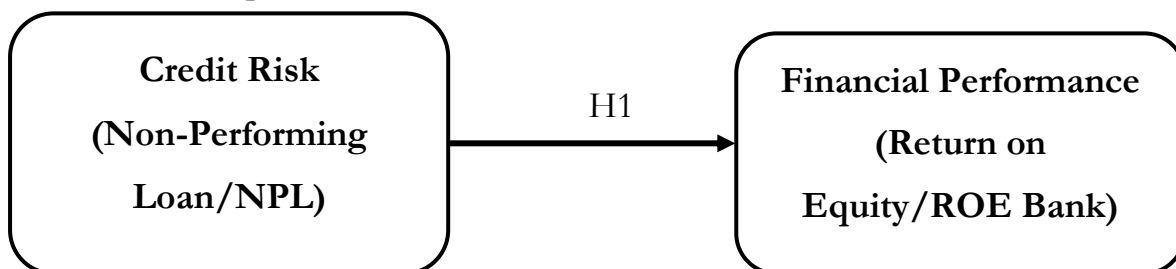


Figure.1 Conceptual Framework

Figure 1 illustrates the causal relationship in which credit risk (NPL) acts as an independent variable that affects financial performance (ROE) as a dependent variable. The direction of the arrow indicates the hypothetical negative influence based on risk management theory and the empirical results of previous research.

3. Methods

This study uses a quantitative method with the aim of examining the influence of credit risk on banking financial performance in Indonesia. The quantitative approach was chosen because it is able to provide objective results through statistical analysis of numerical data obtained from secondary sources. The data used in this study is sourced from the official publication of Indonesian Banking Statistics (SPI) published by the Financial Services Authority (OJK) for the period August 2022 to August 2023. The period was chosen to describe the current post-pandemic conditions and show the development of credit risks and the financial performance of national banks.

The variables used in this study consist of independent and dependent variables. The independent variable is credit risk proxied by the Non-Performing Loan (NPL) ratio, while the dependent variable is financial performance measured using Return on Equity (ROE). The data obtained will be processed using SPSS (Statistical Package for the Social Sciences) software to conduct descriptive and

inferential statistical analysis. Descriptive analysis was used to describe the general characteristics of the NPL and ROE data during the study period, while inferential analysis was used to test the causal relationship between the two variables.

Classical assumption tests such as normality, multicollinearity, autocorrelation, and heteroscedasticity tests are performed to ensure the validity of the regression model used. Once the assumptions are met, a simple linear regression analysis is used to test the effect of NPLs on ROE. The results of the regression test will show the value of the determination coefficient (R^2), the significance value (Sig), and the direction of the relationship between the variables. The hypothesis is accepted if the significance value is < 0.05 with a negative coefficient direction, which means that an increase in NPLs has a significant effect on a decrease in ROE. Thus, this quantitative method is expected to be able to provide strong empirical evidence on the relationship between credit risk and banking financial performance in Indonesia.

4. Results

This study aims to analyze the influence of credit risk (Non-Performing Loan/NPL) on banking financial performance (Return on Equity / ROE) in Indonesia using data from the Indonesian Banking Statistics (SPI) OJK for the period August 2022 to August 2023. The data used included 13 commercial bank samples that consistently reported financial performance during the study period.

Tabel.1 Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Hours of deviation
NPL	13	10.72	15.75	13.8108	1.68911
ROE	13	7.89	10.13	8.7562	.68945
Valid N (listwise)	13				

Table 1 shows the results of the descriptive analysis that the average NPL was 13.81% with a standard deviation of 1.69, indicating a moderate level of data variation. This value indicates a moderate difference between banks in terms of the level of credit risk incurred. Meanwhile, the average ROE was 8.76% with a standard deviation of 0.69, indicating that the level of profitability between banks is relatively homogeneous. The average ROE value below 10% illustrates that most banks are still in the post-COVID-19 pandemic recovery phase and are facing margin pressures due to increased cost of provision of bad loans.

In general, this descriptive picture shows that there is a potential relationship between an increase in NPLs and a decrease in ROE. This is in line with the theory that high credit risk lowers net interest income and increases the burden of loss reserves, which ultimately suppresses the return on equity. According to Nurfitria et al. (2023), ineffective credit risk management will have a direct impact on the bank's profitability and financial stability. This is strengthened by Rohmiati et al. (2019), who stated that the increase in NPLs is the main factor causing the decline in financial performance, both in conventional and Islamic banks. Before conducting regression analysis, the model is tested first to ensure the fulfillment of the classical assumptions that are the basis for the validity of the regression model.

Tabel.2 Output SPSS One-Sample Kolmogorov-Smirnov Test

One-Sample Kolmogorov-Smirnov Test			
		NPL	ROE
N		13	13
Normal Parameters ^{a,b}	Mean	13.8108	8.7562
	Hours of deviation	1.68911	.68945
Most Extreme Differences	Absolute	.190	.178
	Positive	.125	.178
	Negative	-.190	-.105
Test Statistic		.190	.178
Asymp. Sig. (2-tailed)		.200 ^{c,d}	.200 ^{c,d}
a. Test distribution is Normal.			
b. Calculated from data.			
c. Lilliefors Significance Correction.			
d. This is a lower bound of the true significance.			

Table 2 shows the results of the One-Sample Kolmogorov-Smirnov Test with SPSS that the value of Asymp. Sig. (2-tailed) for the variables NPL = 0.200 and ROE = 0.200, both of which are greater than 0.05. This means that the data is distributed normally and meets the assumption of normality. Normal distribution is an important requirement so that the resulting regression estimation is unbiased (unbiased estimator). Thus, the analysis can be proceeded to the next stage. It is not done because the regression model only involves one independent variable, namely NPL. Thus, there is no potential correlation between independent variables.

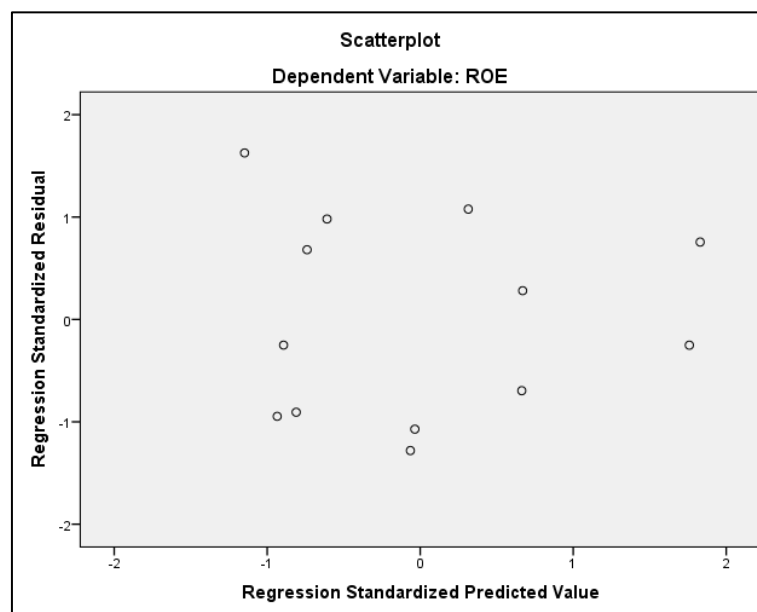


Figure.2 Output SPSS Scatterplot

The results of observations of the scatterplot graph between standardized residual and predicted value showed that the data points were randomly spread around the zero line without forming a specific pattern. This indicates the absence of symptoms of heteroscedasticity, so the regression model is feasible.

Tabel.3 Output Model Summary

Model Summary ^b					
Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate
1	.913 ^a	.834	.819		.29312
a. Predictors: (Constant), NPL					
b. Dependent Variable: ROE					

The Durbin–Watson value of 1.990, which is between the 1.5 and 2.5 borders, indicates no symptoms of autocorrelation. This means that the residuals between observations are not correlated with each other. This condition shows that the data is independent and the regression model does not experience serial correlation interference. Based on the four tests above, it can be concluded that the regression model meets all classical assumptions, so the results of simple linear regression analysis can be trusted to test hypotheses.

Tab.4 Coefficients

Coefficients^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	13.905	.697		19.961	.000
	NPL	-.373	.050	-.913	-7.442	.000
a. Dependent Variable: ROE						

Based on table 4, the results of a simple linear regression produce the following equation:

$$\text{ROE} = 13.905 - 0.373(\text{NPL})$$

From these results, a constant value of 13.905 is obtained, which means that if $\text{NPL} = 0$, then the ROE is estimated to be 13.905%. While the regression coefficient of -0.373 indicates that any increase in NPLs of 1% will decrease the ROE by 0.373%, assuming other variables are constant. The direction of this

negative coefficient indicates an inverse relationship between credit risk and financial performance.

Based on table 3, the value of $R = 0.913$ indicates a very strong relationship between NPL and ROE. Meanwhile, the value of $R^2 = 0.834$ indicates that 83.4% of the variation in ROE can be explained by NPLs, while the remaining 16.6% is influenced by other factors outside the model, such as operational efficiency (BOPO), liquidity (LDR), and capital adequacy (CAR). These results are consistent with the findings of Maharani et al. (2021), which show that NPLs, BOPOs, and LDRs simultaneously affect ROE.

Table.5 ANOVA

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.759	1	4.759	55.387	.000b
	Residual	.945	11	.086		
	Total	5.704	12			
a. Dependent Variable: ROE						
b. Predictors: (Constant), NPL						

Furthermore, Table 5, i.e., the F test, yields a value of $\text{Sig.} = 0.000 (< 0.05)$, which means that the regression model is significant simultaneously. This means that NPLs as a whole have an effect on changes in ROE. Then, the results of the t-test showed a t-calculation value = -7.442 with $\text{Sig.} = 0.000 (< 0.05)$, so it can be concluded that the influence of NPLs on ROE is negative and statistically significant.

The value of the Beta coefficient = -0.913 emphasizes the strong inverse relationship between the two variables.

These findings reinforce the theory that increased credit risk will depress bank profitability. When the proportion of non-performing loans increases, banks must establish a larger impairment loss reserve (CKPN), thereby reducing net profit and negatively impacting ROE. These results are in line with research by Verawati et al. (2023) which found that the increase in NPLs significantly lowered the ROE of banks listed on the Indonesia Stock Exchange. Mahisi et al. (2023) also stated that poor credit risk management negatively affects investor profitability and confidence, while Tejo & Hanggraeni (2020) emphasized that increased credit risk magnifies the potential for financial distress in financial institutions.

The results of this study empirically prove that credit risk (NPL) has a negative and significant effect on the financial performance (ROE) of banks in Indonesia. The value of the regression coefficient of -0.373 and the determination coefficient of 83.4% indicate that NPLs are the main factors that affect the variation in bank profitability. This indicates that credit risk management is a key aspect in maintaining the sustainability of the financial performance of the banking industry.

This result is in line with the risk-return trade-off theory in finance, where the higher the risk an entity bears, the more likely it is that the rate of return will decline if the risk is not properly managed. In the context of banking, an increase in non-performing loans means a decrease in the quality of productive assets. As the number of NPLs increases, banks have to bear a higher reserve burden to cover potential losses, which directly lowers net profit and capital efficiency. The findings of this

study are also consistent with the results of previous research. Tahira and Widiastuty (2023) show that credit risk management has a significant effect on the financial performance of banks, where an increase in NPLs leads to a decrease in profits and working capital. Agustin & Arimbawa (2019) also found that high credit risk not only decreases profitability but also reduces the value of the company.

Furthermore, these results strengthen the conclusion of Wahyudi & Muharam (2023), that operational efficiency and credit risk control are the two main pillars in maintaining bank profit stability. Thus, the findings of this study are not only confirmative of previous theories and research, but also reinforce the importance of OJK's prudential policy in suppressing the NPL ratio below the reasonable limit of 5%. From the results of the study, there are several important implications for the banking industry and regulators. First, banks need to strengthen credit risk management systems, including improving the quality of creditworthiness assessments, diversifying financing portfolios, and real-time credit monitoring. Second, OJK needs to continue to encourage the implementation of policies that support transparency in NPL reporting so that systemic risks can be minimized. Third, for investors and financial analysts, these results are an important reference in evaluating the bank's financial performance based on credit risk indicators.

Academically, these results broaden the understanding of the causal relationship between credit risk and banking financial performance in Indonesia, particularly in the post-pandemic period. Empirical results showing the negative and significant influence of NPLs on ROE support Hypothesis 1 and Hypothesis 2, which state that increased credit risk decreases the financial performance of banks.

Based on the whole, the regression model used meets classical assumptions and results in a significant negative relationship between credit risk (NPL) and financial performance (ROE). The R^2 value of 0.834 confirms that the NPL variable explains most of the variation in ROE in banks in Indonesia. These findings affirm the importance of credit risk control policies as the main strategy in maintaining the profitability and financial stability of national banks.

5. Discussion

This chapter discusses in more depth the results of research on the influence of credit risk (NPL) on banking financial performance (ROE) in Indonesia during the period August 2022 to August 2023. The results of the study showing a negative and significant relationship between NPLs and ROE provide a broader understanding of how the quality of credit assets affects the profitability of financial institutions. The value of the regression coefficient of -0.373 and the determination coefficient of 0.834 indicate that most of the variation in the bank's financial performance can be explained by fluctuations in credit risk. This emphasizes the importance of NPL control in maintaining banking stability and competitiveness amid post-pandemic economic dynamics.

These results are consistent with the risk-return trade-off theory, which states that the higher the risk faced by financial institutions, the more likely it is that there will be a decline in the rate of return if the risk is not managed effectively. In the context of banking, the increase in non-performing loans causes banks to establish impairment loss reserves (CKPN), which reduces net profit and capital efficiency.

The decline in profitability ultimately lowers ROE which reflects the effectiveness of its own capital use. These findings are in line with the results of research by Verawati et al. (2023), which show that the increase in NPLs has a direct impact on the decline in the profitability of banks listed on the Indonesia Stock Exchange.

In addition, Rohmiati et al. (2019) emphasized that operational efficiency is an important factor that strengthens or weakens the influence of credit risk on financial performance. This means that banks with high efficiency levels can be better able to absorb the negative impact of increased NPLs on ROE than banks with low efficiency. The results of this study are also in line with Nurfitria et al. (2023), who stated that the implementation of effective credit risk management can minimize potential losses and increase investor confidence in banking performance.

External factors such as macroeconomic conditions also contribute to the relationship between NPLs and ROE. This research period shows a post-pandemic economic recovery trend where several business sectors are still experiencing financial difficulties, thereby increasing the potential for non-performing loans. Puspitasari et al. (2021) emphasized that in unstable economic conditions, weak credit management can magnify the impact of risk on bank profitability. Therefore, strengthening credit governance and supervision is a strategic priority for banks to maintain long-term profitability.

The results of this study also support the view of Mahisi et al. (2023) who found that credit risk has a significant negative effect on the financial performance and market value of banks. When NPLs increase, investors judge that banks have low risk management capabilities, which ultimately lowers confidence and the value

of shares. The practical implication of these results is that bank management needs to improve the quality of credit analysis, tighten supervision systems, and implement more selective credit disbursement policies to reduce the risk of default.

Thus, the results of this study strengthen empirical evidence that credit risk control is a fundamental factor in maintaining the profitability and resilience of the Indonesian banking industry. These findings also make an academic contribution to the financial literature by reaffirming the significant negative relationship between NPLs and ROE in the context of Indonesia's post-pandemic economy, as well as prompting banks and regulators to review the effectiveness of risk mitigation policies in the face of global uncertainty.

6. Conclusion

Based on the results of quantitative analysis conducted using data from the OJK's Indonesian Banking Statistics (SPI) for the period August 2022 to August 2023, it can be concluded that credit risk measured through the Non-Performing Loan (NPL) ratio has a negative and significant influence on the financial performance of banks as measured by Return on Equity (ROE). A regression coefficient value of -0.373 indicates that any increase in NPLs of 1% will decrease the ROE by 0.373%, with a significance level of 0.000 that is smaller than 0.05. An R^2 value of 0.834 indicates that 83.4% of the variation in financial performance can be explained by changes in NPLs, while the remaining 16.6% is influenced by factors outside the research model. These results confirm that increased credit risk is the dominant factor that lowers bank profitability. The regression model also fulfills all

classical assumptions, so that the results of the analysis can be declared valid and reliable. Overall, this study proves that credit risk control through prudent financing management is the main key in maintaining financial performance and banking stability in Indonesia during the post-pandemic economic recovery.

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