

Determinants of Non-Performing Loans at Himbara Banks for the Period 2011-2025

M. Yusron Zahidi¹, Ida Ayu Putri Suprapti²

^{1,2}University of Mataram, Indonesia

Email: yusronzahidi98@gmail.com

Keywords:

BI_Rate, BOPO, NIM, NPL

Abstract

The purpose of this study is to examine how the BI Rate, the Net Interest Margin (NIM), and the Operating Expense-to-Operating Income Ratio (BOPO) affect non-performing loans (NPL) five Himbara banks (BTN, BRI, BNI, and Mandiri) between 2011 and 2025. Quarterly secondary data from Bank Indonesia and Otoritas Jasa Keuangan's financial statements make up the data used. Panel data regression utilizing the Pooled OLS with dummy variables for BRI, BNI, and BTN is the analytical technique used, Bank Mandiri is the omitted group. According to the study's findings, BOPO has a positive and significant effect with a coefficient of 0.069526 and a p-value of 0.0000 ($p < 0.05$); NIM has a positive and significant effect with a coefficient of 0.200929 and a p-value of 0.0002 ($p < 0.05$); and the BI Rate has a negative and significant effect on NPL with a coefficient of -0.123567 and a $p < 0.05$). An F-statistic probability of 0.000000 ($p < 0.05$) and a coefficient of determination (R-squared) of 0.583734, or 58.37%, show that the three independent factors together have a significant impact on NPL. These results show that while BOPO and NIM raise the risk of NPL, an increase in the BI Rate actually encourages banks to be more careful when issuing credit.

INTRODUCTION

Through its intermediary position of gathering funds from surplus units and directing them to deficit units in the form of credit, the banking sector plays a crucial role in preserving the stability of the financial system. The quality of credit that banks distribute has a direct impact on how well this intermediation role works. The Non-Performing Loans (NPL) ratio, which represents the percentage of problematic loans in total lending, is one of the main metrics used to assess credit quality. A high NPL ratio has the potential to jeopardize the stability of the financial system, lower bank profitability, and impair intermediation performance. State-owned banks that are part of the bank himbara, such as Bank Rakyat Indonesia (BRI), Bank Negara Indonesia (BNI), Bank Mandiri, and Bank Tabungan Negara (BTN), control the majority of the banking sector in Indonesia.

Year	Bank					Industrial Credit	Percentage
	BTN	BRI	BNI	Mandiri	Amount		
2016	164,446	621,286	376,595	616,706	1,779,033	4,495,090	39.58%
2017	198,990	684,046	426,790	678,292	1,988,118	4,763,200	41.74%
2018	238,297	779,626	497,887	767,761	2,283,571	5,289,370	43.17%
2019	255,825	839,067	539,862	855,846	2,490,600	5,601,240	44.47%
2020	260,114	834,293	541,979	807,874	2,444,260	5,481,560	44.59%
2021	274,835	1,042,867	582,436	1,026,224	2,926,362	5,769,700	50.72%
2022	298,281	1,139,077	646,188	1,172,599	3,256,145	6,423,560	50.69%
2023	333,698	1,266,429	695,085	1,359,832	3,655,044	7,090,240	51.55%
2024	357,972	1,354,640	775,872	1,623,216	4,111,700	7,827,000	52.53%
2025	400,576	1,521,485	899,531	1,849,967	4,671,559	8,314,480	56.19%

Table 1. Credit distributed by Himbara Banks 2016-2025 (billion rupiah)

Source: *Bank Annual Report*, data processed (2026)

During 2016-2025, total credit distributed by Himbara increased substantially from Rp1,779,033 billion to Rp4,671,559 billion, while its contribution to total banking industry credit rose from 39.6% to 56.2%. This dominance indicates that Himbara banks play a crucial role in financing national economic activities, infrastructure development, and micro, small, and medium enterprises (MSMEs). Consequently, changes in NPL levels within Himbara banks may generate broader implications for financial stability and economic growth.

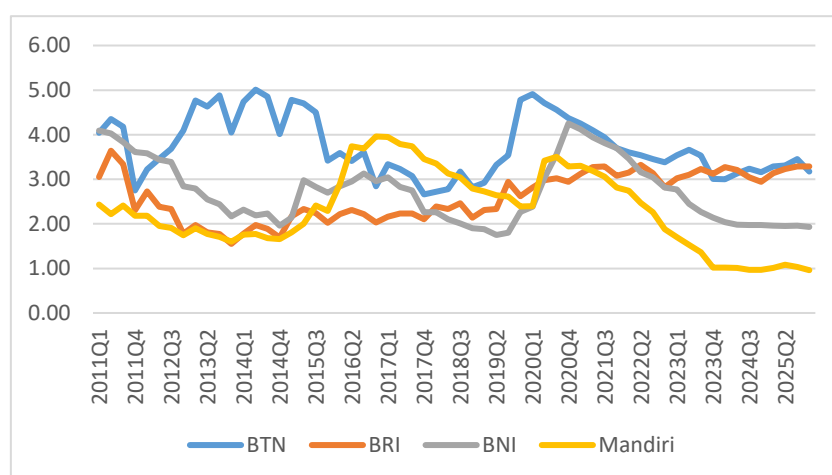


Figure 1. NPL Himbara Banks 2011-2025 (percentage)

Source: *Bank Annual Report*, data processed (2026)

The dynamics of NPL among Himbara banks show considerable variation across institutions and periods. BTN recorded the highest NPL ratio, reaching 5.01% in the second quarter of 2014, while Bank Mandiri achieved the lowest NPL ratio of 0.97% in the third and fourth quarters of 2024. The collective increase in NPL during 2013-2016 coincided with aggressive monetary tightening and economic slowdown, whereas the COVID-19 pandemic period again triggered rising credit risk despite regulatory credit restructuring policies. Following the pandemic, NPL ratios gradually declined, indicating improvements in risk management practices and economic recovery. These fluctuations suggest that both macroeconomic conditions and bank-specific characteristics contribute to the formation of credit risk.

The benchmark interest rate, or BI Rate, was set by Bank Indonesia to support monetary policy goals and serve as a guide for lending and deposit rates. In theory, it stands for the money

rate that the central bank uses to control inflation and liquidity Kezia et al. (2021). Through the monetary transmission mechanism, changes in the BI Rate have an impact on banks' cost of funds and lending practices. An increase in the BI Rate generally raises borrowing costs and may affect borrowers' repayment capacity, whereas a lower BI Rate tends to stimulate credit demand and reduce financing costs (Boediono, 2018; Mankiw, 2021).

From a macroeconomic perspective, interest rate policy has frequently been identified as an important determinant of credit quality and Non-Performing Loans (NPL). Empirical evidence shows that BI Rate significantly influences NPL in the banking sector, although the direction of the relationship remains inconclusive. While Antang et al. (2023) and Rohadi et al. (2024) discovered a negative correlation, Azizzah et al. (2021) and Pardosi et al. (2024) found a significant relationship between BI Rate and NPL in Indonesian commercial banks, indicating that tighter monetary policy may promote more cautious lending and lower credit risk. These contradictory results suggest that more research is needed to fully understand the connection between BI Rate and NPL, especially when it comes to Himbara banks.

From the internal banking perspective, operational efficiency is widely recognized as an important determinant of credit quality. BOPO (Operating Expenses to Operating Income Ratio) measures management efficiency in controlling operational costs relative to operating income and is commonly used as an indicator of banking performance. While Kasmir (2019) contended that an unchecked rise in BOPO could lower profitability and raise financial susceptibility, Riyadi (2018) claimed that BOPO represents a bank's capacity to successfully manage operational expenses. Maintaining operational efficiency is especially crucial for Himbara banks because of their significant influence in the country's loan distribution and the necessity of efficient risk management and credit monitoring.

Empirical evidence generally suggests a positive relationship between BOPO and Non-Performing Loans (NPL). Sari & Wijayanto (2021) found that inefficient banks tend to experience poorer credit quality, resulting in higher NPL ratios. Similarly, Widana et al. (2021), Abidi & Sastradipraja (2023), Antang et al. (2023), Febri Nanda Marchela & Purwanto Widodo (2023) and Fiqih & Ardiansyah (2025) reported that higher BOPO significantly increases NPL, indicating that operational inefficiency may weaken credit supervision and risk control mechanisms. Furthermore, Umaternate & Mongid (2023) identified BOPO as a dominant internal factor affecting NPL, particularly in banks with limited managerial capacity. These findings suggest that operational efficiency plays a crucial role in maintaining credit quality and reducing credit risk in the banking sector.

The ability of a bank to produce net interest revenue from productive assets and intermediation activities is measured by Net Interest Margin (NIM), a crucial indication of banking profitability (Haan et al., 2023). According to Rose & Hudgins (2018), NIM reflects the core profitability of banks because lending and deposit-taking activities constitute the primary source of banking income. NIM is influenced by several factors, including market interest rates, competition among banks, and credit risk exposure (Mishkin, 2022). In the context of Himbara banks, NIM is particularly relevant because these institutions account for more than half of national credit distribution, making fluctuations in NIM important for both profitability and financial stability.

Despite its importance, empirical evidence regarding the relationship between NIM and Non-Performing Loans (NPL) remains inconclusive. Nugroho & Endri (2022) reported a negative relationship, suggesting that banks with higher NIM tend to have stronger profitability and more

effective credit risk management. In contrast, Nurani (2021) found that NIM positively and significantly affects NPL in rural banks, indicating that higher interest margins may increase borrowers' repayment burdens and credit risk. Similar findings were reported by Carolina & Madyan (2016)), who observed a positive association between NIM and NPL among foreign exchange banks in Indonesia. These conflicting findings show that the effect of NIM on credit quality is still an unanswered empirical subject that needs more research, especially when it comes to Himbara banks.

The theoretical relationship between BI Rate, BOPO, NIM, and NPL can be explained through Financial Intermediation Theory developed by Diamond (1984) and Credit Rationing Theory proposed by Stiglitz & Weiss (1981). Financial Intermediation Theory emphasizes the role of banks in managing information asymmetry and monitoring borrowers to minimize credit risk. Meanwhile, Credit Rationing Theory suggests that changes in interest rates influence lending behavior and borrower selection processes under imperfect information conditions. According to these ideas, credit quality and the development of non-performing loans (NPLs) may be impacted by both internal and external factors, including profitability and operational efficiency and monetary policy.

Although numerous studies have examined NPL determinants, several limitations remain. First, most previous studies focused on commercial banks in general or private banks, with limited attention given specifically to Himbara banks. Second, many studies employed relatively short observation periods, making it difficult to capture long-term dynamics of credit risk across different economic cycles, including monetary tightening periods, economic downturns, and the COVID-19 pandemic. Third, there is a need for more research because empirical results about the impact of NIM and BI Rate on NPL are still inconsistent.

Based on these limitations, this study seeks to fill the existing research gap by focusing specifically on Himbara banks and employing a longer observation period covering 2011-2025, consisting of 60 quarterly observations. This period allows the analysis to capture various macroeconomic conditions and structural changes affecting the Indonesian banking industry. By concentrating on state-owned banks that dominate national credit distribution, this study provides a more comprehensive understanding of credit risk determinants within strategically important financial institutions.

Accordingly, the research question addressed in this study is *do BI Rate, BOPO, and NIM significantly influence Non-Performing Loans (NPL) in Himbara banks during the period 2011-2025?* Thus, this study's goal is to examine how BI Rate, BOPO, and NIM affect NPL in Himbara banks. The focus on Himbara banks as the biggest credit providers in Indonesia, the use of a longer quarterly dataset spanning fifteen years, and the integration of internal and external banking determinants within a single empirical framework to explain NPL behavior are what make this research novel. The findings are expected to contribute to the literature on banking risk management and provide policy implications for regulators and bank management in strengthening financial system stability.

METHODS

This study employed a quantitative explanatory approach to examine the effects of BI Rate, Operating Expenses to Operating Income Ratio (BOPO), and Net Interest Margin (NIM) on Non-Performing Loans (NPL) in Indonesian state-owned banks (Himbara). To capture cross-sectional and time-series variations, panel data from four Himbara banks BRI, BNI, Bank Mandiri,

and BTN covering quarterly observations from Q1 2011 to Q4 2025 were used in the analysis. Secondary data were collected through documentation techniques from audited and publicly available sources, including Bank Indonesia (BI), Otoritas Jasa Keuangan (OJK), the Indonesia Stock Exchange (IDX), Badan Pusat Statistik (BPS), and the official reports of each bank. The selected period reflects diverse economic conditions, including monetary policy changes, the COVID-19 pandemic, and the subsequent recovery phase.

Non-Performing Loans (NPL) Gross, which is calculated as the proportion of non-performing loans to total loans, was the dependent variable, in accordance with POJK No. 40/POJK.03/2019. Non-performing loans consist of loans classified as substandard, doubtful, and loss categories. The independent variables included BI Rate as the monetary policy indicator, BOPO as a measure of operational efficiency, and NIM as an indicator of banking profitability. All variables were measured in percentage terms to ensure consistency of analysis. Since the data originated from audited financial statements and official institutional publications, the reliability and validity of the data were considered adequate for empirical analysis.

The collected data were organized into a panel dataset combining cross-sectional and time-series dimensions. To control for bank-specific characteristics that are not directly observable, the empirical model incorporated bank dummy variables. Bank Mandiri was used as the reference category, while dummy variables were included for BRI, BNI, and BTN. The model was estimated using the Pooled Ordinary Least Squares (Pooled OLS) approach with bank dummy variables. This specification was selected to capture differences in baseline NPL levels across banks while maintaining estimation efficiency given the limited number of cross-sectional units:

$$NPL_{it} = \beta_0 + \beta_1 BI_t + \beta_2 BOPO_{it} + \beta_3 NIM_{it} + \gamma_1 D_{BRI} + \gamma_2 D_{BNI} + \gamma_3 D_{BTN} + \varepsilon_{it}$$

Where:

- NPL_{it} : *Non-Performing Loans* *i*-bank and *t*-time
- β_0 : Constant (reflecting the level of NPL at Bank Mandiri)
- $\beta_1 - \beta_3$: The regression coefficient of each independent variable
- $\gamma_1 - \gamma_3$: *Dummy variable coefficients* for BRI, BNI, and BTN banks
- BI_t : Bank Indonesia interest rate in the *t*-quarter
- $BOPO_{it}$: BOPO *i*- bank in *t*-quarter
- NIM_{it} : NIM *i*- bank in *t*-quarter
- ε_{it} : *Error term* (residu) model in *i*- bank *t*-quarter

Data analysis was conducted using robust estimation procedures. Considering that the dataset consisted of a relatively long time dimension compared with the number of cross-sectional units, there was a potential risk of heteroskedasticity and serial correlation. Therefore, White heteroskedasticity-consistent robust standard errors were applied to obtain unbiased statistical inference. Hypothesis testing was performed using t-tests to evaluate the partial effects of individual variables and F-tests to assess the joint significance of the model. The coefficient of determination (R²) was used to assess the model's explanatory power. The significance level for all statistical tests was set at 5%.

RESULTS AND DISCUSSION

RESULTS

Descriptive Statistic

The results of descriptive statistical processing of 240 observations (4 banks, period 2011Q1-2025Q4) are presented in the table below:

Table 2. Descriptive Banking Statistic

	NPL	BI Rate	BOPO	NIM
Mean	2.84	5.60	73.15	5.63
Median	2.84	5.75	70.81	5.49
Maximum	5.01	7.67	98.12	10.24
Minimum	0.96	3.50	51.88	2.86
Std. Dev.	0.88	1.23	9.85	1.45

Source: Secondary Data, processed

Based on Table 2, the NPL variable at Himbara bank has a mean value of 2.84% with a standard deviation of 0.88%, which shows that in general NPLs are relatively controlled and do not vary too much between banks and between times. The median NPL value (2.84%) which is almost equal to the mean indicates a symmetrical distribution of data, so there are no extreme deviations that affect the average. The range of NPLs between a minimum of 0.96% (Bank Mandiri in Q4 2025) and a maximum of 5.01% (Bank BTN in Q2 2014) reflects the difference in credit risk management performance between Himbara banks. Meanwhile, the BI Rate as a macroeconomic variable has an average of 5.60% with a standard deviation of 1.23%, and moves from a low of 3.50% (pandemic period) to a high of 7.67% (in 2014), showing the dynamics of monetary policy that are quite volatile during 2011-2025

The BOPO variable showed an average of 73.15% with a standard deviation of 9.85%, a maximum value of 98.12% (BTN in Q4 2019) and a minimum of 51.88% (Bank Mandiri in Q4 2023), which indicates that Himbara's interbank operational efficiency varies greatly, with some banks operating very efficiently while others are almost inefficient. The median BOPO value (70.81%) which is lower than the mean shows a slightly skewed data distribution to the right, meaning that there are several observations with very high BOPO that pull the average upwards. The NIM has an average of 5.63% with a standard deviation of 1.45%, and moves from a minimum of 2.86% to a maximum of 10.24% (BRI in Q4 2010), reflecting that banks' ability to generate net interest margins varies quite a bit, possibly due to differences in lending rate determination strategies and the funding structure of each bank. Overall, all four variables showed sufficient variation to be further analyzed in the panel data regression model, so the estimation results are expected to describe a robust causal relationship.

Estimated Results

In accordance with the model specifications formulated in Chapter II, the model is estimated using Pooled OLS with the inclusion of dummy bank variables. To anticipate violations of the assumptions of cross-section heteroscedasticity and the inherent time-series autocorrelation of the length panel ($T > N$), this estimate applies the White's Heteroskedasticity-Consistent Covariance Matrix (White Diagonal) method. Table 4 below displays the regression estimation output based on the outcomes of data processing using the EViews 12 software:

Table 3. Output Pooled OLS

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.587761	0.601012	-4.305672	0.0000
BI_RATE	-0.123567	0.035134	-3.516984	0.0005
BOPO	0.069526	0.007161	9.709360	0.0000
NIM	0.200929	0.052604	3.819623	0.0002
D_BRI	-0.390213	0.163397	-2.388126	0.0177
D_BNI	-0.095149	0.117922	-0.806883	0.4206
D_BTN	0.121413	0.188012	0.645769	0.5191
Root MSE	0.570305	R-squared	0.583734	
Mean dependent var	2.846750	Adjusted R-squared	0.573014	
S.D. dependent var	0.885785	S.E. of regression	0.578809	
Akaike info criterion	1.773044	Sum squared resid	78.05955	
Schwarz criterion	1.874562	Log likelihood	-205.7652	
Hannan-Quinn criter.	1.813948	F-statistic	54.45628	
Durbin-Watson stat	0.292576	Prob(F-statistic)	0.000000	

Source: Secondary Data, processed

Based on Table 3, the following mathematical equations can be formulated:

$$NPL_{it} = -2.58 - 0.12BI_Rate_t + 0.06BOPO_{it} + 0.20NIM_{it} - 0.39D_{BRI} - 0.09D_{BNI} + 0.12D_{BTN} + u_{it}$$

Partial Test (t)

The t-test was performed to see the influence of each individual independent variable on NPL by comparing the probability value (Prob.) against the significance level of $\alpha = 0.05$. BI Rate has a coefficient value of -0.123567 with a Prob value. of 0.0005 then partially BI_Rate have a negative and significant effect on NPL. BOPO has a coefficient value of 0.069526 with a Prob value. of 0.0000, then partially BOPO has a positive and statistically significant effect on NPL. NIM has a regression coefficient value of 0.200929 with a Prob value. of 0.0002, then partially NIM has a positive and significant effect on Bank Himbara's NPL.

Simultaneous Test (F)

The estimation results showed an F-statistic value of 54.34912 with a Prob(F-statistic) value of 0.000000. Because the significance value is smaller than the significance of $\alpha = 0.05$ ($0.000000 < 0.05$), this empirically proves that the BI Rate, BOPO, NIM, and the effect of the bank's spatial characteristics together have a significant influence on Bank Himbara's NPL.

Coefficient of Determination (R-Squared)

The obtained R-squared value is 0.583734. This demonstrates that the model's independent variables can account for 58.37% of the variation in NPL movements at Bank Himbara. Conversely, fluctuations in other parameters outside the estimation model that were not examined in this study accounted for the remaining 41.63%.

Analysis of Dummy Variables Bank Characteristics

In this study, Bank Mandiri was determined as an omitted category. which is reflected in

the constant C. The interpretation of the coefficient of the dummy bank variable is as follows:

Variable D-BRI : The value of the coefficient is -0.390233 with a Prob. value of 0.0177 < 0.05. This result is significant, showing that on average, Bank BRI's basic NPL rate is statistically lower by 0.39% compared to Bank Mandiri.

Variable D-BNI : The value of the coefficient is 0.112042 with a Prob. value of 0.4206 > 0.05. This result is not significant, which means that statistically there is no difference in the basic NPL level between Bank BNI and Bank Mandiri.

Variable D-BTN : The value of the coefficient is 0.145920 with a Prob. value of 0.5191 > 0.05. This result is also not significant, indicating that Bank BTN's basic NPL level is relatively identical to Bank Mandiri's.

DISCUSSION

The Effect of BI Rate on NPL

The BI Rate variable has a coefficient of -0.123457 with a probability of 0.0005 based on the panel data regression using Pooled OLS. It can be inferred that the BI Rate significantly reduces Non-Performing Loans (NPL) at Himbara banks between 2011 and 2025 because this probability value is less than alpha 0.05. It's interesting to note that a negative coefficient sign means that the NPL rate falls as the BI rate rises. This occurrence defies the widely held belief that a rise in non-performing loans could be caused by higher interest rates.

Conceptually, an increase in the BI Rate will boost loan interest which ultimately burdens debtors' installment obligations and relieves the risk of default. Merton (1974) explained that the swelling of debtors' obligations can increase the probability of the emergence of non-performing loans. However, these findings reveal an inverse relationship between the BI Rate and NPLs. This situation is trustworthy considering that Himbara bank has a more solid risk mitigation capacity than other banks due to strong capital and stricter credit supervision.

The findings of this study are consistent with research by Nugroho & Endri (2022), which demonstrates that if banks effectively manage credit risk, interest changes do not always increase non-performing loans. A study by Putri & Trisanto (2025) revealed that Himbara banks have adequate resilience to interest rate fluctuations thanks to government support and well-established credit risk management. In addition, research by Haryanto et al. (2021) explains that interest rate increases can trigger banks to be more selective in distributing loans so that the risk of non-performing loans can be minimized. Thus, these findings prove that the impact of the BI Rate on NPL depends not only on the macroeconomic situation, but also on the credit risk management strategies implemented by banks.

Factually, the results of this research prove that Himbara bank can maintain credit quality despite fluctuations in the BI Rate during the 2011-2025 research period. This condition shows that aspects of credit supervision, risk management quality, and credit restructuring policies have a vital role in maintaining NPL stability. Therefore, Himbara bank needs to continue to optimize the effectiveness of credit risk management to maintain asset quality amid fluctuations in national interest policy.

The Effect of BOPO on NPL

The BOPO variable has a coefficient of 0.069526 and a probability of 0.0000 based on the panel data regression test using Pooled OLS. BOPO has a positive and substantial impact on

Non-Performing Loans (NPL) at Himbara Bank over the years 2011-2025, as demonstrated by the probability value being below the significance level of 0.05. As a result, Himbara Bank's NPL rate will rise by 0.06% in response to a 1% increase in BOPO.

Conceptually, BOPO is used to assess the level of efficiency of banks in managing operational costs to the operating income generated. The high BOPO figure indicates the bank's inefficiency in carrying out its activities. This situation can result in weak credit controls, lack of quality financing analysis, and increased potential for non-performing loans. The theory of financial intermediation by Diamond (1984) outlines that banks must be able to carry out the supervisory function of debtors optimally so that credit risk can be minimized. Therefore, banks with low efficiency generally show higher NPL rates.

The study's findings support those of Pardosi et al. (2024), who found that BOPO significantly reduces non-performing loans (NPL) in the Indonesian banking industry. According to a study by Fiqih & Ardiansyah (2025) the expansion of BOPO increased the probability of non-performing loans since bank operational management was ineffective. Furthermore, a study conducted on 20 Indonesian public banks between 2005 and 2014 discovered that the BOPO ratio significantly and favorably affected non-performing loans (NPL) (Fajar & Umanto, 2017). The results demonstrate that keeping operational expenses under control is essential to preserving the caliber of bank credit.

In the context of Himbara bank, high BOPO can be triggered by an extensive office network, digital transformation, and massive transaction volume. This condition causes operational costs to swell and if it is not balanced with efficiency and strict credit supervision, the risk of non-performing loans will increase. Therefore, operational efficiency is a crucial factor in maintaining the quality of bank assets. Banks need to optimize cost management while strengthening the credit supervision system so that the stability of the banking sector can be maintained in an increasingly complex era of financial modernization.

The Effect of NIM on NPL

The Net Interest Margin (NIM) variable displays a coefficient of 0.200929 with a probability of 0.0002 based on the panel data regression estimation findings using Pooled OLS. It can be inferred that NIM significantly improves Non-Performing Loans (NPL) at Himbara Bank for the years 2011–2025 because this probability value is less than the significance level of 0.05. According to this condition, there will be a 0.20% increase in NPLs for every 1% increase in NIM.

Conceptually, NIM is a ratio used to measure a bank's ability to generate net interest income from its productive assets. The large NIM figure indicates that banks have managed to reap abundant profits from lending activities. However, the strengthening of interest margins is often accompanied by an increase in loan interest charged to debtors. This situation can aggravate the burden of debtors' installments so that the probability of default becomes greater. Therefore, the unidirectional relationship between NIM and NPL in this study indicates that the increase in NIM has the potential to trigger an increase in NPL.

This finding is in line with Yulianti (2022) who stated that a high NIM can increase credit risk if the loan interest charged to the debtor is too large. A study by Stephanus (2023) also proves that increasing NIM can increase the pressure on debtors to pay in a bad economic situation, especially when people's purchasing power decreases. In addition, Hossain & Ahamed (2021) explained that high NIM in the banking sector can increase the risk of default if it is not balanced

with maximum credit analysis accuracy. The findings illustrate that bank profitability needs to be balanced with the principle of prudence in lending distribution.

On the other hand, research by Nugroho & Endri (2022) found that NIM has a negative impact on NPLs. These differences in results can be triggered by the characteristics of the bank sample and the economic situation throughout the observation period. In this study, Himbara bank has a very large and distributed loan portfolio in various economic sectors so that the increase in NIM can put greater pressure on debtor payment capabilities. In addition, the post-pandemic economic situation has also resulted in some debtors experiencing a decline in financial conditions, so that strengthening lending rates has the potential to increase the risk of non-performing loans.

Factually, the results of this study prove that strengthening bank profitability through NIM must be balanced with effective credit risk management. Bank Himbara needs to maintain a balance between the profitability target and the debtor's payment capability so that credit quality is maintained. In addition, banks also need to improve the quality of credit analysis and conduct periodic evaluations of high-risk financing sectors. Thus, strengthening interest income can continue to support bank profitability without excessively increasing NPL risk.

The Effect of BI Rate, BOPO, and NIM on NPL

Based on the findings of simultaneous testing utilizing Pooled OLS, a Prob(F-statistic) value of 0.000000 was produced, which was smaller than the significance level of 0.05. These findings demonstrate that, for the years 2011-2025, Non-Performing Loans (NPL) at Himbara banks are significantly impacted by the variables of BI Rate, BOPO, and NIM taken combined. As a result, every independent variable in our analysis has helped to explain how NPLs in Himbara banks have changed. These results demonstrate that the quality of banking loans is significantly influenced by both internal and external bank factors.

Theoretically, the results of this study support the theory of financial intermediation put forward by Douglas W. Diamond and the theory of credit risk by Robert C. Merton. According to the theory of intermediation, the bank's capacity to oversee debtors and manage funds has an impact on the quality of credit distribution. Meanwhile, credit risk theory explains that changes in economic conditions and the ability of debtors to meet payment obligations will affect the level of risk of non-performing loans. Therefore, changes in the BI Rate as an external factor as well as BOPO and NIM as internal factors of the bank can simultaneously affect the NPL level.

The results of this study are in line with the research of Pardosi et al. (2024), Nugroho & Endri (2022) and Widana et al. (2021) which stated that macroeconomic factors and the internal performance of banks together affect NPL levels in the banking sector. In the context of Himbara bank, the simultaneous influence of these three variables shows that the stability of credit quality is not only influenced by interest rate policy, but also by operational efficiency and the bank's ability to generate interest income. As the bank with the largest assets and credit disbursement in Indonesia, Himbara bank faces complex challenges in maintaining credit quality amid changing national economic conditions. Therefore, optimal management of BI Rate, BOPO, and NIM is an important factor in maintaining the stability of the banking sector.

Furthermore, the Adjusted R-squared value of 0.583734 indicates that the variables BI Rate, BOPO, and NIM account for 58.37% of the NPL variation, with other variables outside the study model influencing the remaining portion. This shows that there are still other factors that can affect NPL rates, such as inflation, exchange rates, Loan to Deposit Ratio (LDR), and

Capital Adequacy Ratio (CAR). The study's empirical findings suggest that Himbara banks must maintain operational efficiency, enhance the efficacy of credit risk management, and modify credit distribution policies in response to interest rate fluctuations. The risk of rising non-performing loans (NPL) can be decreased with effective management, preserving the soundness of the country's financial system.

CONCLUSION

The results indicate that BI Rate, BOPO, and NIM significantly affect Non-Performing Loans (NPL) both individually and jointly. BI Rate has a negative impact on NPL, indicating that, when accompanied by efficient credit monitoring and risk management, higher interest rates do not always result in increased credit risk. In contrast, BOPO and NIM positively affect NPL, indicating that operational inefficiency and higher interest margins may increase the likelihood of problematic loans. These findings confirm that bank credit quality is influenced by both macroeconomic conditions and internal management performance.

The findings imply that Himbara banks should strengthen credit risk management, improve loan monitoring, and enhance operational efficiency to maintain healthy NPL levels. Regulators, particularly Bank Indonesia and Otoritas Jasa Keuangan (OJK), are expected to maintain monetary stability and reinforce supervision of banking credit quality to support financial system stability. Future studies are encouraged to incorporate additional variables, such as inflation, Capital Adequacy Ratio (CAR), and Loan-to-Deposit Ratio (LDR), as well as broader samples and longer observation periods to provide more comprehensive evidence.

REFERENCE

- Abidi, R., & Sastradipraja, U. (2023). EFFECT OF LDR, CAR, BOPO AND INFLATION ON NPL. *Jurnal Ekonomi*, 12(01), 2023. <http://ejournal.seaninstitute.or.id/index.php/Ekonomi>
- Antang, D. C., Pambelum, Y. J., Diarsyad, M. I., Simamora, L., Rapel, R., & Zulaika, T. (2023). Faktor Internal Dan Eksternal Perbankan Pada Non Performing Loan (NPL) Dengan Inflasi Sebagai Variabel Moderasi. *JURNAL MANAJEMEN DAN BISNIS EKONOMI*, 1(4), 262–277. <https://doi.org/10.54066/jmbe-itb.v1i4.741>
- Azizzah, A. N., Setiawan, I., & Kristianingsih. (2021). Pengaruh BI Rate dan BOPO terhadap NPL pada Bank Umum yang Terdaftar di BEI Tahun 2010-2020. *Indonesian Journal of Economics and Management*, 1(3), 642–655. <https://doi.org/10.35313/ijem.v1i3.3099>
- Boediono. (2018). *Ekonomi Moneter (Edisi Keempat)*. BPFE Yogyakarta.
- Carolina, A., & Madyan, M. (2016). Determinan kredit bermasalah pada bank devisa di Indonesia. *Jurnal Manajemen Dan Bisnis*, 15(2), 123–138.
- Diamond, D. W. (1984). Financial intermediation and delegated monitoring. *Review of Economic Studies*, 51(3), 393–414. <https://doi.org/10.2307/2297430>
- Fajar, H., & Umanto. (2017). The impact of macroeconomic and bank-specific factors toward non-performing loan: Evidence from Indonesian public banks. *Banks and Bank Systems*, 12(1), 67–74. [https://doi.org/10.21511/bbs.12\(1\).2017.08](https://doi.org/10.21511/bbs.12(1).2017.08)
- Febri Nanda Marchela, & Purwanto Widodo. (2023). Determinants of non-performing loans in Regional Development Banks (BPD) in Indonesia. *International Journal of Research in Business and Social Science* (2147- 4478), 12(3), 263–271. <https://doi.org/10.20525/ijrbs.v12i3.2573>

- Fiqih, M., & Ardiansyah, A. (2025). Analisis pengaruh LDR, NIM dan BOPO terhadap NPL yang terdaftar di BEI periode 2021–2023. *Jurnal Paradigma Akuntansi*, 7(3). <https://doi.org/10.24912/jpa.v7i3.34439>
- Haan, J. de, Moreno, M. R., & Segev, N. (2023). *The impact of low interest rates on banks' net interest margins: An overview*. <https://doi.org/10.1016/b978-0-44-313776-1.00184-7>
- Haryanto, S., Bachri, S., & Khotimah, H. (2021). Banking risk management and interest rate policy in Indonesia. *Banks and Bank Systems*, 16(3), 123–134. [https://doi.org/10.21511/bbs.16\(3\).2021.11](https://doi.org/10.21511/bbs.16(3).2021.11)
- Hossain, M. S., & Ahamed, F. (2021). Comprehensive analysis on determinants of bank profitability in Bangladesh. *Asian Economic and Financial Review*, 11(7), 560–575. <https://doi.org/10.18488/journal.aefr.2021.117.560.575>
- Kasmir. (2019). *Analisis Laporan Keuangan (Edisi Kedua)*. Rajawali Pers.
- Kezia, C., Amril, A., & Amzar, Y. V. (2021). Analisis perbedaan pengaruh kebijakan suku bunga bank sentral terhadap inflasi di Indonesia. *Jurnal Perspektif Pembiayaan Dan Pembangunan Daerah*, 8(2), 99–112. <https://doi.org/10.22437/PIM.V8I2.7812>
- Mankiw, N. G. (2021). *Principles of Economics*.
- Merton, R. C. (1974). ON THE PRICING OF CORPORATE DEBT: THE RISK STRUCTURE OF INTEREST RATES*. *The Journal of Finance*, 29(2), 449–470. <https://doi.org/10.1111/j.1540-6261.1974.tb03058.x>
- Mishkin, F. S. (2022). *THE ECONOMICS OF MONEY, BANKING, AND FINANCIAL MARKETS*.
- Nugroho, I. S., & Endri, E. (2022). Determinants of non-performing bank loans listed on the Indonesia Stock Exchange for the 2016–2020 period. *Journal of Social Science*, 3(6), 806–817. <https://doi.org/10.46799/jss.v3i6.470>
- Nurani, K. (2021). Pengaruh LDR, CAR dan NIM terhadap NPL pada PD. Bank Perkreditan Rakyat. *Jurnal Manajemen Ekonomi Dan Akuntansi*, 5(2), 45–58.
- Pardosi, A. R. S., Hutabarat, F., & Siagian, H. (2024). Pengaruh CAR, BOPO, ROA dan BI Rate terhadap NPL bank. *Journal of Management and Bussines (JOMB)*, 6(2). <https://doi.org/10.31539/jomb.v6i2.9087>
- Putri, W. A., & Tristanto, T. A. (2025). Pengaruh Inflasi, BI Rate, CAR, NPL, BOPO Terhadap ROA pada Bank HIMBARA (Himpunan Bank Milik Negara) yang Terdaftar di Bursa Efek Indonesia Periode 2019-2023. *Jurnal Sains Ekonomi Dan Edukasi*, 2(9), 2333–2349. <https://doi.org/10.62335>
- Riyadi, S. (2018). *Manajemen Risiko Perbankan*. Salemba Empat.
- Rohadi, S. C., Sarumpaet, S., & Syaipudin, U. (2024). Determinan Non-Performing Loan (NPL) Perbankan Kawasan ASEAN. *Owner: Riset & Jurnal Akuntansi*, 8(2), 1917–1929. <https://doi.org/10.33395/owner.v8i2.2331>
- Rose, P. S., & Hudgins, S. C. (2018). *Bank Management & Financial Services (10th ed.)*. McGraw-Hill.
- Sari, N. K., & Wijayanto, A. (2021). BOPO, NPL, dan CAR terhadap Profitabilitas Bank BUMN. *Jurnal Ilmiah Manajemen Keuangan*, 9(2), 145–158.
- Stephanus, S. (2023). Pengaruh rasio NPL, BOPO dan NIM terhadap ROA bank umum konvensional pada masa pandemi tahun 2020. *Journal of Accounting and Business Studies*, 8(2). <https://journal.ithb.ac.id/index.php/JABS/article/view/672>
- Stiglitz, J. E., & Weiss, A. (1981). American Economic Association Credit Rationing in Markets with Imperfect Information. *Source: The American Economic Review*, 71(3), 393–410. <http://www.jstor.org/stable/1802787%5Cnhttp://www.jstor.org/page/info/about/policies/terms.jsp>
- Umaternate, F. F., & Mongid, A. (2023). Modelling Non-performing Loans (NPL) for Small Banks in Indonesia: Are Macroeconomic Matter? *International Journal of Economics*,

Business and Management Research, 07(01), 57–68.
<https://doi.org/10.51505/ijebmr.2023.7106>

- Widana, I. W. D., Yasa, G. W., & Suaryana, I. G. N. A. (2021). Effect of CAR, NPL, and BOPO on NIM with ROE as a moderating variable. *International Research Journal of Management, IT and Social Sciences*, 8(3). <https://doi.org/10.21744/irjmis.v8n3.1469>
- Yulianti, M. (2022). Analisis pengaruh LDR, BOPO, NIM dan NPL terhadap return on asset pada perbankan yang terdaftar di Bursa Efek Indonesia periode 2017–2020. *Akuntansi Prima*, 4(1). <https://doi.org/10.34012/japri.v4i1.2508>