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Research Paper

Analysis of Factors Affecting Net Interest Margin in Foreign Banking Companies' Operations in Indonesia

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Abstract

This research aims to empirically examine the factors influencing Net Interest Margin (NIM) in foreign banking companies operating in Indonesia. The study is grounded in the banking intermediation theory, which explains how banks manage financial resources to optimize profitability, and the risk-return tradeoff theory, which highlights the balance between risk factors and financial performance. Factors affecting NIM include the Loan to Deposit Ratio (LDR), efficiency ratio calculated by the ratio of operational expenses to operational income (BOPO), credit risk proxied by the Non-Performing Loan (NPL) ratio, and Market Share (MS). The research period covers the year 2019.A purposive sampling method was used, selecting 25 foreign banking companies that met specific criteria. Hypothesis testing was conducted using multiple linear regression analysis with EViews 10. Based on the results of panel data analysis, the t-test shows that the Market Share (MS) variable has a positive but insignificant effect on NIM. The Loan to Deposit Ratio (LDR) and Non-Performing Loan (NPL) variables have negative and statistically insignificant effects on NIM, whereas the Efficiency Ratio (BOPO) has a positive and statistically significant effect on NIM. The F-test results indicate that LDR, BOPO, NPL, and MS simultaneously affect NIM, with a significance value of 0.014544 ($p < 0.05$). The adjusted R^2 test results show that the predictive ability of these four independent variables is 33.68%, while the remaining 66.32% is influenced by other variables outside the model.

Keywords: *Net Interest Margin (NIM), Loan to Deposit Ratio (LDR), Efficiency Ratio (BOPO), Non-Performing Loan (NPL), market share (MS)*

INTRODUCTION

Banks play a role as intermediaries in transferring funds from the public to those in need with minimal costs to enhance social welfare. Banks act as intermediaries between those with surplus funds and those in need of funds (Tien et al., 2023). Effective financial intermediation relies on strong governance and risk management practices to ensure sustainable profitability and financial stability. One key measure of financial intermediation efficiency is the difference between the interest income earned by the bank and the interest expense it incurs, known as Net Interest Margin (NIM) (Tin et al., 2011). High interest rate differentials and a large Net Interest Margin (NIM) pose obstacles in the financial intermediation process as they can hinder both savers and borrowers (Al-muharrami & Murthy, 2017). NIM is a crucial indicator of banking performance, reflecting both profitability and the effectiveness of governance structures in managing interest rate risks. A lower NIM indicates lower financial intermediation costs. Conversely, a high NIM signifies substantial interest income from productive assets, resulting in increased bank profits (Widyakto & Wahyudi, 2021). Additionally, a well-governed banking institution with sound risk management practices can optimize NIM by balancing lending risks, operational efficiency, and market competition (Tien et al., 2023). Several factors influence NIM, including liquidity, market share, efficiency, and Non-Performing Loans (NPL) (Hidayat et al., 2012).

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For foreign banks operating in Indonesia, regulatory frameworks, corporate governance, and risk mitigation strategies play an essential role in shaping their NIM. These banks must navigate different market dynamics, risk exposure levels, and compliance requirements compared to domestic banks. This study seeks to examine the impact of liquidity, market share, efficiency, and credit risk on NIM among foreign banks in Indonesia, providing a deeper understanding of how these institutions manage financial performance within the Indonesian banking landscape. This research extends previous studies by incorporating additional independent variables affecting NIM. Unlike Marozva (2015), this research includes liquidity, market share, efficiency, and credit risk variables while focusing on foreign banks in Indonesia, which face distinct governance challenges and risk management considerations. The research period also differs, starting from 2019. The research object will focus on foreign banks operating in Indonesia, unlike Marozva's study (2015), which focused on banks in Africa.

Factors influencing NIM encompass various financial and operational variables, including Loan Deposit Ratio (LDR), Efficiency Ratio (BOPO), Non-Performing Loan (NPL), and Market Share (MS). Loan Deposit Ratio (LDR) reflects the proportion of a bank's assets tied up in loans compared to deposits, thus impacting interest income and expenses. The Efficiency Ratio, measured by the ratio of operating expenses to operating income (BOPO), indicates a bank's operational efficiency, which affects its overall profitability. Non-Performing Loan (NPL) indicates the credit risk faced by a bank, thereby influencing the bank's ability to generate interest income (Saleh & Winarso, 2021). Market Share denotes a bank's competitive position in the industry, potentially affecting its pricing power and profitability.

This research utilizes purposive sampling method to select 25 foreign banking companies operating in Indonesia based on specific criteria and using a governance and risk-focused perspective. Hypothesis testing is conducted through multiple linear regression analysis using EViews 10 software. The findings from this analysis will provide valuable insights into the drivers of NIM in foreign banking companies in Indonesia. Understanding these factors is crucial for stakeholders, including regulators, investors, and bank management, in formulating effective strategies to enhance profitability, manage risks, and maintain competitiveness in the Indonesian banking sector.

LITERATURE REVIEW

This study employs agency theory and signaling theory to explain the factors influencing Net Interest Margin (NIM) in foreign banks operating in Indonesia. The Brigham and Houston (2011) define signaling as actions taken by companies to provide cues to investors about how management perceives the company's prospects. Signaling theory explains why companies disclose financial information to external parties, as the company has better insights into its operations and future prospects than investors and creditors.

Similarly, agency theory suggests that conflicts may arise between management (agents) and shareholders (principals) due to information asymmetry, which affects banking performance and risk-taking behavior (Jensen & Meckling, 1976). In the context of foreign banks in Indonesia, agency conflicts can emerge due to differences in governance structures and regulatory environments between the parent company and its Indonesian subsidiary. Effective governance mechanisms, such as strong risk management frameworks, transparent financial reporting, and internal controls, can mitigate these agency problems and improve NIM stability.

NIM, as a measure of a bank's profitability and efficiency, is influenced by various financial and operational factors, including Loan Deposit Ratio (LDR), Efficiency Ratio (BOPO), Non-Performing Loans (NPL), and Market Share (MS).

Loan Deposit Ratio (LDR) reflects the proportion of a bank's assets tied up in loans compared to deposits, impacting interest income and expenses. A higher LDR indicates an aggressive lending strategy, which may increase profitability but also elevate credit risk (Sidarta & Manullang, 2019). In foreign banks, LDR can be influenced by their risk appetite, local market conditions, and regulatory restrictions imposed by Bank Indonesia.

Efficiency Ratio (BOPO), measured as the ratio of operating expenses to operating income, indicates a bank's operational efficiency. A higher BOPO suggests higher costs relative to income, which negatively impacts NIM (Kosmidou & Zopounidis, 2008). Foreign banks, which often have higher operational costs due to international compliance requirements, may face additional challenges in maintaining low BOPO levels.

Non-Performing Loans (NPL) represent the credit risk faced by a bank, as they indicate the proportion of loans that borrowers fail to repay. A high NPL level reduces interest income and increases provisioning costs, negatively affecting NIM (Akpan & Ismail, 2016). Foreign banks operating in Indonesia must implement strong credit risk management policies to minimize NPL levels while balancing profitability and loan growth.

Market Share (MS) reflects a bank's competitive position in the industry, affecting its ability to set interest rates and generate higher NIM (Mishkin & Eakins, 2018). Foreign banks often compete with domestic banks, which may have stronger local networks and customer trust, potentially impacting their ability to expand market share and optimize NIM.

This study extends previous research by incorporating these financial factors into the analysis of NIM in foreign banks operating in Indonesia. By integrating governance and risk management perspectives, this research aims to provide a more comprehensive understanding of how internal management practices influence NIM stability and profitability in the Indonesian banking sector.

RESEARCH METHOD

Research Conceptual Framework

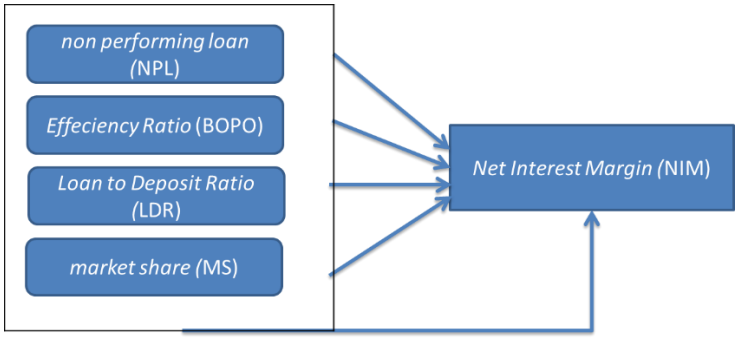

Figure 1. Conceptial Framework

Research Hypothesis

H1: Non-Performing Loan (NPL) has a negative and significant effect on Net Interest Margin (NIM)
H2: Efficiency Ratio (BOPO) has a negative and significant effect on Net Interest Margin (NIM).
H3: Loan to Deposit Ratio (LDR) has a positive and significant effect on Net Interest Margin (NIM)
H4: Market share (MS) has a positive and significant effect on Net Interest Margin (NIM)

Research Location

The research is conducted indirectly by utilizing data sources available on the official websites of the respective banks. This method involves collecting and analyzing publicly accessible financial data and reports published by the banks, ensuring that the research is based on reliable

and verifiable information without direct interaction with the banks themselves. This approach allows for a comprehensive analysis of the banks' performance and other relevant variables using existing secondary data.

Type of Research

The research employed is causal or cause-and-effect research. This type of research aims to analyze and measure the cause-and-effect relationships among various research variables, forming a model through a quantitative approach. Based on the type of data used, this research is classified as quantitative research. Quantitative research aims to interpret the actual conditions of sample companies using a series of tests on numerical data obtained. Based on the explanatory level, this research is classified as associative causality research. Associative causality research aims to find cause and effect relationships between two or more variables, including independent variables to dependent variables (Sugiyono, 2019). The dependent variable in this study is Net Interest Margin (NIM), and the independent variables include Non-Performing Loan (NPL), Efficiency Ratio (BOPO), Loan to Deposit Ratio (LDR), and Market Share (MS).

Population and Sampling Technique

The population used in this study consists of foreign banking companies operating in Indonesia in 2019. The choice of 2019 as the focus year is based on the availability and completeness of financial data before the disruptions caused by the COVID-19 pandemic, which significantly impacted the banking sector. By selecting 2019, this study aims to analyze the financial performance of foreign banks under normal economic conditions, ensuring that external shocks do not distort the findings.

The sampling technique used is purposive sampling, which involves selecting samples based on specific criteria relevant to the research objectives. The criteria for selecting banks in this study are:

1. Foreign banking companies operating in Indonesia in 2019.
2. Banks that published annual financial reports during the research period.
3. Banks that have complete data on Net Interest Margin (NIM), Non-Performing Loan (NPL), Efficiency Ratio (BOPO), Loan to Deposit Ratio (LDR), and Market Share (MS).

Variable Measurement

Net Interest Margin

According to Janrosl and Yuliani (2017), Net Interest Margin is the ratio of net interest income to its productive assets. The greater the value of the Net Interest Margin (NIM) ratio, the greater the bank's ability to generate net interest income (Arthamevia & Husin, 2023). Net Interest Margin (NIM) can be calculated as follows (Janrosl & Yuliani, 2017):

$$\text{NIM} = \frac{\text{Net Interest Income}}{\text{Earning Assets}} 100\% \quad (1)$$

Non-Performing Loan (NPL)

According to Firdaus and Santioso (2023), Non-Performing Loan (NPL) refers to loans that experience problems or are halted due to errors in bank analysis and the inability of customers to pay, whether intentional or unintentional. High NPL leads to a decrease in the bank's health level. The Non-Performing Loan ratio is formulated as follows (Christiano et al., 2014):

$$\text{NPL} = \frac{\text{Non-performing Loans}}{\text{Total Credit}} 100\% \qquad (2)$$

Efficiency Ratio (BOPO)

BOPO is the ratio of operating expenses to operating income (Nurlatipah et al., 2022). This ratio, commonly known as the efficiency ratio, is used to measure a bank's management ability to control operating expenses relative to operating income. According to Kosmidou and Zopounidis (2008), the efficiency ratio or operating expenses to operating income (BOPO) can be calculated as follows:

$$\text{BOPO} = \frac{\text{Operating Expenses}}{\text{Operating Income}} 100\% \qquad (3)$$

Loan to Deposit Ratio (LDR)

Loan to Deposit Ratio (LDR) is the ratio of total loans provided by the bank to total third-party funds received by the bank (Taliwuna et al., 2019). LDR is used as an indicator to evaluate the bank's ability to repay its debts and meet the demand for loans. The higher the LDR ratio, the lower the liquidity of the bank due to the excessive allocation of public funds to these loans (Sarjono & Suprapto, 2020). According to Bank Indonesia Regulation No. 15/15/PBI/2013, LDR is the ratio of credits granted to third parties in rupiah and foreign currencies to third-party funds excluding interbank funds. Liquidity is calculated using LDR:

$$\text{LDR} = \frac{\text{Total credit extended}}{\text{Total third party funds}} 100\% \qquad (4)$$

Market Share (MS)

Market share in economics is the situation where various economic companies compete to obtain limited goods by various elements of the marketing mix, such as price, product, promotion, and place. In classical economic thought, competition causes commercial companies to develop new products, services, and technologies (Hamadou, 2022). Simply put, Market Share is the percentage of the total market area that can be captured by a company. The market share of foreign banks operating in Indonesia means the percentage of the total market area that can be captured by foreign banks from the total national banking market. Thus, the market share of foreign banks in Indonesia can be calculated as follows:

$$\text{MS} = \frac{\text{Total assets of foreign banks}}{\text{Total assets of national banks}} 100\% \qquad (5)$$

Operational Definition

In this study, there are a total of 5 variables used, including 1 dependent variable and 4 independent variables. The dependent variable influenced is Net Interest Margin (NIM), while the independent variables influencing it are Non-Performing Loan (NPL), Efficiency Ratio (BOPO), Loan to Deposit Ratio (LDR), and Market Share (MS).

Data Analysis Technique

In seeking answers to the predetermined hypotheses, this research conducts data analysis using regression tests and cross-sectional data. Therefore, Winarno (2011) states that regression tests have a combination of characteristics involving data from various samples. Essentially, parameter hypotheses in regression tests using cross-sectional data are conducted using small square technique hypotheses, also referred to as Ordinary Least Square (OLS).
The regression model in this study is:

$$\mathbf{Y = \alpha + b1X1 + b2X2 + \beta3X3 + \beta4X4 + e} \qquad (6)$$

X1 = Independent Variable 1 (NPL)
X2 = Independent Variable 2 (BOPO)
X3 = Independent Variable 3 (LDR)
X4 = Independent Variable 4 (MS)
Y = Dependent variable (*Net Interest Margin*)
α = Constant
$\beta 1$- $\beta 4$ = coefficient
e = error term

Limitations of the 2019 Timeframe

While focusing on 2019 provides a stable reference point for analyzing foreign bank performance in Indonesia, it also introduces certain limitations, including:

- Lack of trend analysis: Since this study is limited to a single year, it does not capture long-term trends or fluctuations in NIM and its influencing factors.
- Impact of economic changes: The banking sector is dynamic, and factors such as regulatory changes, interest rate policies, and economic conditions beyond 2019 may affect the relevance of the findings in different periods.
- COVID-19 exclusion: While excluding post-pandemic years avoids data distortion, it also means the study does not account for how foreign banks adapted to global financial disruptions after 2019.

Future research could extend this study by analyzing multiple years to observe trends and policy impacts over time.

FINDINGS AND DISCUSSION

Table 1. Research Sample

ID Bank	Bank Name
011	PT BANK DANAMON INDONESIA, Tbk
013	PT BANK PERMATA, Tbk
022	PT BANK CIMB NIAGA, Tbk
023	PT BANK UOB INDONESIA
028	PT BANK OCBC NISP, Tbk
031	CITIBANK NA
036	PT BANK CHINA CONSTRUCTION BANK INDONESIA, Tbk
042	THE BANK OF TOKYO MITSUBISHI UFJ LTD
046	PT BANK DBS INDONESIA
047	PT BANK RESONA PERDANIA
048	PT BANK MIZUHO INDONESIA
050	STANDARD CHARTERED BANK
061	PT BANK ANZ INDONESIA
067	DEUTSCHE BANK AG.
087	PT BANK HSBC INDONESIA
089	PT BANK RABOBANK INTERNATIONAL INDONESIA
097	PT BANK MAYAPADA INTERNATIONAL, Tbk
164	PT BANK ICBC INDONESIA
167	PT BANK QNB INDONESIA, Tbk

ID Bank	Bank Name
212	PT BANK WOORI SAUDARA INDONESIA 1906, Tbk
213	PT BANK TABUNGAN PENSIUNAN NASIONAL, Tbk
484	PT BANK KEB HANA INDONESIA
498	PT BANK SBI INDONESIA
949	PT BANK CTBC INDONESIA
950	PT BANK COMMONWEALTH

From Table 1, it can be observed that there are 25 foreign banking companies operating in Indonesia that have complete financial reports for the year 2019.

Table 2. Descriptive Statistics Table

	NIM	NPL	BOPO	LDR	MS
Mean	3.595600	3.716800	83.66400	175.5644	0.976800
Median	3.910000	2.610000	87.04000	94.00000	0.740000
Maximum	5.910000	29.25000	202.4300	1873.710	3.320000
Minimum	0.050000	0.010000	0.830000	0.960000	0.030000
Std. Dev.	1.460910	5.814587	36.17819	357.4752	0.861891
Skewness	-0.951635	3.652797	0.484004	4.540565	0.968829
Kurtosis	3.640580	16.32447	7.453738	22.10930	3.226049
Jarque-Bera	4.200809	240.5346	21.63835	466.2837	3.964187
Probability	0.122407	0.000000	0.000020	0.000000	0.137780
Sum	89.89000	92.92000	2091.600	4389.110	24.42000
Sum Sq. Dev.	51.22222	811.4261	31412.68	3066925.	17.82854
Observations	25	25	25	25	25

From Table 2, it is obtained that Net Interest Margin as the dependent variable (Y) has a mean value of 3.595600, a standard deviation of 1.460910, a maximum value of 5.910000, and a minimum value of 0.050000. Meanwhile, the independent variable NPL (X1) has a mean value of 3.716800, a standard deviation of 5.814587, a maximum value of 29.25000, and a minimum value of 0.010000. Furthermore, the independent variable BOPO (X2) has a mean value of 83.66400, a standard deviation of 36.17819, a maximum value of 202.4300, and a minimum value of 0.830000. Additionally, the independent variable LDR (X3) has a mean value of 175.5644, a standard deviation of 357.4752, a maximum value of 1873.710, and a minimum value of 0.960000. Lastly, the independent variable MS (X4) has a mean value of 0.976800, a standard deviation of 0.861891, a maximum value of 3.320000, and a minimum value of 0.030000.

Table 3. Least Squares (NLS and ARMA)

Dependent Variable: NIM
Method: Least Squares
Date: 05/27/22 Time: 23:18
Sample: 1 25
Included observations: 25

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.398159	0.910668	0.437216	0.6666
NPL	-0.058644	0.108773	-0.539143	0.5957
BOPO	0.042126	0.010706	3.934740	0.0008
LDR	-0.002365	0.001630	-1.451134	0.1622
MS	0.313429	0.317297	0.987808	0.3350

R-squared	0.447360	Mean dependent var	3.595600
Adjusted R-squared	0.336832	S.D. dependent var	1.460910
S.E. of regression	1.189694	Akaike info criterion	3.362126
Sum squared resid	28.30745	Schwarz criterion	3.605902
Log likelihood	-37.02658	Hannan-Quinn criter.	3.429739
F-statistic	4.047478	Durbin-Watson stat	2.058510
Prob(F-statistic)	0.014544		

The least squares regression model suggests that:

- BOPO has a significant positive effect on NIM ($p = 0.0008$).
- NPL, LDR, and MS do not have a statistically significant impact on NIM.
- The model has an R-squared value of 0.4474, indicating that 44.74% of the variation in NIM is explained by the independent variables.

Table 4. Multicollinearity Test Results

Variance Inflation Factors

Date: 05/27/22 Time: 23:23

Sample: 1 25

Included observations: 25

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.829316	14.64837	NA
NPL	0.011832	9.670028	6.782999
BOPO	0.000115	16.71540	2.543917
LDR	2.66E-06	7.200428	5.754578
MS	0.100677	2.964900	1.268170

From the analysis of data, the correlation VIF values in Table 4 show that each independent variable in the study obtained a VIF value less than 10. The analysis results indicate no multicollinearity issues as the VIF values for NPL, BOPO, LDR, and MS are less than 10. Therefore, it can be concluded that the model does not have multicollinearity-related issues.

Table 5. Heteroscedasticity Test Results

Heteroskedasticity Test: White

Null hypothesis: Homoskedasticity

F-statistic	0.357131	Prob. F(14,10)	0.9614
Obs*R-squared	8.333157	Prob. Chi-Square(14)	0.8713
Scaled explained SS	4.591809	Prob. Chi-Square(14)	0.9907

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 05/27/22 Time: 23:25
Sample: 1 25
Included observations: 25

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.967993	2.511158	-0.385477	0.7080
NPL^2	-0.051371	0.145176	-0.353852	0.7308
NPL*BOPO	0.003447	0.048796	0.070643	0.9451
NPL*LDR	0.022874	0.022902	0.998756	0.3415
NPL*MS	0.033648	1.041956	0.032293	0.9749
NPL	-2.111311	3.982657	-0.530126	0.6076
BOPO^2	0.000645	0.003891	0.165711	0.8717
BOPO*LDR	-0.001355	0.002526	-0.536425	0.6034
BOPO*MS	-0.095437	0.072930	-1.308620	0.2199
BOPO	0.026149	0.349125	0.074899	0.9418
LDR^2	-0.000241	0.000204	-1.181338	0.2648
LDR*MS	0.050605	0.044134	1.146634	0.2782
LDR	0.084631	0.192347	0.439991	0.6693
MS^2	-1.292491	1.458534	-0.886158	0.3963
MS	5.176317	5.345106	0.968422	0.3557

R-squared	0.333326	Mean dependent var	1.132298
Adjusted R-squared	-0.600017	S.D. dependent var	1.516482
S.E. of regression	1.918225	Akaike info criterion	4.424387
Sum squared resid	36.79588	Schwarz criterion	5.155713
Log likelihood	-40.30484	Hannan-Quinn criter.	4.627226
F-statistic	0.357131	Durbin-Watson stat	2.404234
Prob(F-statistic)	0.961375		

Based on the data above, the three variables X1 Non-Performing Loan (NPL), X2 Efficiency Ratio (BOPO), and X3 Loan to Deposit Ratio (LDR), and X4 Market Share (MS) have probabilities values > 0.05. Therefore, it can be concluded that none of the four research variables experience heteroskedasticity issues, and the analysis results indicate that the p-value of Obs*R2 is 0.8713 > 0.05. Thus, the null hypothesis (Ho) is accepted (no Heteroskedasticity).

Table 6. Autocorrelation Test Results

Breusch-Godfrey Serial Correlation LM Test:			
Null hypothesis: No serial correlation at up to 1 lag			
F-statistic	0.098648	Prob. F(1,19)	0.7569
Obs*R-squared	0.129130	Prob. Chi-Square(1)	0.7193

Test Equation:				
Dependent Variable: RESID				
Method: Least Squares				
Date: 05/27/22 Time: 23:24				
Sample: 1 25				
Included observations: 25				
Presample missing value lagged residuals set to zero.				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.060983	0.951921	-0.064063	0.9496
NPL	-0.011432	0.117111	-0.097621	0.9233
BOPO	0.000808	0.011254	0.071824	0.9435
LDR	0.000173	0.001756	0.098390	0.9227
MS	0.005902	0.325242	0.018147	0.9857
RESID (-1)	-0.079508	0.253142	-0.314083	0.7569
R-squared	0.005165	Mean dependent var		2.70E-16
Adjusted R-squared	-0.256633	S.D. dependent var		1.086037
S.E. of regression	1.217444	Akaike info criterion		3.436948
Sum squared resid	28.16124	Schwarz criterion		3.729478
Log likelihood	-36.96185	Hannan-Quinn criter.		3.518083
F-statistic	0.019730	Durbin-Watson stat		1.977374
Prob(F-statistic)	0.999813			

The analysis of data autocorrelation testing yields a p-value of Obs*R2 equal to 0.7193 > 0.05. Therefore, the null hypothesis (Ho) is accepted, concluding that there is no autocorrelation.

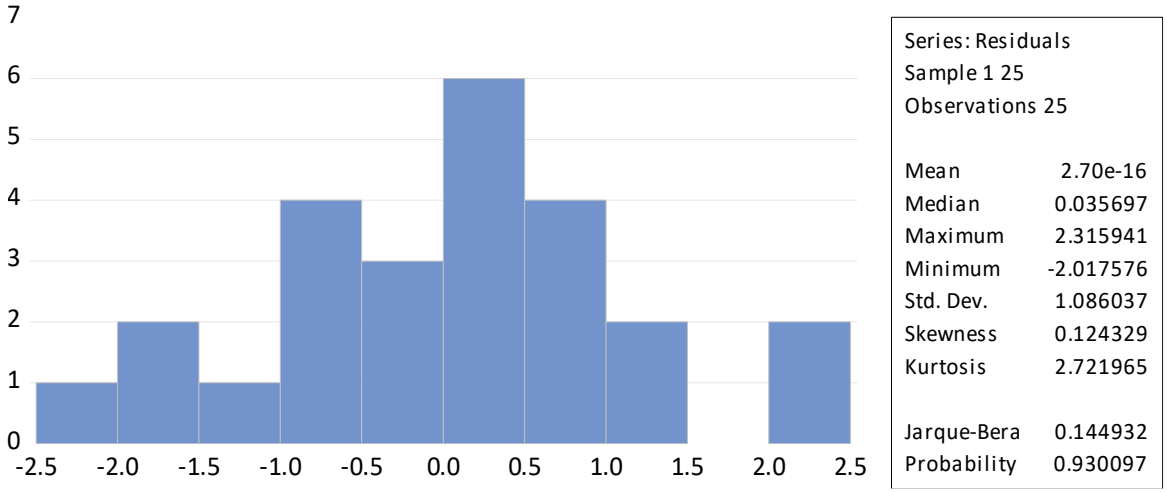

Figure 2. Normality Test Results

To determine whether the data is normally distributed or not, one can analyze the results of the JB value and the probability value. From Figure 1, it is known that the generated JB value is 0.144932, which is < 2, and its probability value is 0.930097, which is > 5%. These results indicate that the residual data is normally distributed, thus fulfilling the prerequisite test to determine the normality of the data.

Table 7. T-test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.398159	0.910668	0.437216	0.6666
NPL	-0.058644	0.108773	-0.539143	0.5957
BOPO	0.042126	0.010706	3.934740	0.0008
LDR	-0.002365	0.001630	-1.451134	0.1622
MS	0.313429	0.317297	0.987808	0.3350

Based on Table 7, the T-test output shows that the dependent variable (NPL) obtained a t-value of -0.539143, and the t-table value is 2.06866 using a significance level α of 5% (0.05). This result indicates that the t-value is smaller than the t-table value, i.e., -0.539143 < 2.06866, and the significance level is 0.5957 > 0.05. The T-test calculation results in the dependent variable (BOPO) obtaining a t-value = 3.934740 and t-table = 2.06866. Since the t-value is greater than the t-table value, i.e., 3.934740 > 2.06866, with a significance level of 0.0008 < 0.05. The T-test calculation results in the dependent variable (LDR) obtaining a t-value = -1.451134 and t-table = 2.06866. Since the t-value is smaller than the t-table value, i.e., -1.451134 < 2.06866, with a significance level of 0.1622 > 0.05. Similarly, (MS) obtains a t-value = 0.987808 and t-table = 2.06866. Since the t-value is smaller than the t-table value, i.e., 0.987808 < 2.06866, with a significance level of 0.3350 > 0.05. Therefore, out of these four variables, only BOPO has a significant influence on the Net Interest Margin (NIM), while NPL, LDR, and MS do not have a significant partial influence on the Net Interest Margin (NIM).

Table 8. F-test

R-squared	0.447360	Mean dependent var	3.595600
Adjusted R-squared	0.336832	S.D. dependent var	1.460910
S.E. of regression	1.189694	Akaike info criterion	3.362126
Sum squared resid	28.30745	Schwarz criterion	3.605902
Log likelihood	-37.02658	Hannan-Quinn criterion.	3.429739
F-statistic	4.047478	Durbin-Watson stat	2.058510
Prob(F-statistic)	0.014544		

Based on the Eviews output above, the obtained F-value is 4.047478, while the F-table value using a significance level of alpha 0.05 (5%) is 2.87. According to these results, the F-value is greater than the F-table value (4.047478 > 2.87). Furthermore, considering the probability value of 0.014544, which is smaller than the significance level used, i.e., 0.05, the initial hypothesis (H0) is rejected. This outcome indicates that the utilized ratios, namely NPL, BOPO, LDR, and MS, collectively or simultaneously have a significant and positive influence on the dependent variable (NIM). Therefore, the regression model used in the study can be employed to explain predictions of the dependent variable.

Table 9 . Coefficient of Determination

R-squared	0.447360	Mean dependent var	3.595600
Adjusted R-squared	0.336832	S.D. dependent var	1.460910
S.E. of regression	1.189694	Akaike info criterion	3.362126
Sum squared resid	28.30745	Schwarz criterion	3.605902
Log likelihood	-37.02658	Hannan-Quinn criter.	3.429739
F-statistic	4.047478	Durbin-Watson stat	2.058510

Prob(F-statistic)	0.014544

From the results of the coefficient of determination test in Table 9, the obtained Adjusted R-Square value is 0.336832. This figure indicates the percentage of influence of each independent variable on the dependent variable, which is 33.68%. This result can also be interpreted as the independent variables used in the model can predict the dependent variable by 33.68%. The remaining difference of 66.32% is the influence of various other factors not included in the regression model in this study.

Table 10. Coefficients in the Least Squares Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.398159	0.910668	0.437216	0.6666
NPL	-0.058644	0.108773	-0.539143	0.5957
BOPO	0.042126	0.010706	3.934740	0.0008
LDR	-0.002365	0.001630	-1.451134	0.1622
MS	0.313429	0.317297	0.987808	0.3350

Based on the table above, the regression equation is as follows:

$$Y = 0.398159 - 0.058644NPL + 0.042126BOPO - 0.002365LDR + 0.313429MS \quad (7)$$

Based on the regression formula model above, several conclusions can be drawn:

a. The constant term (α) with a value of 0.398159 signifies that if X1 (NPL), X2 (BOPO), X3 (LDR), and X4 (MS) are all 0, then Y (Net Interest Margin) will change by 0.398159.
b. The regression coefficient of the independent variable X1 (NPL) with a value of -0.058644 indicates a negative influence on Net Interest Margin, meaning it is inversely proportional. This implies that with every 1% increase in X1 (NPL), it will have an impact that decreases the value of Y by 0.058644.
c. The regression coefficient of the independent variable X2 (BOPO) with a value of 0.042126 indicates a positive influence on Net Interest Margin, meaning it is directly proportional. This implies that with every 1% increase in X2 (BOPO), it will have an impact that increases the value of Y by 0.042126.
d. The regression coefficient of the independent variable X3 (LDR) with a value of -0.002365 indicates a negative influence on Net Interest Margin, meaning it is inversely proportional. This implies that with every 1% increase in X3 (LDR), it will have an impact that decreases the value of Y by 0.002365.
e. The regression coefficient of the independent variable X4 (MS) with a value of 0.313429 indicates a positive influence on Net Interest Margin, meaning it is directly proportional. This implies that with every 1% increase in X4 (MS), it will have an impact that increases the value of Y by 0.313429.

Discussion

Variable X1 *Non-Performing Loan* (NPL)

The t-test result for NPL, with a t-value of -0.539143, while the t-table value is 2.06866, means that the t-value < t-table (--0.539143 < 2.06866). From these results, it is evident that the alternative hypothesis (H1) is rejected, while the null hypothesis (H0) is accepted. Furthermore, the probability value of 0.5957 > 0.05 indicates that the NPL variable is not significant and negatively affects the Net Interest Margin (NIM).

Variable X2 *Efficiency Ratio* (BOPO)

The t-test result for BOPO, with a t-value of 3.934740, while the t-table value is 2.06866, means that the t-value > t-table (3.934740 > 2.06866). From these results, it is evident that the alternative hypothesis (H1) is accepted, while the null hypothesis (H0) is rejected. Furthermore, the probability value of 0.0008 < 0.05 indicates that the BOPO variable is significant and positively affects the Net Interest Margin (NIM).

Variable X3 *Loan to Deposit Ratio* (LDR)

The t-test result for LDR, with a t-value of -1.451134, while the t-table value is 2.06866, means that the t-value < t-table (-1.451134 < 2.06866). From these results, it is evident that the alternative hypothesis (H1) is rejected, while the null hypothesis (H0) is accepted. Furthermore, the probability value of 0.1622 > 0.05 indicates that the LDR variable is not significant and negatively affects the Net Interest Margin (NIM).

Variable X4 *Market Share* (MS)

The t-test result for MS, with a t-value of 0.987808, while the t-table value is 2.06866, means that the t-value < t-table (-0.987808 < 2.06866). From these results, it is evident that the alternative hypothesis (H1) is rejected, while the null hypothesis (H0) is accepted. Furthermore, the probability value of 0.3350 > 0.05 indicates that the MS variable is not significant and positively affects the Net Interest Margin (NIM).

Variable X1 non-performing loan (NPL), X2 Effeciency Ratio (BOPO) X3 Loan to Deposit Ratio (LDR) and X4 Market Share (MS) simultaneously

From the Eviews output, the computed f-value is 4.047478, whereas the f-table value using a significance level of α 0.05 (5%) is 2.87. Therefore, the f-value exceeds the f-table (4.047478 > 2.87). Another noteworthy result is the probability value, which is 0.014544, smaller than the significance level α of 0.05, hence leading to the rejection of the null hypothesis (H0). This computation demonstrates that the ratios of NPL, BOPO, LDR, and MS, collectively (simultaneously), have a significant and positive impact on the Net Interest Margin (NIM). Consequently, the regression model in this study can be utilized to elucidate the dependent variable Net Interest Margin (NIM).

Discussion of Findings in the Context of Foreign Banks in Indonesia

The findings of this study can be explained within the specific context of foreign banks operating in Indonesia:

1. The Significance of BOPO on NIM: Foreign banks in Indonesia tend to have higher operational costs due to regulatory compliance, international reporting standards, and technology investments required to maintain global banking standards. These factors contribute to the strong relationship between BOPO and NIM.
2. Non-Significance of NPL on NIM: Foreign banks typically maintain stricter credit assessment policies and risk management strategies, leading to lower and more stable non-performing loan (NPL) ratios. This could explain why NPL does not significantly impact NIM in this study.
3. Non-Significance of LDR on NIM: Many foreign banks in Indonesia focus on corporate and high-net-worth individual banking rather than retail banking, leading to variations in loan-to-deposit ratios (LDR) that may not directly affect NIM.
4. Non-Significance of MS on NIM: Foreign banks often cater to niche markets and specialized financial services rather than competing broadly on market share. As a result, market share (MS) does not have a substantial impact on their NIM.

CONCLUSION

From the data analysis and discussion presented regarding the impact of Non-Performing Loans (NPL), Efficiency Ratio (BOPO), Loan to Deposit Ratio (LDR), and Market Share (MS) on Net Interest Margin (NIM) of foreign banks operating in Indonesia for the 2019 period, the following conclusions can be drawn:

- Non-Performing Loan (NPL) indicates that this variable does not have a significant influence and hurts the Net Interest Margin (NIM) in partial testing. These results demonstrate that changes in the Non-Performing Loan (NPL) ratio cannot significantly affect the Net Interest Margin (NIM) because Non-Performing Loans (NPL), which represent loans where debtors fail to make scheduled payments for a certain period, have a negative impact on the Net Interest Margin (NIM). If a foreign bank only increases its Non-Performing Loan (NPL) ratio, then the bank may not necessarily have a good Net Interest Margin (NIM).
- The Efficiency Ratio (BOPO) has a significant and positive impact on the Net Interest Margin (NIM). These results indicate that, in partial terms, changes in the Efficiency Ratio can significantly affect the Net Interest Margin (NIM). Theoretical aspects of the Efficiency Ratio (BOPO), which represent the comparison between operational expenses and operational income of a company over a specific period, suggest that the Net Interest Margin (NIM) is greatly influenced by the operational efficiency of banking companies.
- The Loan to Deposit Ratio (LDR) does not have a significant influence and has a negative impact on the dependent variable Net Interest Margin (NIM). These results indicate that, partially, the LDR cannot significantly affect the Net Interest Margin (NIM) because the LDR ratio only indicates good liquidity in a company but cannot significantly influence the Net Interest Margin (NIM). A high Loan to Deposit Ratio (LDR) indicates increasingly risky liquidity conditions for the bank, whereas a low LDR indicates the bank's inefficiency in lending to the public. This inefficiency will impact the bank's efficiency because most of the bank's operational income comes from interest income on loans or funds borrowed by the public.
- Market Share (MS) does not have a significant influence and has a positive impact on the dependent variable Net Interest Margin (NIM). These results explain that, partially, MS cannot significantly affect the Net Interest Margin (NIM) but has a positive impact on Market Share (MS). With the increase in market share, the Net Interest Margin (NIM) will increase insignificantly. The higher the market power of a bank indicates the degree of monopoly in the banking industry, which will impact the Net Interest Margin (NIM).

LIMITATION & FURTHER RESEARCH

Limitations

This study provides valuable insights into the determinants of net interest margin (NIM) in foreign banking companies operating in Indonesia. However, several limitations should be acknowledged. Firstly, the research focuses exclusively on foreign banks, which, while valid for the study's objectives, limits the ability to compare findings with domestic banking institutions. Secondly, the use of a purposive sampling method, though appropriate for selecting banks with complete financial reports, may introduce selection bias and limit the generalizability of the results. Additionally, reliance on secondary data sources, while necessary for empirical analysis, is subject to potential limitations in data accuracy and completeness. These factors may influence the robustness of the findings and their applicability to broader banking contexts.

Further Research

To build upon this study and enhance our understanding of NIM determinants in foreign banks operating in Indonesia, several future research directions can be considered. First, extending the study to cover multiple years would provide a more comprehensive view of NIM trends over time and account for macroeconomic fluctuations. Second, comparative studies incorporating both foreign and domestic banks could offer a more holistic perspective on the differences in NIM determinants between these banking sectors. Furthermore, adopting alternative sampling methods, such as stratified or random sampling, could improve representativeness and mitigate selection bias. Additionally, incorporating qualitative approaches, such as case studies or interviews with banking professionals, could offer deeper insights into managerial strategies influencing NIM. Lastly, examining the impact of regulatory changes, macroeconomic factors, and digital banking advancements on NIM would provide a more nuanced understanding of the evolving banking landscape in Indonesia.

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