DIJEFA: Dinasti International Journal of Economics, Finance & Accounting
E-ISSN: 2721-303X
P-ISSN: 2721-3021
https://dinastipub.org/DIJEFA dinasti.info@gmail.com +62 811 7404 455

DOI: https://doi.org/10.38035/dijefa.v6i4.4979
https://creativecommons.org/licenses/by/4.0/
Received: 22 June 2025 | **Revised:** 04 August 2025 | **Accepted:** 16 August 2025

The Role of Fee-Based Income on the Financial Performance of Conventional Commercial Banks in Indonesia

Abimanyu[1*], Rinaldi Rustam[2], Mona Adriana Sutrisno[3]
[1] Program Studi Magister Ilmu Ekonomi, Fakultas Ekonomi dan Bisnis, Universitas Trisakti, Jakarta, Indonesia, a81m4nyue@gmail.com
[2] Program Studi Magister Ilmu Ekonomi, Fakultas Ekonomi dan Bisnis, Universitas Trisakti, Jakarta, Indonesia, rinaldi.rustam@trisakti.ac.id
[3] Program Studi Magister Ilmu Ekonomi, Fakultas Ekonomi dan Bisnis, Universitas Trisakti, Jakarta, Indonesia, mona.as@trisakti.ac.id

[*]Corresponding Author: a81m4nyue@gmail.com[1]

Abstract: This study aims to examine the role of Fee-Based Income on the financial performance of conventional commercial banks in Indonesia during the period 2018–2023. The primary focus of this research is to explore the contribution of Fee-Based Income to the total bank revenue, identify the factors driving the increase in non-interest income, and analyze its impact on financial performance indicators, particularly Return on Assets (ROA). The data used in this study is secondary data obtained from the annual reports of conventional commercial banks listed on the Indonesia Stock Exchange (IDX) for the 2018–2023 period. The variables analyzed include Fee-Based Income, Interest Rate, Inflation, Exchange Rate, as well as several financial ratios such as BOPO (Operating Expenses to Operating Income), Loan to Deposit Ratio (LDR), Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL), and Return on Assets (ROA). Using a quantitative approach with statistical analysis methods, this study finds that Fee-Based Income shows a rising trend in its contribution to total bank revenue, driven by digital efficiency and product diversification strategies. The analysis also indicates that an increase in Fee-Based Income has a significant impact on bank profitability, as reflected in the ROA ratio. These findings offer both theoretical and practical contributions to understanding the shifting structure of banking income and strategies for improving the financial performance of conventional commercial banks in the digital era.

Keywords: Fee-Based Income, Interest Income, Financial Performance, Financial Ratios.

INTRODUCTION

Financial institutions are one of the key components of a country's financial system. In the current era of economic growth, the role of financial institutions such as banks, insurance companies, and microfinance institutions has become increasingly important (Ledhem & Mekidiche, 2020; Worku et al., 2024). Among them, banks play a crucial role in the economy as financial intermediaries that bridge the gap between borrowers and depositors. As financial

institutions, banks collect funds from the public in the form of savings or deposits, which are then redistributed as credit to individuals and businesses. This credit provision serves as a major driver of investment, ultimately contributing to economic growth and development (Al-Sharkas & Al-Sharkas, 2022).

One of the dominant types of financial institutions in Indonesia is the conventional commercial bank. These banks act as intermediaries between fund providers and those in need of financing, thereby contributing to economic growth. The sustainability of economic growth and the stability of the financial system are highly dependent on bank profitability (Al-Harbi, 2019). Banks are generally considered successful based on their profits and asset quality. Key criteria for business performance often relate to asset quality, growth rates, or pricing behavior. Within this system, profit serves as the most crucial benchmark for evaluating a company's performance (Do et al., 2020). One of the key ratios that indicate a company's profitability is the Return on Assets (ROA) ratio. ROA is a type of profitability ratio that measures a bank's ability to generate profit from its total assets, after deducting the capital costs used to finance those assets (Bintari et al., 2019). Therefore, Return on Assets (ROA) reflects a company's financial performance, as this ratio indicates the level of profit generated from the assets it owns.

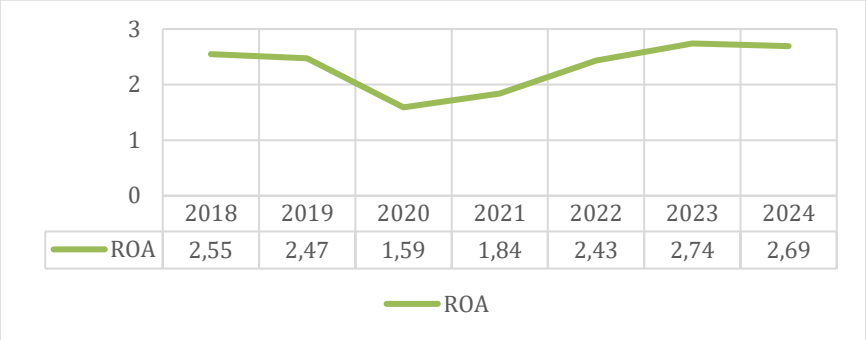


Figure 1. Financial Performance Of Conventional Commercial Banks In Indonesia (In Percentage %)
Source: Indonesian Banking Statistics, 2024

The fluctuation of Return on Assets (ROA) in conventional commercial banks in Indonesia reflects the dynamics of profitability influenced by various economic factors and financial policies. Based on the data presented in the graph, the ROA of conventional commercial banks declined from 2.55% in 2018 to 2.47% in 2019, and dropped significantly to 1.59% in 2020. This sharp decline was most likely caused by the impact of the COVID-19 pandemic, which increased credit risk and suppressed bank profitability. However, in 2021, ROA began to recover, rising to 1.84% in line with economic recovery and government-implemented stimulus policies. This positive trend continued in 2022, with ROA increasing to 2.43%, and further climbing to 2.74% in 2023. Although there was a slight decrease to 2.69% in 2024, this figure still indicates stable profitability among conventional commercial banks. These fluctuations illustrate that the financial performance of conventional commercial banks in Indonesia is influenced by a wide range of factors.

One of the factors that can influence a bank's financial performance is fee-based income (Arianti et al., 2022). Fee-based income refers to a source of non-interest revenue earned by banks through various services, such as administrative fees, credit and debit card transaction fees, fund management services, remittance services, and commissions from other financial products. This income plays a crucial role in enhancing a bank's profitability, especially amid the increasingly tight competition in the banking industry and the interest rate fluctuations that may affect interest income. With the increase in fee-based income, banks can reduce their dependence on interest income, thereby minimizing risks related to interest rate changes and

non-performing loans. This has a positive impact on Return on Assets (ROA), ultimately reflecting an improvement in the bank's financial performance (Azad et al., 2019).

Another factor that affects bank financial performance is the Loan to Deposit Ratio (LDR) (Azad et al., 2019). The Loan to Deposit Ratio measures the proportion of total loans disbursed by the bank compared to the total third-party funds (TPF) collected (Winarso et al., 2020). LDR has a complex influence on ROA in assessing bank financial performance. In principle, the higher the LDR, the greater the amount of credit extended relative to the collected third-party funds. This can have a dual effect on the bank's profitability. On the one hand, a high LDR indicates increased lending activity, which can generate higher interest income and potentially raise ROA. However, if the rise in lending is not accompanied by sound risk management, the bank may accumulate high-risk loans, leading to increased Non-Performing Loans (NPLs) and a subsequent decline in ROA. Conversely, under normal conditions—when lending remains within prudent and controlled limits—an increase in LDR can positively impact financial performance. By optimizing asset utilization, the bank enhances the efficiency of its financial intermediation. As a result, the bank can maximize interest income without experiencing excessive liquidity risk, thereby ultimately improving its ROA (Jumono et al., 2019).

Non-Performing Loans (NPLs) are also one of the key factors in determining the increase or decrease in financial performance, as measured by Return on Assets (ROA). As found by Do et al. (2020), NPLs have a negative and significant effect on bank profitability, meaning that when the NPL ratio increases, a bank's ability to generate profits tends to decline. NPL refers to the ratio that indicates the level of problematic loans within a bank. A higher NPL reflects a greater portion of loans that are not repaid by debtors according to the agreed schedule, which reduces the bank's interest income and increases the risk of financial losses. Conversely, a lower NPL signifies better bank performance, as it indicates healthy credit quality and effective risk management (Ozili, 2019).

Operating Expenses to Operating Income (BOPO) is another equally important aspect that plays a role in enhancing financial performance. Empirical evidence from Sholika and Zaki (2021) emphasizes that BOPO has a negative and significant impact on financial performance. In other words, the lower the BOPO ratio, the more efficient the bank is in managing its operational costs, leading to increased profitability. Such efficiency enables banks to maximize operating income without being burdened by high costs, which ultimately contributes to improved financial performance in the banking sector.

The Capital Adequacy Ratio (CAR) is also another factor influencing the financial performance of conventional commercial banks (Madugu et al., 2020). An empirical study by Lusmeida and Gunawan (2025) shows that CAR can reduce the negative impact of operational risk on financial distress. Generally, firms with lower operational risk profiles tend to have higher capital adequacy ratios. This is because adequate capital serves as a buffer against potential losses due to operational risks, thereby allowing the institution to remain stable in the face of financial challenges. Therefore, a sound CAR not only functions as protection against risks but also serves as an important factor in boosting profitability and financial performance.

In a dynamic economic environment, the aforementioned factors do not operate in isolation in influencing financial performance. One factor that may strengthen or weaken the impact of these variables is the inflation rate. Inflation can moderate the effects of Fee-Based Income (FBI), Loan to Deposit Ratio (LDR), Non-Performing Loans (NPL), Operating Expenses to Operating Income (BOPO), and Capital Adequacy Ratio (CAR) on bank financial performance. Inflation refers to the continuous increase in the prices of goods and services, which reduces the purchasing power of money. It is typically measured using the Consumer Price Index (CPI) in annual percentage terms. When inflation is excessively high, economic growth can be disrupted, negatively affecting public welfare (Isayas, 2022). High inflation may

lower consumer purchasing power, affect credit demand, increase the risk of loan defaults, and disrupt banks' operational efficiency. Moreover, inflation can influence banks' capital requirements to maintain financial stability, which ultimately affects profitability.

Various studies have identified factors that influence financial performance, such as the research conducted by Azad (2019), which examined the effects of fee-based income and loan to deposit ratio on financial performance, and the study by Do et al. (2020), which analyzed the impact of non-performing loans on bank financial performance. Although this topic has been widely explored in previous research, there remains a research gap, particularly in the use of inflation as a moderating variable. Most prior studies have typically analyzed the direct effects of fee-based income (FBI), loan to deposit ratio (LDR), non-performing loans (NPL), operating expenses to operating income (BOPO), and capital adequacy ratio (CAR) on financial performance without considering the potential role of inflation in strengthening or weakening these relationships. Therefore, this study offers a novelty by introducing a new perspective on how inflation can moderate the influence of these factors on bank financial performance.

METHODS

The type of research employed in this study is quantitative associative research, which aims to examine the relationship between two or more variables. In this study, descriptive quantitative methods are used to provide an overview of each variable independent, dependent, and moderating without analyzing the relationships between them. Meanwhile, verificative methods are used to test the effects of fee-based income, loan to deposit ratio, non-performing loans, operating expenses to operating income, and capital adequacy ratio on financial performance, with inflation acting as a moderating variable.

The operationalization of the variables used in this research is presented in the following table:

Table 1. Operationalization of Variables

Variable	Measurement	Source
Dependent		
Financial Performance	ROA = (Net Income Before Tax) / (Total Assets) × 100	Soewarno & Tjahjadi, 2020
Independent		
Fee-Based Income	FBI = (Non-Interest Operating Income) / (Operating Income)	Dendawijaya, 2015
Loan to Deposit Ratio	LDR = (Total Loans Disbursed) / (Total Third-Party Funds) × 100	Winarso et al., 2020
Non-Performing Loans	NPL = (Total Non-Performing Loans) / (Total Loans) × 100	Winarso et al., 2020
Operating Expenses to Operating Income	BOPO = (Operating Expenses) / (Operating Income) × 100	Tamin et al., 2022
Capital Adequacy Ratio	CAR = (Capital) / (Risk-Weighted Assets) × 100	Anggari & Dana, 2020
Moderating Variable		
Inflation Rate	Inflation = (Current CPI - Previous CPI) / (Previous CPI) × 100	Moorcy et al., 2021
Control Variables		
Interest Rate	BI Rate is the short-term interest rate with a one-month tenor set and periodically announced by Bank Indonesia as a monetary policy signal.	Aizsa et al., 2020
Exchange Rate	The comparison of the Indonesian Rupiah against foreign currencies.	Aizsa et al., 2020

The study utilizes a total sample of 126 observations from 21 companies, selected using purposive sampling. Purposive sampling is a sampling technique in which samples are selected

based on specific criteria or considerations determined by the researcher (Sugiyono, 2020). The criteria used for sample selection in this study are as follows:

1. Conventional commercial banks listed on the Indonesia Stock Exchange (IDX).
2. Banks that have published complete annual financial reports during the study period (2018–2023).
3. The banks' annual financial reports must be publicly accessible via the official IDX website or the official websites of the respective banks.

Based on these criteria, the sample selection process is outlined below:

Table 2. Sample Selection Process Based on Criteria

Description	Number
Conventional commercial banks listed on the IDX	46
Banks that did not publish complete financial reports (2018–2023)	(15)
Banks whose reports are not publicly accessible	(10)
Final number of selected banks	21
Total observations (21 banks × 6 years)	126

Hypothesis testing is conducted using inferential analysis, including classical assumption tests such as the normality test, heteroscedasticity test, multicollinearity test, and autocorrelation test, followed by moderated regression analysis (MRA) using SPSS version 27.

RESULTS AND DISCUSSION

Classical Assumption Test Results

Normality Test Results

The normality test was conducted to determine whether the data in the research model are normally distributed. The criterion for the normality test is as follows: if the probability (Prob.) value of the Jarque-Bera test is greater than 0.05, the data are normally distributed; conversely, if the value is less than 0.05, the data are not normally distributed.

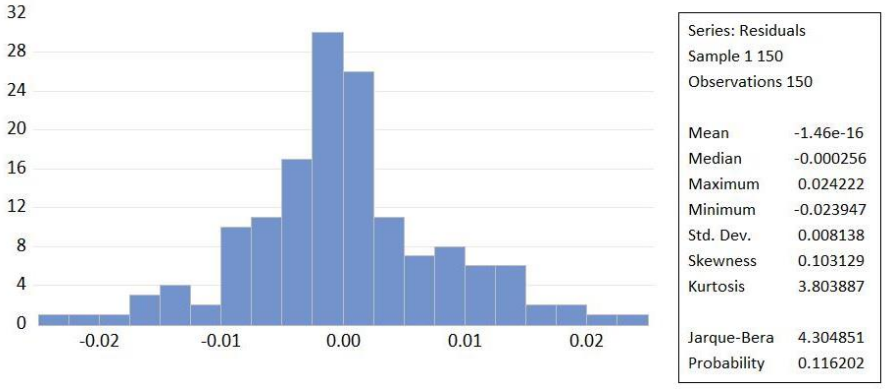


Figure 2. Normality Test Results – Model 3
Source: Processed secondary data using EViews version 13

The normality test result for Model 3 shows a Jarque-Bera probability value of **0.116202**. Since this value is greater than 0.05, it indicates that the data in Model 3 are normally distributed.

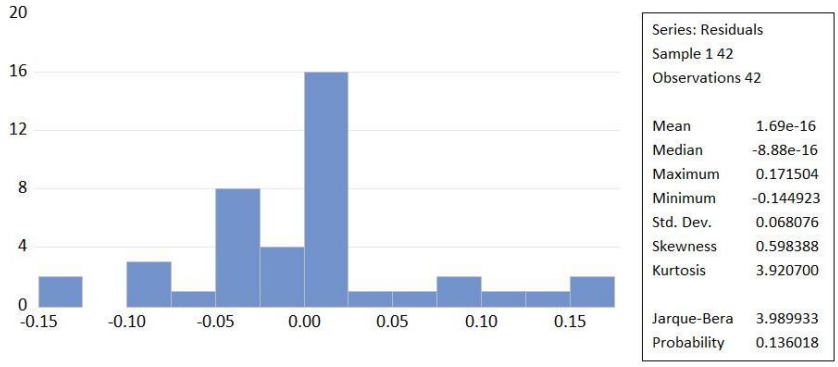


Figure 3. Normality Test Results – Model 4
Source: Processed secondary data using EViews version 13

The normality test result for Model 4 shows a Jarque-Bera probability value of **0.136018**. This value is also greater than 0.05, indicating that the data in Model 4 are normally distributed.

Heteroskedasticity Test Results

The heteroskedasticity test is conducted to assess whether the error variance in the regression model is constant. This study uses the Glejser test to detect heteroskedasticity. The criterion is as follows: if the Prob. Chi-Square value from Obs*R-squared is greater than 0.05, the model is free from heteroskedasticity symptoms; otherwise, heteroskedasticity is present.

Table 3. Heteroskedasticity Test Results – Model 3

Heteroskedasticity Test: Glejser
Null hypothesis: Homoskedasticity

F-statistic	1.456395	Prob. F(8,141)	0.1785
Obs*R-squared	11.44881	Prob. Chi-Square(8)	0.1775
Scaled explained SS	13.93820	Prob. Chi-Square(8)	0.0834

Source: Processed secondary data using EViews version 13

The heteroskedasticity test for Model 3 shows a Prob. Chi-Square of Obs*R-squared value of 0.1775. Since this value exceeds 0.05, it indicates that Model 3 is free from heteroskedasticity symptoms.

Table 4. Heteroskedasticity Test Results – Model 4

Heteroskedasticity Test: Glejser
Null hypothesis: Homoskedasticity

F-statistic	2.069374	Prob. F(8,33)	0.0681
Obs*R-squared	14.03107	Prob. Chi-Square(8)	0.0810
Scaled explained SS	12.56097	Prob. Chi-Square(8)	0.1279

Source: Processed secondary data using EViews version 13

The heteroskedasticity test for Model 4 yields a Prob. Chi-Square of Obs*R-squared value of 0.0810. As this value is also greater than 0.05, it suggests that Model 4 is free from heteroskedasticity.

Multicollinearity Test Results

The multicollinearity test is conducted to measure whether there is a high correlation among the independent variables in the research model. If multicollinearity exists, the

estimation of regression coefficients becomes unstable and it becomes difficult to determine the individual influence of each independent variable on the dependent variable. The criterion for the multicollinearity test is that if the VIF value is less than 10, the research model is free from multicollinearity symptoms, whereas if the Centered VIF value is greater than 10, the model exhibits multicollinearity symptoms. The multicollinearity test results for Book 3 are as follows:

Table 5. Multicollinearity Test Results for Book 3 (Left) and Book 4 (Right)

Variance Inflation Factors
Date: 03/15/25 Time: 09:48
Sample: 1 150
Included observations: 150

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.316017	677353.9	NA
X1_FEE_BASED_INC	2.73E-07	430.2210	1.123301
X2_LDR	1.02E-05	18.47601	1.247136
X3_NPL	0.004232	7.797517	1.565481
X4_BOPO	6.77E-06	11.68509	1.333736
X5_CAR	0.000127	17.71784	1.387857
Z_INFLASI	0.008642	25.87080	4.498771
C1_TINGKAT_BUNGA	0.013478	73.93668	2.913934
C2_KURS	0.003458	678557.8	2.590189

Variance Inflation Factors
Date: 03/20/25 Time: 22:07
Sample: 1 42
Included observations: 42

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.333157	758935.6	NA
X1_FEE_BASED_INC	1.81E-06	3676.795	3.552295
X2_LDR	0.000168	288.2505	3.103654
X3_NPL	0.029190	47.60717	2.862375
X4_BOPO	0.000181	218.6660	4.908828
X5_CAR	0.000678	88.84693	1.946310
Z_INFLASI	0.009251	29.43206	5.118052
C1_TINGKAT_BUNGA	0.027937	162.8811	6.419339
C2_KURS	0.003659	763175.9	2.913193

Source: Secondary data processed using EViews ver.13

The multicollinearity test results for Book 3 show that the Centered VIF value for the Fee-Based Income variable is 1.123301. The Centered VIF for the LDR variable is 1.247136. The Centered VIF for the NPL variable is 1.565481. The Centered VIF for the BOPO variable is 2.333736. The Centered VIF for the CAR variable is 1.387857. The Centered VIF for the inflation variable is 4.498771. The Centered VIF for the interest rate variable is 2.913934. The Centered VIF for the exchange rate variable is 2.590189. All Centered VIF values for the independent variables in Model 3 are greater than 0.05. Therefore, based on the multicollinearity test, the research model in Book 3 is free from multicollinearity symptoms.

The Centered VIF for the Fee-Based Income variable is 3.552295. The Centered VIF for the LDR variable is 3.103654. The Centered VIF for the NPL variable is 2.862375. The Centered VIF for the BOPO variable is 4.908828. The Centered VIF for the CAR variable is 1.946310. The Centered VIF for the inflation variable is 5.118052. The Centered VIF for the interest rate variable is 6.419339. The Centered VIF for the exchange rate variable is 2.913193. All Centered VIF values for the independent variables in Model 4 are greater than 0.05. Therefore, based on the multicollinearity test, the research model in Book 4 is also free from multicollinearity symptoms.

Autocorrelation Test Results

The autocorrelation test is conducted to determine whether the errors in the research model are correlated with errors from previous periods. The criterion for the autocorrelation test is that if the Prob. Chi-Square value of Obs*R-squared is greater than 0.05, then the research model is free from autocorrelation symptoms. Conversely, if the Prob. Chi-Square value of Obs*R-squared is less than 0.05, then the model exhibits autocorrelation symptoms. The autocorrelation test results for Book 3 are as follows:

Tabel 6. Autocorrelation Test Results for Book 3

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	2.022054	Prob. F(2,139)	0.1363
Obs*R-squared	4.242149	Prob. Chi-Square(2)	0.1199

Source: Secondary data processed using EViews ver.13

The autocorrelation test results for Book 3 show that the Prob. Chi-Square value of Obs*R-squared is 0.1199. Since this value is greater than 0.05, it can be concluded that the research model in Book 3 is free from autocorrelation symptoms based on the autocorrelation test.

The autocorrelation test results for Book 4 are as follows:

Table 7. Autocorrelation Test Results for Book 4

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	1.010050	Prob. F(2,31)	0.3839
Obs*R-squared	4.237951	Prob. Chi-Square(2)	0.1202

Source: Secondary data processed using EViews ver.13

The autocorrelation test results for Book 4 show that the Prob. Chi-Square value of Obs*R-squared is 0.1202. Since this value is also greater than 0.05, it can be concluded that the research model in Book 4 is likewise free from autocorrelation symptoms.

Hypothesis Testing Results

Multiple Linear Regression and t-Test Results

The multiple linear regression and t-test were conducted to determine whether there is a partial (individual) influence of each independent variable on the dependent variable. The criteria for assessing the significance of the influence are as follows: if the Prob. value is less than 0.05 and the t-statistic value is greater than the t-table value, then the independent variable has a significant effect on the dependent variable. Conversely, if the Prob. value is greater than 0.05 and the t-statistic value is less than the t-table value, then there is no significant effect. The t-table value for Book 3 is 1.976931, and for Book 4 it is 2.048407. The results of the multiple linear regression and t-test in Book 3 using the random effect model are as follows:

Table 8. Results of Multiple Linear Regression and t-Test for Book 3

Dependent Variable: Y_ROA
Method: Panel EGLS (Cross-section random effects)
Date: 03/15/25 Time: 22:19
Sample: 2018 2023
Periods included: 6
Cross-sections included: 25
Total panel (balanced) observations: 150
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.106215	0.360511	0.294625	0.7687
X1_FEE_BASED_INCOME	0.002220	0.000535	4.147608	0.0001
X2_LDR	0.002704	0.003540	0.763929	0.4462
X3_NPL	-0.168792	0.056885	-2.967227	0.0035
X4_BOPO	-0.028512	0.002315	-12.31440	0.0000
X5_CAR	0.026817	0.011866	2.259919	0.0254
Z_INFLASI	-0.145391	0.064913	-2.239787	0.0267
C1_TINGKAT_BUNGA	0.262909	0.090828	2.894566	0.0044
C2_KURS	-0.014736	0.037638	-0.391515	0.6960

Source: Secondary data processed using EViews ver.13

The resulting linear regression equation is as follows:
Y = 0.106215 + 0.002220(Fee-Based Income) + 0.002704 (LDR) – 0.168792 (NPL) – 0.028512 (BOPO) + 0.026817 (CAR) – 0.145391 (Inflation) + 0.262909 (Interest Rate) – 0.014736 (Exchange Rate)

The constant value of 0.106215 indicates that if there is no change in all independent, moderating, and control variables, the financial performance variable (ROA) will be 0.106215. The coefficient for Fee-Based Income is 0.002220, which means that for every Rp 1 increase in Fee-Based Income, the financial performance (as measured by ROA) increases by 0.002220. The coefficient for LDR (Loan to Deposit Ratio) is 0.002704, implying that a 1% increase in LDR will increase ROA by 0.002704. The coefficient for NPL (Non-Performing Loan) is –0.168792, indicating that a 1% increase in NPL will decrease ROA by 0.168792. The coefficient for BOPO (Operating Expenses to Operating Income) is –0.028512, meaning that a 1% increase in BOPO will decrease ROA by 0.028512. The coefficient for CAR (Capital Adequacy Ratio) is 0.026817, suggesting that a 1% increase in CAR will improve ROA by 0.026817.

The inflation coefficient value of –0.145391 indicates that every 1% increase in inflation will decrease financial performance as measured by ROA by 0.145391. The interest rate coefficient value of 0.262909 means that every 1% increase in the interest rate will increase financial performance through ROA by 0.262909. The exchange rate coefficient value of –0.014736 shows that every Rp/USD 1 increase in the exchange rate will decrease financial performance through ROA by 0.014736. The Prob. value for Fee-Based Income is 0.0001, which is lower than 0.05, and the t-statistic is 4.147608, which is higher than the t-table value of 1.976931. Based on the multiple regression test, Fee-Based Income has a positive coefficient, indicating that it has a significantly positive effect on financial performance in the conventional banking sector in Indonesia. The Prob. value for LDR is 0.4462, higher than 0.05, and the t-statistic is 0.763929, lower than the t-table value of 1.976931. Therefore, the hypothesis test result in Book 3 shows that LDR has no significant effect on financial performance in the conventional banking sector in Indonesia.

The Prob. value for NPL is 0.0035, less than 0.05, and the t-statistic is 2.967227, greater than the t-table value. NPL has a negative coefficient, indicating a significantly negative effect on financial performance. The Prob. value for BOPO is 0.0000, less than 0.05, and the t-statistic is 12.31440, which is significantly greater than the t-table value. BOPO also has a negative coefficient, meaning it has a significantly negative effect on financial performance. The Prob. value for CAR is 0.0254, less than 0.05, and the t-statistic is 2.259919, greater than the t-table value. CAR has a positive coefficient, indicating a significantly positive effect on financial performance. The Prob. value for inflation is 0.0267, also less than 0.05, with a t-statistic of 2.239787, greater than the t-table value. Inflation has a negative coefficient, signifying a significantly negative effect on financial performance in the conventional banking sector in Indonesia.

Results of Multiple Linear Regression and t-Test in Book 4

Using the common effect model, the regression equation is as follows:

Y = 0.532901 + 0.013028(Fee-Based Income) + 0.122068(LDR) – 0.241776(NPL) – 0.121216(BOPO) + 0.017988(CAR) – 0.235615(Inflation) + 0.291035(Interest Rate) – 0.160548(Exchange Rate)

The constant value of 0.532901 indicates that if there are no changes in the independent, moderating, and control variables, the value of financial performance (ROA) will be 0.532901. The coefficient for Fee-Based Income is 0.013028, which implies that every Rp 1 increase in Fee-Based Income will increase ROA by 0.013028. The coefficient for LDR is 0.122068, showing that a 1% increase in LDR will increase ROA by 0.122068. The coefficient for NPL is –0.241776, indicating that a 1% increase in NPL will reduce ROA by 0.241776. The coefficient for BOPO is –0.121216, meaning that a 1% increase in BOPO will lower ROA by

0.121216. The coefficient for CAR is 0.017988, which suggests that a 1% increase in CAR will improve ROA by 0.017988.

The inflation coefficient value of –0.235615 indicates that every 1% increase in inflation will reduce financial performance as measured by ROA by 0.235615. The interest rate coefficient value of 0.291035 shows that every 1% increase in the interest rate will increase financial performance through ROA by 0.291035. The exchange rate coefficient value of –0.160548 suggests that every Rp/USD 1 increase in the exchange rate will decrease financial performance through ROA by 0.160548. The Prob. value for Fee-Based Income is 0.0006, which is lower than 0.05, and the t-statistic is 3.777010, which is greater than the t-table value of 2.048407. Based on the multiple regression test, Fee-Based Income has a positive coefficient, indicating that it has a significantly positive effect on financial performance in the conventional banking sector in Indonesia. The Prob. value for LDR is 0.0192, which is below 0.05, and the t-statistic is 2.462574, higher than the t-table value. Based on the regression test, LDR has a positive coefficient, meaning it has a significantly positive effect on financial performance in the conventional banking sector in Indonesia. The Prob. value for NPL is 0.0132, less than 0.05, and the t-statistic is 2.620975, exceeding the t-table value. Based on the regression test, NPL has a negative coefficient, indicating a significantly negative effect on financial performance in the conventional banking sector in Indonesia. The Prob. value for BOPO is 0.0010, which is less than 0.05, and the t-statistic is 3.618380, greater than the t-table value. Based on the regression test, BOPO has a negative coefficient, indicating a significantly negative effect on financial performance in the conventional banking sector in Indonesia.

The Prob. value for CAR is 0.6864, which is higher than 0.05, and the t-statistic is 0.407373, lower than the t-table value. Therefore, the hypothesis testing results in Book 4 indicate that CAR does not have a significant effect on financial performance in the conventional banking sector in Indonesia. The Prob. value for inflation is 0.0150, which is below 0.05, and the t-statistic is 2.565385, exceeding the t-table value. Based on the regression test, inflation has a negative coefficient, meaning it has a significantly negative effect on financial performance in the conventional banking sector in Indonesia.

Results of the F-Test and Coefficient of Determination

The F-test is conducted to measure whether there is a simultaneous effect of all independent variables and the moderating variable on the dependent variable. The criteria for the F-test are as follows: if the probability value (Prob.) of the F-statistic is less than 0.05 and the F-statistic value is greater than the F-table value, then there is a significant simultaneous effect of all independent and moderating variables on the dependent variable. However, if the Prob. value is greater than 0.05 and the F-statistic value is less than the F-table value, there is no significant simultaneous effect of the independent and moderating variables on the dependent variable. The F-table value for Book 3 is 2.004650, and for Book 4 it is 2.088929.

The coefficient of determination test is conducted to measure the extent of the contribution of the influence of all independent and moderating variables on the dependent variable. The results of the F-test and coefficient of determination for Book 3 are as follows:

Table 9. ***F-Test and Coefficient of Determination Results for Book 3***

R-squared	0.630927	Mean dependent var	0.004714
Adjusted R-squared	0.609987	S.D. dependent var	0.009159
S.E. of regression	0.005720	Sum squared resid	0.004613
F-statistic	30.12977	Durbin-Watson stat	1.979348
Prob(F-statistic)	0.000000		

Source: Processed secondary data using Eviews version 13

The results of the F-test show that the probability value of the F-statistic is 0.000000, which is less than 0.05, and the F-statistic value is 30.12977, which is greater than the F-table

value of 2.004650. Based on these results, Fee-Based Income, LDR, NPL, BOPO, CAR, and inflation simultaneously have a significant effect on financial performance in the conventional banking sector in Indonesia. The coefficient of determination test results show an R-squared value of 0.630927, meaning that Fee-Based Income, LDR, NPL, BOPO, CAR, and inflation contribute 63.09% to the financial performance of the conventional banking sector in Indonesia.

The results of the F-test and coefficient of determination for Book 4 are as follows:

Table 10. ***F-Test and Coefficient of Determination Results for Book 4***

R-squared	0.466574	Mean dependent var	0.021045
Adjusted R-squared	0.432582	S.D. dependent var	0.008026
S.E. of regression	0.003091	Akaike info criterion	-8.533445
Sum squared resid	0.000315	Schwarz criterion	-8.161087
Log likelihood	188.2023	Hannan-Quinn criter.	-8.396961
F-statistic	11.43935	Durbin-Watson stat	2.086550
Prob(F-statistic)	0.000000		

Source: Processed secondary data using Eviews version 13

The results of the F-test show that the probability value of the F-statistic is 0.000000, which is less than 0.05, and the F-statistic value is 11.43935, which is greater than the F-table value of 2.088929. Therefore, based on the F-test results, Fee-Based Income, LDR, NPL, BOPO, CAR, and inflation simultaneously have a significant effect on financial performance in the conventional banking sector in Indonesia. The coefficient of determination test results show an R-squared value of 0.466574, indicating that Fee-Based Income, LDR, NPL, BOPO, CAR, and inflation contribute 46.66% to the financial performance of the conventional banking sector in Indonesia.

Moderated Regression Analysis (MRA) Test

The Moderated Regression Analysis (MRA) test is conducted to assess how a moderating variable influences the relationship between independent variables and the dependent variable. The criteria for the MRA test are as follows: if the probability value (Prob.) of the interaction term between the independent variable and the moderating variable is less than 0.05 and the t-statistic value is greater than the t-table value, then the moderating variable is able to moderate the influence of the independent variable on the dependent variable. Conversely, if the Prob. value of the interaction term is greater than 0.05 and the t-statistic value is less than the t-table value, then the moderating variable cannot moderate the influence of the independent variable on the dependent variable.The t-table value for Book 3 is 1.977561, and for Book 4 it is 2.048407. The MRA test results for Book 3 are as follows:

Table 11. ***MRA Test Results for Book 3***

Dependent Variable: Y_ROA
Method: Panel EGLS (Cross-section random effects)
Date: 03/21/25 Time: 23:25
Sample: 2018 2023
Periods included: 6
Cross-sections included: 25
Total panel (balanced) observations: 150
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.750650	0.382108	1.964494	0.0515
X1_FEE_BASED_INCOME	0.004982	0.000523	3.793616	0.0002
X2_LDR	0.006627	0.005211	0.504069	0.6150
X3_NPL	-0.105656	0.073792	-2.244904	0.0264
X4_BOPO	-0.013228	0.005404	-7.999693	0.0000
X5_CAR	0.028743	0.010886	2.273035	0.0246
Z_INFLASI	-0.743346	0.152957	-4.859824	0.0000
C1_TINGKAT_BUNGA	0.314119	0.086615	3.626612	0.0004
C2_KURS	-0.080371	0.039726	-2.023130	0.0450
X1_Z	0.013472	0.006022	2.237168	0.0269
X2_Z	0.047045	0.122462	0.384162	0.7015
X3_Z	-1.104807	0.704492	-0.648174	0.5180
X4_Z	-0.289843	0.102627	-2.824233	0.0055
X5_Z	0.458901	0.183871	2.495785	0.0138

Source: Processed secondary data using Eviews version 13

The resulting linear regression equation is as follows:
Y = 0.750650 + 0.004982 (Fee-Based Income) + 0.006627 (LDR) – 0.105656 (NPL) – 0.013228 (BOPO) + 0.028743 (CAR) – 0.743346 (Inflation) + 0.314119 (Interest Rate) – 0.080371 (Exchange Rate) + 0.013472 (Fee-Based Income * Inflation) + 0.047045 (LDR * Inflation) – 1.104807 (NPL * Inflation) – 0.289843 (BOPO * Inflation) + 0.458901 (CAR * Inflation)

This equation reflects the interaction effects between each independent variable and the moderating variable (inflation), showing how inflation may strengthen or weaken the influence of each independent variable on the financial performance of conventional banking in Indonesia. The constant value of 0.750650 indicates that if there are no changes in all independent variables, moderating variables, control variables, and interaction variables, then the value of the financial performance variable is 0.750650. The coefficient value of Fee-Based Income is 0.004982, indicating that every IDR 1 increase in Fee-Based Income will increase financial performance through ROA by 0.004982. The LDR coefficient value of 0.006627 indicates that every 1% increase in LDR will increase financial performance through ROA by 0.006627. The NPL coefficient value of –0.105656 indicates that every 1% increase in NPL will reduce financial performance through ROA by 0.105656. The BOPO coefficient value of –0.013228 indicates that every 1% increase in BOPO will reduce financial performance through ROA by 0.013228. The CAR coefficient value of 0.028743 indicates that every 1% increase in CAR will increase financial performance through ROA by 0.028743.

The inflation coefficient value of –0.743346 indicates that every 1% increase in inflation will reduce financial performance through ROA by 0.743346. The interest rate coefficient value of 0.314119 indicates that every 1% increase in the interest rate will increase financial performance through ROA by 0.314119. The exchange rate coefficient value of –0.080371 indicates that every IDR/USD 1 increase in the exchange rate will reduce financial performance through ROA by 0.080371. The interaction variable coefficient of Fee-Based Income and Inflation is 0.013472, indicating that every IDR 1 increase in Fee-Based Income combined with a 1% increase in inflation will increase financial performance through ROA by 0.013472. The interaction variable coefficient of LDR and Inflation is 0.047045, indicating that every 1% increase in LDR combined with a 1% increase in inflation will increase financial performance through ROA by 0.047045. The interaction variable coefficient of NPL and Inflation is –0.105656, indicating that every 1% increase in NPL combined with a 1% increase in inflation will reduce financial performance through ROA by 0.105656. The interaction variable coefficient of BOPO and Inflation is –0.289843, indicating that every 1% increase in BOPO combined with a 1% increase in inflation will reduce financial performance through ROA by 0.289843. The interaction variable coefficient of CAR and Inflation is –0.458901, indicating that every 1% increase in CAR combined with a 1% increase in inflation will reduce financial performance through ROA by 0.458901.

The probability result of the interaction between Fee-Based Income and Inflation is 0.0269, which is lower than 0.05, and it has a t-statistic value of 2.237168, which is higher than the t-table value of 1.977561. Therefore, the indirect hypothesis test in Book 3 indicates that Inflation can moderate the significant effect of Fee-Based Income on financial performance in the conventional commercial banking sector in Indonesia. The probability result of the interaction between LDR and Inflation is 0.7015, which is greater than 0.05, and it has a t-statistic value of 0.384162, which is lower than the t-table value of 1.977561. Therefore, the indirect hypothesis test in Book 3 indicates that Inflation cannot moderate the significant effect of LDR on financial performance in the conventional commercial banking sector in Indonesia. The probability result of the interaction between NPL and Inflation is 0.5180, which is greater than 0.05, and it has a t-statistic value of 0.648174, which is lower than the t-table value of

1.977561. Therefore, the indirect hypothesis test in Book 3 indicates that Inflation cannot moderate the significant effect of NPL on financial performance in the conventional commercial banking sector in Indonesia. The probability result of the interaction between BOPO and Inflation is 0.0055, which is lower than 0.05, and it has a t-statistic value of 2.824233, which is higher than the t-table value of 1.977561. Therefore, the indirect hypothesis test in Book 3 indicates that Inflation can moderate the significant effect of BOPO on financial performance in the conventional commercial banking sector in Indonesia.

The probability result of the interaction variable between CAR and Inflation is 0.0138, which is lower than 0.05, and it has a t-statistic value of 2.495785, which is greater than the t-table value of 1.977561. Therefore, the indirect hypothesis test in Book 3 indicates that Inflation can moderate the significant effect of CAR on financial performance in the conventional commercial banking sector in Indonesia. The MRA test results in Book 4 are as follows:

Table 12. MRA Test Results Book 4

Dependent Variable: Y_ROA
Method: Panel Least Squares
Date: 03/30/25 Time: 23:25
Sample: 2018 2023
Periods included: 6
Cross-sections included: 7
Total panel (balanced) observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.786171	0.354981	2.214684	0.0351
X1_FEE_BASED_INCOME	0.002075	0.000605	3.430031	0.0019
X2_LDR	0.237711	0.011630	2.382729	0.0242
X3_NPL	-0.152648	0.039666	-3.848310	0.0006
X4_BOPO	-0.029441	0.004759	-6.186514	0.0000
X5_CAR	0.046627	0.030833	1.512216	0.1417
Z_INFLASI	-0.503452	0.175322	-2.871593	0.0077
C1_TINGKAT_BUNGA	0.325029	0.088800	3.660253	0.0010
C2_KURS	-0.084437	0.036955	-2.284834	0.0301
X1_Z	0.021782	0.005763	3.779701	0.0008
X2_Z	0.289508	0.114470	2.529102	0.0173
X3_Z	-0.141860	0.289581	-0.061959	0.9510
X4_Z	-0.601559	0.172347	-3.490398	0.0016
X5_Z	0.861111	0.652019	1.320682	0.1973

R-squared	0.546605	Mean dependent var	0.021045
Adjusted R-squared	0.521814	S.D. dependent var	0.008026
S.E. of regression	0.002244	Akaike info criterion	-9.099630
Sum squared resid	0.000141	Schwarz criterion	-8.520406
Log likelihood	205.0922	Hannan-Quinn criter.	-8.887321
F-statistic	38.18405	Durbin-Watson stat	2.606804
Prob(F-statistic)	0.000000		

Source: Processed secondary data using EViews version 13

The resulting linear regression equation is as follows:
Y = 0.786171 + 0.002075 Fee Based Income + 0.237711 LDR – 0.152648 NPL – 0.029441 BOPO + 0.046627 CAR – 0.503452 Inflation + 0.325029 Interest Rate – 0.084437 Exchange Rate + 0.021782 Fee Based Income*Inflation* + *0.178408 LDR*Inflation – 0.141860 NPL*Inflation* – *0.601559 BOPO*Inflation + 0.861111 CAR*Inflation

The constant value of 0.786171 indicates that if there are no changes in all independent variables, moderating variables, control variables, and interaction variables, then the financial performance variable value is 0.786171. The coefficient value of Fee-Based Income is 0.002075, indicating that each IDR 1 increase in Fee-Based Income will increase financial performance through ROA by 0.002075. The coefficient value of LDR is 0.237711, meaning that each 1% increase in LDR will increase financial performance through ROA by 0.237711. The coefficient value of NPL is –0.152648, indicating that each 1% increase in NPL will decrease financial performance through ROA by 0.152648. The BOPO coefficient value of –0.029441 indicates that every 1% increase in BOPO will reduce financial performance through

ROA by 0.029441. The coefficient value of CAR is 0.046627, indicating that every 1% increase in CAR will increase financial performance through ROA by 0.046627.

The coefficient value of inflation is –0.503452, indicating that every 1% increase in inflation will decrease financial performance through ROA by 0.503452. The interest rate coefficient value is 0.325029, meaning that every 1% increase in interest rate will increase financial performance through ROA by 0.325029. The exchange rate coefficient value is –0.084437, indicating that every IDR/USD 1 increase in the exchange rate will decrease financial performance through ROA by 0.084437. The interaction variable coefficient of Fee-Based Income and Inflation is 0.021782, which means that every IDR 1 increase in Fee-Based Income accompanied by a 1% increase in inflation will increase financial performance through ROA by 0.021782. The interaction variable coefficient of LDR and Inflation is 0.178408, meaning that every 1% increase in LDR accompanied by a 1% increase in inflation will increase financial performance through ROA by 0.178408. The interaction variable coefficient of NPL and Inflation is –0.141860, indicating that every 1% increase in NPL accompanied by a 1% increase in inflation will decrease financial performance through ROA by 0.141860. The interaction variable coefficient of BOPO and Inflation is –0.601559, meaning that every 1% increase in BOPO accompanied by a 1% increase in inflation will decrease financial performance through ROA by 0.601559. The interaction variable coefficient of CAR and Inflation is –0.861111, indicating that every 1% increase in CAR accompanied by a 1% increase in inflation will decrease financial performance through ROA by 0.861111.

The probability value of the interaction between Fee-Based Income and Inflation is 0.0008, which is lower than 0.05, with a t-statistic value of 3.779701, which is greater than the t-table value of 2.048407. Therefore, the indirect hypothesis test in Book 4 indicates that inflation can moderate the significant effect of Fee-Based Income on financial performance in the conventional commercial banking sector in Indonesia.

The probability value of the interaction between LDR and Inflation is 0.0173, which is greater than 0.05, with a t-statistic value of 2.529102, which is less than the t-table value of 2.048407. Therefore, the indirect hypothesis test in Book 4 indicates that inflation cannot moderate the significant effect of LDR on financial performance in the conventional commercial banking sector in Indonesia. The probability value of the interaction between NPL and Inflation is 0.9510, which is greater than 0.05, with a t-statistic value of 0.061959, which is lower than the t-table value of 2.048407. Therefore, the indirect hypothesis test in Book 4 indicates that inflation cannot moderate the significant effect of NPL on financial performance in the conventional commercial banking sector in Indonesia. The probability value of the interaction between BOPO and Inflation is 0.0016, which is lower than 0.05, with a t-statistic value of 3.490398, which is greater than the t-table value of 2.048407. Therefore, the indirect hypothesis test in Book 4 indicates that inflation can moderate the significant effect of BOPO on financial performance in the conventional commercial banking sector in Indonesia. The probability value of the interaction between CAR and Inflation is 0.1973, which is greater than 0.05, with a t-statistic value of 1.320682, which is lower than the t-table value of 2.048407. Therefore, the indirect hypothesis test in Book 4 indicates that inflation cannot moderate the effect of CAR on financial performance in the conventional commercial banking sector in Indonesia.

Summary of Hypothesis Test Results

Based on the hypothesis testing that has been conducted, the researcher has compiled the following summary of the hypothesis test results:

Table 14. Summary of Hypothesis Test Results

No	Book	Regression Type	Hypothesis	Test Result

1	3	Multiple	Fee-Based Income affects financial performance in Book 3	Significant positive effect
2			LDR affects financial performance in Book 3	No effect
3			NPL affects financial performance in Book 3	Significant negative effect
4			BOPO affects financial performance in Book 3	Significant negative effect
5			CAR affects financial performance in Book 3	Significant positive effect
6			Inflation affects financial performance in Book 3	Significant negative effect
7		MRA	Inflation moderates the effect of Fee-Based Income on financial performance in Book 3	Moderates
8			Inflation moderates the effect of LDR on financial performance in Book 3	Does not moderate
9			Inflation moderates the effect of NPL on financial performance in Book 3	Does not moderate
10			Inflation moderates the effect of BOPO on financial performance in Book 3	Moderates
11			Inflation moderates the effect of CAR on financial performance in Book 3	Moderates
12	4	Multiple	Fee-Based Income affects financial performance in Book 4	Significant positive effect
13			LDR affects financial performance in Book 4	Significant positive effect
14			NPL affects financial performance in Book 4	Significant negative effect
15			BOPO affects financial performance in Book 4	Significant negative effect
16			CAR affects financial performance in Book 4	No effect
17			Inflation affects financial performance in Book 4	Significant negative effect
18		MRA	Inflation moderates the effect of Fee-Based Income on financial performance in Book 4	Moderates
19			Inflation moderates the effect of LDR on financial performance in Book 4	Moderates
20			Inflation moderates the effect of NPL on financial performance in Book 4	Does not moderate
21			Inflation moderates the effect of BOPO on financial performance in Book 4	Moderates
22			Inflation moderates the effect of CAR on financial performance in Book 4	Does not moderate

Source: Processed secondary data.

The Effect of Fee-Based Income on Financial Performance in the Banking Sector

The test results show that in both Book 3 and Book 4, Fee-Based Income has a significant positive effect on financial performance in the conventional commercial banking sector in Indonesia during the 2018–2023 period. This indicates that the greater the Fee-Based Income in the conventional commercial banking sector in Indonesia, the better the financial performance will be. In other words, the first hypothesis in this study is empirically accepted.

Fee-Based Income provides a source of revenue that does not entirely rely on lending activities or interest rates. This type of income originates from services such as administrative fees, electronic transactions, consulting services, and other financial products, which offer a more consistent stream of revenue for conventional commercial banks in Indonesia. Fee-Based Income is a non-interest income that directly contributes to net profit in the conventional banking sector. Many services in conventional banks generate Fee-Based Income, such as

digital transactions or financial services that utilize bank assets efficiently through digital banking systems. These can generate income without requiring substantial additional investment in physical assets, thus improving asset productivity and potentially increasing net profit and overall financial performance, especially Return on Assets (ROA).

This finding is consistent with Pandiangan et al. (2024), who stated that Fee-Based Income can enhance a bank's financial performance because this type of income is more stable compared to spread-based income. This result also aligns with previous studies by Arianti et al. (2022) and Monika et al. (2022), which found that Fee-Based Income has a significant positive impact on financial performance.

The Effect of LDR on Financial Performance in the Banking Sector

The test results indicate a discrepancy in the effect of the Loan to Deposit Ratio (LDR) on the financial performance of the conventional commercial banking sector in Indonesia between Book 3 and Book 4. The results from Book 3 show that LDR does not have a significant effect on financial performance in the conventional commercial banking sector in Indonesia during the 2018–2023 period. Therefore, Hypothesis 2 related to Book 3 is rejected. On the other hand, the results from Book 4 indicate that LDR has a significant positive effect on financial performance during the same period, thus Hypothesis 2 related to Book 4 is empirically accepted. This means that the higher the LDR in the conventional commercial banking sector in Indonesia, the better the financial performance.

A high LDR indicates that funds collected from customer deposits are optimally utilized by being distributed as credit. This allows banks to generate greater interest income, thereby increasing operational income and enhancing financial performance. Increased credit distribution to various economic sectors can stimulate economic growth and improve borrowers' ability to repay loans. This helps maintain the quality of bank assets and suppress the risk of non-performing loans, which in turn can improve ROA and enhance overall financial performance.

The findings in Book 4 are consistent with agency theory, which suggests that LDR reflects the extent to which banks, as agents, allocate collected funds into productive credit. If LDR is high but remains within an optimal range, the bank is considered effective in performing its intermediation function, contributing to profitability and shareholder satisfaction. The findings in Book 4 are also in line with the study conducted by Hadian and Phety (2021), which concluded that LDR has a positive and significant impact on financial performance.

The Effect of NPL on Financial Performance in the Banking Sector

The test results show that in both Book 3 and Book 4, Non-Performing Loans (NPL) have a significant negative effect on the financial performance of the conventional commercial banking sector in Indonesia during the 2018–2023 period. This indicates that the lower the NPL in the conventional commercial banking sector in Indonesia, the better the financial performance. In other words, Hypothesis 3 in this study is empirically accepted. A low NPL in the conventional commercial banking sector in Indonesia reflects that most of the loans disbursed by banks are stable or in good condition. As a result, asset quality remains well-maintained, and banks are not required to set aside large amounts for loan loss provisions. When the proportion of non-performing loans is low, banks can allocate more funds to productive activities, leading to increased operating income. The smaller the NPL, the lower the operational burden associated with managing bad debts, thereby improving the bank's financial efficiency and enhancing its overall financial performance.

This finding aligns with Do et al. (2020), who stated that when NPL decreases, bank profitability increases. This occurs because fewer non-performing loans reduce the need for

large loan loss reserves, improve liquidity, and allow more funds to be allocated to productive loans, which contributes to the growth of bank income. This is also consistent with financial intermediary theory, which posits that if the NPL ratio decreases, banks can more effectively perform their role as financial intermediaries by having more funds available for productive lending. This study's results are in line with those of Do et al. (2020) and Al-Sharkas and Al-Sharkas (2022), who found that NPL has a significant negative impact on financial performance. Thus, the lower the NPL, the greater the improvement in financial performance.

The Effect of BOPO on Financial Performance in the Banking Sector

The test results indicate that in both Book 3 and Book 4, the Operational Expenses to Operating Income ratio (BOPO) has a significant negative effect on the financial performance of the conventional commercial banking sector in Indonesia during the 2018–2023 period. This suggests that the lower the BOPO in the conventional commercial banking sector, the better the financial performance. In other words, Hypothesis 4 in this study is empirically accepted. A low BOPO indicates that the conventional commercial banking sector in Indonesia is capable of managing its operational costs efficiently. Lower operational expenses increase the bank's profit margin, which in turn enhances financial performance. A low BOPO also signifies that a smaller proportion of operational income is used to cover operational costs, allowing the majority of operating income to be allocated toward increasing net profit, thereby improving financial performance.

This finding is consistent with Sholika and Zaki (2021), who stated that as BOPO increases, bank profitability tends to decline, indicating that the bank is less effective in managing its operations efficiently. This research also aligns with studies by Wulandari and Ibrahim (2023), Kurnia and Wahyudi (2022), and Sholika and Zaki (2021), all of which found that BOPO has a negative and significant impact on financial performance. Therefore, the lower the BOPO level, the better the financial performance, as the company can manage or reduce its operational costs more efficiently, positively affecting profitability.

The Effect of CAR on Financial Performance in the Banking Sector

The test results indicate a difference in the effect of Capital Adequacy Ratio (CAR) on the financial performance of the conventional commercial banking sector in Indonesia between Book 3 and Book 4. The results from Book 3 show that CAR has a significant positive effect on financial performance during the 2018–2023 period. Therefore, Hypothesis 5 related to Book 3 is empirically accepted. This means that the higher the CAR in the conventional commercial banking sector in Indonesia, the better the financial performance. A high CAR indicates that the conventional commercial banking sector in Indonesia has sufficient capital to absorb losses arising from credit, operational, or market risks. This provides protection against potential financial pressure. A high CAR also enhances the bank's lending capacity. With greater capital, banks can expand their lending activities without violating regulatory limits. Increased lending can generate higher interest income, which in turn improves financial performance, particularly the profitability of the banking sector.

This finding is in line with Sholika and Zaki (2021), who stated that a high CAR reflects a bank's ability to support its operational activities and maintain financial stability in the face of potential risks. There is a positive relationship between CAR and profitability. A higher CAR enables banks to expand financing activities, ultimately leading to increased profitability (Uddin, 2022). This study also aligns with the findings of Barizi et al. (2021) and Madugu et al. (2020), who stated that CAR has a significant positive impact on financial performance. Therefore, as CAR increases, financial performance tends to improve as well. However, the results from Book 4 show that CAR does not have a significant effect on the financial

performance of the conventional commercial banking sector in Indonesia during the 2018–2023 period. Thus, Hypothesis 5 related to Book 4 is empirically rejected.

The Effect of Inflation on Financial Performance in the Banking Sector

The test results show that both in Book 3 and Book 4, inflation has a significant negative effect on the financial performance of the conventional commercial banking sector in Indonesia during the 2018–2023 period. This indicates that lower inflation in Indonesia tends to improve the financial performance of the conventional commercial banking sector. Low inflation enables the central bank to maintain stable interest rates or even lower them. Interest rate stability creates a favorable environment for banks to extend credit at lower costs, thereby encouraging credit growth and increasing interest income. Furthermore, when inflation is low, the economy tends to be more stable. Economic stability enhances public confidence, which in turn drives credit demand for investment or consumption purposes, positively impacting bank income through credit interest in the conventional commercial banking sector. Stable inflation in Indonesia can also encourage people to save more in banks. Increased savings strengthen bank liquidity and provide a source of funds for credit expansion. This, in turn, supports income growth and financial performance, particularly profitability, in the conventional commercial banking sector.

The Effect of Fee-Based Income on Financial Performance in the Banking Sector as Moderated by Inflation

The test results indicate that in both Book 3 and Book 4, inflation is able to moderate the significant effect of Fee-Based Income on the financial performance of the conventional commercial banking sector in Indonesia during the 2018–2023 period. This suggests that greater Fee-Based Income, when accompanied by low inflation, leads to improved financial performance in the sector. In other words, Hypothesis 7 in this study is empirically accepted. This finding demonstrates that a combination of increased Fee-Based Income and low inflation creates a stable, efficient, and sustainable financial environment for Indonesia's conventional commercial banking sector. Fee-Based Income originates from non-interest sources such as administrative fees, consulting services, and digital banking services. This income is relatively unaffected by interest rate fluctuations or volatile economic conditions. When inflation is low, consumer purchasing power tends to be more stable, which can lead to increased usage of fee-based banking services. This increase contributes to higher bank revenue. The growth of Fee-Based Income provides income diversification for conventional banks in Indonesia, reducing reliance on interest income from loans. In a low-inflation environment, this becomes a key advantage as banks are better able to maintain stable revenue, thereby improving financial performance. These findings are consistent with research by Arianti et al. (2022), which showed that inflation acts as a moderating variable that strengthens the effect of Fee-Based Income on profitability or financial performance.

The Effect of LDR on Financial Performance in the Banking Sector as Moderated by Inflation

The test results show a difference between Book 3 and Book 4. The results of the test in Book 3 indicate that inflation does not moderate the effect of LDR on the financial performance of the conventional commercial banking sector in Indonesia during the 2018–2023 period. Therefore, Hypothesis 8 for Book 3 is empirically rejected. In contrast, the results of the test in Book 4 show that inflation is able to moderate the significant effect of LDR on financial performance in the same sector and period. This suggests that a higher LDR, when accompanied by low inflation, leads to improved financial performance in the conventional commercial banking sector in Indonesia. Thus, Hypothesis 8 for Book 4 is empirically

accepted. This finding shows that an increase in LDR combined with low inflation has a positive impact on the performance of Indonesia's banking sector by creating a more stable, efficient, and sustainable financial environment. An increase in LDR reflects optimal use of customer deposit funds for credit distribution. Low inflation typically leads to more stable lending interest rates, thereby enhancing the opportunities for banks to provide credit at more competitive rates. This, in turn, can increase interest income and improve the financial performance, especially profitability, of the conventional commercial banking sector in Indonesia. These findings are consistent with the study conducted by Maria and Hussain (2023), which found that inflation acts as a moderating variable that can moderate the relationship between LDR and profitability/financial performance.

The Effect of NPL on Financial Performance in the Banking Sector as Moderated by Inflation

The test results indicate that in both Book 3 and Book 4, inflation does not moderate the significant effect of Non-Performing Loans (NPL) on the financial performance of the conventional commercial banking sector in Indonesia during the 2018–2023 period. In other words, Hypothesis 9 in this study is empirically rejected.This suggests that the relationship between NPL and financial performance in the conventional commercial banking sector in Indonesia is relatively strong and not influenced by the inflation rate. In other words, compared to inflation conditions, the relationship between NPL and financial performance is more dependent on the internal management of banks and the quality of their assets.

The Effect of BOPO on Financial Performance in the Banking Sector as Moderated by Inflation

The test results show that in both Book 3 and Book 4, inflation is able to moderate the significant effect of BOPO (Operational Expenses to Operating Income Ratio) on the financial performance of the conventional commercial banking sector in Indonesia during the 2018–2023 period. This indicates that a lower BOPO, when accompanied by low inflation, can enhance the financial performance of the conventional commercial banking sector in Indonesia. Thus, Hypothesis 10 in this study is empirically accepted. A lower BOPO reflects the bank's ability to efficiently manage its operational costs relative to its generated income. In a low-inflation environment, costs such as salaries, office operations, and technology investments are less pressured, thereby supporting operational efficiency in the conventional banking sector. A decrease in BOPO also increases the potential for revenues to be converted into net profit due to lower operational expenses. Low inflation allows for more optimal profit margins, ultimately improving financial performance. This finding is consistent with studies by Maulida and Arfiansyah (2024) and Daniel (2023), whose results show that inflation acts as a moderating variable in the relationship between operational expenses to operating income and profitability/financial performance.

The Effect of CAR on Financial Performance in the Banking Sector as Moderated by Inflation

The test results show a difference between Book 3 and Book 4. The results from Book 3 indicate that inflation can moderate the significant effect of CAR (Capital Adequacy Ratio) on the financial performance of the conventional commercial banking sector in Indonesia during the 2018–2023 period. This suggests that a higher CAR, when accompanied by low inflation, can improve the financial performance of the sector. Thus, Hypothesis 11 for Book 3 is empirically accepted. An increase in CAR indicates that the conventional commercial banking sector in Indonesia has a greater capital buffer to absorb potential losses, including credit, operational, or market risks. A low-inflation environment reduces external economic risks,

allowing banks to manage their portfolios more stably and potentially boost their income, thereby enhancing financial performance. These findings are in line with the study conducted by Maulida and Arfiansyah (2024), which found that inflation acts as a moderating variable in the relationship between CAR and profitability/financial performance. In contrast, the test results from Book 4 indicate that inflation does not moderate the effect of CAR on financial performance in the conventional commercial banking sector in Indonesia during the same period. Therefore, Hypothesis 11 for Book 4 is empirically rejected.

CONCLUSION

This study demonstrates that Fee Based Income has a significant positive effect on the financial performance of conventional banks in Indonesia, both in the Bank Book 3 and Book 4 categories. Non-Performing Loans (NPL) and BOPO (Operating Expenses to Operating Income) show a significant negative impact on financial performance in both bank groups. However, the effects of the Loan to Deposit Ratio (LDR) and Capital Adequacy Ratio (CAR) vary: LDR is only significant in Book 4, while CAR is only significant in Book 3. Inflation is found to have a significant negative direct effect and also moderates the influence of Fee Based Income and BOPO on financial performance in both groups. However, it does not moderate the effect of NPL. The effect of LDR on financial performance is also moderated by inflation differently between Book 3 and Book 4. These findings offer several practical implications for bank management. To increase Fee Based Income, banks need to innovate their services, such as through digitalization of products. In managing LDR, banks must balance between lending activities and maintaining liquidity. Reducing NPL can be achieved through credit restructuring and a flexible approach toward debtors. To reduce BOPO, banks are encouraged to optimize operational efficiency by leveraging digital technology. Meanwhile, strengthening CAR can be pursued by directing credit toward low-risk, productive sectors that offer stable returns. A key limitation of this study is the smaller cross-sectional data size in Book 4 compared to the number of variables, which restricts the types of statistical tests that can be performed, particularly the Hausman test. Future research is encouraged to include other relevant variables such as Net Interest Margin (NIM), asset growth, or third-party funds (DPK). Using alternative financial performance ratios and adopting different moderation or mediation approaches, such as corporate governance or risk management, should also be considered. The study may also be extended to Islamic banks or broaden the scope of analyzed conventional banks.

REFERENCES

Aizsa, A., Nurwati, S., & Harinie, L. T. (2020). Pengaruh Tingkat Suku Bunga Dan Inflasi Terhadap Harga Saham Dengan Nilai Tukar Rupiah Sebagai Variabel Intervening Pada Jakarta Islamic Index (JII) Yang Terdaftar Di Bursa Efek Indonesia. *Jurnal Manajemen Sains Dan Organisasi*, *1*(1), 28–39. https://doi.org/10.52300/jmso.v1i1.2368

Al-Harbi, A. (2019). The determinants of conventional banks profitability in developing and underdeveloped OIC countries. *Journal of Economics, Finance and Administrative Science*, *24*(47), 4–28. https://doi.org/10.1108/JEFAS-05-2018-0043

Al-Sharkas, A. A., & Al-Sharkas, T. A. (2022). the Impact on Bank Profitability: Testing for Capital Adequacy Ratio, Cost-Income Ratio and Non-Performing Loans in Emerging Markets. *Journal of Governance and Regulation*, *11*(1), 231–243. https://doi.org/10.22495/jgrv11i1siart4

Anggari, N. L. S., & Dana, I. M. (2020). The Effect of Capital Adequacy Ratio, Third Party Funds, Loan to Deposit Ratio, Bank Size on Profitability in Banking Companies on IDX. *American Journal of Humanities and Social Sciences Research*, *4*(12), 334–338.

Arianti, S. P., Fatah, A., & Wahyuni, S. T. (2022). Pengaruh Fee Based Income, Likuiditas, dan Kredit Bermasalah terhadap Profitabilitas Perbankan Konvensional. *Bharanomics*, *3*(1), 29–38. https://doi.org/10.46821/bharanomics.v3i1.328

Azad, A. S. M. S., Azmat, S., & Hayat, A. (2019). What determines the profitability of Islamic banks: Lending or fee? *International Review of Economics and Finance*, 1–15. https://doi.org/10.1016/j.iref.2019.05.015

Barizi, T., Fatoni, R., Fitrowati, Z., & Khasanah, U. (2021). Moderasi NPF terhadap Intervensi BOPO dan CAR pada Kinerja Keuangan Bank Syariah di Indnesia 2019-2021. *Al-Kharaj : Jurnal Ekonomi, Keuangan & Bisnis Syariah*, *4*(2), 328–344. https://doi.org/10.47467/alkharaj.v4i2.651

Bintari, V. I., Santosa, A. D., & Hamzah, R. A. (2019). Pengaruh Interest Based Income Dan Fee Based Income Terhadap Return on Assets Pada Bank Mandiri (Persero) Tbk. *Jurnal Ekonomi Manajemen*, *5*(Mei), 24–34.

Daniel. (2023). Pengaruh Biaya Operasional, Modal Dan Pinjaman Beredar Terhadap Kinerja Keuangan Credit Union Dengan Inflasi Sebagai Variabel Moderator (Studi Empiris Di Kalimantan Barat). *Equator Journal of Management and Entrepreneurship Magister*, *11*(3), 187–204.

Dendawijaya, L. (2015). *Manajemen Perbankan*. Ghalia Indonesia.

Do, H. L., Ngo, T. X., & Phung, Q. A. (2020). The effect of non-performing loans on profitability of commercial banks: Case of Vietnam. *Accounting*, *6*(3), 373–386. https://doi.org/10.5267/j.ac.2020.1.001

Hadian, N., & Phety, D. T. O. (2021). The Effect of Non-Performing Loans and Loan to Deposit Ratio on Return On Assets in the Banking Industry. *Turkish Journal of Computer and Mathematics Education*, *12*(8), 791–798.

Isayas, Y. N. (2022). Determinants of banks' profitability: Empirical evidence from banks in Ethiopia. *Cogent Economics & Finance*, *10*(1). https://doi.org/doi.org/10.1080/23322039.2022.2031433

Jumono, S., Sugiyanto, & Fathmala, C. M. (2019). Determinants of Profitability in Banking Industry: A Case Study ofIndonesia. *Asian Economic and Financial Review*, *9*(1), 91–108. https://doi.org/10.18488/journal.aefr.2019.91.91.108

Kurnia, T., & Wahyudi, S. (2022). Pengaruh CAR, FDR, dan BOPO dengan NPF sebagai Variabel Moderating terhadap Kinerja Keuangan Perbankan Syariah di Indonesia. *Jurnal Studi Manajemen Organisasi*, *18*(2), 49–59. https://doi.org/10.14710/jsmo.v18i2.39204

Ledhem, M. A., & Mekidiche, M. (2020). Economic growth and financial performance of Islamic banks: a CAMELS approach. *Islamic Economic Studies*, *28*(1), 47–62. https://doi.org/10.1108/ies-05-2020-0016

Lusmeida, H., & Gunawan, E. S. (2025). The Capital Adequacy Ratio Moderated Enterprise Risk Management on Financial Distress. *Jurnal Riset Bisnis Dan Manajemen*, *18*(1), 163–178.

Madugu, A. H., Ibrahim, M., & Amoah, J. O. (2020). Differential effects of credit risk and capital adequacy ratio on profitability of the domestic banking sector in Ghana. *Transnational Corporations Review*, *12*(1), 37–52. https://doi.org/10.1080/19186444.2019.1704582

Maria, M. B., & Hussain, F. (2023). Does inflation expectation affect banks' performances? Evidence from Indian banking sector. *Journal of Economic and Administrative Sciences*. https://doi.org/https://doi.org/10.1108

Maulida, N. A., & Arfiansyah, M. A. (2024). Analisis Pengaruh Rasio Keuangan Terhadap Profitabilitas Perbankan Syariah Di Indonesia Dengan Inflasi Sebagai Varibel Pemoderasi. *Jurnal Pemikiran Dan Penelitian Ekonomi Islam*, *12*(2), 253–273.

Monika, A., Hakim, A. L., & Ahmad, A. N. (2022). Pengaruh Current Asset Saving Account (CASA) dan Fee-Based Income (FBI) Terhadap Return on Asset (ROA) Pada Bank Jabar-Banten Syariah (BPJS) Periode 2016-2020. *Jurnal Ekonomi Syariah Pelita Bangsa*, *7*(2), 138–147.

Moorcy, N. H., Alwi, M., & Yusuf, T. (2021). Pengaruh Inflasi, Suku Bunga, dan Nilai Tukar Terhadap Indeks Harga Saham Gabungan di Bursa Efek Indonesia. *Jurnal Geo Ekonomi*, *12*(1), 67–78.

Ozili, P. K. (2019). Non-performing loans and financial development: new evidence. *Journal of Risk Finance*, 1–23. https://doi.org/10.1108/JRF-07-2017-0112

Pandiangan, C. M., Hasanuddin Pohan, S., & Siyo, K. (2024). Analysis Of Fee Based Income And Interest Earnings on Net Profit. *Jurnal Scientia*, *13*(03), 181–192.

Sholika, S. A., & Zaki, A. (2021). Pengaruh non-performing loan (NPL), beban operasional pendapatan operasional (BOPO), capital adequancy ratio (CAR) dan struktur kepemilikan terhadap kinerja keuangan bank tahun 2018-2022. *Jurnal Ilmu Manajemen*, *12*(4), 1023–1038.

Soewarno, N., & Tjahjadi, B. (2020). Measures that matter: an empirical investigation of intellectual capital and financial performance of banking firms in Indonesia. *Journal of Intellectual Capital*, *21*(6), 1085–1106. https://doi.org/10.1108/JIC-09-2019-0225

Sugiyono. (2020). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta.

Tamin, M., Hilmi, & Satria, I. (2022). Pengaruh Biaya Operasional Pendapatan Operasional (BOPO) Dan Financing To Deposit Ratio (FDR) Terhadap Profitabilitas Pada Bank Umum Syariah Di Indonesia Tahun 2016-2020. *Jurnal Akuntansi Malikussaleh*, *1*(1), 123–136.

Uddin, K. (2022). Effect of Leverage, Operating Efficiency, Non-Performing Loan, and Capital Adequacy Ratio on Profitability of Commercial Banks in Bangladesh. *European Journal of Business and Management Research*, *7*(3), 2017–2020.

Winarso, E., Gunanta, R., & Prayitno, Y. H. (2020). Analisis Non Performing Loan (NPL) dan Loan to Deposit Ratio (LDR) Terhadap Kinerja Bank Perkreditan Rakyat (BPR) di Kota Bandung. *Journal of Accounting, Finance, Taxation, and Auditing (JAFTA)*, *2*(1), 67–88. https://doi.org/10.28932/jafta.v2i1.2942

Worku, A. T., Bayleyegne, Y. W., & Tafere, Z. B. (2024). Determinants of profitability of insurance companies in Ethiopia: evidence from insurance companies from 2011 to 2020 years. *Journal of Innovation and Entrepreneurship*, *13*(4), 1–19. https://doi.org/10.1186/s13731-023-00357-1

Wulandari, A., & Ibrahim, M. A. (2023). Pengaruh BOPO, FDR, CAR, dan Modal Intelektual terhadap Kinerja Keuangan Bank Umum Syariah. *Jurnal Riset Perbankan Syariah*, *3*(1), 67–74.