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ANALYSIS OF THE EFFECT OF NON-PERFOMING FINANCING (NPF) AND THE RATIO OF OPERATING EXPENSES TO OPERATING INCOME (BOPO) ON RETURN ON ASSETS (ROA) AT INDONESIAN SHARIA COMMERCIAL BANKS 2020-2024

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Abstract

The financial performance of Islamic commercial banks is one of the important indicators used to assess the health level and profitability level of the bank, one of which can be measured through Return on Assets (ROA). Factors that are suspected to affect ROA include *Non-Performing Financing* (NPF) and Operating *Expense to Operating Income* (BOPO) Ratio. This study aims to analyze the influence of NPF and BOPO on ROA in Islamic commercial banks in Indonesia for the 2020-2024 period. Using a quantitative approach as well as secondary data obtained from the company's financial statements. The data analysis technique used multiple linear regression with the help of SPSS software version 26. The results of this study show that NPF partially has no effect on ROA with a significance value of 0.202 > 0.05, while BOPO has a significant effect on ROA as evidenced by a significance value of 0.001 < 0.05. Meanwhile, simultaneously a score of 0.001 < 0.05 was obtained, which means that NPF and BOPO have a significant effect on ROA.

Keywords: NPF, BOPO, Profitability, BUS (Islamic Commercial Bank)

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INTRODUCTION

Bank financial productivity is one of the main indicators used to evaluate the health and operational sustainability of a banking institution (Pratiwi et al., 2024). This assessment is necessary to find out the extent to which banks are able to manage their resources effectively and efficiently in generating profits. The assessment of a bank's financial performance is based on several indicators, one of which is the bank's financial statements. In analyzing financial statements, financial ratios are used as a basis to assess the level of performance of banks. Financial statements also include the aspect of profitability which is considered the most appropriate indicator in measuring the performance of a bank. The purpose of this study is to find out and analyze the influence of NPF and BOPO on ROA in Islamic commercial banks for the 2020-2024 period. Based on OJK Sharia Banking Statistics data for 2020-2024, the development of Islamic commercial banks' ROA shows fluctuations influenced by financing conditions and operational efficiency. Thus, research on the influence of NPF and BOPO on ROA needs to be conducted to determine the factors that affect the profitability level of Islamic commercial banks in Indonesia (Suku et al., 2025).

As mentioned in the verse of the Quran, namely Surah An-Nisa Verse 29:

يٰٓاَيُّهَا الَّذِيْنَ اٰمَنُوْا لَا تَأْكُلُوْٓا اَمْوَالَكُمْ بَيْنَكُمْ بِالْبَاطِلِ اِلَّآ اَنْ تَكُوْنَ تِجَارَةً عَنْ تَرَاضٍ مِّنْكُمْ ۗ وَلَا تَقْتُلُوْٓا اَنْفُسَكُمْ ۗ اِنَّ اللّٰهَ كَانَ بِكُمْ رَحِيْمًا

Meaning: "O you who believe! Do not eat each other's property in a wrong way, except in trade that takes place on the basis of mutual consent between you. And do not kill yourselves. Indeed, Allah is merciful to you."

Islam emphasizes that the management of assets and financial transactions must be carried out correctly, fairly, and without harming other parties. In Islamic banking, the high NPF indicates the existence of non-performing financing that can hinder fund turnover and reduce bank profits. These conditions can affect the bank's profitability as reflected in the ROA. Therefore, this paragraph is the basis that Islamic banks must apply the principles of prudence and trust in distributing financing to avoid losses and maintain the company's financial health.

In this study, the profitability indicator used is *Return On Asset* (ROA). ROA is one of the main profitability ratios used to measure the ability of banks to generate revenue from all assets they own, so that it can show the level of efficiency of management in managing existing resources to obtain profits optimally (Rokhayati, 2020). The higher the ROA value, the better the company's performance in generating profits. In addition, ROA is also an important indicator for investors and management to assess the extent to which their assets can be used productively. Thus, the increase in ROA reflects that the company is able to

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manage its assets effectively and efficiently, thereby making a positive contribution to the growth of overall financial performance (Christabel & Andrea, 2025).

Some financial ratios that can affect profitability include credit risk, and efficiency. Credit risk is measured by the *Non-Performing Financing* (NPF) Ratio and efficiency is measured by the Ratio *of Operating Expenses to Operating Income* (BOPO).

Non-Performing Financing (NPF) is a ratio used to measure the level of non-performing financing in banks, especially Islamic banks, which is shown by the inability of customers to fulfill their obligations in accordance with the agreement (Sari et al., 2023). This ratio shows the comparison between total non-performing financing and total financing disbursed. A high NPF indicates an increase in credit risk that can negatively impact the bank's financial performance and stability, while a low NPF value reflects good financing quality.

Operating Expenses to Operating Income (BOPO) is a ratio used to assess the level of efficiency and ability of banks to carry out their operational activities (gautama Siregar et al., 2023). This ratio shows the comparison between total operating expenses and total operating income earned by banks. The lower the BOPO value, the better the level of efficiency of bank management in managing operational activities. This reflects that banks are able to make optimal use of resources. Efficiency in managing operational costs will have an impact on increasing the profits obtained by banks (Indraswari et al., 2024).

Several relevant studies, according to Audina & Rialdy (2024) in their research, found that BOPO has a significant impact on ROA in Sharia Business Units in Indonesia, while NPF and FDR do not show a significant impact on ROA. According to I. D. Astuti & Kabib (2021) in their research, the results show that CAR, BOPO, and FDR do not have a significant effect on ROA, while BOPO and FDR have a negative and significant effect on ROA. Putri & Maika (2024) in their research stated that H1 and H2 are accepted, which means that NPF and BOPO have a partial influence on ROA, Simultaneously it is stated that H0 is accepted, which means that there is an influence of NPF and BOPO on ROA.

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LITERATURE REVIEW

Financial Performance of Sharia Banks

A bank's financial performance describes a financial condition that shows the extent of success in carrying out its operational activities. This performance evaluation aims to measure the bank's ability to manage resources effectively and efficiently in order to achieve profits. According to Fadhil et al., (2025), financial performance analysis is carried out through financial statements with financial ratios as the main indicator. In Islamic banks, this performance also reflects the level of institutional health and compliance with the principle of prudence in fund management.

Return On Assets (ROA)

Return on Assets (ROA) is a profitability ratio that measures a bank's ability to generate profits from all its assets. ROA reflects the efficiency of management in utilizing assets to make a profit. The higher the ROA, the better the bank's performance in creating profits. This ratio also serves as a key indicator for evaluating the effectiveness of asset management and optimizing a company's profits (Nanda et al., 2023).

In this study, ROA was chosen as a dependent variable because it comprehensively represents the bank's level of profitability.

Non Performing Financing (NPF)

Non-Performing Financing (NPF) is a ratio that measures the level of non-performing financing in Islamic banks, caused by the inability of customers to meet obligations according to the agreement. This ratio is obtained from the division of total non-performing financing to the total financing disbursed. A high NPF value signifies a greater risk of loss, which has the potential to damage the bank's financial performance. In contrast, low NPFs reflect excellent financing quality and effective credit risk management (Siregar & Harahap, 2023).

Operating Expenses on Operating Income (BOPO)

Operating Expenses to Operating Income (BOPO) is a ratio that measures the operational efficiency of a bank. This ratio is calculated from the division of total operating costs by total operating income. A low BOPO value indicates high operational efficiency of banks. On the other hand, high BOPO reflects inefficiencies that have the potential to reduce banks' profits (Wahyuni & Ompusunggu, 2025). Operational efficiency is a crucial factor in determining the bank's profitability, as it is related to cost control.

The Relationship of Theory to Research

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Based on the concepts and theories that have been described, independent variables are closely related to dependent variables in this study. NPF as a proxy for credit risk, and BOPO as a proxy for operational efficiency, play a key role in influencing a bank's profitability as measured through ROA (Ahzahra et al., 2025). In theory, the increase in NPF tends to reduce ROA due to increased non-performing financing, while the increase in BOPO also decreases ROA because it shows weak operational efficiency. On the contrary, optimal and high-efficiency credit risk management will drive increased profitability.

Therefore, the basis of this theory confirms the relevance of NPF and BOPO in explaining ROA fluctuations in Islamic commercial banks.

RESEARCH METHOD

This study uses a quantitative approach, which focuses on testing numbers, statistical data, and analysis of relationships between variables (Jailani, 2023). The data used is in the form of secondary data obtained from the financial statements for the 2020-2024 period. Data collection is carried out through official documents that have been published on the IDX (Indonesia Stock Exchange) through the official website of https://www.idx.co.id/. Using multiple linear regression analysis techniques with one bound variable, namely *Return On Assets* (ROA), as well as two independent variables, namely *the Non-Performing Financing* (NPF) Ratio and *the Operating Expense to Operating Income* Ratio (BOPO). The population in the study is all Sharia Commercial Banks (BUS) operating in Indonesia, which to date amount to 14 Sharia Commercial Banks. The sample used consists of Sharia Commercial Banks that are registered and under the supervision of the Financial Services Authority (OJK) during the 2020-2024 period. Sample selection was carried out using the purposive sampling technique. The following criteria are used in determining the sample of this study:

1. Sharia Commercial Banks that are registered with the Financial Services Authority and are still actively operating during the 2020-2024 research period.
2. Sharia Commercial Banks that consistently publish annual financial statements through the official website of each bank as well as through the official website of the Financial Services Authority.
3. Sharia Commercial Banks that present complete and relevant financial data to the research variables, namely ROA, NPF, and BOPO.

Table 1 List of Sharia Banks

No	Bank Name

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1.	PT Bank Syariah Indonesia, Tbk
2.	PT Bank Muamalat Indonesia, Tbk
3.	PT Bank BCA Syariah
4.	PT Bank NTB Syariah
5.	PT Bank ACEH Syariah
6.	PT Bank Mega Syariah

Source: data processed by researchers, 2026

RESULTS AND DISCUSSION

Classical Assumption Test Results

Classical assumptions are a series of conditions that must be met in linear regression analysis in order for the model used to be able to produce valid and reliable estimates (Nugraha, 2022). In this study, classical assumption testing was carried out to ensure that the multiple linear regression model used has met the necessary statistical criteria, so that the results of the analysis can be interpreted appropriately. The classical assumptions that are generally tested include the absence of multicollinearity, the absence of heteroscedasticity, the absence of autocorrelation, and the normal distribution of residuals.

Figure 1

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Normality Test Results

One-Sample Kolmogorov-Smirnov Test

			Unstandardized Residual
N			30
Normal Parameters[a,b]	Mean		.0000000
	Std. Deviation		.24863788
Most Extreme Differences	Absolute		.117
	Positive		.117
	Negative		-.074
Test Statistic			.117
Asymp. Sig. (2-tailed)[c]			.200[d]
Monte Carlo Sig. (2-tailed)[e]	Sig.		.370
	99% Confidence Interval	Lower Bound	.357
		Upper Bound	.382

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. This is a lower bound of the true significance.

e. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 334431365.

Source : SPSS 26 Output Results

Based on the table of normality test results above using the One-Sample Kolmogorov-Smirnov Test, an Asymp value was obtained. Sig. (2-tailed) of 0.200 > 0.05. This shows that H_0 is not rejected, so it can be concluded that the residual data is normally distributed. Thus the assumption of normality in the regression model has been met, so the model is feasible to use for further analysis.

Figure 2

Heteroscedasticity Test Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.253	.959		.264	.794		
	NPF	.227	.127	.359	1.784	.086	.825	1.212
	BOPO	3.555E-5	.012	.001	.003	.998	.825	1.212

a. Dependent Variable: ABS_RES

Source : SPSS 26 Output Results

Based on the results of the heteroscedasticity test above, a significance value was obtained for each independent variable. The NPF variable has a

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significance value of 0.086 > 0.05 and the BOPO variable of 0.998 > 0.05. All of these significance values are greater than the significance level of 0.05 so it can be concluded that there are no symptoms of heteroscedasticity in the regression model. Thus, residual variance is constant (homoskedasticity) so it is suitable for further analysis.

Figure 3
Multicollinearity Test Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	9.411	.434		21.663	<,001		
	NPF	.078	.060	.074	1.307	.202	.828	1.207
	BOPO	-.096	.005	-.992	-17.595	<,001	.828	1.207

a. Dependent Variable: ROA

Source : SPSS 26 Output Results

Based on the results of the multicollinearity test above, a Tolerance value of 0.828 > 0.10 and a VIF value of 1.207 < 10 were obtained for all independent variables. Tolerance values greater than 0.10 and VIF smaller than 10 indicate that there are no symptoms of multicollinearity in the regression model.

Figure 4
Autocorrelation Test Results

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.968[a]	.937	.929	.23554	1.651

a. Predictors: (Constant), LAG_Y, NPF, BOPO

b. Dependent Variable: ROA

Source : SPSS 26 Output Results

Based on the results of the autocorrelation test in the table above, an R value of 0.968 and R Square of 0.937 were obtained, which shows that the independent variables together have a very strong relationship with the dependent variables. The Adjusted R Square value of 0.929 means that 92.9% of the variation of the ROA variable can be explained by independent variables. While the remaining 7.1% is explained by other variables outside the model. The Durbin-Watson value of 1.651 indicates that there is no indication of serious

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autocorrelation in the model. With that the regression model used has a strong relationship level and is feasible for use in further analysis.

Multiple Linear Regression Test Results

Multiple linear regression is an analysis method used to examine the relationship between dependent variables (Y) and several independent variables (X) that affect them (Aflah et al., 2025). In this study, multiple linear regression is used because this method allows the analysis of the influence of more than one independent variable on one dependent variable simultaneously. Multiple linear regression calculations can be performed using the following equations :

Y = a + b1X1 + b2X2 + e

Description:

Y : Variabel ROA

a : Constant

X1 : MFN

X2 : BOPO

b : The regression coefficient of the independent variable

e : Error turn (kesalahan residual)

Figure 5

Multiple Linear Regression Test Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	9.411	.434		21.663	<,001		
	NPF	.078	.060	.074	1.307	.202	.828	1.207
	BOPO	-.096	.005	-.992	-17.595	<,001	.828	1.207

a. Dependent Variable: ROA

Source : SPSS 26 Output Results

Y = 9.411 – 0.078 NPF – -0.096 BOPO

From the multiple linear regression equation above, the following conclusions can be drawn:

1. Constant (a)

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From the multiple linear regression equation above, a positive value of 9,411 is obtained, it can be interpreted that if the independent variable is zero (kostan), then the dependent variable is 9,411.

2. Coefficient Result (b) *Non-performing Financing* (NPF) Regression
From the results of the multiple linear regression equation above, the NPF coefficient/b value of 0.078 can be interpreted that there is a positive/unidirectional relationship between the X1 variable or NPF and ROA. So it can be concluded that if the ROA increases, the ROA also increases by 0.078.
3. Coefficient Result (b) *Operating Expenses to Operating Income* (BOPO)
From the results of the multiple linear regression equation above, the BOPO coefficient/b value of -0.096 can be interpreted that there is an indirect/negative relationship between the X2 variable, namely BOPO and ROA. So it can be concluded that if BOPO increases, the share price will decrease by -0.096.

Determination Coefficient Test Results (R2)

The determination coefficient (R^2) test is used to assess the degree of accuracy or suitability of a regression model. The higher the R^2 value, the better the ability of linear regression equations to make predictions. Conversely, if the value of R^2 is close to 1, then the contribution of the independent variable to the dependent variable is stronger, while if the value of R^2 is close to 0, then the contribution is weaker (Maharadja et al., 2021).

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Figure 6
Determination Coefficient Test Results (R2)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.964[a]	.929	.924	.24532

a. Predictors: (Constant), BOPO, NPF

b. Dependent Variable: ROA

Source : SPSS 26 Output Results

From the results of the summary model table above, it can be seen that the value of the determination coefficient (R Square) is obtained with a value of 0.929. This value means that the NPF (X1) and BOPO (X2) variables are able to affect the ROA variable by 0.929 or 92.9%. While the remaining 0.71 or 7.1% was influenced by other variables that were not included in this study.

Simultaneous Test Results (F Test)

Simultaneous tests (F tests) are used to find out whether independent variables (X) together have an effect on dependent variables (Y). The significance level used was 5% (0.05). If the significance value of F < 0.05, then it can be concluded that the independent variable is simultaneously influential terhadap variabel dependent; on the other hand, if the significance value of F > 0.05, then there is no significant simultaneous effect (Afriansyah et al., 2021).

Figure 7
Simultaneous Test Results (F Test)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.232	2	10.616	176.394	<,001[b]
	Residual	1.625	27	.060		
	Total	22.857	29			

a. Dependent Variable: ROA

b. Predictors: (Constant), BOPO, NPF

Source : SPSS 26 Output Results

From the results of the anova table above, it can be seen that the sig value obtained is at 0.001 < 0.05 which means that the variable X (independent) namely NPF and BOPO simultaneously / together have a significant effect on the variable Y (dependent) namely ROA.

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Partial Test Results (t-test)

This partial t/t test was carried out to determine individually the influence between variable X (independent) on variable Y (dependent) respectively. The criteria are as follows: if the value of sig (significance) < 0.05, then the variable has a significant influence.

Figure 8
Partial Test Results (t-test)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	9.411	.434		21.663	<,001		
	NPF	.078	.060	.074	1.307	.202	.828	1.207
	BOPO	-.096	.005	-.992	-17.595	<,001	.828	1.207

a. Dependent Variable: ROA

Source : SPSS 26 Output Results

From the results of the table of coefficients above, the sig value on the NPF variable was obtained with a number of 0.202 > 0.05 which means that the NPF variable has no effect on the variable (Y), namely ROA. Meanwhile, the BOPO variable obtained a number of 0.001 < 0.05 which means that the BOPO variable has a significant effect on the ROA variable.

The Effect of *Non-Performing Financing* (NPF) on *Return On Asset* (ROA)

To measure the level of non-performing financing in banks, especially Islamic banks, which is shown by the customer's inability to fulfill its obligations in accordance with the agreement known as *Non-performing Financing* (NPF). In this study, the significance value of NPF of 0.202 > 0.05 showed that NPF had no effect on ROA. This shows that changes in the NPF value do not have an impact on the level of ROA, so high or low NPF does not affect profitability performance as measured through ROA. The results of this study are in line with the research of R. P. Astuti (2022) and supported by Audina & Rialdy (2024) and Rani & Rialdi (2024) which revealed that NPF does not affect ROA.

The Effect of *Operating Expenses on Operating Income* (BOPO) on *Return On Asset* (ROA)

The ratio used to assess the level of efficiency and ability of banks to carry out operational activities is called *Operating Expense to Operating Income* (BOPO). In this study, the significance value of BOPO was 0.001 < 0.05 which means that the BOPO variable has a significant effect on the ROA variable. The higher the BOPO value, the lower the bank's efficiency level, which can ultimately lower the

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ROA value, and conversely, the lower the BOPO indicates better efficiency so that it has the potential to increase ROA. The results of this study are in line with the research of Safira et al. (2024) and supported by Rani & Rialdi (2024) and Putri & Maika (2024) which revealed that *Operating Income Operating Expenses* (BOPO) affect ROA.

The Effect of *Non-Performing Financing* (NPF) and *Operating Expenses on Operating Income* (BOPO) on *Return On Asset* (ROA)

Based on the results of the simultaneous test/F, the effect of NPF and BOPO on ROA resulted in a value of 0.001 < 0.05. So the researcher concluded that there was an influence between NPF and BOPO together on ROA. This research is in line with the research of Audina & Rialdy (2024) and supported by Wahyunitasari et al. (2024) which revealed that *Non-performing financing* (NPF) and *Operating Expenses on Operating Income* (BOPO) affect *Return On Asset* (ROA) simultaneously / together.

CONCLUSION

The study aims to analyze the effect of *Non-Performing Financing* (NPF) and *Operating Expenses on Operating Income* (BOPO) on *Return on Assets* (ROA) in Sharia Commercial Banks in Indonesia for the 2020-2024 period. Based on the results of data analysis, it can be concluded as follows, Partially NPF has no effect on ROA, so the high and low level of non-performing financing does not directly determine the level of profitability of banks. On the other hand, BOPO has a negative and significant effect on ROA, which shows that the higher the level of operating expenses compared to operating income, the lower the bank's profitability level. Simultaneously, NPF and BOPO had a significant effect on ROA, with the ability to explain the variation in ROA of 92.9%, while the rest were influenced by other factors outside the study. From these results, operational efficiency is the main factor that affects the profitability performance of Islamic banks.

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