

The Influence of Macroeconomics and Financial Performance on the Profitability of Islamic Banking in Indonesia

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Abstrak. The purpose of this study is to ascertain how Islamic banking's financial performance and macroeconomic conditions affect its profitability. The object of this study is Islamic banking in Indonesia from 2015 to 2024, in the form of Sharia Commercial Banks (BUS) and Sharia Business Units (UUS). The independent variables in this study are macroeconomics which is measured through financial ratios, namely inflation and the Rupiah exchange rate (exchange rate) and for financial performance is measured through financial ratios, namely Financing to Deposit Ratio (FDR), Non-Performing Financing (NPF) and Operating Expenses of Operating Income (BOPO), while the dependent variable, namely profitability is measured through Return on Asset (ROA). The data used is monthly financial statement data for the last 10 years taken quarterly (per 3 months) starting from March 2015 to December 2024. The data was analyzed using multiple regression methods. The NPF and BOPO variables had a somewhat significant impact on ROA, according to the t-test results. In the meantime, ROA was only marginally impacted by the factors of inflation, exchange rates, and FDR. The F test findings demonstrated that all of the variables—inflation, exchange rate, FDR, NPF, and BOPO—had a substantial impact on ROA at the same time.

Keywords: inflation, exchange rate, FDR, NPF, BOPO, ROA

INTRODUCTION

Along with the changing times dominated by the influence of developments in the field of technology, the capacity and capabilities of technology in the banking world are also required to be able to meet the needs of services for the community quickly, precisely, effectively and efficiently (Guillon et al., 2014; McCarty et al., 2018; Riinawati, 2022; Segelbacher et al., 2022). Currently, the need for the existence of banking facilities or services is quite high. This is shown by the growth of fundraising and fund disbursement in Indonesian banks over the last 5 (five) years, namely the nominal amount of fund fundraising has grown by 34.21%, namely from 2020 of Rp7,546,- Trillion to Rp10,128,- Trillion in 2024, while the nominal amount of fund disbursement has grown by 34.57%, namely from 2020 of Rp9,260,- The trillion will be IDR 12,461 trillion in 2024 (Indonesian Banking Statistics, February 2025). The information demonstrates the public's need for banking's service provision function, both to obtain sources of funding, storage, investment and daily economic transaction activities has increased.

Both conventional and Islamic banks function and cohabit under Indonesia's dual banking system (Ascarya, 2012; Noviasari, 2017; Panjaitan, 2017; Saputro & Sukmana, 2019; Wibowo & Mubarak, 2018). With the implementation of these two banking systems, Islamic banking began to develop rapidly. Because Indonesia has a dual banking system, conventional and Islamic banks may coexist in the same financial environment. Central Statistics Agency data (BPS) reveals that the population of Indonesia in 2024 is projected will be 281,604 thousand people, while based on the 2010 Population Census data, it is known that there are 87.18% of the Indonesian population adhering to Islam. The growth of Islamic banking by 2024 can be assessed through its market share within the broader Indonesian banking sector. National Islamic banking recorded a positive performance in 2024 (Alharbi, 2015; Dinc, 2020; Kamalu & Ibrahim, 2021). Total assets were recorded at IDR 980.30 trillion or grew by 9.88% (yoy) in 2024 with a market share that also increased to 7.72% where in 2023 it will only reach 7.44% (OJK Press Release, February 2025).

Indonesian Islamic banking, which includes Sharia Business Units (UUS) and Sharia Commercial Banks (BUS), has generally seen positive growth. According to data, the sector has shown substantial progress over the past five years, from 2020 to 2024, still shows relatively positive growth. Until 2024, it is known that the number of BUSES is 14 and the number of UUS is 19 (Sharia Banking Statistics, February 2025).

The financial performance of Islamic banks in the sector may be used to evaluate the caliber of Islamic banking (Ahmed et al., 2022; Kurniawan et al., 2022). Financial performance in the Islamic banking sector is gauged by profitability, with a higher profitability ratio serving as a key indicator of effective banking performance. Profitability reflects an Islamic bank's capacity to generate profits efficiently. The bank's asset utilization improves with higher earnings, and thus, this study will evaluate Islamic banking performance through profitability metrics. Indicators that are commonly used to measure profitability performance include ROA (Return on Assets) (Kasmir, 2016; Rahayu et al., 2022; Salsabila, 2015; Wahyudiono, 2014).

The data above raises an important question regarding the factors influencing profitability fluctuations in Islamic banking, particularly how macroeconomic conditions and

financial performance impact profitability. Research on inflation variables shows mixed findings: Sodiq (2015) found no significant effect of inflation on ROA, Raka (2016) identified a significant negative relationship, and Assegaf et al. (2014) indicated that inflation has a significant effect on ROA when examined jointly, but not individually.

Studies examining the Rupiah exchange rate, such as Hidayati (2014), have shown a significant impact on ROA, a finding consistent with Haslamiyanto (2017), who reported a negative and significant effect. In contrast, Kusumaningrum (2011) determined that ROA is unaffected by the exchange rate, a view reinforced by Poetri (2016), who similarly found no significant relationship between the exchange rate and ROA.

Research related to financial performance, namely FDR, NPF and BOPO on ROA has been conducted by several researchers. The study by Cholis (2016) found that, whether considered separately or together, FDR, NPF, and BOPO did not significantly affect the ROA of Islamic banking. This is in contrast to the results of Harahap and Syahwani (2010), who reported that both NPF and FDR have a significant impact on profitability levels. It is stated based on statistics that NPF and FDR together significantly affect the level of profitability.

The fluctuations in profitability and the inconsistencies observed in previous research require a more thorough analysis to determine the underlying factors influencing profitability, aiming to improve the future profitability of Islamic banks.

Hypotheses Development

The Effect of Inflation on ROA

Inflation can have a significant impact on a country's economy. When inflation rises uncontrollably, it can lead to economic instability and a slowdown in economic activity. This, in turn, may reduce people's willingness to save, invest, or engage in production. Additionally, higher inflation can decrease the demand for financing, as the margin rates typically applied in Islamic banking tend to be relatively high. With the decrease in the amount of financing, the potential for Islamic banks to get margins or profit sharing from financing will be reduced. The profitability of the bank in question will be influenced by this. A study by Molyneux and Using the consumer pricing index (CPI) to measure inflation, Thornton (1992) investigated the connection between inflation and bank profitability. The findings show a strong correlation between inflation and bank profitability.

H1 : Inflation has a significant effect on ROA

The Effect of the Rupiah Exchange Rate (Exchange Rate) on ROA

Fluctuations in the exchange rate of a currency, whether appreciation or depreciation, have a substantial effect on the economy. A depreciating currency reduces purchasing power and capital gains from investments. The resulting drop in investments can affect the operations of banks, leading to a decrease in financing demand in Islamic banks, which subsequently impacts profitability. Haslamiyanto (2017) tested the Rupiah exchange rate's impact on profitability and discovered a strong correlation between the two.

H2 : The Rupiah exchange rate has a significant effect on ROA

Effect of NPF on ROA

NPF serves as a measure of financing risk, where higher NPF values reflect lower quality in Islamic bank financing. As NPF increases, opportunities to generate income from financing are lost, which adversely affects profitability and ROA. Setiawan (2009) concluded that NPF significantly influences Return on Assets.

H3 : NPF has a significant effect on ROA

FDR's influence on ROA

A measure of liquidity that shows a bank's capability is the Financing to Deposit Ratio (FDR) to provide funds to debtors using both its own capital and public deposits. Changes in financing levels or public withdrawals affect bank liquidity, which in turn can erode public trust and result in a decline in profitability, as evidenced by a drop in ROA. Syaichu and Wibowo (2013) determined that FDR significantly improves return on assets.

H4 : FDR has a significant effect on ROA

The Effect of BOPO on ROA

The BOPO ratio shows how efficiently banks operate, especially in managing financing, as the margin or profit-sharing from financing is the main income source for Islamic banks. Efficient banks have a BOPO ratio of less than 100% (the smaller than 100%, the more efficient), and vice versa. Stated differently, there exists an inverse relationship between a bank's profitability and the BOPO ratio. The results of Syaichu and Wibowo (2013), which showed that BOPO significantly lowers ROA, support this conclusion.

H5 : BOPO has a significant effect on ROA

The Effect of Inflation, Exchange Rate, NPF, FDR, BOPO on ROA

Exchange rates, inflation, NPF, FDR, and BOPO variables are thought to significantly affect ROA together. Macroeconomic variables as described by inflation and exchange rate variables FDR and BOPO ratios, in addition to the financial performance metrics outlined by NPF, may undoubtedly impact the overall profitability of Islamic banking. The financial performance of Islamic banking itself influences the attainment of its profitability, while macroeconomic conditions influence the accomplishments of the Islamic banking industry.

H6 : Inflation, Exchange Rate, NPF, FDR and BOPO together have a significant effect on ROA

MATERIAL AND METHOD

This research adopts a quantitative approach, categorized as associative research, which seeks to explore the relationships between two or more variables (Sugiyono, 2012). The study focuses on understanding independent factors' effects on the dependent variable. In this case, the dependent variable is ROA, while the independent variables include inflation, exchange rate, FDR, NPF, and BOPO.

All 33 Islamic banks in Indonesia, including 14 Sharia Commercial Banks (BUS) and 19 Sharia Business Units (UUS), make up the study's population. Purposive sampling is used in the sample selection process in accordance with the particular standards listed below:

Business entities or companies that run their business in the banking sector with Sharia principles;

Banking has a position as a BUS and UUS registered and overseen by the OJK, or Financial Services Authority.

Islamic banking entities registered with the OJK from 2015 to 2024.

A total of 240 data points were gathered for analysis based on these standards. The secondary data included in the study came from a variety of sources. In particular, the Bank Indonesia Monthly Monetary Report provided the statistics for the inflation and exchange rate indicators. Meanwhile, the variable data of ROA, FDR, NPF and BOPO were obtained from the Sharia Banking Statistics Data - Financial Services Authority on a monthly basis.

Quantitative analysis is employed in this study, where data is processed using statistical methods assisted by SPSS 30. The analysis comprises the coefficient of determination, hypothesis testing, and the traditional assumption tests (autocorrelation, heteroscedasticity, multicollinearity, and normality). Here is a presentation of the multiple linear regression model used in this study:

$$ROA = \alpha + \beta_1 Inf + \beta_2 Kurs + \beta_3 FDR + \beta_4 NPF + \beta_5 BOPO + \varepsilon \dots\dots (7)$$

Dimana :

ROA = Ratio of Return on Asset;

Inf = Inflation;

Kurs = Currency;

FDR = Financing to Deposits Ratio;

NPF = Non-Performing Financing;

BOPO = Biaya Operasional Pendapatan Operasional

α dan β = Koefisien variabel;

ε = Error.

RESULTS AND DISCUSSION

Data analysis of 33 Islamic banks which is a research sample and uses quarterly data for 10 (ten) years of data period, yields 40 data for each variable. The descriptive statistical Figure 1 displays the findings from the data analysis.

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	40	1.149	2.224	1.75020	.246691
INFLASI	40	.013	.073	.03322	.014914
KURS	40	-.150	.032	-.00735	.028395
NPF	40	2.016	4.589	3.12660	.761738
FDR	40	79.838	100.907	90.23668	4.598787
BOPO	40	75.913	90.208	81.69273	4.075365
Valid N (listwise)	40				

Figure 1. Descriptive Statistics

Source: SPSS output (processed data)

Figure 1 shows that the Return on Assets (ROA) had an average of 1.750% and a standard deviation of 0.247, with a range of 1.149% to 2.224%. With an average of 0.033% and a standard deviation of 0.015, the inflation rate varied between 0.013% and 0.073%. With an average of -0.007% and a standard deviation of 0.028, the exchange rate variable varied between -0.150% and 0.032%. The Non-Performing Financing (NPF) variable had a standard deviation of 0.762 and an average of 3.127%, with values ranging from 2.016% to 4.589%. There was a range of 79.838% to 100.907% for the Financing to Deposit Ratio (FDR), with an average of 90.237% and a standard deviation of 4.599. Lastly, the BOPO variable had an average of 81.693% and a standard deviation of 4.075, ranging from 75.913% to 90.208%.

Classic Assumption Test

To ensure that the data in this study satisfied the requirements for Best Linear Unbiased Estimation, classical assumption testing was performed, through the use of normality, autocorrelation, heteroscedasticity, and multicollinearity tests.

Normality Test

How to pay attention to the probability distribution of the normality test disturbance is one of the tests in the use of OLS (Ordinary Least Square) in linear regression research. Using the Kolmogorov-Smirnov (KS) Test, the data distribution's normality was evaluated. The findings of this normalcy test are shown in the next section.

One-Sample Kolmogorov-Smirnov Test			Unstandardized Residual
N			40
Normal Parameters ^{a,b}	Mean		.0000000
	Std. Deviation		.07912510
Most Extreme Differences	Absolute		.098
	Positive		.098
	Negative		-.066
Test Statistic			.098
Asymp. Sig. (2-tailed) ^c			.200 ^d
Monte Carlo Sig. (2-tailed) ^e	Sig.		.417
	99% Confidence Interval	Lower Bound	.405
		Upper Bound	.430

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 2000000.

Figure 2. Normality Test

Source: SPSS output (processed data)

The data appears to be regularly distributed, as shown by the Asymp. Sig. value of 0.200, which is higher than the alpha level (α) of 0.05 (5%). Therefore, the research data satisfies the normalcy assumption.

Multicollinearity Test

The presence of substantial intercorrelation between the independent variables was investigated using a multicollinearity test. The results of this test are displayed in the image below.

Coefficients ^a								
Model	Unstandardized Coefficients			Standardized Coefficients Beta	t	Sig.	Collinearity Statistics	
	B	Std. Error					Tolerance	VIF
1	(Constant)	7.112	.478		14.870	<.001		
	INFLASI	-.753	1.094	-.046	-.688	.496	.691	1.447
	KURS	-.774	.533	-.089	-1.453	.155	.805	1.243
	NPF	.106	.033	.326	3.210	.003	.293	3.414
	FDR	.001	.005	.023	.265	.793	.410	2.438
	BOPO	-.071	.007	-1.170	-10.060	<.001	.224	4.466

a. Dependent Variable: ROA

Figure 3. Uji Multikolinearitas

Source: SPSS output (processed data)

The table's Collinearity Tolerance or VIF Statistics columns show the multicollinearity test results. Multicollinearity is not an issue if the VIF (Variance Inflation Factor) number is less than 10 or the Collinearity Tolerance value is more than 0.1. The above table indicates that all Statistics VIF values are less than (<) 10 or all Collinearity Tolerance values are greater than (>) 0.1. This indicates that there is no issue with multicollinearity in any of the five variables— inflation, exchange rate, FDR, NPF, and BOPO.

Heteroscedasticity Test

Heteroscedasticity testing is used to check for differences in residual variance among the observations of each independent variable in the regression model. This will be assessed using the Glejser Test method, with the results displayed in the figure below.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.067	.250		-.266	.792
	INFLASI	.338	.572	.114	.590	.559
	KURS	.015	.279	.010	.053	.958
	NPF	-.013	.017	-.230	-.771	.446
	FDR	-.004	.002	-.371	-1.476	.149
	BOPO	.006	.004	.547	1.605	.118

a. Dependent Variable: ABSRES

Figure 4. Heteroscedasticity Test

Source: SPSS output (processed data)

The determination of heteroscedasticity in the regression model is based on the Sig. value. If the Sig. value exceeds the alpha level of 0.05, there are no indications of heteroscedasticity. Conversely, if the Sig. value is less than 0.05, it signals the presence of heteroscedasticity. According to the test findings, the regression model does not exhibit heteroscedasticity because the Sig. value for each variable is bigger than 0.05.

Autocorrelation Test

The autocorrelation test is used to determine whether there is a correlation or relationship between the interfering factors and each other in a linear regression model. Autocorrelation testing is carried out through the Run Test method. The following are the results of the autocorrelation test using Run Test.

Runs Test

	Unstandardized Residual
Test Value ^a	-.00686
Cases < Test Value	20
Cases ≥ Test Value	20
Total Cases	40
Number of Runs	16
Z	-1.442
Asymp. Sig. (2-tailed)	.149

a. Median

Figure 5. Autocorrelation Test

Source: SPSS output (processed data)

The above-mentioned test yielded an Asymp. Sig. (2-tailed) score of 0.149. When applying the Run Test to detect autocorrelation, if the 2-tailed Asymp. Sig. value is higher than the alpha threshold of 0.05, it means that there are no autocorrelation symptoms in the data.

Hypothesis Test

Hypothesis testing is employed to determine whether the regression coefficient is statistically significant, meaning it is significantly different from zero (Nachrowi and Usman, 2006). Significance refers to a regression coefficient value that is statistically different from zero.

T test

The t-test, which permits a partial measurement with a significance threshold of 5%, is used to investigate the effect of each independent variable on the dependent variable. The findings of the t-test used in this investigation are shown below.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.112	.478		14.870	<.001
	INFLASI	-.753	1.094	-.046	-.688	.496
	KURS	-.774	.533	-.089	-1.453	.155
	NPF	.106	.033	.326	3.210	.003
	FDR	.001	.005	.023	.265	.793
	BOPO	-.071	.007	-1.170	-10.060	<.001

a. Dependent Variable: ROA

Figure 6. T test

Source: SPSS output (processed data)

The t-test findings of the hypothesis test showed that the Sig. values for the BOPO and NPF variables were both less than the 0.05 alpha threshold, with values of 0.003 and 0.001, respectively. This indicates that NPF and BOPO, either individually or collectively, have a significant effect on ROA. In contrast, the variables of Inflation, Exchange Rate, and FDR showed Sig. values of 0.496, 0.155, and 0.793, all above the alpha level of 0.05, meaning that these variables do not significantly influence ROA. Based on these findings, hypotheses H3 and H5 are supported and accepted, while hypotheses H1, H2, and H4 are rejected.

Test F

At a significance threshold of 5% (α), the F Test was used to evaluate the combined effect of the independent factors on the dependent variable. The dependent variable may be jointly influenced by the independent factors if the Sig. value is less than 0.05 (Ghozali, 2016). The following graphic displays the F Test computation results.

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.129	5	.426	59.298	<.001 ^b
	Residual	.244	34	.007		
	Total	2.373	39			

a. Dependent Variable: ROA
b. Predictors: (Constant), BOPO, KURS, INFLASI, FDR, NPF

Figure 7. Test F

Source: SPSS output (processed data)

The five independent variables (inflation, exchange rate, FDR, NPF, and BOPO) together have a substantial effect on ROA, according to the F Test findings, which show a Sig. value of 0.001, below the alpha level of 0.05. In light of these results, hypothesis 6 (H6) is validated and approved.

Coefficient of Determination

The degree to which the model explains the variance in the dependent variable is indicated by the coefficient of determination (R^2). The results of the R^2 calculation for the regression model are presented below.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.947 ^a	.897	.882	.084744

a. Predictors: (Constant), BOPO, KURS, INFLASI, FDR, NPF

Figure 8. Coefficient of Determination

Source: SPSS output (processed data)

The findings show that the independent variables (inflation, exchange rate, FDR, NPF, and BOPO) in the model account for 89.7% of the variation in ROA, with an R^2 value of 0.897. Factors not included in the model account for the remaining 10.3%. This implies that the model's independent variables can adequately account for the variance in the dependent variable.

CONCLUSIONS

The profitability (ROA) of Indonesian Islamic banks is shown to be considerably impacted by both the Non-Performing Financing (NPF) and the Operational Efficiency Ratio (BOPO). However, there is no discernible individual effect of macroeconomic variables like inflation, currency rates, and the Financing to Deposit Ratio (FDR) on ROA. Nevertheless, when examined collectively, these variables—NPF, BOPO, inflation, exchange rate, and FDR—jointly influence profitability in Islamic banks. The findings emphasize the importance of internal factors, particularly the maintenance of financing quality and operational efficiency, in enhancing profitability. Islamic banks are encouraged to continuously monitor and improve NPF and BOPO to ensure sustainable profitability and financial stability. Future research should explore the inclusion of internal factors like capital adequacy, service quality, and digital transformation, in addition to outside variables like modifications to regulations and advances in technology, for a more holistic understanding of Islamic banking performance.

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