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The Effect of Capital Adequacy Ratio (CAR), Financing to Deposit Ratio (FDR), Operating Cost per Operating Income (BOPO), and Non-Performing Financing (NPF) on the Profitability of the Sharia Bank Industry in Indonesia

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Abstract: The purpose of this study is to determine and analyze the effect of the bank health ratio measured by CAR, FDR, BOPO, and NPF on the profitability of the Islamic Bank industry in Indonesia. The data used in this study are secondary in the form of financial statements and annual reports of Islamic commercial banks registered in the Indonesia Banking Directory for the 2017-2021 period. The analysis was conducted on 12 banks selected by purposive sampling method to obtain 53 data from 60 financial statement data. To analyze it, researchers used a multiple linear regression model with SPSS 25. From the results of observations and data analysis that has been done, the conclusion in this study is that CAR, BOPO and NPF influence ROA.FDR did not have a significant influence on ROA.
Keywords: CAR, FDR, BOPO, NPF, ROA dan Bank Syariah

1. Introduction

Bank is a business entity used to collect funds from the public in the form of deposits and distribute them to the public through credit or other documents to improve the standard of living of many people. Fitriani & Puspitasari [1] argue that Islamic banks have different operating systems from conventional banks. The operational method of Islamic banks does not recognize the name of the interest system, be it interest obtained from customers who borrow money or interest paid to fund owners at Islamic banks. In Islamic banks, riba or profit sharing is only recognized in all contracts practised in Islamic banks.

Profitability is an effort made by banks to obtain profits in a certain period, which aims to measure the level of effectiveness of management in carrying out operational activities [2].Return on Assets (ROA) is one of the profitability ratios used to measure the rate of return on profits from a bank's total assets. When the ROA of a bank is high, the level of profit it achieves is also high, so it can be considered to have good asset use [3]. Other factors that can affect profitability performance (ROA) that are used as independent variables in this study are CAR, FDR, BOPO, and NPF.

In this study,the Capital Adequacy Ratio (CAR) is used as an independent variable that affects ROA based on its relationship with the level of bank risk that affects bank profitability.Capital Adequacy Ratio (CAR) is a ratio used to measure the adequacy of capital owned by banks to support risk-generating assets. The higher the CAR value, the stronger the bank's ability to bear the risk of any productive asset financing, which is at least 8% of the weighted asset for now. According toSitompul & Nasution [4]research on factors affecting the profitability of Islamic banks in Indonesia, it shows that CAR does not have a significant effect on profitability. According to Almunawwaroh & Marliana[5], CAR significantly negatively affects profitability (ROA). Meanwhile, according to research by Saputra et al [3], CAR positively affects ROA.

The Financing to Deposit Ratio (FDR) is a ratio that describes the level of ability of Islamic banks to provide by banks to customers with funds received by banks from customers. The FDR ratio measures the amount of Financing supplied with the number of public funds and own capital used. From the results of testing conducted by Hakiim& Rafsanjani [6], FDR partially has a negative and insignificant effect on profitability. Meanwhile, according toHanafia & Karim [7], partially, the FDR variable has a positive and significant influence on ROA at PT. Bank Syariah Mandiri. Similarly, the results of research by Tho'in [8] showed that FDR significantly affects ROA.

Operating Cost per Operating Income (BOPO) is a management expense that is one of the critical determinants of banking profitability. The BOPO ratio measures the level of efficiency and ability of banks to carry out their operations. According to the results of Hakiim & Rafsanjani's [6] research, BOPO partially has a negative and significant effect on ROA. In contrast to the results of Nuha & Mulazid's [9] research which states that the results of the F BOPO test simultaneously affect ROA. Similarly, the results of the study by

Kusumastuti & Alam[10] stated that the t-test showed that BOPO significantly affected ROA on the performance of Islamic banks.

Non-performing Financing (NPF) is also one of the factors that affect the profitability of a bank. The NPF ratio is used to measure the ability of bank management to manage Non-Performing Financing (NPF) provided by the bank. From the research results conducted by Sari & Putri [11], it is stated that NPF affects the ROA of Islamic banks in Indonesia. Unlikethe results of research conducted by Rahman & Safitrie[12], NPF has a negative and insignificant influence on ROA.

Previous research has been conducted by Hakiim & Rafsanjani [6]. Still, it does not useNon-performing Financing (NPF) variables, so that this study will examine the effect ofCapital Adequacy Ratio (CAR), Financing to Deposit Ratio (FDR), Operating Cost Per Operating Income (BOPO), and Non-Performing Financing(NPF) to profitability. The effect of profitability levels measured by CAR, FDR, BOPO, and NPF has not been researched much, especially in the Islamic bank industry in Indonesia. Therefore, this study aims to determine and analyze the effect of the bank health ratio on increasing the profitability of the Islamic Bank industry in Indonesia.

2. Literature and Hypotheses

2.1 Signalling Theory

Signalling theory explains the importance of performance measurement and discusses the form of signals of success or failure of management (agent) to be conveyed to the owner (principal). Signalling theory assumes that companies with superior performance use financial information to send signals to the market.Information is an essential element for investors and business people because information essentially presents information, records or images both for past, present and future conditions for the survival of a company and its market effects[13]. Investors in the capital market need complete, relevant, accurate and timely information as an analytical tool to make investment decisions.

2.2 Profitability

Profitability is a ratio used to measure a company's ability to generate profits at certain sales, assets and share capital levels. The financial ratio indicator used is Return on Asset (ROA) as the dependent variable. This study uses ROA as a dependent variable because Bank Indonesia as a supervisor and bank supervisor, prioritizes a bank's profitability value as measured by assets.

2.3 Capital Adequacy Ratio (CAR)

Capital Adequacy Ratio(CAR) measures existing capital's ability to cover possible losses in credit activities and trading securities.The CAR ratio is a reservoir for the risk of losing that the bank is likely to receive, so it is called the capital adequacy ratio [14]. Previous research conducted by Saputra et al [3] stated that CAR positively affects ROA.

H_1= Capital Adequacy Ratio(CAR) affects Return on Assets (ROA)

2.4 Financing to Deposit Ratio (FDR)

Financing to Deposit Ratio (FDR) is the amount of funding issued by Islamic banks to support investments planned for a specific time from the results of raising third-party funds [14]. The FDR ratio measures the amount of credit a bank provides with funds received by a bank, which describes a bank's ability to repay withdrawals by depositors by relying on the credit supplied as its source of liquidity. Previous research conducted by Hakiim & Rafsanjani [6]stated that FDR partially had a negative and insignificant effect on profitability.

H_2= Financing to Deposit Ratio(FDR) does not affectReturn on Assets (ROA)

2.5 Operating Cost Per Operating Income (BOPO)

Operating Cost per Operating Income (BOPO) is a ratio that compares total operating expenses with total active income. The BOPO ratio measures the level of efficiency and ability of banks to carry out their operational activities. If the bank's operational performance can be more efficient, the bank will get more significant profits. Therefore, the BOPO ratio needs to be considered to achieve maximum efficiency. The results of previous research conducted by Nuha & Mulazid [9] and Nanda et al [15] stated that the F and T tests significantly affected profitability in the performance of Islamic banks.

H_3= Operating Cost per Operating Income (BOPO) affects Return on Assets (ROA)

2.6 Non-Performing Finance (NPF)

Non-Performing Finance(NPF) is Financing with substandard clarification or may not be billable [5]. The factor causing the emergence of NPF isdefault payment(failure to pay) made by creditors to the owner of funds (the debtor). Non-performing credit is a risk associated with the possibility of theclient'sfailure to pay hisobligations or the risk whereby the debtor cannot pay off his debt. The NPF ratio criteria are analogous to NPLs according to Bank Indonesia Regulation No.17/11/PBI/2015 below 5%. From the results of previous research conducted by Sari & Putri [11], it is stated that NPF affects the ROA of Islamic banks in Indonesia.

H_4= Non-Performing Finance (NPF) affects Return on Assets (ROA)

3. Research and Methodology

3.1 Population and Sample

The research uses quantitative methods to state causal relationships between variables or to see the relationship between independent and dependent variables. The population used in this study is Islamic commercial banks registered inthe Indonesia Banking Directory for 2017–2021. Selection of samples in the people usingpurposive sampling techniquesusing the following sample criteria:

Table 1 Purposive Sampling

Information	Sum
Sharia Bank registered in BUS 2017-2021	60
Banks with no financial statements	(7)
Research Sample	53
Total	53

Source: Data Analysis Results, 2023

The study used the following measurements for each variable:

Table 2 Variable Measurement

Variable	Indicator	Source
Return on Asset	$\text{ROA} = \frac{\text{Profit After Tax}}{\text{Total Assets}} \text{ x } 100\%$	Hakiim & Rafsanjani[6]
Capital Adequacy Ratio	$\text{CAR} = \frac{\text{Bank Capital}}{\text{Total ATMR}} \text{ x } 100\%$	Hakiim & Rafsanjani [6]
Financing to Deposit Ratio	$\text{FDR} = \frac{\text{Total Financing}}{\text{Total Third Party Funds}} \text{ x } 100\%$	Almunawwaroh & Marliana[5]
OperatingCost Per Operating Income	$\text{BOPO} = \frac{\text{Operating costs}}{\text{Operating Income}} \text{x } 100\%$	Hakiim & Rafsanjani [6]
Non-Performing Finance	$\text{NPF} = \frac{\text{Problem Financing}}{\text{Total Financing}} \text{x } 100\%$	Moorcy et al [16]

3.2 Data Analysis Techniques

Testing The hypothesis testing of this study used multiple regression analysis. Numerous analysis methods are used to determine the correlation of each independent variable to the dependent variable.

$$\mathbf{ROA} = \boldsymbol{\alpha} + \beta\ 1\ X_1 + \beta\ 2X_2 + \beta\ 3\ X_3 + \boldsymbol{\beta}\ 4\ \mathbf{X_4} + \mathbf{e}$$

4. Result and Discussion

4.1 Analysis Results

4.1.1 Descriptive Statistical Analysis

Table 3 Descriptive Statistics

Variable	N	Min	Max	Mean	Std. Deviation
CAR	53	11.510	58.270	23.99660	9.983623
FDR	53	38.330	196.730	85.24415	19.774572
BOPO	53	58.100	217.400	96.31547	28.719627
NPF	53	.670	58.000	6.37509	9.645405
ROA	53	-11.227	9.099	.76251	2.956796

Source: Data Analysis Results, 2023

Thevariable Capital Adequacy Ratio (CAR) has a low value of 11.510 and a high value of 58.270 with an average value of 23.99660 and a standard deviation of 9.983623. The variable Financing to Deposit Ratio(FDR) has a low value of38.330 and a high value of 196.730 with an average value of 85.24415 and a standard deviation of 19.774572. The variable Operating Cost per Operating Income (BOPO) has the lowest value of58.100 and the highest value of 217.400, with an average value of 96.31547 and a standard deviation of 28.719627. TheNon-performing Financing (NPF) variable has a low value of 0.670 and a high value of58,000, an average value of 6.37509, and a standard deviation of 9.645405.

4.1.2 Normality Test

Thisstudy usesthe normality test through the exact Monte Carlo test in conducting the Kolmogorov-Smirnov (K-S) test. Normality test with exact Monte Carlo test: if the significance is more significant than 0.05, then the tested data is usually distributed. Based on the test results, a Monte Carlo Sig. (2-sig. tailed) value of 0.082 (sign. > 0.05) can be concluded that the data is usually distributed.

4.1.3 Multicollinearity Test

Table 3 Multicollinearity Test

Collinearity Statistics			
Variable	Tolerance	VIF	Information
CAR	.833	1.200	Multicollinearity does not occur
FDR	.944	1.060	Multicollinearity does not occur
BOPO	.830	1.204	Multicollinearity does not occur
NPF	**.967**	**1.034**	**Multicollinearity does not occur**

Source: Data Analysis Results, 2023

Based on the table above, each variable obtained a tolerance value of > 0.10 and a VIF value of < 10, and it can be concluded that it passes the multicollinearity test.

4.1.4 Heteroskedasticity Test

Table 4 Uji Heteroskedasticity

Variable	**Sig. (2-tailed)**	**Information**
CAR	.540	No heteroscedasticity occurs
FDR	.346	No heteroscedasticity occurs
BOPO	.218	No heteroscedasticity occurs
NPF	.406	No heteroscedasticity occurs

Source: Data Analysis Results, 2023

This study used a heteroskedasticity test with Rank-Spearmen testing. Each variable obtained a significant value of > 0.05, so this study passed the heteroskedasticity test or did not have symptoms of heteroskedasticity.

4.1.5 AutocorrelationTest

This study usedthe Autocorrelation Test using Durbin Watson testing and obtained a value of 2,010. DW test criteria are said to pass if the value received dU< DW < 4-dU.

4.1.6 Multiple Linear Regression Analysis

Table 5 Multiple Regression Analysis

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Itself.**
		B	**Std. Error**	**Beta**		
1	(Constant)	2.952	1.347		2.192	.033
	CAR	.119	.024	.403	4.950	.000
	FDR	.015	.011	.097	1.269	.210
	BOPO	-.061	.008	-.593	-7.283	.000
	NPF	-.063	.023	-.206	-2.734	.009

Source: Data Analysis Results, 2023

Regression:

$$ROA = 2{,}952 + 0{,}119CAR + 0{,}015FDR – 0{,}061BOPO – 0{,}063NPF + e$$

Description =
ROA = Return on Asset
CAR = Capital Adequacy Ratio
FDR = Financing to Deposit Ratio
BOPO = Operating Cost per Operating Income
NPF = Non-performing Financing

Based on the results of the linear regression above, it can be interpreted as follows:

1. The result of the equation is obtained with a constant value of 2.952 with a positive value. This shows that if the importance ofthe Capital Adequacy Ratio, Financing to Deposit Ratio, Operating Expenses per Operating Income, and Non-performing Financing is assumed to be equal to zero, then thevalue of Return on Assets tends to increase by 2.952.
2. The Capital Adequacy Ratio (CAR) is 0.119. This shows that for every increase in CAR by 1 point, the Return on Assets (ROA) decreases by 0.119 points.
3. The Financing to Deposit Ratio (FDR) is 0.015. This shows that for every increase in FDR by 1 point, the Return on Assets (ROA) decreases by 0.015 points.
4. Value Operating Expenses per Operating Income (BOPO) -0.061. This shows that for every increase in BOPO by 1 point, the Return on Assets (ROA) increases by -0.061 points.
5. Non-performing Financing (NPF) value of -0.063. This shows that with every increase in NPF by 1 point, the Return on Assets (ROA) will increase by -0.063 points.

4.1.7 T Test

Table 6 Uji T

Variable		T	Itself	Information
1	(Constant)	2.192	.033	
	CAR	4.950	.000	H_1 Accepted
	FDR	1.269	.210	H2 Rejected
	BOPO	-7.283	.000	H3 Accepted
	NPF	-2.734	.009	H_4 Accepted

Source: Data Analysis Results, 2023

Based on the test results above, it can be concluded that:

1. Capital Adequacy Ratio (CAR) has a calculated t value of 4.950 > 2.010 and a sig value of 0.000 < 0.05, so there is a significant effect onReturn on Assets (ROA).
2. The Financing to Deposit Ratio (FDR) has a calculated t value of 1.269 < 2.010 and a sig value of 0.210 > 0.05, so there is no significant effect onReturn on Assets (ROA).
3. Operating Cost Per Operating Income (BOPO) has a calculated t value of -7.283 < 2.010 and a sig value of 0.000 < 0.05, so there is a significant effect on Return on Assets (ROA).
4. Non-performing Financing (NPF) has a calculated t value of -2.734 < 2.010 and a sig value of 0.009 < 0.05, so there is a significant effecton Return on Assets (ROA).

4.1.8 Test F

Table 7 Uji F

Model		Sum of Squares	df	Mean Square	F	Itself.
1	Regression	334.329	4	83.582	33.353	.000
	Residual	120.288	48	2.506		
	Total	454.618	52			

Source: Data Analysis Results, 2023

The Feasibility Test (Test F) results showed a significant value of 0.000. The acquisition of a substantial value of < 0.05 shows that the regression model is feasible to test, and together the variables Capital AdequacyRatio (ROA), Financing to Deposit Ratio(FDR), Operating Costs per Operating Income (BOPO), and Non-performing Financing (NPF) have a significant effect onReturn on Assets (ROA).

4.1.9 Determination Coefficient Test

Table 8 Determination Coefficient Test

Model	R	R Square	Adjusted Square
1	.858[a]	.735	.713

Source: Data Analysis Results, 2023

The Adjusted R^2 valueof 0,713 or 71,3% shows that the independent variable can explain the dependent variable in Indonesia by 71,3%, other variables explain the remaining 28,7%.

4.2 Discussion

Based on the data processing results in table 8 Capital Adequacy Ratio (CAR) has a sig value of 0.000 < 0.05, then **H_1 is accepted.**It can be concluded that the Capital Adequacy Ratio (CAR) affects Return on Assets(ROA). This study supports previous research conducted by Saputra et al (2020).The capital adequacy ratio provides high returns. This is because CAR has a more significant effect on ROA, which has a direct (positive) and considerable relationship to ROA. Financing to Deposit Ratio (FDR) has a sig value of 0.210 > 0.05, then **H2 is rejected**. It can be concluded that the Financing to Deposit Ratio (FDR) does not affectReturn on Assets (ROA). This research aligns with previous research by Hakiim & Rafsanjani (2016). The results of this study explain that FDR does not affect ROA. This is because the Financing disbursed by Islamic banks has not run effectively and optimally, which causes non-current Financing to increase along with the banks' total Financing. Operating Cost Per Operating Income (BOPO) has a sig value of 0.000 < 0.05,and then **H_3 is received.**It can be concluded that BOPO affects Return on Assets (ROA). This research aligns with thestudy by Nanda et al [15]Banks' high cost of bank operations will generally be charged to the income obtained from the allocation of Financing. Higher credit expenses or costs will reduce the capital and profits banks own. Non-performing Financing (NPF) has a sig value of 0.009 < 0.05, then **H_4 is accepted.**It can be concluded that NPF affects Return on Asset (ROA). This research supports previous research conducted by Sari & Putri [11] The risk of difficulty repaying Financing by debtors with a large enough amount can affect bank performance. The increase in non-performing Financing can cause the formation of non-performing financing reserves to become more prominent, which means a decrease in profits.

5. Conclusion

Based on the results of the analysis and discussion, it can be concluded that the Capital Adequacy Ratio(CAR), Operating Expenses Per Operating Income (BOPO), and Non-performing Financing (NPF) influenceReturn on Assets (ROA).Meanwhile, the Financing to Deposit Ratio (FDR) does not significantly affectthe Return on Assets (ROA). This research, of course, still has many shortcomings, such as using a relatively short period of years, namely 2017-2021. Future research should add a more extended period to compare the observation results. In addition, future research can add more diverse variables to identify profitability.

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