



Relationship Analysis of Ratio and Profitability In Sharia Commercial Banks In Indonesia

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Abstract

This study aims to analyze financial ratios and their impact on profitability in Islamic banks in Indonesia. The ratios used are CAR (X_1), NPF (X_2), FDR (X_3), OER (X_4) and ROA (Y) for profitability. The research population is all Islamic commercial banks in Indonesia. The sampling technique used total sampling. The research data starts from 2015 to 2019. Sources of data were obtained secondary through publications from the OJK. Data analysis used descriptive statistical tests, classical assumption tests (normality test, heteroscedasticity test, multicollinearity test and autocorrelation test), coefficient determination test, F-test and t-test. The result showed CAR (X_1), NPF (X_2), FDR (X_3), OER (X_4) simultaneously have a significant effect on ROA (Y). The variables FDR (X_3) and OER (X_4) partially have significant effect on ROA (Y) whereas CAR (X_1) and NPF (X_2) have no significant effect on ROA (Y).

Keywords: Capital Adequacy Ratio, Non-Performing Financing, Financing to Deposit Ratio, Operating to Expense Ratio, Return on Asset

1. Introduction

The sustainability of the company is determined by the company's ability to generate profits continuously in a changing market (Handayani & Fathoni, 2019), including Islamic banking. Profit is a guarantee of welfare for shareholders and a benchmark for management performance in running the company. In addition, profits can be used as a basis for managers and employees to get bonuses.

The bank's performance assessment has changed from CAMELS (Capital, Asset, Management, Earning, Liquidity and Solvability) to RGEC (Risk Profile, Good Corporate Governance, Earning, and Capital) based on PBI No. 13/1/PBI/2011 to meet the increasingly high expectations of stakeholders. On the other hand, RGEC is able to provide the overall condition of Islamic banking from various aspects measured.

Islamic banking conditions according to Islamic banking statistics published by OJK (Financial Services Authority) recently are quite heavy because they are triggered by higher NPF (Non-Performing Financing) compared to conventional banks. NPF at

the end of March 2019 was 3.44%, while conventional banking non-performing loans were at 2.5%. The level of CAR (Capital Adequacy Ratio) is still below 22.8%, which is close to conventional banks.

According to (Borroni & Rossi, 2019) financial performance is influenced by CAR (Capital Adequacy Ratio) because it describes the bank's ability to provide funds to bear risks that may occur. Bankruptcy can occur if the total CAR and ROA are zero or negative. A high CAR value is needed to counteract negative ROA results. The ideal CAR will prevent banks from extending loans to external parties. Thus, improving the security and soundness of the banking system makes banks maintain adequate capital buffers so that they are able to bear the risk of unexpected credit losses (Suzuki, 2011).

In addition to CAR, according to (Hasibuan et al., 2020) high or low NPF (Non-Performing Financing) can affect bank profitability. A high NPF illustrates that non-performing loans are also high, and vice versa. According to (Retnadi & Supriyanto, 2006) a low NPF number can improve the soundness of banks as well as ROA.

FDR (Financing to Deposit Ratio) is the ratio of Islamic bank financing to funds raised from third parties (Wangsawidjaja, 2013). If the bank is not able to channel financing and funds effectively and optimally, the bank will lose money (Kasmir, 2018). FDR is an assessment of the health of bank liquidity. The higher this ratio, the lower the level of liquidity but has the potential to get a high return (Indonesia, 2018).

OER (Operating to Expense Ratio) also plays an important role in increasing profitability. Decreased operating income will cause the OER value to be high. OER can also be high if operating expenses or expenses rise (Hartini, 2016).

The relationship between CAR and ROA has been previously investigated by (Widyaningrum & Septiarini, 2015); (Suwandi & Oetomo, 2017); (Munir, 2019). The relationship between NPF and ROA has been previously studied by (Widyaningrum & Septiarini, 2015); (Suwandi & Oetomo, 2017); (Munir, 2019); (Lemiyana & Litriani, 2016). The relationship between FDR and ROA has also been previously studied by (Widyaningrum & Septiarini, 2015); (Suwandi & Oetomo, 2017); (Munir, 2019); (Lemiyana & Litriani, 2016). The relationship between OER and ROA has also been previously studied by (Suwandi & Oetomo, 2017); (Lemiyana & Litriani, 2016).

The difference from previous research is that this research focuses on Islamic commercial banks and not on Islamic business unit banks, besides that this study uses total sampling, so it is not only on one object or several objects. The difference also lies in the observation period, which is 2015 – 2019 using the latest matrix publication data released by the OJK (Financial Services Authority).

Profitability as measured by ROA is a comparison between profit and the number of assets or assets that can describe the company's ability to generate profits and also the company's ability to choose assets so that good turnover occurs (Prihadi, 2019). ROA according to (Cannon et al., 2008) is the ratio of net income (after tax) to the assets used to generate the net income. This measure leads to the effectiveness of a company in utilizing its resources.

CAR is a capital adequacy ratio that is needed when banks are feared to suffer losses by calculating capital and dividing by risk-weighted assets (Hanif & Mukherjee, 2013). The CAR calculation was first introduced by the Reserve Bank of India in April 1992. In the calculation of capital, capital is divided into two, the first is tier I, where capital is permanent and available in times of crisis. The second type is tier II, which is less permanent and less available in times of crisis. According to (Frida, 2020) CAR is the percentage of bank capital to weighted assets where the weight is defined by the

risk sensitivity ratio whose calculation is determined by the applicable rules.

According to (Indonesia, 2014) NPF is financing with substandard, doubtful and loss collectability categories and is categorized as financing with poor quality or problems. According to (Ismail, 2015) NPF is financing that is in arrears more than 90 days which can be categorized into three, namely: substandard financing (91 to 180 days), doubtful financing (181 to 270 days) and bad financing (more than 270 days).

In Islamic banking it is known as FDR (Financing to Deposit Ratio) but in conventional banks it is known as LDR (Loan to Deposit Ratio). FDR shows the percentage of financing from deposits or third party funds (Gozali, 2004). According to (Wangsawidjaja, 2013) FDR is the ratio of financing provided to third parties either in domestic currency or foreign currency but does not include credit to other banks. The financing provided comes from checking accounts or customer deposits both in rupiah and in foreign currencies.

According to (Huda & Nasution, 2014) OER is a financial ratio that calculates operating costs per operating income. If the OER value exceeds 90% and is close to 100%, it is categorized as less efficient. On the other hand, if the OER value is less than 90%, the bank is categorized as efficient. According to (Yusmad, 2018) OER is a calculation of operational costs against operating income. Banks are categorized as healthy if the OER value is less than 93.52% and categorized as unhealthy if the OER value is greater than 95.92%.

CAR describes a bank's ability to provide funds to bear risks that may occur in the future. A high CAR value is needed to prevent a negative ROA value. The ideal CAR ratio will prevent banks from extending loans to other banks. Previous research conducted by (Widyaningrum & Septiarini, 2015); (Suwandi & Oetomo, 2017); (Munir, 2019) shows that CAR has a significant effect on ROA.

NPF can affect the profit and profitability of Islamic banking. A high NPF illustrates that non-performing loans are also high, starting from substandard financing to non-performing loans and vice versa. A low NPF number will be able to improve the soundness of the bank as well as the bank's profitability as measured by ROA. Previous research conducted by (Widyaningrum & Septiarini, 2015); (Suwandi & Oetomo, 2017); (Munir, 2019); (Lemiyana & Litriani, 2016) shows that NPF has a significant effect on ROA.

In the FDR ratio, if the bank is not able to channel financing and funds effectively and optimally, profits will decrease. The higher the FDR ratio has the potential to get a high return as well. Previous research conducted by (Widyaningrum & Septiarini, 2015);

(Suwandi & Oetomo, 2017); (Munir, 2019); (Lemiyana & Litriani, 2016) shows that FDR has a significant effect on ROA.

OER plays an important role in increasing or decreasing profitability. Decreased operating income will cause the OER value to be high. OER can also be high if operating expenses or costs increase. This means that the increase in OER is inversely proportional to profitability. Previous research conducted by (Suwandi & Oetomo, 2017); (Lemiyana & Litriani, 2016) shows that OER has a significant effect on ROA.

Based on the literature review and previous research, the research hypothesis can be formulated as follows:

- H₁: CAR has a significant effect on ROA
- H₂: NPF has a significant effect on ROA
- H₃: FDR has a significant effect on ROA
- H₄: OER has a significant effect on ROA.

2. Method

This type of research is classified as causal-comparative research. Causal-comparative research is research that seeks to identify a causative relationship between the independent variable and the dependent variable (Duli, 2019). Data sources are secondary data sources. The data was obtained from the publication of OJK sharia statistics starting from January 2015 to December 2019.

The research variable consists of the dependent variable, namely profitability or ROA (Y) and the independent variable, namely CAR (X₁), NPF (X₂), FDR (X₃) and OER (X₄). The measurement of the dependent variable, namely profitability, uses ROA (Y) with the following formula:

$$ROA = \frac{Net\ Profit}{Total\ Asset} \times 100\% \dots\dots\dots(1)$$

For the measurement of the CAR variable (X₁) with the following formula:

$$CAR = \frac{Capital}{Risk\ Weighted\ Assets} \times 100\% \dots\dots\dots(2)$$

For the measurement of the NPF variable (X₂) with the following formula:

$$NPF = \frac{Non\ Performing\ Financing}{Total\ Financing} \times 100\% \dots\dots\dots(3)$$

For the measurement of the FDR variable (X₃) with the following formula:

$$FDR = \frac{Total\ Financing}{Total\ Amounts\ of\ Deposits} \times 100\% \dots\dots\dots(4)$$

For the measurement of the OER variable (X₄) with the following formula:

$$OER = \frac{Operating\ Expense}{Revenues} \times 100\% \dots\dots\dots(5)$$

Data analysis consisted of descriptive statistical test, then classical assumption test (multiple regression prerequisite test) which consisted of normality test, heteroscedasticity test, multicollinearity test and autocorrelation test. Furthermore, the coefficient of determination test, F test and t test were carried out.

Descriptive statistical test aims to assess the characteristics of the data or variables consisting of minimum, maximum, average and standard deviation values.

The normality test is part of the classical assumption test. The normality test uses the Kolmogorov-Smirnov method with the provision that the sig value must be greater than 0.05 then the data is categorized as normal.

Heteroscedasticity test using the Glejser method provided that the significance value of each variable must be greater than 0.05 then the data is categorized as free from heteroscedasticity deviations.

The multicollinearity test has provisions where the VIF (Variance Inflation Factor) value of each independent variable must be less than 10 and the tolerance value must be greater than 0.1. Then the data is categorized as free from multicollinearity symptoms. The autocorrelation test was carried out using the Durbin-Watson method with the condition that the data were free from autocorrelation deviations if the value of DW > DU and (4-DW) > DU.

The coefficient of determination test aims to measure the contribution of the independent variable to the dependent variable. Hypothesis testing using the F test for simultaneous testing and t test for partial testing. The F test has a provision where the statistical F value > F table and the significance value must be lower than 0.05. The t test has provisions where the t statistic value > t table and the significance value must be lower than 0.05.

The equation model in the multiple linear regression of this study is as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \dots + \epsilon \dots\dots\dots(6)$$

Information:

Y = ROA

X₁ = CAR

X_2 = NPF
 X_3 = FDR
 X_4 = OER

3. Result and Discussion

Result

For testing the results of descriptive statistics, it is in table 1 below:

Table 1. Descriptive Statistical Test Results

Variables	Minimum	Maximum	Mean	Std. Deviation
ROA_Y	.16	1.73	.993	.41341
CAR_X1	14.09	21.39	17.316	2.38892
NPF_X2	3.23	6.17	4.591	.80157
FDR_X3	77.52	92.56	83.508	4.61208
OER_X4	84.45	99.04	92.351	4.15914

Data processed by authors

Research data is monthly data starting from January 2015 to December 2019 obtained from OJK publications. For the ROA variable (Y) the minimum value is 0.16% which occurred in May 2016 and the maximum value is 1.73% which occurred in December 2019. For the CAR variable (X_1) the minimum value is 14.09% which occurred in June 2015 and the maximum value of 21.39% which occurred in November 2018. For the NPF variable (X_2) the minimum value was 3.23% which occurred in December 2019 and the maximum value was 6.17% which occurred in April 2016. For the FDR variable (X_3) the minimum value is 77.52% which occurred in February 2019 and the maximum value is 92.56% which occurred in June 2015. For the OER variable (X_4) the minimum value is 84.45% and the maximum value is 99.04% which occurred in May 2016.

The results of normality testing with the Kolmogorov-Smirnov method are in table 2 below. The normality test conditions were met after the outlier test was carried out by removing the extreme data so that the number of data that was originally 60 became 52. From the test results it can be seen that the significance value is $0.172 > 0.05$. So it can be concluded that the data distribution is normal.

Table 2. Normality Test Result

			Unstandardized Residual
N			52
Normal Parameters ^{a,b}			
Mean			.0000000
Std. Deviation			.07396229
Most Extreme Differences	Extreme	Absolute	.211
		Positive	.211
		Negative	-.093
Test Statistic			.211
Asymp. Sig. (2-tailed)			.172

Data processed by authors

The results of heteroscedasticity testing using the Glejser test are listed in table 3 below. The results of the heteroscedasticity test indicate that the data is free from problems or multicollinearity deviations because the significance value of each independent variable is > 0.05 .

Table 3. Heteroskedasticity Test Result

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.741	.613		-1.208	.234
CAR_X1	.007	.009	.274	.727	.472
NPF_X2	.021	.022	.292	.949	.349
FDR_X3	.005	.004	.339	1.363	.181
OER_X4	.002	.004	.111	.354	.725

Data processed by authors

The results of the multicollinearity test are in table 4 below. From the test results, it can be seen that the tolerance value of each independent variable is > 0.1 and the VIF (Variance Inflation Factor) value is < 10 . It can be concluded that there is no multicollinearity problem in the data.

Table 4. Multicollinearity Test Result

Model	Collinearity Statistics	
	Tolerance	VIF
1 CAR_X1	.148	6.769
NPF_X2	.223	4.488
FDR_X3	.340	2.939
OER_X4	.213	4.697

Data processed by authors

The autocorrelation test is shown in table 5 below. From the results of the autocorrelation test, it can be seen that the Durbin-Watson value is 1.978, where the value of DU is 1.722 and the value is $4 - DU = 2.022$, then $DW > DU$ and $(4 - DW) > DU$. So it can be concluded that there is no autocorrelation problem in the data.

Table 6. Autocorrelation Test Result
Durbin-Watson

.1.978

Data processed by authors

The results of the coefficient of determination test are shown in table 6 below. From the test results, it can be seen that the contribution or influence of the independent variables consisting of CAR (X_1), NPF (X_2), FDR (X_3) and OER (X_4) on ROA (Y) is 0.96 or 96%. The remaining 4% is influenced by other variables outside this research.

Table 6. Coefficient Determination Test Result

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.980 ^a	.960	.956	.07978

Data processed by authors

The results of the F test are shown in table 7 below. From the test results, it can be seen that the F statistic value is 104.758, then F statistic > F table, where 104.758 > 2.55. The significance value is 0.000 < 0.05. So it can be concluded that CAR (X₁), NPF (X₂), FDR (X₃) and OER (X₄) have a simultaneous effect on ROA (Y).

Table 7. F Test Result

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	5.976	4	1.494	104.758	.000 ^b
Residual	.248	46	.006		
Total	6.224	51			

Data processed by authors

The results of the t-test are in table 8 below:

Table 8. t-Test Result

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	t	
(Constant)	8.669	.953		9.095	.000
CAR_X1	.012	.014	.071	.859	.396
NPF_X2	-.017	.035	-.033	-.488	.628
FDR_X3	.018	.006	.163	3.965	.005
OER_X4	-.102	.007	-1.051	-15.162	.000

Data processed by authors

The results of the multiple linear regression equation based on table 8 are as follows:

$$Y = 8,669 + 0,012X_1 - 0,017X_2 + 0,018X_3 + 0,102X_4$$

Discussion

For testing hypothesis 1, namely the effect of CAR (X₁) on ROA (Y), the significance value is 0.396 > 0.05, the t statistic value < t table, where 0.859 < 2.01. So hypothesis 1 in this study is **rejected**. This is contrary to previous research conducted by (Widyaningrum & Septiarini, 2015); (Suwandi & Oetomo, 2017); (Munir, 2019). However, in line with research conducted by (Harun, 2016); (Wibowo & Syaichu, 2013). Although the average value of CAR for Islamic commercial banks is more than 8% with a value of 17.316% and has a healthy predicate, CAR has not yet had an impact on bank profitability or ROA. Compared to conventional banks, Islamic commercial banks still lose in the average CAR which can reach 23.18%.

For testing hypothesis 2, namely the effect of NPF (X₂) on ROA (Y), the significance value is 0.628 > 0.05. The value of t statistic < table, where 0.488 <

2.01. So hypothesis 2 in this study is **rejected**. The results of this study contradict the research conducted by (Widyaningrum & Septiarini, 2015); (Suwandi & Oetomo, 2017); (Munir, 2019); (Lemiyana & Litriani, 2016). But in line with research conducted by (Riyadi & Yulianto, 2014). A constant of -0.017 indicates that NPF has a negative impact on profitability but has not yet had a significant impact. The maximum NPF value of 6.17% and an average of 4.591% is still categorized as healthy because it is still below 7% but still loses to the average NPL of conventional banks of 2.7%.

For testing hypothesis 3, namely the effect of FDR (X₃) on ROA (Y), the significance value is 0.005 > 0.05. The value of t statistic > table, where 3.965 > 2.01. So hypothesis 3 in this study is **accepted**. The results of this study are in line with research conducted by (Widyaningrum & Septiarini, 2015); (Suwandi & Oetomo, 2017); (Munir, 2019); (Lemiyana & Litriani, 2016). The greater the FDR ratio, the higher the ROA or profitability of Islamic commercial banks due to the high distribution of funds to individuals and entities. Islamic commercial banks receive returns from the financing, causing the profitability of Islamic commercial banks to be high.

For testing hypothesis 4, namely the effect of OER (X₄) on ROA (Y), the significance value is 0.005 > 0.05. The value of t statistic > table, where -15.162 > 2.01. So hypothesis 3 in this study is **accepted**. These results are in line with research conducted by (Suwandi & Oetomo, 2017); (Lemiyana & Litriani, 2016). The increase or decrease in OER is inversely proportional to the profitability or ROA of Islamic commercial banks. ROA can be increased by reducing the company's operating expenses. An increase in operating income will cause the OER ratio to be low so as to increase profitability.

4. Conclusion

Based on the results and discussion, CAR (X₁), NPF (X₂), FDR (X₃) and OER (X₄) simultaneously have a significant effect on profitability or ROA (Y). FDR (X₃) and OER (X₄) have a partially significant effect on ROA (Y) while CAR (X₁) and NPF (X₂) have no partial effect on ROA (Y).

Suggestions for Islamic commercial banks in Indonesia are to continue to increase FDR so that the profitability of Islamic commercial banks also increases and implement efficiency in company operations so that they are able to get rid of activities that are not valuable and reduce operating expenses.

Low operating expenses will suppress OER so as to increase profitability. For further research, it is expected to add other financial variables or ratios and add other objects such as sharia business unit banks or sharia people's credit banks.

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