

# The Influence of Non-Performing Financing and Financing to Deposit Ratio on Profitability with Capital Adequacy Ratio as a Mediation Variable on Islamic Commercial Banks in Indonesia, 2020-2022

**Danik Setiarini**

Salatiga State Islamic University  
[daniksetiarini22@gmail.com](mailto:daniksetiarini22@gmail.com)

**Fetria Eka Yudiana**

Salatiga State Islamic University  
[fetriabelsa@yahoo.com](mailto:fetriabelsa@yahoo.com)

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## Abstract

The purpose of this study is to analyze the influence of Non-Performing Finance and Financing to Deposit Ratio on Profitability with Capital Adequacy ratio as a moderating variable at Islamic Commercial Banks in Indonesia for the 2020-2022 period. This research is a quantitative type of research that uses secondary data in the form of panel data. The sample used in this research is four banks registered with the Financial Services Authority and which have published their annual reports for the 2020-2022 period. The results of the tests conducted NPF has a significant effect on ROA in a positive direction, FDR has a positive but not significant effect on ROA, CAR has a significant positive effect on ROA, NPF has a significant effect on CAR with a negative correlation, FDR has a significant positive effect to CAR, CAR is not able to mediate the relationship between NPF and ROA, and CAR can be a variable mediating the relationship between FDR and ROA.

**Keywords:** NPF; FDR; CAR; ROA

## Abstrak

Tujuan penelitian ini adalah menganalisis pengaruh Non Performing Finance dan Financing to Deposit Ratio terhadap Profitabilitas dengan rasio

Kecukupan Modal sebagai variabel moderasi pada Bank Umum Syariah di Indonesia periode 2020-2022. Penelitian ini merupakan jenis penelitian kuantitatif yang menggunakan data sSekunder berupa data panel. Sampel yang digunakan dalam penelitian ini adalah empat bank yang terdaftar di Otoritas Jasa Keuangan dan telah menerbitkan laporan tahunannya periode 2020-2022. Hasil pengujian yang dilakukan NPF berpengaruh signifikan terhadap ROA dengan arah positif, FDR berpengaruh positif namun tidak signifikan terhadap ROA, CAR berpengaruh positif signifikan terhadap ROA, NPF berpengaruh signifikan terhadap CAR dengan korelasi negatif, FDR berpengaruh positif signifikan terhadap CAR, CAR tidak mampu memediasi hubungan antara NPF dan ROA, dan CAR mampu menjadi variabel yang memediasi hubungan antara FDR dan ROA.

**Kata Kunci:** *NPF, FDR, CAR, ROA*

## Introduction

In carrying out their functions and business activities, bank companies need capital so that their management and operations run well. The capital owned by the company must be sufficient to handle all risks that may be faced. Capital adequacy is illustrated by the Capital Adequacy Ratio (CAR). Based on BI regulation 9/1/PBI/2007 CAR is used to measure a bank's ability to absorb unavoidable losses and can also be used to measure the wealth of a bank or its shareholders (Pratiwi et al., 2022). The CAR ratio is intended to assess the health of a company from the perspective of owner's capital. A bank is said to be healthy if it has sufficient capital to run its business. In Indonesia, CAR standards range from 9-12%. Ismaulina et al. (2020) CAR is a ratio that describes the ability of bank assets that contain risk (loans, investments, securities, claims on other banks) to participate in being financed by capital funds owned by the company in addition to obtaining funds from third parties such as public funds, loans (debt ), and others. The existence of a high CAR value will affect the increase in company profitability.

Profitability is a ratio that describes a bank's ability to gain profits through all its capabilities and sources, such as cash, capital, sales, and so on (Aryfudin & Mulyadi, 2020). The ratios that are generally used as a measure of company profitability are Return On assets and Return On Equity. Return On Assets is a ratio used to assess a company's ability to generate profits from the average total assets (Ash-shiddiqy, 2019). This ratio measures net profit after sales tax. If the ROA value is high, the company is said to be good. The standard ROA ratio value refers to Bank Indonesia regulation no. 6/10/PBI/2004, is 0.5% -1.25%. Furthermore, Return On Equity is an indicator to see the extent to which a company's ability to manage equity effectively and measure the level of effectiveness and measure the level of investment that has been made by capital owners (Anggraeni et al., 2020). Bank Indonesia sets financial performance standards as stated in Bank Indonesia regulation No.6/10/PBI/2004, the standard ROE ratio is 5% -12.5%.

The company's profitability level is influenced by the company's internal factors and external factors. The company's internal factors include the soundness of the company, while the company's external factors are based on macroeconomic conditions and company characteristics (Jusuf et al., 2021). In this study, the factor of the soundness level of the bank is implemented with the ratio of Non-Performing Financing and Financing to Deposit Ratio.

The profitability level of Islamic banking at BUS as measured by Return On Assets always fluctuates from 2020 to 2022. Thus ROA is used as a benchmark for Islamic banking performance from its operational activities.

**Table 1. Percentage of ROA, NPF, and FDR for the 2020-2021 period**

	ROA	NPF	FDR
2020	1,4	3,13	76,37
2021	2,23	2.91	94,28
2022	2.02	2.58	73,67

Suryanto & Susanti (2020) believes that Non-Performing Financing (NPF) is a financial ratio that describes the risk of financing received by a bank as a result of channeling funds and investing bank funds into several portfolios. The NPF ratio is used as a measure of the level of non-performing financing managed by banks. The higher NPF ratio indicates that the bank's management of non-performing financing is getting worse. Kharisma & Anam (2019) explained that NPF is bad financing in which the debtor is unable to pay, in this case, the creditor or the financing provider will lose the opportunity to earn profits from the financing provided. Empirical studies regarding the effect of Non Performing Financing on ROA have been carried out by Suwarno & Muthohar (2018) and Mileni & Lestari (2022) state that NPF has a not significant positive effect on ROA. This is because the significant influence of NPF on ROA is related to determining the level of bottlenecks in financing provided by a bank. On the other hand, a high NPF will disrupt the working capital turnover of the bank. So when a bank has a high amount of bad financing, the bank will first try to evaluate its performance by temporarily stopping the distribution of financing until the NPF decreases. And also the average NPF of Islamic banks in Indonesia is still low and below BI's standard rate of 5%, so that NPF has no significant effect on profitability as described by ROA. However, this research is contrary to research from Almunawwaroh & Marlina (2018) which states that NPF has a negative effect on profitability. This shows that the higher the NPF ratio will have an impact on decreasing profitability.

Furthermore, another factor that affects the soundness of a bank is the Financing to Deposit Ratio (FDR). *Financing to Depoit Ratio* (FDR) is a ratio that is intended to provide an overview of a bank's ability to fulfill its short-term obligations or maturng obligations (Suryanto & Susanti, 2020). FDR is intended to measure time deposits, current accounts, savings and others to approve loan

applications from bank customers. The higher the FDR, the profit earned by the bank will increase on the condition that the bank is able to channel financing effectively, so that financing problems are low. According to Sumadi & A. Haris Romdhoni (2020), FDR is a proxy that shows the level of proficiency of Islamic banks in returning funds to third parties with profits derived from bank financing. Bank Indonesia provides a standard FDR limit of between 80% -110%.

Research on the effect of FDR on ROA has been carried out by Moorcy et al. (2020) and Mulyani et al. (2022) shows that the higher the FDR ratio, the lower the liquidity capacity of the bank concerned. Reducing the level of liquidity can have an impact on increasing profitability. So that FDR has a positive influence on profitability which is described by ROA. Not in line with research from Hellen et al. (2019) & Fachri & Mahfudz (2021) that FDR has an effect but not significant on ROA. This is because the level of the bank's ability to channel potential financing is not optimal, meaning that the higher the FDR, the more funds are channeled to DPK, but this does not necessarily affect the increase in profitability.

Based on the research gap in the research above, variables are needed that mediate the relationship between NPF and FDR on ROA. The mediation variable is expressed by the Capital Adequacy Ratio variable, this is due to the CAR capital ratio which determines the running of bank operational activities in raising funds and channeling them back.

Based on the background above, it is necessary to conduct research on "The Influence of Non-Performing Financing and Financing to Deposit Ratio on Profitability with Capital Adequacy Ratio as a Mediation Variable (Study on Islamic Commercial Banks in Indonesia in 2020-2022)".

### **Research Methodology**

In this research the data used is a type of quantitative data that uses secondary data. Secondary data is information about data obtained from related institutions, such as the Central Statistics Agency, IDX, and related company websites, and others. This research obtains statistical data obtained from Bank Indonesia and the Financial Services Authority. While the data from the Islamic banks that are the sample in this study, which includes annual reports obtained from the website of the Indonesian Islamic Bank and the official websites of related Islamic banks, as well as other literature related to the data in the research. The data used in this study is a report with an annual timeframe from 2020-2022.

The population of this study is Islamic Commercial Banks in Indonesia that are registered with the OJK in the 2020-2022 range. The sampling in this study used a purposive sampling technique in determining the sample. The criteria used in this study include; Sharia Commercial Banks listed on OJK for the 2020-2022 period; The Bank has published its Quarterly Financial Statements for the 2020-2022 period; The bank discloses information on NPF, FDR, CAR and ROA; and the bank has the data needed in this study. Thus, four samples were found, namely

PT Bank Aceh Syariah, PT Bank Muamalat Indonesia, Tbk, PT BCA Syariah, and PT BTPN Syariah. The analytical tool in this study uses Eviews 10.

## Results and Discussion

The data analysis used in this study is the Model Selection Test, Hypothesis Test, Classical Assumption Test, and Path Analysis.

### Model Selection Test

#### a. Chow test

**Table 1. Chow Test Regression Results**

Redundant Fixed Effects Tests

Equation: Untitled

Test cross-section fixed effects

Effect Test	Statistics	df	Prob.
Cross-section F	76.055748	(3,41)	0.0000
Chi-square cross-sections	90.324521	3	0.0000

*Source: Processed Researcher Data, 2023*

The results of the test show that the probability value of Cross Section F is  $0.0000 < 0.05$ , which means that  $H_0$  is rejected. So the most appropriate approach to use is the Fixed Effect Model (FEM).

#### b. Hausman Test

**Table 3. Hausman Test Regression Results**

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistics	Chi-Sq. df	Prob.
Random cross-sections	228.167245	3	0.0000

*Source: Processed Researcher Data, 2023*

The results of the Hausman test show that the probability value of Cross Section Random is  $0.0000 < 0.05$ , meaning that  $H_0$  is rejected, meaning that the appropriate model is the Fixed Effect Model (FEM).

#### c. Langrange Multiplier Test

**Table 4. Langrange Multiple Test Regression Results**

Lagrange multiplier (LM) test for panel data

Date: 03/22/23 Time: 14:03

Sample: 2020Q1 2022Q4

Total panel observations: 48

probability in()

Null (no rand. effect) Alternatives	Cross-section One-sided	period One-sided	Both
Breusch-Pagan	159.4151 (0.0000)	5.496910 (0.0191)	164.9120 (0.0000)
Honda	12.62597 (0.0000)	-2.344549 (0.9905)	7.270062 (0.0000)
King-Wu	12.62597 (0.0000)	-2.344549 (0.9905)	10.10641 (0.0000)
GM	-- --	-- --	159.4151 (0.0000)

*Source: Processed research data, 2023.*

Based on the LM test, it shows a probability value of  $0.0000 < 0.05$ , meaning that  $H_0$  is rejected. Thus the appropriate model for the LM test is the Random Effect Model (REM).

Of the three results, it shows that there are 2 tests that lead to the Fixed Effect Model (FEM) model. Based on this, it can be concluded that the best approach in estimating the regression equation is the Fixed Effect Model (FEM).

**Hypothesis testing****a. T test****Equation I (NPF, FDR to CAR)****Table 5. T Test Regression Results**

Variables	coefficient	std. Error	t-Statistics	Prob.
C	3.492626	7.665282	0.455642	0.6508
NPF	-3.181767	1.042089	-3.053258	0.0038
FDR	0.464736	0.088393	5.257622	0.0000

*Source: Processed Researcher Data, 2023*

Based on the regression results, it can be concluded that the NPF and FDR variables partially affect CAR. Where NPF has a significant effect in a negative direction and FDR has a significant effect in a positive direction.

**Equation II (NPF, FDR, CAR to ROA)**

**Table 6. T Test Regression Results**

Variables	coefficient	std. Error	t-Statistics	Prob.
C	-9.280312	2.156518	-4.303379	0.0001
NPF	0.776316	0.321376	2.415599	0.0199
FDR	0.056783	0.031523	1.801318	0.0785
CAR	0.200629	0.041843	4.794851	0.0000

*Source: Processed Researcher Data, 2023*

Based on the test results, it can be concluded that the NPF variable has a positive and significant effect on ROA, the FDR variable has an insignificant positive effect on ROA, and the CAR variable has a significant positive effect on ROA.

**b. F test**

**Equation I (NPF, FDR to CAR)**

**Table 7. F Test Regression Results**

R-squared	0.489360	Mean dependent var	32.85688
Adjusted R-squared	0.466665	SD dependent var	13.93386
SE of regression	10.17587	Akaike info criterion	7.538377
Sum squared residue	4659673	Schwarz criterion	7.655327
Likelihood logs	-177.9210	Hannan-Quinn criter.	7.582572
F-statistics	21.56238	Durbin-Watson stat	0.122184
Prob(F-statistic)	0.000000		

*Source: Processed research data, 2023*

Based on the regression results, it can be concluded that the variables NPF and FDR simultaneously have a significant effect on CAR.

**Equation II (NPF, FDR, CAR to ROA)**

**Table 8. F Test Regression Results**

R-squared	0.576084	Mean dependent var	3.350625
Adjusted R-squared	0.547181	SD dependent var	4.244576

SE of regression	2.856254	Akaike info criterion	5.016554
Sum squared			
residue	358.9602	Schwarz criterion	5.172488
Likelihood logs	-116.3973	Hannan-Quinn criter.	5.075482
F-statistics	19.93138	Durbin-Watson stat	0.270549
Prob(F-statistic)	0.000000		

*Source: Processed Researcher Data, 2023*

Based on the regression results, it can be seen that the variables NPF, FDR, and CAR simultaneously have a significant effect on ROA.

**c. R-Square test**

**Equation I (NPF, FDR to CAR)**

**Table 9. R-Square Test Regression Results**

R-squared	0.489360	Mean dependent var	32.85688
Adjusted R-squared	0.466665	SD dependent var	13.93386
SE of regression	10.17587	Akaike info criterion	7.538377
Sum squared			
residue	4659673	Schwarz criterion	7.655327
Likelihood logs	-177.9210	Hannan-Quinn criter.	7.582572
F-statistics	21.56238	Durbin-Watson stat	0.122184
Prob(F-statistic)	0.000000		

*Source: Processed Researcher Data, 2023*

The test results obtained the value of Adj. of 0.466665. This means that the contribution of the independent variables NPF and FDR affect the dependent variable CAR by 47% while the remaining 53% is explained/influenced by other variables not included in this study.

**Equation II (NPF, FDR, CAR to ROA)**

**Table 10. R-Square Test Regression Results**

R-squared	0.576084	Mean dependent var	3.350625
Adjusted R-squared	0.547181	SD dependent var	4.244576
SE of regression	2.856254	Akaike info criterion	5.016554
Sum squared			
residue	358.9602	Schwarz criterion	5.172488
Likelihood logs	-116.3973	Hannan-Quinn criter.	5.075482
F-statistics	19.93138	Durbin-Watson stat	0.270549
Prob(F-statistic)	0.000000		

*Source: Processed research data, 2023*



Based on table 2.9 test results, the Adj value is obtained. of 0.547181. This means that the contribution of the independent variables (NPF, FDR and CAR) affects the dependent variable (ROA) by 54.7% while the remaining 45.3% is explained/influenced by other variables not included in this study.

### Classic assumption test

#### a. Normality test

Normality Test on Kolmogrov Smirnov (KS) non-parametric statistical test. otherwise normally distributed with a probability value of 0.591713 > 0.05.

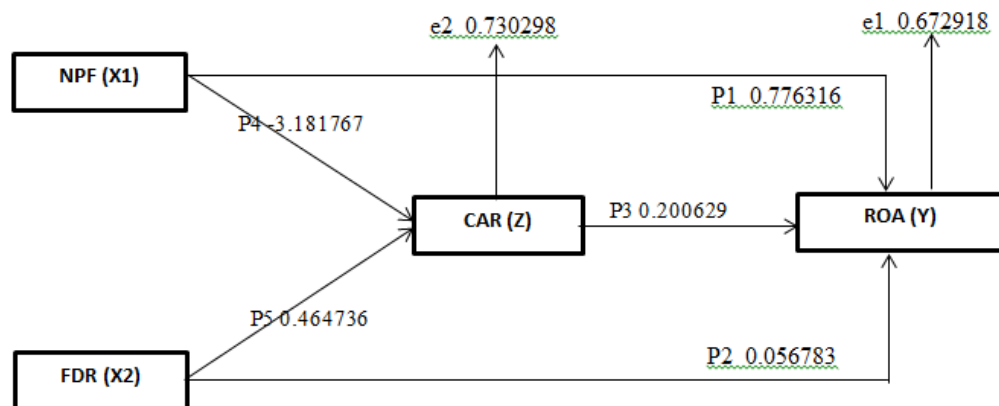
#### b. Multicollinearity Test

Based on the test results, it is known that the coefficient of determinant of the NPF variable with FDR 0.158 < 0.70; NPF with CAR 0.141 < 0.70; and FDR with CAR 0.619 < 0.70. So it can be concluded that there are no symptoms of multicollinearity.

#### c. Heteroscedasticity Test

Based on the test, it is known that the probability value of Obs\*R-Square is 0.0725 > 0.05. So there are no symptoms of heteroscedasticity.

### Path Analysis (Path Analysis)



Picture 1. Path Analysis Framework

#### a. Effect of NPF on ROA mediated by CAR

$$\begin{aligned}
 Sp2p3 &= \sqrt{p3^2 sp2^2 + P2^2 sp3^2 + sp2^2 sp3^2} \\
 &= \sqrt{0.200629^2 \cdot 0.321376^2 + (-3.181767)^2 \cdot 1.042089^2 + 0.321376^2 \cdot 1.042089^2} \\
 &= \sqrt{11.1101} = 3.33318
 \end{aligned}$$

Based on the results of  $Sp2p3$  above can calculate the value of t-statistics influence mediation with the formula:  $t = \frac{p2p3}{sp2p3} = \frac{-0.63835}{3.33318} = -0.19152$

It is known that the t-count value is  $-0.19152 < t \text{ table } 2.014103$  (prob. 5%), it can be concluded that CAR is not capable of being a mediating variable between NPF and ROA.

b. Effect of FDR on ROA mediated by CAR

$$\begin{aligned} Sp2p3 &= \sqrt{p3^2 sp2^2 + P2^2 sp3^2 + sp2^2 sp3^2} \\ &= \sqrt{0.200629^2 0.031523^2 + 0.464736^2 0.088393^2 + 0.031523^2 0.088393^2} \\ &= \sqrt{0.00174} = 0.04166 \end{aligned}$$

Based on the results of the  $Sp2p3$  above, the t-Statistic value of the influence of mediation can be calculated using the formula:  $t = \frac{p2p3}{sp2p3} = \frac{0.09324}{0.04166} = 2.23828$

It is known that the t-count value is  $2.23828 > 2.014103$  (5% prob), it can be concluded that CAR is able to mediate the relationship of FDR to ROA.

## Discussion

### 1. Effect of NPF on ROA

The coefficient value of the NPF variable is 2.415599 with a significance value of 0.0199. Based on the significance value  $< 0.05$ , it can be concluded that NPF has a positive and significant influence on profitability (ROA). The positive result of the NPF ratio indicates that the banking performance in managing the default rate is classified as effective (Munir, 2018).

### 2. Effect of FDR on ROA

Based on the FDR coefficient value which shows 1.801318 with a significance value of 0.0785. Based on the significance level which shows  $> 0.05$ , it can be concluded that the FDR variable has a not significant positive effect on profitability (ROA). The absence of the influence of FDR on profitability as described by ROA indicates that banking performance in channeling financing is still not optimal, which will ultimately result in an increase in problem financing and banks experiencing liquidity pressure. So it has nothing to do with increasing or decreasing profitability (Siagian et al., 2021).

### 3. Effect of CAR on ROA

Judging from the CAR variable coefficient value of 4.794851 with a significance value of 0.0000. So the significant value is  $0.0000 < 0.05$ . So it can be concluded that the CAR variable has a significant influence with a positive correlation to ROA. The relationship between the CAR variable and ROA with a positive coefficient illustrates that the higher the CAR, the higher the profitability proxied by ROA. With a high CAR level, there is an opportunity to increase income, on the other hand, a high CAR level will give investors confidence to invest their funds so that simultaneously it will increase the ROA level as well (Nuryanto et al., 2020).

### 4. Effect of NPF on CAR

The calculated t value of the NPF variable is -3.181767 with a significance value of 0.0038. So that the significance value is  $<0.05$ , it can be concluded that the NPF variable has a significant influence on CAR in a negative direction. Based on the theory put forward by Rivai Vaithzal which states that when the NPF rises, CAR will fall. This is because the emergence of problem financing does not always pose a big risk to the bank's operating income as a whole, because a bank's operating income can also come from income from other productive assets (Imsar et al., 2022).

5. Effect of FDR on CAR

The coefficient value of the FDR variable which shows 0.464736 with a significance value of  $0.0000 < 0.05$  indicates that there is a significant effect of the FDR variable on CAR in a positive direction. The coefficient value that shows positive means that the higher the FDR, the higher the CAR. Septiani & Lestari (2016) An increase in FDR indicates that more and more financing has been disbursed. Increasing the volume of financing provided means that banks have a greater ability to return funds collected from customers, so that banks no longer use their capital as a source of financing.

6. Effect of NPF on ROA through CAR

Based on the indirect effect value of -0.19152 which indicates that the CAR variable is unable to mediate the relationship between the NPF variable and CAR. Based on the Sobel test, the direct effect of the relationship between NPF variables on ROA is greater than the indirect effect through the CAR variable. The results of this study are supported by research Basri & Dermawan (2021) and Fund (2023).

7. Effect of FDR on ROA through CAR

The results of the Sobel test show that the CAR variable is able to mediate the relationship between FDR and ROA. Thus H7 is accepted. The direct effect of the relationship between FDR on ROA is smaller than the indirect effect through the CAR variable, so that the increase in ROA caused by FDR is indirectly related to the CAR variable. This research is in line with research from Septiani & Lestari (2016).

## Conclusion

Based on the research that has been done, it can be concluded that the Effect of Non-Performing Financing and Financing to Deposit Ratio on Profitability with Capital Adequacy Ratio in Islamic Commercial Banks in Indonesia, namely the NPF variable has a significant positive effect on ROA, FDR has a non-significant positive effect on ROA, CAR has a significant positive effect on ROA, NPF has a significant effect on CAR with a negative correlation, FDR has a significant positive effect on CAR, and the CAR variable is unable to mediate the relationship between

NPF and ROA, and the CAR variable is able to mediate the relationship between FDR and ROA variables. ROA.

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