

## Analysis of The Influence of Digital Banking, BOPO and NPF on Profitability Levels of Sharia Commercial Bank

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*revised:* 13/12/2023 *published:* 15/01/2024

**Abstrak.** *This study aims to analyze and examine the factors influencing of digital banking, operating costs to operating income (BOPO) and Non Performance Financing (NPF) on Return on Asset (ROA) in the Islamic Commercial Banks in period 2018-2022. The method of research is using the quantitative and regression analysis. The sample is Islamic Commercial Banks are consistently publish financial report period 2018-2022 listed on the Indonesia Stock Exchange with a total sample of 3 companies. The sampling technique used a purposive sampling. The data analysed with IBM SPSS version 22 and was carried out by several tests such as validity test, reliability test, classic assumption test, linear regression analysis and coefficient of determination test. The results of this study indicate that the digital banking, BOPO and NPF simultaneously and significantly influence on ROA. The results of the partial test demonstrates that the digital banking and NPF has significant effect on ROA. While BOPO has a negative effect on ROA in the Islamic Commercial Banks in period 2018-2022. This research contributes to Islamic banking in order to make effective financing with results sharing and operational cost efficiency in operating income so that performance can be improve financial performance.*

**Keywords:** *Digital Banking, BOPO, NPF, Islamic Commercial Banks*

### Introduction

In essence, financial performance is a benchmark for determining the extent to which a company is able to maintain stability and fulfill its objectives. It will be very helpful for companies to understand the contribution of each managed business unit through financial reports (Mawarto, 2020). In an effort to ensure banking performance and health, a review of previous year's achievements is designed with the hope that it can be used to analyze banking performance in the future. The final product of an accounting process is a financial report which is useful if submitted to the authorities with the results of the activities and financial condition of the company itself. However, published financial reports do not provide a guarantee that information related to company performance will be received without going through a deeper analysis process. The method that is often used to study the success of a company is by analyzing financial ratios, this aims to determine policies in the financial aspect (Tho'in, 2019).

Sharia banks are required to continue to strive to improve their performance in order to create healthy banking and give confidence to the public to place their funds because of how important the function and role of the bank itself is. (Bahri et al., 2022). One of the most appropriate indicators in order to measure the financial performance of sharia banking is the profitability ratio. The higher the profitability value, the better the financial performance of sharia banking. One of the ratios that is always used to measure profitability performance is Return on Assets (ROA). This research only focuses on the use of ROA because researchers want to see the extent to which Islamic banking is able to generate profits from assets whose funds mostly come from the public. (Handayani et al., 2021). In calculating profitability using ROA, the effectiveness of management's work in utilizing assets to obtain profits will be seen. ROA is also very important for assessing the management of all company assets so that they can run effectively and optimally (Rahmadania, 2021).

**Table 1.** ROA, BOPO and NPF Values for the Banking Sub Sector for the 2018-2022 Period

Indicator	Year				
	2018	2019	2020	2021	2022
ROA (%)	1.28	1.73	1.40	1.55	2.00
BOPO (%)	89.18	84.45	85.55	84.33	77.28
NPF (%)	3.26	3.23	3.13	2.59	3.35

Source: SPS OJK 2022

The growth of the ROA value of Sharia Commercial Banks (BUS) tends to increase and is unstable due to many factors. One of them is the rapid development of technology and Islamic banks offering a modern lifestyle through easy access to banking via the internet. Based on the data above, the BUS BOPO value in 2018 and 2020 can be said to be inefficient in its operations because it has a value of more than 85% as required by Bank Indonesia. Meanwhile, the BUS NPF value for the 2018-2022 period is in the good category (Sudaryanti et al., 2018). Sharia banking must be able to provide the best service, both in terms of face-to-face service and products using technology. The latest trends in financial regulation are a challenge for the banking sector to be more efficient because this aspect can increase the profitability of sharia banking (Wulandari & Novitasari, 2020). The increasingly massive use of internet technology is becoming the basis for online transactions. The development of mobile banking is so fast and this service can provide practicality and freedom of financial transactions at the touch of a finger. Just press the PIN (Personal Identification Number) from your cellphone, then transactions can be carried out from anywhere as far as the network is connected. Based on data from <https://una.financial/>, the number of mobile banking users increased from 52 million in 2019 to 88 million users or an increase of 69.2% in 2020. This indicates that mobile banking is an important and very important element.

required for customers. One of the advantages of m-banking is the efficiency of bank operational costs and these savings should be able to increase profits. This is proven by several findings which state that technological and financial innovation can encourage increased profitability in the sharia banking sector (Arofany & Tandika, 2019; Hastuti & Ghozali, 2019).

Another element that can influence the acquisition of sharia financial profits, namely BOPO (Operating Costs, Operating Income). BOPO reflects management burden, whether the bank is able to manage existing resources efficiently, so that it will affect the performance of sharia banks as assessed by the ROA ratio. If the BOPO ratio is low, it will result in lower profits resulting from the burden borne by the bank, thereby increasing profitability. If there is an increase in operational costs, it will have an impact on decreasing profit before tax which will ultimately reduce profitability (ROA) for the bank concerned (Husna, 2021; Mayunita, 2017). The Operational Cost Ratio is a comparison between operational costs and operating income (BOPO).

The operational cost ratio is used to measure the bank's ability and level of efficiency in carrying out its operational activities. If this ratio is smaller, the operational costs incurred will be more efficient so that the possibility of a sharia bank being in trouble will also become smaller. The greater the BOPO, the smaller the bank's ROA, because the profits earned by the bank will also be small (Astuti, 2022). The next factor related to profitability is Non-Performing Financing (NPF). Based on the opinion of Swandewi & Purnawati (2021), NPF is a financial ratio to assess the quality management of risks inherent in financial institutions.

Financing risk arises from the failure of the debtor to fulfill its obligations to the bank as a provider of financing. This risk has an impact on aspects of the bank's financial condition that worsen so that Return on Assets can be disrupted (Sudirman, 2013). If analyzed more deeply, low NPF results indicate that Islamic banks have low financing risk. However, if there is a high level of non-performing financing, it indicates unhealthy banking quality and will ultimately affect the level of profitability. The NPF ratio is able to describe managerial ability to anticipate non-performing financing (default). The aim of this study is to analyze the influence of digital banking, NPF and BOPO on the level of profitability of Sharia Commercial Banks for the 2018-2022 period.

## **Research Methods**

This research uses quantitative methods with regression analysis to explore correlations between variables. This study applies a quantitative descriptive approach where the data source is secondary data, namely in the form of financial reports of Sharia Commercial Banks whose financial reports are consistently published in the 2018-2022 period. Data was collected through a process of observation and documentation in banking sub-sector companies. Referring to

research results from Journal articles and books that are relevant to the research will be used as a theoretical basis. The entire sample in this research was 3 BUS using the purposive sampling method. Among the Sharia Commercial Banks in this research are BSI, NTB Syariah and BCAS. There are 2 variables in this study, namely the independent variable and the dependent variable.

a) Independent Variable ;The independent variables in this research are Digital Banking (X1), Operational Costs Operational Income (X2) and Non-Performance Financing (X3). b) Dependent Variable; (The dependent variable is Return on Assets (Y). After all the data was obtained, it was then analyzed using SPSS 22 for Windows software with several tests, namely descriptive statistical analysis, validity, classical assumptions, multiple linear regression analysis and the coefficient of determination test.

## Results and Discussion

### Descriptive Statistical Analysis

Descriptive statistics show maximum and minimum values, mean and standard deviation.

**Table 2.** Descriptive Statistics

N	Minimum	Maximum	Mean	Std. Deviation	
ROA	60	0.42	8.15	3.135	1.6641
Digital Banking	60	0.00	1.00	0.209	0.3191
BOPO	60	79.76	97.02	86.118	4.2258
NPF	60	0.10	12.52	3.994	2.5105
Valid N (listwise)	60				

Source: SPSS Processed Data, 2023

Referring to table 2, ROA has a standard deviation of 1.66% with a mean value of 3.1%, so the standard deviation is smaller than the mean value, it can be concluded that the results are quite good. The minimum BOPO value is 79.76%, meaning that the operational capital used to operate contributes to higher operational income. The minimum NPF value of 0.10% indicates that Sharia Commercial Banks are very effective in minimizing existing financing risks.

### Classic assumption test

#### Normality test

In the opinion of Ghozali (2018), this test can be done using the One Sample Kolmogorov Smirnov test, namely if the Asymp Sig (2-tailed) score is > 0.05, it is said that there is a normal distribution in the data. However, if the Asymp Sig (2-tailed) score is <0.05, it means there is no normal distribution in the data.



**Tabel 3.** Normality Test

		Unstandardized Residual
N		60
Normal Parameters <sup>a,b</sup>	Mean	,0000000
	Std. Deviation	2,18335993
Most Extreme Differences	Absolute	,100
	Positive	,70
	Negatif	-,100
Kolmogorov-Smirnov Z		,776
<b>Asymp. Sig. (2-tailed)</b>		<b>,563</b>

Source: SPSS Processed Data, 2023

Based on table 3, the significance score (2-tailed) is 0.563. Because the significance value (2-tailed) is  $0.563 > 0.05$ , it is stated that the data is normally distributed so it can be used.

### Multicollinearity Test

In the regression equation, multicollinearity problems are not found if  $VIF < 10$  and  $Tolerance > 10$ .

**Table 4.** Multicollinearity Test

Model		Unstandardized Coefficients		Standardized Coefficients	Collinearity Statistics	
		B	Std. Error	Beta	Tolerance	VIF
1	(Constant)	10,323	2,394			
	Digital Banking	,247	,182	,114	,955	1,036
	BOPO	-,272	,154	-,538	-1,771	1,035
	NPF	,431	,106	,340	,998	1,002

a. Dependent Variable: *Return on Asset*

Source: SPSS Processed Data, 2023

Referring to table 4, the overall independent variable in this study has a value of  $> 0.10$  (tolerance  $> 0.10$ ). Meanwhile, the VIF value is less than 10 ( $VIF < 10$ ). It can be concluded that symptoms of multicollinearity are not found among the independent variables.

### Autocorrelation Test

In this study, the author used the Durbin-Watson Test to test autocorrelation. If  $D-W > (dU)$  and  $< (4-dU)$  indicates no autocorrelation is found

**Tabel 5.** Hasil Uji Autokolerasi

Model	R	R Square	Adjusted R Square	Durbin-Watson
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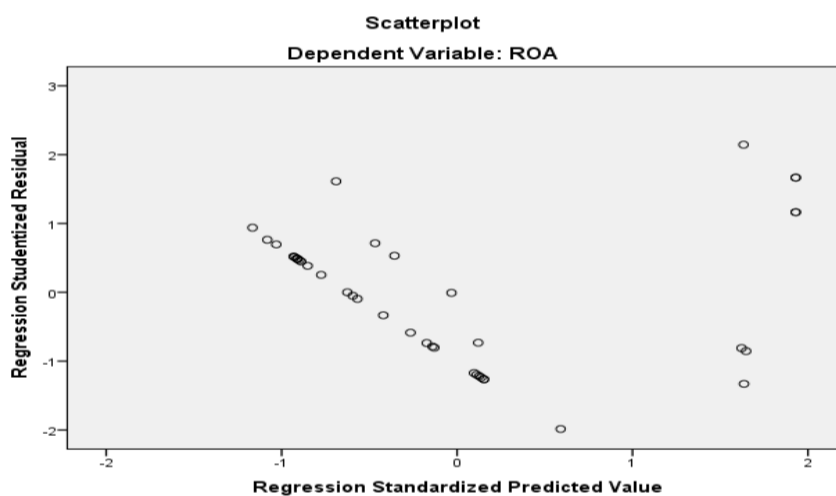
1	,846 <sup>a</sup>	,716	,701	1,946
a. Predictors: (Constant), DB, BOPO, NPF				
b. Dependent Variable: ROA				

Source: SPSS Processed Data, 2023

Based on table 5,  $1.650 < 1.946 < (3.311)$  and an autocorrelation of 0 was obtained, indicating that autocorrelation was not found.

### The Heteroscedasticity Test

The heteroscedasticity test in this research uses a scatterplot graph between the predicted value of the dependent variable, namely ZPRED, and the residual SRESID. Heteroscedasticity does not occur if there is no clear pattern and the points are spread above and below the number 0 on the Y axis.



**Figure 1.** Heteroscedasticity Test Results

Based on Figure 1, that the distribution of data in the scatterplot is irregular and does not form a particular pattern, the points do not collect only at the top or bottom but are spread around the number 0, it is concluded that there is no heteroscedasticity problem.

### Multiple Linear Regression Analysis

**Table 6.** Multiple Linear Regression

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	11,563	2,698		1,557	,000
	Digital Banking	,144	,045	,349	3,108	,000
	BOPO	-,214	,242	-,328	-1,338	,606
	NPF	,205	,163	,191	1,602	,002

a. Dependent Variable: ROA

Source: SPSS Processed Data, 2023

Based on table 6, the constant value ( $\alpha$ ) is 11.563, Digital Banking gets ( $\beta$ ) 0.144 and BOPO gets ( $\beta$ ) -0.214, while NPF gets ( $\beta$ ) 0.205, so an equation is formed, namely:

$$Y = 11,563 + 0,144X_1 + -0,214X_2 + 0,205X_3 \dots\dots\dots(1)$$

Information : a) Return on Assets has a constant value of 11.563, meaning that Digital Banking (X1), BOPO (X2) and NPF (X3) are zero, so the ROA value is 11.563. b) The Digital Banking coefficient (X1) value is positive, namely 0.144, meaning that every 1 unit increase that occurs is accompanied by an increase in Return on Assets of 0.144. c) The BOPO coefficient value (X2) is negative, namely -0.214, meaning that an increase of 1 unit that occurs will be accompanied by a decrease in Return on Assets of 0.214. d) The NPF coefficient (X3) value is positive, namely 0.205, meaning that an increase of 1 unit will be accompanied by an increase in Return on Assets of 0.205.

**Simultaneous Test (F Test)**

When the significance is <0.05, it means Ho is rejected, meaning the independent and dependent variables have a significant effect. If the significance value is > 0.05, it indicates that Ho is accepted, so it can be stated that the independent and dependent variables have no influence.

**Table 7.** Simultaneous Test

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	460,413	3	153,471	33,362	0,000 <sup>b</sup>
Residual	161,962	57	2,841		
Total	622,375	60			

Source: SPSS Processed Data, 2023

Based on the results obtained from table 7, it can be stated that the F-count value is 23.962 and F-table 2.53, systematically a significant value of 0.000 < 0.05 significance level is obtained, so it can be said that together X1, X2 and X3 influence Return on Assets (Y).

**Partial Test (t Test)**

If the resulting probability is <0.05, it will be stated that there are significant implications from the independent variable to the dependent variable. If the resulting probability is > 0.05, it is said that it will not have a significant effect.

**Tabel 8.** Uji Parsial (Uji t)

Model	B	Unstandardized	Standardized	T	Sig.
		Coefficients	Coefficients		
		Std. Error	Beta		

1	(Constant)	11,563	2,698		1,557	,000
	Digital Banking	,144	,045	,349	3,108	,000
	BOPO	-,214	,242	-,328	-1,338	,606
	NPF	,205	,163	,191	1,602	,002

a. Dependent Variable: ROA

Source: SPSS Processed Data, 2023

Referring to table 8, Digital Banking (X1) has a significance of  $0.000 < 0.05$ . Indicating that H1 is accepted and Ho is rejected, digital banking has a positive and significant effect on Return on Assets of Sharia Commercial Banks. BOPO (X2) has a significance of  $0.606 > 0.05$ . Hypothesis H2 is rejected and Ho is accepted, so it can be concluded that BOPO has a negative and significant effect on Return on Assets of Sharia Commercial Banks. NPF (X3) has a significance of  $0.002 < 0.05$ . This indicates that H3 is accepted and Ho is rejected, so it can be concluded that NPF has a positive and significant effect on Return on Assets of Sharia Commercial Banks.

**Coefficient of Determination Test**

It is hoped that this test will produce an r squared score that is greater than 0.5, because a good value is between 0 and 1.

**Table 9.** Coefficient of Determination Test (R2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,846 <sup>a</sup>	,716	,701	2,121

Source: SPSS Processed Data, 2023

Based on table 9, it is known that the Adjusted R Square value is 0.701, indicating that the independent variables (Digital Banking, BOPO and NPF) influence the dependent variable (Return on Assets) by 70.1% and the remaining 29.9% is influenced by other variables that the researchers did not examine in the research.

**Discussion**

**The Influence of Digital Banking on ROA of Sharia Commercial Banks**

Based on the results of data analysis, digital banking has a positive and significant influence on the ROA of Sharia Commercial Banks as proven by the probability value obtained, namely  $0.000 < 0.05$ . Utilizing and applying technology with the aim of facing business competition and performance efficiency where the application of technology is able to reduce banking operational costs. The technology used by banks is reflected in the use of internet banking and mobile banking, which is based on an increase in the value of digital transactions. If banks can find that by implementing the m-banking system which is part of e-banking, the bank's financial performance will be good and will have a positive impact on investment in technology-based banking services. Technological innovation



factors including internet banking, mobile banking and automated teller machines (ATMs) as well as investment in computer software have a positive impact on banking performance. This is certainly in line with the research results Chaarani & Abiad, (2018); Siddik et al., (2016) stated that digital banking has a positive and significant effect *Return on Asset*.

### **The Effect of BOPO on ROA of Sharia Commercial Banks**

Based on the results of data analysis, BOPO does not have a significant effect on the ROA of Sharia Commercial Banks as proven by the probability, namely  $0.606 > 0.05$ . An increase in operational costs will have an impact on decreasing profit before tax which ultimately reduces ROA. This increase in the BOPO ratio shows an increase in the proportion of operational expenses to operational income received by the bank. In other words, if operational costs increase, it will reduce profit before tax and ultimately reduce the bank's ROA. This reflects the inefficiency of operational performance in Islamic Commercial Banks. In line with research Fadhilah & Suprayogi (2019) stated that BOPO had a significant negative effect on ROA. Likewise research conducted by Pinasti & Mustikawati, (2018); Stephani et al., (2017) which states that BOPO has a significant negative effect on the profitability of sharia banking.

### **The Influence of NPF on ROA of Sharia Commercial Banks**

Based on the results of data analysis, NPF has a significant effect on the ROA of Islamic Commercial Banks as evidenced by the probability of  $0.002 < 0.05$ , indicating that ROA of Islamic banking will increase if the NPF value becomes smaller. From the results of this research, NPF is one of the factors driving increased profits of Islamic banks. In accordance with the view of signaling theory which explains that financial reports contain information on increasing profitability which is an effort to give investors a positive signal regarding the company's performance and business prospects for development in the future. A good NPF amount is below 5%, a small NPF level indicates low risks faced by sharia banking, but if the larger this ratio, the worse the quality of bank loans will be, resulting in a greater amount of problematic financing and an impact on the large costs incurred, so that performance also decreased. Refer to research results Ch, (2017); Izzah et al., (2019) bahwa NPF berdampak signifikan positif terhadap ROA.

### **Implication**

The implications that can be drawn from the results of this research are: (1) The importance of digital banking. Research shows that digital banking has a positive and significant influence on Return on Assets (ROA) of Sharia Commercial Banks. Therefore, Islamic banking should continue to prioritize and increase the application of digital technology in their services to increase operational efficiency and provide a better experience to customers. (2) Credit Risk Management.

High Non-Performing Financing (NPF) can have a negative impact on ROA. Therefore, Islamic banking needs to focus on credit risk management to reduce NPF levels. This involves careful assessment of potential borrowers, monitoring the financing portfolio, and implementing effective recovery strategies. (3) Challenges in Operational Efficiency. Operating Costs (BOPO) have a negative and significant influence on ROA. This shows that Islamic banks need to continue to improve their operational efficiency. Implementing best practices in cost management, technology and operational processes can help reduce BOPO and improve financial performance. (4) Other Factors that Need to be Considered. Even though the variables studied (digital banking, NPF, and BOPO) have contributed 70.1% to the variation in ROA, there is still 29.9% which is influenced by other variables not explained in this research. Therefore, Islamic banks need to consider additional factors that may influence their financial performance. (5) Role of Profit Sharing Financing Management. By focusing on the effectiveness of profit sharing financing, sharia banking can increase operational income and in turn improve financial performance. A good understanding of sharia economic principles and risk management in profit sharing financing is the key to achieving this goal. (6) The Importance of Evaluation and Adjustment. The results of this research should be the basis for routine evaluation and adjustment of sharia banking strategies. Identifying areas that require improvement and continuing to adapt to economic and technological changes is key to maintaining competitiveness and strengthening the financial performance of Islamic banking.

## Conclusions

Based on the results of research and discussion, it is stated that digital banking and NPF have a positive and significant effect on ROA of Sharia Commercial Banks. Meanwhile, BOPO has a significant negative influence on the ROA of Sharia Commercial Banks for the 2018-2022 period. Effective implementation of digital banking can reduce operational costs so that profits in sharia banking can increase. A low NPF value tends to be able to provide high profits. Digital banking, BOPO and NPF have an Adjusted R Square value of 70.1% and the remaining 29.9% is influenced by other variables not examined in this research. It is hoped that the results of this study can contribute to sharia banking in order to carry out effectiveness in profit-sharing financing and operational cost efficiency in operational income so that performance can improve financial performance.

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