

# VALUATION OF EFFICIENCY VALUE AND ITS IMPLICATIONS ON RETURN ON ASSETS OF SHARIA COMMERCIAL BANKS IN INDONESIA

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## VALUATION OF EFFICIENCY VALUE AND ITS IMPLICATIONS ON RETURN ON ASSETS OF SHARIA COMMERCIAL BANKS IN INDONESIA

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### 79 Abstract

The purpose of this research is to determine and analyze the value of efficiency and its implications on the return on assets of Islamic Commercial Banks in Indonesia. This research method uses quantitative data from Islamic banking financial reports that have been audited on the IDX during the 2015-2021 period. The data analysis technique used is multiple linear regression analysis of panel data using Eviews 12 software. The regression model estimation technique uses panel data through the CEM, FEM, and REM approaches. FEM specification model are the best models. Findings: Partial results show the first equation; BOPO has no significant negative effect, NPF has a significant positive effect. FDR, ICG, and Inflation have a significant negative effect, CAR and OC have a significant positive effect on efficiency values. Taken together CAR, BOPO, NPF, FDR, ICG, OC, and Inflation variables have a significant positive effect on Efficiency Values. Adjusted R<sup>2</sup> on first equation is 77.7%. The second equations; CAR and NPF have no significant positive effect, BOPO and ICG have a significant positive effect, FDR has no significant negative effect, OC, Inflation, and NPF have a significant negative effect on ROA. CAR, BOPO, NPF, FDR, ICG, OC, and Inflation variables have a significant positive effect on ROA. Adjusted R-squared is 92.3%, while the remaining 7.7% is influenced by other variables outside this research.

**Keywords:** Return on Assets, Efficiency Value, Sharia Commercial Banks.

### INTRODUCTION

The phenomenon of Islamic banking performance indicators as a whole shows a slowing development with a downward trend (Purwadi et al., 2016). This condition then triggered a discourse to merge Islamic banks in Indonesia into a large Islamic bank. Evaluating the performance of a company or institution is very important because the performance of a company or institution is in the interest of stakeholders. Many parties, including company management, company employees, shareholders, external financing parties, customers and the government need company performance reports (Brealey, et al., 2011).

**Table 1: Performance of Islamic Banking in Indonesia 2014 – 2019 Period**

Description	2014	2015	2016	2017	2018	2019	
Sharia Commercial Bank	ROA (%)	0.41	0.49	0.63	0.63	1.28	1.73
	CAR (%)	15.72	15.02	16.63	17.91	20.39	20.59
	NPF (%)	3.38	3.19	2.17	2.57	1.95	3.23
	FDR (%)	86.66	88.03	85.99	79.61	78.53	77.91
	BOPO (%)	96.97	97.01	96.22	94.91	89.18	87.45

Source: Indonesian Banking Statistics, as of December 2019 and 2019 Annual Report, Financial Services Authority, Data processed, 2022.

Based on Table 1 above, the financial performance of Islamic banking from 2014 to 2019, several financial ratios such as ROA, CAR, NPF, FDR, and BOPO, the data shows a relatively rapid growth that improves performance and automatically contributes to the Islamic banking industry in Indonesia. With these data, the measurement of the level of efficiency is increasingly needed.

Measurement of Efficiency Value in the Islamic banking industry is also fundamental, given the intense competition in the Islamic banking industry. One method often used in analyzing bank efficiency is a non-parametric method called Data Envelopment Analysis (DEA). DEA is a mathematical optimization method that measures the technical efficiency of a unit of economic activity to be compared with other units of economic activity (Abidin and Endri, 2009).

The value of efficiency is often referred to as how a sharia banking industry obtains a return on assets by utilizing the bank's resources. However, the value of efficiency also concerns the management of the input and output relationship, namely how to allocate existing resources to obtain output results optimally. Maximum results to produce good performance (Ranaswijaya et al., 2019). There is an interesting phenomenon related to the Islamic banking industry in Indonesia, which represents the profitability performance and operational efficiency values that are less fresh and sustainable. This is due to the weak form of productive assets of Islamic banks, banking income, some of which stems from unstable conventional activities, and the low ratio of inheritance to each customer, which makes sharia banking operational expenses in Indonesia relatively large. The following is presented with the growth of assets, market share, and third-party data from Sharia banks.

**Table 2: Performance of Islamic Banking in Indonesia 2014 – 2019 Period**

Indicator	2014	2015	2016	2017	2018	2019
<b>Asset (IDR Billion)</b>	<b>304,00</b>	<b>365,60</b>	<b>435,02</b>	<b>489,69</b>	<b>538,32</b>	<b>608,50</b>
Asset Growth (%)	9,00	20,28	18,98	12,57	9,93	13,04
<b>Market Share (%)</b>	<b>4,88</b>	<b>5,33</b>	<b>5,78</b>	<b>5,96</b>	<b>16,18</b>	<b>6,51</b>
Third Party Fund Growth (IDR Billion)	236,02	285,20	341,50	379,96	425,29	423,57
Third Party Fund Growth (%)	6,37	20,84	16,50	11,14	11,94	11,80

Source: Indonesian Banking statistics, as of December 2019 and 2019 Annual Report, Financial Services Authority, Data processed, 2022

Table 2 above shows that the low market share of Islamic banking is partly due to the assets of Islamic banks, which are still low compared to conventional bank assets. Sharia banking assets in 2020 recorded a growth of IDR 70.18 trillion, or only 13.04% compared to 2019.

One of the factors that can affect the growth of Islamic banking assets is the performance of the collection of Third Party Funds (DPK) from public customers. The higher the total DPK that can be collected from the public, the higher the assets that will be owned by Sharia banking. This shows that DPK is a significant factor for Islamic banking in Indonesia.

Based on data from (OJK, 2015), growth in deposits occurred in BUS at a rate of 12.18% compared to 8.06% in the previous year, while UU and BPRS experienced a slowdown in growth at a rate of 11.70% and 7.34 respectively. % compared to the same period the previous year, which amounted to 18.37% and 16.42%. BUS still dominates the composition of TPF with a portion of 67.95%, while the portion of TPF for UUS is 30.00% and BPRS is 2.05%. The slowdown occurred in deposits with the most significant portion (54.48%), with a growth of 5.59% year-on-year (yoy). This figure is much lower than the previous year at 9.12% (yoy).

### Objective

The existence of Islamic banks is expected to be able to realize a banking system that is more competitively efficient, fulfills the precautionary principle and can support the real sector through profit-sharing-based financing activities, and is free from the element of usury in order to realize justice in economic activities, and achieve the benefit of society. At the same time, the purpose of this research is to find out the partial effect of the variables CAR, BOPO, NPF, FDR, ICG OC, Inflation, and the value of efficiency as an intervention on Return On Assets at Islamic Commercial Banks in Indonesia for the period 2015Q1 to 2021Q4. Likewise, the simultaneous effect of CAR, BOPO, NPF, FDR, ICG OC, Inflation, and efficiency values as an intervention on Return on Assets.

## LITERATURE REVIEW

### Background Theory

Agency theory explains the relationship between the agent as the party managing the company and the principal or provider of capital as the company's owner, both of which are bound by a contract (Jensen and Meckling, 1976). In its implementation, the principal or the owner of capital authorizes management as an agent (agency relationship), but after that, different interests occur. These different interests can cause information gaps from agents to principals (Pepall et al. (2014: 452); Aljana and Purwanto, 2018).

Agency theory also implies an information gap between managers as agents and company owners as principals. Based on this view, the company is designed to generate appropriate incentives when the various parties involved in the production process have different and personal information (Jensen and Meckling, 2010; Pepall et al. (2014: 452). According to Pepall et al. (2014: 452), Agency theory has produced beneficial insights into the types of contracts that can address information problems and provide appropriate incentives for both

parties to fulfill their <sup>21</sup> actual obligations. The signal theory was initially stated by Spence (1973) in his statement that the owner of the information (sender) gives a signal or signal in the form of information that reflects the state of the <sup>27</sup> company that has benefits for the investor (recipient). According to Brigham and Houston (2016), signal theory explains management's perception of the company's development in the future, <sup>8</sup> which will affect the response of potential investors. Opinion of Wolk et al. (2017) stated that signaling theory explains why companies have the drive and initiative to provide information to external parties. According to Jogyanto (2013), the signal theory focuses more on the importance of information issued by the <sup>17</sup> company to the investment decisions of external parties. Owolabi and Inyang (2013) believe that the signal conveyed can be in the form of debt issuance. In the opinion of Sangka et al. (2018) state that increasing receivables can interfere with financial performance and operational aspects. If receivables increase, it will disrupt the company's operations.

<sup>69</sup> The concept of efficiency value was initially allowed by Farrell (1957), which is a follow-up to the model proposed by Debreu (1951) and Koopmans (1951). Wheelock and Wilson (1995) explain that efficiency is a valuable dimension of the operational banking situation. After comparing it with all banking industries, they describe one of the critical indicators that produce a bank's results individually. Efficiency can be defined as the ratio between output and input (Kost and Rosenwig, 1979). According to Huda and Nasution (2018), the concept of efficiency comes from microeconomics theory, namely producer theory and consumer theory. The producer theory, according to Huda and Nasution (2018), explains that producers seek to maximize profits and seek to minimize financing. Meanwhile, the consumer theory of Huda <sup>51</sup> Nasution (2018) states that consumers seek to maximize satisfaction or usefulness. In order to identify the impact of competition on stability at different efficiency levels, it includes different competitive interaction terms and various efficiency measures (Dutta and Saha, 2021).

### Previous Studies

Analysis assessment of the valuation of the Efficiency Value and its Implications on the Profitability of Islamic Commercial Banks (BUS) in Indonesia has been carried out by many previous researchers. However, from the research results, there are pros and cons. Where can be seen the gap seen in previous studies as follows: Perwitaningtyas and Pangestuti (2015) that CAR <sup>5</sup> positively affects the level of banking efficiency. Findings by Lutfiana and Yulianto (2015) show that CAR has a significant positive effect on BUS efficiency in Indonesia. This finding contradicts the findings of Wahab (2015) that CAR does not affect the efficiency level of Islamic banks. Sabir et al. (2012); Miftahurrohman (2016) that CAR does not affect the efficiency of Islamic banking. Fatmawati and Seno (20<sup>10</sup>) stated that CAR does not affect efficiency. Muttaqin et al. (2020) that CAR does not significantly affect the efficiency of Islamic banking. The findings of Farandy et al. (2017) state that CAR does not affect efficiency. Ku<sup>76</sup> asih (2016) found that CAR affects ROA, and Mardiana et al. (2018) found that CAR has no <sup>28</sup> significant effect on profitability. This is in line with Rifai and Suyono's (2019) findings. CAR does not affect the profitability of Islamic banks registered with OJK. The findings of Wijaya (2021), CAR affects the Return on Assets.



Wahab (2015) stated that BOPO does not affect the efficiency level of Islamic banks, with a value of Sig. of 0.145. This is in line with the findings of Widiarti and Siregar (2015) that BOPO does not affect efficiency. These findings contradict the findings of Lutfiana and Yulianto (2015) that BOPO has a significant adverse effect on the efficiency level of Islamic Commercial Banks in Indonesia. BOPO is often called the efficiency ratio, which measures bank management's ability to control operational costs against operating income (Suryanto and Susanti, 2020). BOPO is one of the essential factors of bank profitability because banks can increase profitability by focusing on proper cost control and operating efficiency (Karim and Hanafia, 2020). Kurniasih (2016) found that CAR affects ROA, and Mardiana et al. (2018) found that CAR has no significant effect on profitability. This aligns with Rifai and Suyono's (2019) findings that CAR does not affect the profitability of Islamic banks registered with OJK. The findings of Wijaya (2021), CAR affects Return on Assets.

Perwitaningtyas and Pangestuti (2015) that NPF does not affect the value of bank efficiency, with a value of sig. of 0.558. According to Lutfiana and Yulianto (2015), NPF has no significant effect on the value of Bank efficiency in Indonesia. This is in line with the findings of Wahab (2015) that NPF has no effect on the efficiency level of Islamic banks, with a value of sig. of 0.068. Miftahurrohman (2016) states that NPF does not affect the efficiency of Islamic banking. NPF obtained a significance value of 0.3465. The findings of Faran et al. (2017) NPF has no effect on the efficiency level, with a value of Prob. of 0.561 > 0.05. NPF is a financial ratio that shows the financing risk faced by banks due to the provision of financing and investment of bank funds in different portfolios (Suryanto and Susanti, 2020). NPF is a non-performing financing ratio used to measure the failure rate of credit or financing by banks as creditors (Karim and Hanaf 2020). Husaeni's (2017) findings show that NPF positively and significantly affects Return On Assets (ROA) at BPRS in Indonesia. This follows the findings of Rifai and Suyono (2019) that NPF affects the profitability of sharia banks registered with the OJK, while the findings of Mardiana et al. (2018) showed that NPF has no significant effect on ROA.

FDR is the ability of banks to pay all public funds and their capital by relying on credit that has been distributed. FDR is a comparison between financing (Rifai and Suyono, 2019). FDR can affect Islamic Commercial Banks' profitability level (Karim and Hanafia, 2020). FDR is a ratio used to measure a bank's liquidity in paying back withdrawals made by depositors by relying on the financing provided as a source of liquidity (Wahyu, 2016). The results of this study are in line with previous research conducted by Perwitaningtyas and Pangestuti (2015), Lutfiana and Yulianto (2015), Rifai and Suyono (2019), Suryanto and Susanti (2020) that FDR affects the value of banking efficiency. Wahab's findings (2015) state that FDR significantly affects the level of efficiency of Islamic banks. Miftahurrohman (2016) states that FDR positively affects the efficiency of Islamic banking. Miftahurrohman's (2019) findings show that FDR positively affects the efficiency value of Islamic commercial banks. Wibisono and Wahyuni (2017) state that FDR significantly affects returns on Assets.

Ghofur and Sukmaningrum (2018), that CG has a significant positive effect on the efficiency value. However, the findings of Prasojo (2015), stated that there was a significant negative

effect of CG on the value of efficiency. Pambuko (2016) states that CG has a negative and significant effect on the level of efficiency. Kurniawan and Mahardika (2021) stated that GG had a significant effect on the Efficiency Value. Mollah and Zaman (2015), Trinh et al., (2019), Nomran and Haron (2019) that the proportion of Independent Directors has a negative effect on the profitability of Islamic banks. Anton (2018) finds that ICG has a significant effect on the profitability of Islamic banks in Indonesia. Meanwhile, research by Farag et al., (2018) and Hakimi et al. (2018) did not find any influence of the Independent Director on the Profitability of Islamic Banks.

Office Channeling is a conventional bank office located in one area with a sharia branch office (Al-Arif, and Rahmawati, 2017). Zulfikar and Sasongko (2015) also suggested that Office Channeling had a significant positive effect on the efficiency value. In contrast to the research conducted by Aliza and Wuryani (2019) which suggests that Office Channeling has a significant negative effect on efficiency values. Research conducted by Aliza and Wuryani (2019), that Office Channeling has an effect on the profitability of Islamic Banks in Indonesia. Meanwhile, the findings of Al-Arif and Rahmawati (2017), the impact of the Office Channeling policy on the Return On Assets of Islamic Banks.

Asngari (2013), states that inflation has a significant effect on efficiency, where the coefficient value is 1.34 and has an effect on the efficiency of Islamic banking. Ramly and Hakim (2017), examined efficiency modeling and the results have a negative and insignificant effect on the efficiency of Islamic banks in Indonesia. The results of Asngari's research (2013), state that inflation has a significant effect on the value of efficiency. Sahara (2013) that inflation has a significant effect on profitability. Rising inflation will result in a decrease in people's purchasing power. Value of engineering efficiency. Ayadi et al., (2012), Curak et al., (2012), Roman (2013), and Petria et al., (2015) reveal that inflation has a positive effect on the profitability of Islamic banks. The impact of inflation is a decrease in the level of prosperity of the people, besides that, real sector companies are also reluctant to increase capital to finance their production and will have an impact on decreasing bank profitability. So that inflation has a negative effect on ROA of Islamic banking (Rizal and Humaidi, 2019). Saputri and Hanase (2021) found that inflation has a significant effect on ROA, which is indicated by a probability value smaller than (0.05). These findings reinforce Agustina et al., (2018) and Purbani and Darmawan (2018) that inflation has a significant influence on Islamic banks. Haramain et al., (2020) stated that inflation has a significant effect on profitability.

## METHODOLOGY

### Data

The data sources in this study are secondary data sources from the documentation reports available in the related Islamic banking industry. The data sources are obtained from the Indonesia Stock Exchange (IDX), the Financial Services Authority (OJK), and Bank Indonesia (BI) during the 2015-2021 period. Meanwhile, primary data in the form of financial ratio reports consist of CAR, BOPO, NPF, and FDR, from ICG, Office Channeling, and Inflation reports. In this research, secondary data is needed.

### Population and Samples

The population is a generalization area consisting of objects or subjects that have certain characteristics and quantities determined by the researcher to be studied which then draws a conclusion. The population in this study can be seen in the table below:

**Table 3: List of Research Populations**

No.	Name of Sharia Commercial Bank
01	PT. Bank Aceh Syariah
02	PT. BPD Nusa Tenggara Barat Syariah
03	PT. Bank Muamalat Indonesia Tbk.
04	PT. Bank Victoria Syariah
05	PT. Bank Jabar Banten Syariah
06	PT. Bank Mega Syariah
07	PT. Bank Panin Dubai Syariah Tbk.
08	PT. Bank Syariah Bukopin
09	PT. Bank BCA Syariah
10	PT. Bank Tabungan Pensiunan Nasional Syariah Tbk.
11	PT. Bank Aladin Syariah, Tbk.
12	PT. Bank Syariah Indonesia Tbk.

Source: OJK, Sharia Banking Statistics (2023)

The sampling technique used is Non Probability Sampling. According to Sugiyono (2018: 82) Non Probability Sampling is a sampling technique that provides equal opportunities or opportunities for each member or element of the population to be selected as a sample. The sampling technique used is saturated sample for data collection. According to Sugiyono (2018:85) the saturated sampling technique is a sampling technique where all members of the population are used as samples. Based on the criteria determined by the researcher, a sample of 10 (ten) Islamic banking companies was obtained. The specifics of the criteria for researchers who meet the requirements are as presented in the table as follows:

**Table 4: List of Research Samples**

No	Name of Sharia Commercial Bank	Kode Bank
1	PT. Bank Muamalat Indonesia, Tbk	BMUA
2	PT. Bank Aceh Syariah	BACS
3	PT. Bank Mega Syariah	BMES
4	PT. Bank Syariah Bukopin	BSBU
5	PT. Bank Panin Syariah, Tbk.	PNBS
6	PT. Bank Victoria Syariah	BVIS
7	PT. Bank Jabar Banten Syariah	BJBS
8	PT. BCA Syariah	BCAS
9	PT. Bank Tabungan Pensiunan Nasional Syariah, Tbk.	BTPS
10	PT. Bank Aladin Syariah, Tbk.	BANK

Source: OJK, March Islamic Banking Statistics, Data processed (2023)



## RESEARCH METHOD

This research method uses quantitative data, because in this case it focuses more on theory testing through research variables in the form of numeric and data analysis through statistical procedures and mathematical modeling. This research is associative. Associative research is a research that aims to determine the effect or also the relationship between two or more variables. And the type of data used is quantitative data obtained from the company's financial statements that have been audited on the Indonesia Stock Exchange (IDX), the Financial Services Authority (OJK), and Bank Indonesia (BI) during the 2015-2021 period. According to Sugiyono (2018), data collection using quantitative research instruments has the aim of testing predetermined hypotheses.

### Analysis Design and Hypothesis Testing

The purpose of descriptive statistics is to provide a description or description of a data that can be seen from the average value, minimum value, maximum value, and standard deviation. According to Sugiyono (2018), descriptive statistics are statistics used to analyze data by describing the data that has been collected as is, without having the intention of making conclusions that apply to generalizations or generalizations.

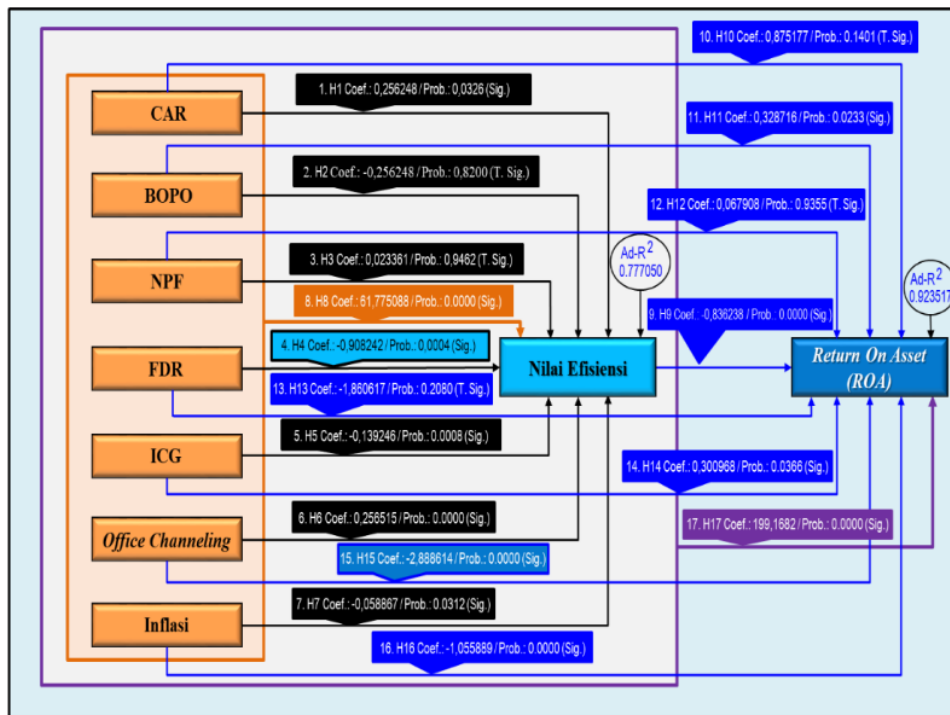


Figure 1: Research Model Hypothesis

In testing the hypothesis, it is necessary to have a goodness of fit test for the research model and a regression analysis model. The goodness of fit test of the research model is a test carried out to make a decision in rejecting or accepting the research hypothesis. The evaluation of the efficiency value in this study can generally be formulated as follows:

Structural Equation Model 1 (one):

$$NEF_{it} = b_0 + b_1 CAR_{1it} + b_2 BOPO_{2it} + b_3 NPF_{3it} + b_4 FDR_{4it} + b_5 ICG_{5it} + b_6 OC_{6it} + b_7 IF_{7it} + e_{it}$$

Structural Equation Model 2 (two):

$$ROA = b_0 + b_1 NEF_{1it} + b_2 CAR_{2it} + b_3 BOPO_{3it} + b_4 NPF_{4it} + b_5 LnFDR_{5it} + b_6 ICG_{6it} + b_7 OC_{7it} + b_8 IF_{8it} + e_{it}$$

### 1) Partial Significance Test (T-Test)

Partial Significant Test or T-Test is aimed at knowing the effect of each independent variable in a study on the dependent variable. According to Ghazali, (2018:179), the criteria in making decisions from the results of this test are if the p value < 0.05, then the result  $H_0$  is accepted. However, on the contrary, if the p value > 0.05, then the result is  $H_a$  is rejected. The decision-making criteria in this study are:

- a. If  $t_{count} < t_{table}$  or p-value > 0.05, then the independent variable partially has no effect on the dependent variable.
- b. If  $t_{count} > t_{table}$  or p-value < 0.05, then the independent variable partially affects the dependent variable.

### 2) Merger Significant Test (F-Test)

The F test is used to test whether there is a significant effect between the independent variables together on the dependent variable with the feasibility of the model generated by doing the model feasibility test at the level of 0.05. If the significance value of the F test is < 0.05, the model used in the study is feasible and can be used for subsequent analysis, and vice versa (Ghozali, 2018:179). The decision-making criteria in this study are:

- a. If  $f_{count} < f_{table}$  or p-value > 0.05, then the independent variables together have no effect on the dependent variable.
- b. If  $f_{count} > f_{table}$  or p-value < 0.05, then the independent variables jointly affect the dependent variable.

### 3) Coefficient of Determination ( $R^2$ )

The coefficient of determination ( $R^2$ ) is basically a measure of how far the model's ability to explain the variation of the dependent variable. The value of  $R^2$  which is small or close to zero means that the ability of the independent variable in explaining the dependent variables is very limited. The value of  $R^2$  that is close to one means that the independent variable provides almost all the information needed to predict the variation of the dependent variable. According to

Ghozali (2018), the higher the Adjusted-R<sup>2</sup> value, the higher the dependent variable can explain the variation of the variable. According to Ghozali (2018), the higher the Adjusted-R<sup>2</sup> value, the higher the independent variable can explain the variation of the variable.

### Panel Data Regression Model Selection Technique

To perform multiple regression analysis on the panel data model in this study is to use the EViews analysis tool version 12. Unlike regression in general, panel data regression in EViews must go through the stages of determining the right estimation model, namely: Common Effect Model, Fixed Effect Model, or Random Effect Models. The picture below shows the stages of determining the right estimation model. The regression model estimation technique using panel data can be done through three approaches including the Common Effects Model (CEM), Fixed Effects Model (FEM), Random Effect Model (REM) (Basuki and Prawoto, 2016).

#### 1) Chow Test

The Chow test aims to test and compare, and choose the best model, between the CEM or FEM models that will be used in selecting the panel data regression model. Determination of model is done by statistical test F test and chi-square with the hypothesis below. Here are the steps that must be done in the Chow Test are as follows:

H<sub>0</sub>: CEM is better and using  $\alpha = 5\%$  CEM is better, accepting the null hypothesis (H<sub>0</sub>) and rejecting the alternative hypothesis (H<sub>a</sub>).

H<sub>1</sub>: FEM is better using  $\alpha = 5\%$  FEM is better, rejecting the null hypothesis (H<sub>0</sub>) and accepting the alternative hypothesis (H<sub>a</sub>).

- 1) Estimation using FEM
- 2) Test the model using the Chow Test
- 3) Taking into account the F and Chi-Square probability values where, if the F and Chi-Square probability values  $> \alpha = 0.05$ , then H<sub>0</sub> is accepted so that the panel data regression test is using CEM, but on the contrary if the F and Chi-Square probability values are  $< \alpha = 0.05$ , then H<sub>0</sub> is rejected so that the panel data regression test using the model is FEM.

#### 2) Hausman Test

Hausman test is conducted to see the comparison and determine the best model choice between FEM and REM which will be used to perform panel data regression model. Hausman test is a statistical test to choose whether FEM or REM is most appropriate to use (Basuki and Prawoto, 2016). Determination of the model is done by statistical test F test or random cross-section with the hypothesis below. The following are the steps that must be taken in the Hausman Test in this study:

H<sub>0</sub>: REM is better, using  $\alpha = 5\%$  REM is better, accepting the null hypothesis (H<sub>0</sub>) and rejecting the alternative hypothesis (H<sub>a</sub>).

H<sub>1</sub>: FEM is better, using  $\alpha = 5\%$  FEM is better, rejecting the null hypothesis (H<sub>0</sub>) and accepting the alternative hypothesis (H<sub>a</sub>).

- a) Estimation using REM
- b) Test the model using the Hausman test
- c) Taking into account the value of the Chi-Square probability with the following assumptions:

If the Chi-Square probability value is  $> 0.05$ , then  $H_0$  is accepted so that the panel data regression test is using REM. However, if the Chi-Square probability value is  $< 0.05$ , then  $H_0$  is rejected so that the panel data regression test is using FEM.

### 3) Lagrange Multiplier Test

The Lagrange Multiplier test is an analysis carried out with the aim of determining the best method in panel data regression, whether to use CEM or REM. The Lagrange Multiplier Test is only performed if the Chow Test accepts CEM or the Hausman Test receives REM. To find out whether the REM model is better than CEM, the Lagrange Multiplier test is used (Basuki and Prawoto, 2016). This test is conducted to determine whether CEM or REM is more appropriate to use in estimating panel data.

$H_0$ : CEM is better, using  $\alpha = 5\%$  CEM is better, accepting the null hypothesis ( $H_0$ ) and rejecting the alternative hypothesis ( $H_a$ ).

$H_1$ : REM is better, using  $\alpha = 5\%$  REM is better, rejecting the null hypothesis ( $H_0$ ) and accepting the alternative hypothesis ( $H_a$ ).

The Lagrange multiplier test was carried out based on the chi-square with a degree of frequency (df) equal to the number of independent variables. If the Breusch-Pagan probability value is  $> 0.05$ , it means that  $H_0$  is accepted and the one used in estimating the panel data is the Common Effect Model.

## RESULTS AND ANALYSIS

The CAR variable has a  $t_{count}$  value of 0.0326 which is smaller than the critical probability value ( $\alpha=5\%$ ) which is  $0.0326 < 0.05$ . This shows that CAR has an effect on the Efficiency Value of Islamic Commercial Banks in Indonesia. The regression coefficient of 0.256248 indicates a positive direction. Although the regression coefficient has the opposite direction to the rejection of the proposed hypothesis, the prob. value.  $< 0.05$  so that the hypothesis is accepted. Based on these statistical results, the first hypothesis ( $H_1$ ) proposed is declared **accepted**.

The BOPO variable has a  $t_{count}$  value of 0.8640 which is greater than the critical probability value ( $\alpha=5\%$ ) which is  $0.8200 > 0.05$ . This shows that BOPO has no effect on the Efficiency Value of Islamic Commercial Banks in Indonesia. The regression coefficient of -0.016968 indicates a negative direction. The value of the regression coefficient has the opposite direction to the direction of the proposed hypothesis, as well as the value of the prob.  $> 0.05$  so the hypothesis is rejected. Based on these statistical results, the second hypothesis ( $H_2$ ) proposed is declared **rejected**.



The NPF variable has a  $t_{\text{count}}$  value of 0,9462 which is greater than the critical probability value ( $\alpha=5\%$ ) which is  $0,9462 > 0.05$ . This shows that the NPF has no effect on the Efficiency Value of Islamic Commercial Banks in Indonesia. The regression coefficient of 0.023361 indicates a positive direction. The value of the regression coefficient has the opposite direction to the direction of the proposed hypothesis, as well as the value of the prob.  $> 0.05$  so the hypothesis is rejected. Based on these statistical results, the third hypothesis ( $H_3$ ) proposed is declared **rejected**.

The FDR variable has a  $t_{\text{count}}$  value of 0.0004 which is smaller than the critical probability value ( $\alpha=5\%$ ) which is  $0.0004 < 0.05$ . This shows that FDR has an effect on the Efficiency Value of Islamic Commercial Banks in Indonesia. The regression coefficient of -0.908242 indicates a negative direction. The regression coefficient has the same direction as the proposed hypothesis, but the prob. value.  $< 0.05$  so that the hypothesis is accepted. Based on these statistical results, the fourth hypothesis ( $H_4$ ) proposed is declared **accepted**.

The ICG variable has a  $t_{\text{count}}$  value of 0.0008 which is smaller than the critical probability value ( $\alpha=5\%$ ) which is  $0.0008 < 0.05$ . This shows that ICG has an effect on the Efficiency Value of Islamic Commercial Banks in Indonesia. The regression coefficient of -0.139246 indicates a negative direction. Although the regression coefficient has the opposite direction to the direction of the proposed hypothesis, the prob. value.  $< 0.05$  so that the hypothesis is accepted. Based on these statistical results, the fifth hypothesis ( $H_5$ ) proposed is declared **accepted**.

The OC variable has a  $t_{\text{count}}$  value of 0.0000 which is smaller than the critical probability value ( $\alpha=5\%$ ) which is  $0.0000 < 0.05$ . This shows that OC has an effect on the Efficiency Value of Islamic Commercial Banks in Indonesia. The regression coefficient of 0.256515 indicates a positive direction. The regression coefficient has the same direction as the proposed hypothesis, the prob. value.  $< 0.05$  so that the hypothesis is accepted. Based on these statistical results, the sixth hypothesis ( $H_6$ ) proposed is declared **accepted**.

The inflation variable has a  $t_{\text{count}}$  value of 0.0312 which is greater than the critical probability value ( $\alpha=5\%$ ), which is  $0.0312 < 0.05$ . This shows that inflation affects the Efficiency Value of Islamic Commercial Banks in Indonesia. The regression coefficient of -0.058867 indicates a negative direction. The regression coefficient has the opposite direction to the direction of the proposed hypothesis, but the prob.  $< 0.05$  so the hypothesis is accepted. Based on these statistical results, the seventh hypothesis ( $H_7$ ) proposed is declared **accepted**.

The efficiency value variable has a  $t_{\text{count}}$  value of 0.0000 which is smaller than the critical probability value ( $\alpha = 5\%$ ) which is  $0.0000 < 0.05$ . This shows that the Efficiency Value affects the Return On Assets (ROA) in Islamic Commercial Banks in Indonesia. The regression coefficient of -0.836238 indicates a negative direction. Even though the regression coefficient has the opposite direction to the direction of the proposed hypothesis, the prob.  $< 0.05$  so the hypothesis is accepted. Based on these statistical results, the ninth hypothesis ( $H_9$ ) proposed is declared **accepted**.

The CAR variable has a  $t_{\text{count}}$  value of 0.1401 which is greater than the critical probability value ( $\alpha=5\%$ ) which is  $0.1401 > 0.05$ . This shows that CAR has no effect on Return On Assets (ROA)

in Islamic Commercial Banks in Indonesia. The regression coefficient of 0.875177 indicates a positive direction. The regression coefficient value has the opposite direction to the direction of the proposed hypothesis, the prob.  $> 0.05$  so the hypothesis is rejected. Based on these statistical results, the tenth hypothesis ( $H_{10}$ ) proposed was declared **rejected**.

The BOPO variable has a  $t_{count}$  of 0.0233 which is less than the critical probability value ( $\alpha=5\%$ ), which is  $0.0233 < 0.05$ . This shows that BOPO has an effect on Return On Assets (ROA) in Islamic Commercial Banks in Indonesia. The regression coefficient of 0.328716 indicates a positive direction. The regression coefficient value has the same direction as the direction of the proposed hypothesis, as well as the prob. value.  $< 0.05$  so the hypothesis is accepted. Based on these statistical results, the eleventh hypothesis ( $H_{11}$ ) proposed is declared **accepted**.

The NPF variable has a  $t_{count}$  value of 0.9355 which is greater than the critical probability value ( $\alpha = 5\%$ ) which is equal to  $0.9355 > 0.05$ . This shows that NPF has no effect on Return On Assets (ROA) in Islamic Commercial Banks in Indonesia. The regression coefficient of 0.067908 indicates a positive direction. The regression coefficient has a direction opposite to the direction of the proposed hypothesis, as well as the probability value.  $> 0.05$  so the hypothesis is rejected. Based on these statistical results, the twelfth hypothesis ( $H_{12}$ ) proposed was declared **rejected**.

The FDR variable has a  $t_{count}$  value of 0.5530 greater than the critical probability value ( $\alpha = 5\%$ ), which is  $0.2080 > 0.05$ . This shows that FDR has no effect on Return On Assets (ROA) in Islamic Commercial Banks in Indonesia. The regression coefficient of -1.860617 indicates a negative direction. The regression coefficient has the same direction as the direction of the proposed hypothesis, the prob.  $> 0.05$  so the hypothesis is rejected. Based on these statistical results, the thirteenth hypothesis ( $H_{13}$ ) proposed was declared **rejected**.

The ICG variable has a  $t_{count}$  value of 0.0366 which is smaller than the critical probability value ( $\alpha = 5\%$ ), which is  $0.0366 < 0.05$ . This shows that ICG has an effect on Return On Assets (ROA) in Islamic Commercial Banks in Indonesia. The regression coefficient of 0.300968 indicates a positive direction. The regression coefficient value has the same direction as the direction of the proposed hypothesis, as well as the prob. value.  $< 0.05$  so the hypothesis is accepted. Based on these statistical results, the fourteenth hypothesis ( $H_{14}$ ) proposed is declared **accepted**.

The OC variable has a  $t_{count}$  value of 0.0000 which is less than the critical probability value ( $\alpha = 5\%$ ), which is  $0.0000 < 0.05$ . This shows that OC has an effect on Return On Assets (ROA) in Islamic Commercial Banks in Indonesia. The regression coefficient of -2.888614 indicates a negative direction. Even though the regression coefficient value has the opposite direction to the direction of the proposed hypothesis, the prob.  $< 0.05$  so the hypothesis is accepted. Based on these statistical results, the fifteenth hypothesis ( $H_{15}$ ) proposed was declared **accepted**.

The inflation variable has a  $t_{count}$  value of 0.0000 which is smaller than the critical probability value ( $\alpha = 5\%$ ), which is  $0.0000 < 0.05$ . This shows that inflation has an effect on Return On Assets (ROA) in Islamic Commercial Banks in Indonesia. The regression coefficient of -1.055889 indicates a negative direction. Even though the regression coefficient has the opposite

direction to the direction of the proposed hypothesis, the prob.  $<0.05$  so the hypothesis is accepted. Based on these statistical results, the sixteenth hypothesis ( $H_{16}$ ) proposed is declared **accepted**.

## CONCLUSION

<sup>17</sup> The purpose of this study is to estimate and <sup>5</sup> analyze the valuation of efficiency values and their implications for Return On Assets (ROA) at Islamic Commercial Banks in Indonesia during the period 2015 to 2021 using the panel data regression method. More specifically according to the formulation of the problem, research objectives, framework and research hypotheses, the conclusions of the study based on the two structural models of the panel data regression method are as follows:

- <sup>42</sup> 1. The variable Capital Adequacy Ratio (CAR) has a positive and significant effect on the Efficiency Value of Islamic Commercial Banks in Indonesia for the period 2015 to 2021. Optimal financing distribution with the assumption that there is no bad financing will increase returns which will ultimately increase the efficiency value of these Islamic banks.
- <sup>12</sup> 2. The Variable Operating Income Operating Costs (BOPO) has a negative and insignificant effect on the Efficiency Value of Islamic Commercial Banks in Indonesia for the period 2015 to 2021. The increasing BOPO ratio indicates a lack of ability of banks to reduce their operating <sup>33</sup> costs which can cause losses because banks are less efficient in managing his business. The smaller the BOPO means the more efficient the operational costs incurred by the bank concerned.
- <sup>13</sup> 3. The Non Performing Financing (NPF) variable has a positive and insignificant effect on the Efficiency Score in Islamic Commercial Banks in Indonesia for the period 2015 to 2021. The calculation of the efficiency value using the DEA method is calculated based on input data and output data, which does not take into account the elements risks, especially financing risks. As a result, the resulting efficiency score may not be related to NPF.
4. The Financing to Deposit Ratio (FDR) variable has a negative and significant effect on the Efficiency Value of Islamic Commercial Banks in Indonesia for the period 2015 to 2021. The higher the FDR of a bank is one of the benchmarks for obtaining a high level of efficiency. There is an influence between FDR on the efficiency value of Islamic Commercial Banks in Indonesia, because Islamic banks have an FDR ratio with a high level of liquidity.
- <sup>10</sup> 5. The Islamic Corporate Governance (ICG) variable has a negative and significant effect on the Efficiency Value of Islamic Commercial Banks in Indonesia for the period 2015 to 2021. The Islamic supervisory board is part of the management structure of Islamic banking, while the frequency of audit <sup>78</sup> committee meetings is part of the bank's activities. The more number of administrators will have an impact on the company's operating expenses which will increase, while the frequency of meetings that are held too often will also increase the operational costs of Islamic banks.

6. The Office Channeling (OC) variable has a positive and significant impact on the Efficiency Value of Islamic Commercial Banks in Indonesia for the period 2015 to 2021. Office Channeling in Islamic Banks has a positive impact on the development of the Islamic banking industry in Indonesia in the future, including making it easier for customers to carry out sharia transactions, making it easier for customers to gain access to sharia banking services.
7. The CAR, BOPO, NPF, FDR, ICG, Office Channeling, and Inflation variables together have a positive and significant effect on the Efficiency Value of Islamic Commercial Banks in Indonesia for the period 2015 to 2021. Adjusted R-squared value in structural equation 1 (one) of 0.777050 or 77.70%, meaning that the presentation of the influence of independent variables namely CAR, BOPO, NPF, FDR, ICG, Office Channeling and Inflation on Efficiency Value is 77.70%, while the remaining is 22.30 % explained by other factors outside the variables not included in this study. This result is a different concept from previous researchers, and no previous researchers have combined these variables in one model.
8. The Efficiency Value variable has a negative and significant effect on Return On Assets (ROA) at Islamic Commercial Banks in Indonesia for the period 2015 to 2021. The Efficiency Value for the Islamic banking industry is very important, because it will determine the price of a product which will affect higher returns tall.
9. The variable Capital Adequacy Ratio (CAR) has a positive and insignificant effect on Return On Assets (ROA) at Islamic Commercial Banks in Indonesia for the period 2015 to 2021. CAR is capital adequacy which indicates a bank's ability. The higher CAR will increase the wealth and capital adequacy obtained by the Bank so as to increase returns.
10. The Variable Operating Costs Operating Income (BOPO) has a positive and significant effect on Return On Assets (ROA) at Islamic Commercial Banks in Indonesia for the period 2015 to 2021. The positive effect of the BOPO ratio illustrates that if a bank incurs greater costs for its operational activities such as financing, it will reduce the acquisition of the bank's income. The higher the bank's income, the higher the income that will be received by its customers.
11. Non-Performing Financing (NPF) variables have a positive and insignificant effect on Return On Assets (ROA) at Islamic Commercial Banks in Indonesia for the period 2015 to 2021. Management of financing is very much needed by banks, because the function of financing is as the most important source of income great for Islamic banking. NPF is a financial ratio that shows the financing risk faced by a bank due to the provision of financing and investment of bank funds.
12. The Financing to Deposit Ratio (FDR) variable has a negative and insignificant effect on Return On Assets (ROA) at Islamic Commercial Banks in Indonesia for the period 2015 to 2021. There is no influence between the Financing to Deposit Ratio on Return On Assets of Islamic Commercial Banks in Indonesia, because Islamic banks have FDR ratios with



low levels of liquidity. If Non-Performing Financing decreases, Return On Assets will increase.

13. The variable financing to Deposit Ratio (FDR) has a negative and insignificant effect on Return On Assets (ROA) at Islamic Commercial Banks in Indonesia for the period 2015 to 2021. There is no influence between the Financing to Deposit Ratio on Return On Assets of Islamic Commercial Banks in Indonesia, because Islamic banks have FDR ratios with low levels of liquidity. If Financing to Deposit Ratio decreases, Return On Assets will increase.
14. The Islamic Corporate Governance (ICG) variable has a positive and significant effect on Return On Assets (ROA) at Islamic Commercial Banks in Indonesia for the period 2015 to 2021. The Sharia Supervisory Board (DPS) will have an impact on the effectiveness and efficiency of the division of responsibilities among DPS members. So that sharia, social and financial responsibility is not only in one member, but there is a distribution among members of the Sharia Supervisory Board.
15. The Office Channeling (OC) variable has a positive and significant effect on Return On Assets (ROA) at Islamic Commercial Banks in Indonesia for the period 2015 to 2021. With this office channeling system, Islamic business units no longer need to open branches in many places so that expansion costs are far more efficient besides the impact on Return on Assets.
16. The inflation variable has a negative and significant effect on Return on Assets (ROA) at Islamic Commercial Banks in Indonesia for the period 2015 to 2021. Islamic banks must pay attention to the inflation factor as a macroeconomic factor that can affect Return on Assets at Islamic Banks in Indonesia.
17. The variable Efficiency Value, CAR, BOPO, NPF, FDR, ICG, Office Channeling, and Inflation together have a positive effect on Return on Assets (ROA) in Islamic Commercial Banks in Indonesia for the period 2015 to 2021. Adjusted R-squared on structural equation 2 (two) after adding the intervening variable, namely the efficiency value increases to 0.923517 or 92.35%. This means that the percentage contribution of the influence of the independent variables namely CAR, BOPO, NPF, FDR, ICG, Office Channeling, Inflation, and Efficiency Value on the dependent variable namely Return On Assets (ROA) is 92.35% or the variation of the independent variable is able to explain by 92.35% variation of the dependent variable. While the remaining 7.65% is influenced or explained by other variables not examined in the regression model in this study. This result is a different concept from previous researchers, and no previous researchers have combined these variables in one model.

## RECOMMENDATION

For Islamic Commercial Banks, Efficiency Value can be a guide for manager performance so as to create added value and competitive advantage compared to competitors in the banking industry. The reason is the familiarity factor of Islamic Commercial Banks.

For Investors, this research is useful as a reference for assessing the Efficiency Value and Return On Assets of Islamic Commercial Banks, so that it can assist (prospective) investors in making investment decisions so that their portfolios are able to provide maximum returns with minimal risk in choosing investments in Islamic Banks. In addition, this research is expected to help investors to measure the factors that can affect Return On Assets, in addition to management having skills in managing Islamic banking, has also implemented Islamic Corporate Governance even though the Indonesian capital market is still classified as a weak form.

For the Government, this research is expected to assist the government in formulating strategies that can boost and increase the Return On Assets of Islamic Commercial Banks so that they can compete in developing existing businesses. Based on this research, Efficiency Value can increase the Return On Assets of Islamic Commercial Banks in Indonesia. Therefore, as a recommendation to the government for strategies to strengthen sharia banking are: (1) Consolidation of sharia banking; through mergers, acquisitions, and holding establishments, optimizing bank synergy under one ownership. (2) Placement of APBN funds in sharia banking; encourage ASN payroll and BUMN employees through Islamic banks as salary channeling banks, encourage placement of BUMN funds and BUMN project financing through Islamic banks. (3) Infrastructure financing and SOEs through sharia banking; development of government cooperation schemes and sharia business entities for infrastructure development, outreach and advocacy to increase financing of infrastructure projects through sharia banks.

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