Determination Profitability of Islamic Banks with Exchange Rate as Moderating Variable

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Abstract:

This study aims to analyze the factors that can affect Islamic banks' return on assets (ROA) in Indonesia. These factors include independent variables consisting of the ratio of operating costs to operating income (BOPO), Financing to Deposit Ratio (FDR), the ratio of financing income to total income, which is moderated by the exchange rate, the ratio of securities income to total income which moderated by the exchange rate, and also the exchange rate. The method used to analyze the determination of ROA is regression analysis with Error Correction Models (ECM). The research sample used is the entire research population, namely monthly data in 2016-2020 of Indonesia's Islamic Bank, including in the group of BUKU II published by the Financial Services Authority (OJK) and Bank Indonesia (BI). Therefore, the number of data observations in this study is 60 (sixty) data. The results of this study indicate that the long-term analysis: (i) BOPO has a negative and significant effect on ROA; (ii) FDR has no significant effect on ROA; (iii) The ratio of financing distribution moderated by the exchange rate has a positive and significant effect on ROA; (iv) Securities income ratio moderated by exchange rate has a negative and significant effect on ROA; (v) Exchange rate has a negative and significant effect on ROA. Meanwhile, for the short term, the result are: FDR does not affect on ROA. Furthermore, the results of the study for short-term analysis: (i) BOPO has a negative and significant effect on ROA; (ii) FDR has no significant effect on ROA; (iii) The ratio of financing distribution moderated by the exchange rate has a positive and significant effect on ROA; (iv) Securities income ratio moderated by exchange rate has no significant effect on ROA; (v) Exchange rate has a negative and significant effect on ROA. The implication of this research is to provide input and repertoire of knowledge for academics and practitioners related to the factors that affect the performance of Islamic banks (ROA). Therefore, based on this research, Islamic banks BUKU II to maintain their financial performance, Islamic banks must be able to develop financing products that are following the expectation and needs of the community. The originality of this study is to analyze the determination of ROA moderated by macroeconomic variables (ROA).

Introduction

The bank's definition based on Statute No. 10 of 1998 on banking can be concluded, that the bank is a financial institution, whose duty is to collect and distribute funds from the public in the form of loans or other forms to improve the living standard of the people. The Bank has many essential roles in improving a country's economy, such as moving public funds that will be used for investment activities and providing service facilities in facilitating transactions. The Bank also aims to support the implementation of national development to increase equality, economic growth, and national stability towards improving the people (Muniarty et al., 2020).

The development of Islamic banks in Indonesia is experiencing rapid growth. This is due to the enactment of Statute No. 21 of 2008 on Islamic banking, that provides a more explicit legal basis and operating platform for Islamic banks in Indonesia. The existence of Islamic banks in Indonesia is also driven by the high interest of the public to use the facilities and services offered by Islamic banks because the results and products offered are more varied, such as profit sharing (mudharabah), rental financing (ijarah), pawn golds (rahn) (Bahari et al., 2021).

Suprapty et al. (2021) argue that the rapid development of Islamic banks in Indonesia is due to the banking system that is run according to Islamic law and the impact of implementing the dual banking system in Indonesia. This dual banking system provides way for banks that previously operated conventionally to establish sharia-based banks (Ma'rifah et al., 2020; Nugroho et al., 2019a). This will undoubtedly have an impact on the increasing number of Islamic banks operating in Indonesia. Furthermore, intense competition between Islamic banks and conventional banks makes Islamic banks improve their performance well to compete in the national banking industry in Indonesia and gain the public's trust (Arifin, 2003). Outstanding bank performance can affect profitability, which is the bank's goal in conducting its business (Nugroho et al., 2019b; Roberts & Dowling, 2002). In addition, Soekapdjo et al. (2018) state that two categories can affect a bank's profitability. The first category is internal factors related to the management of bank management, and external factors that are beyond the control of the bank management. The internal factors of the bank are reflected in the figures contained in the bank's financial statements, which are the most appropriate indicators in analyzing the bank's performance, especially the calculation on its financial ratios to evaluate the past, current and present financial conditions, and project them in the future. Ratio analysis compares a relative number to avoid misinterpretation of the absolute numbers displayed in the financial statements. External factors are macroeconomic factors that affect a country economy, such as inflation, currency exchange rates, and economic growth (Anshary et al., 2021).

An important indicator in analyzing the contribution and implications of internal factors on bank financial performance can be analyzed from the ability of Islamic banks to generate income from their operational activities, where the better the income earned; the more significant the internal factors contribute to the Islamic bank's income (Nugroho et al., 2021a; Suryo et al., 2019). Indjejikian et al. (2014) revealed that the higher the profitability of a bank, the better the performance of the bank. In addition, Drake et al. (2009) stating that the profitability ratio is the ratio used to measure the effectiveness of the company's overall management indicated by the amount of profit earned by the company. The measure of profitability used to measure bank performance includes return on equity (ROE) for companies in general and return on assets (ROA) for the banking industry, it is because Bank Indonesia (BI) prioritizes measuring the profitability of a bank with assets. The majority of bank's source of funds mostly comes from public deposit funds, so ROA is suitable to represent in measuring banking profitability (Nugroho et al., 2021b).

As a country with a Muslim majority in population and as the country with the largest Muslim population in the world, it is natural that if the development of Islamic banks in Indonesia, which is managed with values under the teachings of Allah SWT disguised by Rasulullah SAW and poured in the Quran and Sunnah, it is developed better than Islamic banks in other Islamic countries. However, if we look at the development of Islamic banks in Indonesia today, especially when compared to Islamic banks in Middle Eastern countries such as Palestine, Qatar, United Arab Emirates, Lebanon, Saudi Arabia, Kuwait, Bahrain, Jordan, Oman, and Iraq, then ROA Islamic bank in Indonesia is among the lowest (CPIFinancial, 2017).

Therefore, the low ROA of Islamic banks in Indonesia is a problem. It is contrast to Indonesia as the country with the largest Muslim in population globally and the government's plan to establish Indonesia as the economic and financial center of the world. On the other hand, as the world's largest Muslim population, Indonesia has difficulties in increasing the market share of Islamic banks, which is shown by the relatively low market share in 6.18% in June 2020 (Otoritas Jasa Keuangan/OJK, 2020). This undoubtedly contributes to the low ROA of the Islamic banking industry in Indonesia. Due to the phenomenon of low ROA of the Indonesian Islamic banking industry, Islamic banks' contribution to improve the welfare of the people in Indonesia is still not yet optimal (Nugroho et al., 2020a). The low performance of Islamic banks in Indonesia is contrary to the world's largest Muslim population in Indonesia. However, Islamic banks in Indonesia should have a good performance because the target market for sharia products and services is enormous. Therefore, with a good performance, it is expected that public trust (especially Muslims) towards Islamic banks will increase to attract them to use Islamic banks in their banking transactions which will ultimately increase the market share of Islamic banks. Furthermore, the increasing market share of Islamic banks will impact further increase the profitability of Islamic banks. According to Nugroho et al. (2020b), optimization of profit in the Islamic economy can be done in line with the increase in transaction volume, not from exploiting production and consumer factors (reduce production costs to the optimal level and sell at the reasonable prices to increase sale volume).

Another vital point to underline is that there is no frame of mind, in this case, a precise formula to measure commercial banks' performance comprehensively. The most commonly used to measure bank's performance is BOPO (Octrina & Mariam, 2021). We utilize the BOPO ratio to measure a bank's efficiency by

comparing Operating Expenses with Operating Income. Financing management is indispensable for banks, considering the financing function as the most significant contributor to income for Islamic banks. In addition, the health level of financing contributes to the achievement of bank profits, where the smaller BOPO shows, the more efficient the bank is in carrying out its business activities (Suhadak et al., 2013).

Furthermore, increasing the profit of Islamic banks can also be achieved through cost-effective or targeted or commonly referred to as a cost leadership strategy (Vinayan et al., 2012). Cost leadership aims to produce the same output at a lower expenditures (Hakiim & Rafsanjani, 2016). Therefore, Islamic bank strategy in improving performance can be done jointly through business focus to generate optimum profit and efficient and effective expenditure management. Nugroho et al. (2017) stated that the business of the Islamic bank is to raise funds from the community and then channel it back to the community in the form of financing. Therefore, the primary income from Islamic banks comes from financing distribution revenues. The more quality of financing channeled by Islamic banks, the better the performance of the Islamic bank (Kumbirai & Webb, 2010). In addition, income in the form of revenue sharing and margin from financing distribution, Islamic banks also receive other sources of income from securities investments. The sources of Islamic bank securities investments comes from idle funds that have not been used for financing (Nugroho et al., 2020c). Thus, to improve performance, Islamic banks can have to optimize the source of Islamic bank fund placement in investment to increase income received from bank investments from securities (Dewi et al., 2020). Although financing can generate margin and income, not all banks can invest their funds in credit or financing. This is because financing has an illiquid in nature, so it cannot cover the bank liquidity. In addition, financing has a very high risk, especially in uncertain economic conditions such as during the Covid-19 Pandemic (Ihwanudin et al., 2020a).

According to Anjani & Purnawati (2014), the quality of the bank's profit depends on various factors, both internal factors of the bank and those derived from external banks. Internal factors that affect the bank's profitability are derived from the bank's activities (Utami et al., 2020). At the same time, external factors are factors derived from macroeconomic conditions that occur in the economy (Alamsyah et al., 2005). Macroeconomic factors affecting the bank's profitability include gross domestic product, inflation rate, money supply, and foreign exchange rate (Arifin, 2003). In addition to inflation, another variable that affects the bank's profitability is the rupiah exchange rate, or it can be called the foreign exchange rate (Widayatsari, 2013). As mentioned earlier, banking is an institution capable and involve in business transaction activities both from domestic and foreign activities. To facilitate International businesses transaction, the bank provides foreign exchange, buying and selling services, in its operational activities.

Foreign exchange trading can be interpreted as trading the currency (foreign currency) of a country with another country's currency (Arifin, 2003). Regarding Sarno & Taylor (2001), the foreign trading exchange is very profitable under normal circumstances because transactions generate profits in exchange rate differences. This happens because foreign exchange traffickers always offer two exchange rates. Hidayati (2014) has researched the influence of the rupiah exchange rate on bank profitability, proves that the exchange rate has a significant influence on the profitability of Islamic banks in Indonesia. This illustrates that if the currency appreciates or depreciates, it will impact Islamic banks' profitability, proving that the exchange rate significantly influences the profitability of Islamic banks in Indonesia.

Following the above phenomena, research is needed to analyzes variables that can affect ROA, including the ability of Islamic banks to control expenditures (BOPO), the ability of Islamic banks to channel financing (FDR), financing income ratios, and securities revenue ratios. Furthermore, because of external factors can determine the bank performance is the exchange rate, then in this research, the exchange rate of Rupiah against USD is used as moderation variable. Therefore, this research will be conducted to determine the factors that affect the performance of Islamic banking which is reviewed from the perspective of ROA, moderated by exchange rates and internal factors in the form of BOPO, FDR, financing income ratio, and securities revenue ratio as independent variables. Based on the gap phenomenon above, the problem formulation in this study are:

- Does the operating cost ratio to operating income (BOPO) affect Return on Assets (ROA)?;
- Does the ratio of Financing to Deposit Ratio (FDR) affect ROA?;
- Does the USD exchange rate affects ROA?;
- Does the USD exchange rate moderate the influence of the ratio of financing income to ROA?;
- Does the USD exchange rate moderate the influence of securities on the ROA investment income ratio?.

Therefore, referring to the formulation of this research, this study aims to analyze the factors that affect the performance of Islamic banking, namely Return on Assets (ROA). The use of ROA indicators to measure the performance of Islamic banks, according to Nugroho & Bararah (2018) is more accurate than the Return on Equity (ROE) ratio. This is because the operations and business activities of the banking industry (conventional banks and Islamic banks) are primarily sourced from public funds or commonly called third-party funds (DPK) (Safitri et al., 2016). The types of DPK in banks, in general, can be distinguished into (i) current accounts, (ii) savings, (iii) deposits in conventional bank. While in Islamic banks, the accounts of third-party funds consist of wadiah accounts for current accounts, wadiah accounts for savings, and mudharabah accounts for deposits (Widayatsari, 2013). Thus, the novelty of this research is a study that aims to analyze the performance of Islamic

banking, namely ROA. In addition, in this study, researchers also used different variables from previous researchers as free variables, namely BOPO, FDR, Financing Income Ratio, Securities Income Ratio and USD Exchange Rate as moderation variables.

Literature Reviews

In the perspective of Shari'a Enterprise Theory (SET), the distribution of wealth or added value is not only given to directly engaged partisans such as shareholders, creditors, employees, and governments but also to others who are indirectly involved in the business, who do not make financial contributions and skills (Suhendri et al., 2017). Therefore, based on SET recommendations, the company must provide a value-added report as one of the financial statements. In addition, the report contains information about the added value that the company has successfully created and the distribution of added value to beneficiaries (Gusliana Mais, Sukoharsono, Rahman, & Mulawarman, 2017).

SET puts Allah, not man, at the center of everything. God acts as the focal point for His creatures throughout the universe to return. The role of this theory on the activities of Islamic microfinance banks is expected to improve the performance of Islamic microfinance banks, and management will be more encouraged to adhere to the principles that have been established as accountability to all stakeholders. Furthermore, Islamic banking aims to improve the welfare of the community, which, in other words, Islamic banking aims not only to seek profit but to care about social problems (Arafah & Nugroho, 2016; Cebeci, 2012).

Previous studies have yielded varying results related to factors that affect performance in Islamic banks. However, this study will focus on analyzing factors that affect the return on assets, including:

- The bank's ability to manage expenses and increase productivity through the ratio of operating expenses to operating income;
- The ability of Islamic banks to distribute projected financing with financing deposit ratios; The ability of Islamic banks to manage the distribution of funds through financing products to get optimal income with proxy financing income ratio;
- The ability of Islamic banks to manage the distribution of funds through securities investments to get optimal income with a proxy ratio of Securities income;
- The ability of Islamic banks can anticipate external factors through USD rate proxies and also as moderation variables.

Research Model, Hypotheses, and Method

Furthermore, based on previous theoretical studies and research, the research framework can be shown in figure 1 below:
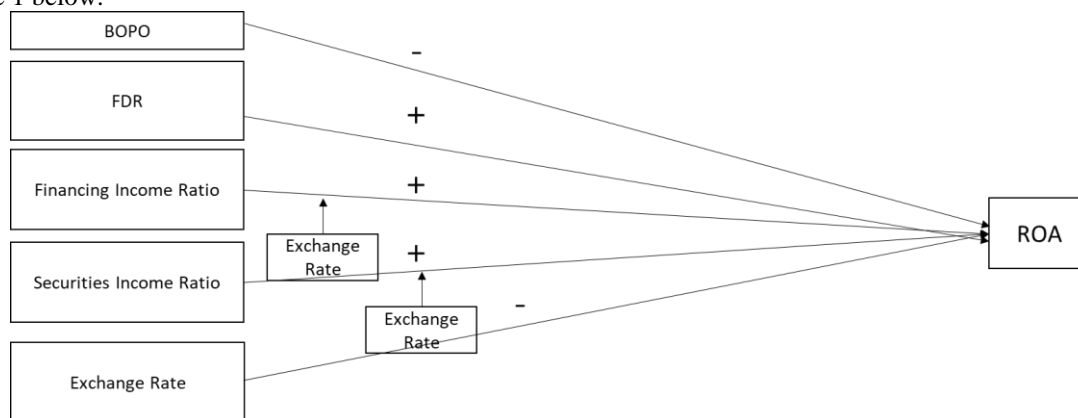
Figure 1. Conceptual Framework of ROA Determinant Research with Exchange Rate as Moderating Variable

Referring to figure 1 and based on previous research and literature reviews, the hypothesis in this study is used to answer the formulation of the problems proposed in this study. Although it is quantitative, it can be formulated the following hypothesis:

- Hypothesis 1: BOPO negatively affects ROA;
- Hypothesis 2: The ratio of FDR positively affects ROA;
- Hypothesis 3: The USD Exchange Rate moderates the positive influence of the ratio of financing income to ROA;
- Hypothesis 4: The USD Exchange Rate moderates the positive influence of the ratio of securities earnings to ROA.
- Hypothesis5: The Exchange Rate negatively affect ROA

Effect of BOPO on Return on Assets (ROA)

The ability of banks to generate optimal profits or profits can be through two ways: optimizing the opinion side through optimal financing distribution and effective expenditure management. Therefore BOPO, as a ratio between output and input from Islamic banks, can be one of the indicators of achievement of the performance of Islamic banks. The more Islamic banks can control BOPO (the lower), the potential for ROA from Islamic banks to increase. This is following the research conducted by Litriani (2016).

Effect of FDR on Return on Assets (ROA)

The main business of Islamic banks is to re-channel funds obtained to the community in the form of financing (Ihwanudin et al., 2020b). The better the distribution of financing, the better the potential of the bank to receive profits. Therefore, previous research conducted by Pravasanti (2018) states that the higher the FDR, the more positive and significant the ROA will have.

The Effect of financing income ratio on ROA with USD exchange as moderating variable

Good macroeconomic conditions will encourage economic growth, and the rill sector will move (Kara, 2013). One of the macroeconomic indicators that support economic growth is the USD Rate. The better the exchange rate against the rupiah against the USD Rate, the better economic growth. Moreover, good growth will have a good impact on the intermediation function of Islamic banks. Therefore, the USD exchange rate will moderate the effect of financing revenues on ROA.

Effect of securities income ratio on ROA with usd exchange as moderating variable

The management of idle funds for banks is one of the critical roles of banks to maintain liquidity and get optimal income. Regino (2010) states that idle Islamic banking funds can be placed in various Islamic securities instruments like Sukuk. However, the yield from the placement of securities is also influenced by the value of the USD exchange rate. Therefore, the higher the USD exchange rate, it will have an impact on Islamic bank investment. Therefore, the USD rate variable becomes a variable in moderating the ratio of securities to ROA.

Effect of exchange rate on return on assets (ROA)

Macroeconomic conditions contribute to the internal business activities of Islamic banks. Therefore, the better the economic condition, it will impact the excellent the business activities of Islamic banks. One of the macroeconomic indicators that impact the performance of Islamic banks is the USD Rate. Based on previous research conducted by Maulana et al. (2019), The USD exchange rate against the Rupiah has a negative and significant effect on the ROA.

Method

This study uses a quantitative approach by conducting tests to prove the hypothesis. This approach is a technique that starts from developing ideas and then collects and analyzes data to obtain numerical information that can be used for estimation. This approach aims to find out the effect of operating expenses on operating income (BOPO), financing to deposit ratio (FDR), the ratio of financing income to exchange rate as a moderation variable, ratio of securities income to exchange rate as moderation variable, and exchange rate to the profitability of Islamic Commercial Bank in Indonesia. For profitability of Islamic Commercial Bank is projected with return on assets (ROA). In conducting this study using quantitative approaches with regression methods that use error correction model (ECM), so it can analyze the affect of short-term and long-term impact with time series. This study uses a quantitative approach by conducting tests to prove the hypothesis. This approach is a technique that starts from developing ideas and then collects and analyzes data to obtain numerical information that can be used for estimation. This approach aims to find out the effect of operating expenses on operating income (BOPO), financing to deposit ratio (FDR), a ratio of financing income with exchange rate as a moderation variable, ratio of securities income ~~to~~ with exchange rate as moderation variable, and exchange rate to the profitability (ROA) of Islamic Commercial Bank in Indonesia.

For profitability of Islamic Commercial Bank is projected with return on assets (ROA). In conducting this study using quantitative approaches with regression methods that use error correction model (ECM), data can be analyzed on affect short-term and long-term development with time series. Sample selection in this study uses the purposive sampling method, which is the selection of samples that aim to analyze research variables following the purpose of the study. The population in this study is BUKU II bank, a bank with a core capital of Rp1 trillion to Rp 5 trillion published by the Financial Services Authority (OJK). The selection of Islamic Bank Buku II is considering that most of Islamic banks are in BUKU II banks category. Thus the sample used is monthly data from 2016 to 2020, so that the total observation data in this study is sixty.

Operational variable

A company can use return on assets (ROA) to measure the company's ability to generate profits using the total assets held. ROA is one of the profitability ratios that are often highlighted and considered to show the company's success in making profits. In addition, ROA can measure the company's ability to generate profits in the past to be projected in the future. For example, according to Farianto (2014), the ROA ratio can formulate be as follows:

$$ROA = \frac{Net\ Income\ Before\ Taxes}{Total\ Assets}\ X 100\%$$

BOPO is a ratio that is maintained to measure the level of efficiency of the bank in carrying out its operations. BOPO can be measured by increasing the difference between Operating Expenses to Operating Income. According to Kusumastuti & Alam (2019) BOPO ratio can be formulated as follows:

$$BOPO = \frac{Operating\ Expenses}{Operating\ Income}\ X 100\%$$

FDR is a ratio used to measure the composition of the amount of financing provided compared to community funds and their capital used. By comparing between credit channeled and funds collected from the community, it can be known the ability of banks to pay short-term obligations (Hariyani, 2010). The higher the FDR indicates, the lower the liquidity capability of the bang. According to Medyawati & Yunanto (2018) the measurement of the FDR ratio can be calculated by the following formula:

$$FDR = \frac{Total\ Financing}{Total\ Deposit + Equity}\ X\ 100\ \%$$

The ratio of financing income is the ratio obtained from financing income provided with total income derived from interest. The formula of the cost-income ratio is as follows:

$$Financing\ Income\ Ratio = \frac{Financing\ Revenue\ Channeled}{Total\ Revenue}\ X\ 100\ \%$$

The ratio of securities income is derived from income generated based on the number of securities distributed with total income coming from interest. The securities income ratio formula is as follows:

$$Securities\ Income\ Ratio = \frac{Securities\ Placement\ Income}{Total\ Revenue}\ X\ 100\ \%$$

An exchange rate is the price or value of a currency against another currency (). Therefore, an exchange of these two currencies will obtain the value or price between the two currencies (). Therefore, the equations in the study contain long-term equations and short-term equations as follows:

- Long-term equation:

$$ROAt = \beta 0 + \beta 1\ BOPOt + \beta 2\ DFDRt + \beta 3\ RPBt*KURSt + \beta 4\ RPSBt*KURSt + \beta 5\ KURSt + \mathcal{E}$$

(1)

Remark
ROEt	= return on assets period t
BOPOt	= operating expenses to operating income period t
FDRt	= financing to deposit ratio period t
RPBt*KURSt	= the ratio of financing income for period t is moderated by the exchange rate period t
RPSBt*KURSt	= the income ratio of securities in period t is moderated by the exchange rate for period t
KURSt	= Rupiah exchange rate against USD in period t
B0-β5	= Coefficient
Ɛ	= Error

- Short-term equation:

$$DROAt = \beta 0 + \beta 1\ DBOPOtt + \beta 2\ DFDRt + \beta 3\ DRPBt*KURSt + \beta 4\ DRPSBt*KURSt + \beta 5\ DKURSt + ECTt\text{-}1 + \mathcal{E}$$

(2)

Remark:
DROEt	= Differentiation of return on assets period t
DBOPOt	= Differentiation of operating expenses against operating income for period t
DFDRt	= Differentiation of financing to deposit ratio period t
DRPBt*KURSt	= Differentiation ratio of financing income for period t is modulated by the exchange the rate for period t
DRPSBt*KURSt	= Differentiation ratio of securities income for period t is moderated by the exchange rate for period t
DKURSt	= Exchange rate differentiation period t
ECTt-1	= Error Correction Term
B0-β5	= Coefficient
Ɛ	= Error

Results and Discussion
Statistical test result

Referring to the results of the ADF stationarity test in table 1 below, all variables in the study of both independent and dependent variables are not stationary at levels with overall prob results. ADF is each variable > 0.05 (α). Then continued testing again at the first difference level where the results of the test produce prob. The overall ADF of 0.0000 < 0.05 (α) so that all variables are stationary at the first difference level.

Table 1. Stationary Test Results Augmented Dickey-Fulley

Variable	Level	1st Difference
	Prob. Augmented Dickey-Fuller	Prob. Augmented Dickey-Fuller
ROA	0.4219	0.0000
BOPO	0.1797	0.0000
FDR	0.5746	0.0000
KURS	0.0627	0.0000
RPP	0.7858	0.0000
RPSB	0.3480	0.0000

Remark :
ROA   = Return On Asset
BOPO   = Operating Expenses to Operating Income
FDR   = Financing to Deposit Ratio
KURS   = Exchange Rate
RPP   = Financing Income Ratio
RPSB   = Securities Income Ratio

In addition, after conducting stationarity testing, a cointegration test is required to see if there is a long-term balance relationship. The requirement for a co-integrated model, i.e., residual, must be stationary at a level of < 0.005. The results of the cointegration test are in table 2 below

Table 2. Level Cointegration Test Results

Cointegration-Test	Prob. ADF	t-statistics	Test critical values		
			1%	5%	10%
ECT	0.0068	-3.686283	-3.546099	-2.911730	-2.593551

Based on the cointegration test results in table 2, it can be concluded that residuals integrate with prob results. Augmented Dickey-Fuller of 0.0068 < 0.05 (α) so that short-term models or ECM can be used.

Hypothesis test
Long-term estimate

Referring to the results of long-term estimation analysis, the results of regression in this study showed the following results:

Table 3. Long-Term Model Estimates

Variable	Coefficient	Std. Error	t-Stats	Prob.
C	11.99526	0.443763	27.03077	0.0000
BOPO	-0.115123	0.004073	-28.26779	0.0000
FDR	6.18E-05	0.002613	0.023658	0.9812
RPP *Kurs	0.000116	2.22E-05	5.238627	0.0000
RPSB*Kurs	-0.000352	7.75E-05	-4.542487	0.0000
Kurs	-8.25E-05	2.33E-05	-3.544148	0.0008
Adj. R-Squared	0.976548			
F-Stats	492.3581			
Prob. F-Stats	0.0000			

Based on the estimation results in table 3, the long-term model equation in the study can be written as follows:

$$ROA = 11.99526 - 0.115123BOPO + 6.18E\text{-}05FDR + 0.000116RPP*Kurs - 0.000352RPSB*Kurs - 8.25E\text{-}05Kurs + e$$

(3)

In equation 3, it is found that the BOPO and the Securities Income Ratio moderated by the exchange rate have a negative and significant effect on ROA with a prob value in the long run. t-stat of 0.0000 < 0.05 (α). While the exchange rate in the long term also has a negative and significant effect on the prob value. t-stat is 0.0008 < 0.05

(α). Then, FDR and the Ratio of Financing Income moderated by the Exchange Rate have a positive effect in the long term, but FDR has no significant effect with a prob t-stat value of $0.9812 > 0.05$ (α). At the same time, the Financing Income Ratio moderated by the exchange rate has a significant effect with a prob.t-stat of $0.0000 < 0.05$ (α). The independent variable's ability to explain the dependent variable in the long-term estimation is 0.976548 or 97 percent. The remaining 3 percent is influenced by other variables that are not included in the model or errors. The effect of independent variables on ROA together has a significant effect. This can be seen from the estimation results of prob. f-stat of $0.0000 < 0.05$ (α).

Short-term estimate

Referring to the results of the short-term estimation analysis, the results of the multiple regression in this study show the following results:

Table 4. Short-Term Estimation Results

Variable	Coefficient	Std. Error	t-Stats	Prob.
C	-0.002178	0.006334	-0.343774	0.7324
D(BOPO)	-0.115554	0.004425	-26.11349	0.0000
D(FDR)	0.001808	0.003731	0.484638	0.6300
D(RPP *Kurs)	8.43E-05	2.65E-05	3.178077	0.0025
D(RPSB*Kurs)	-0.000112	0.000101	-1.116079	0.2695
D(Kurs)	-5.23E-05	2.61E-05	-2.008593	0.0498
ECT(-1)	-0.258704	0.120197	-2.152321	0.0360
Adj. R-Squared	0.941494			
F-Stats	156.5581			
Prob. F-Stats	0.0000			

Based on the estimation results in table 4, the short-term model equations in the study are as follows:

$$D(ROA) = -0.002178 - 0.115554D(BOPO) + 0.001808D(FDR) + 8.43E - 05D(RPP*Kurs) - 0.000112D(RPSB*Kurs) - 5.23E-05Kurs - 0.258704ECT(-1) + e$$

(4)

The results of the ECM model in table 4 show the coefficient of ECT is -0.258704 with prob. t-stat is $0.0360 < 0.05$ (α). This shows that the ECM model in this study can be used to analyze the short-term effect. Equation 4 shows that in the short-term BOPO, the Securities Income Ratio moderated by the exchange rate negatively affects ROA. BOPO and exchange rate variables influence each prob value. t-stat is 0.0000 and $0.0360 < 0.05$ (α). The Securities Income Ratio moderated by the exchange rate in the short term has no significant effect on the prob value. t-stat of $0.2695 > 0.05$ (α). Then, FDR and the Ratio of Financing Income moderated by the Exchange Rate positively affect the short term. However, FDR has no significant effect with a prob t-stat value of $0.6300 > 0.05$ (α). in comparison, the Finance Income Ratio moderated by the exchange rate has a significant effect with a prob.t-stat of $0.0025 < 0.05$ (α). The independent variable's ability to explain the dependent variable in the short-term estimation is 0.941494 or 94 percent. The remaining 6 percent is influenced by other variables that are not included in the model or errors. The effect of independent variables on ROA together has a significant effect. This can be seen from the estimation results of prob. f-stat of $0.0000 < 0.05$ (α).

Effect of BOPO on ROA

The performance of Islamic banks is influenced by the profits it receives. The better the profit received, the better the ROA of the Islamic bank (Wibisono & Wahyuni, 2017). One way to increase profits is through expenditure control represented by BOPO (Litriani, 2016; Wibisono & Wahyuni, 2017). The study results show that BOPO has a negative and significant effect on ROA, both in the long and short term. Therefore, the higher the BOPO, the decrease in ROA from Islamic banks (Litriani, 2016). As banks that carry out their business activities based on sharia principles, Islamic banks must run their business efficiently. An Islamic bank can be said to be efficient if: (i) it uses a smaller number of input units compared to the number of input units used by other Islamic banks to produce the same output, (ii) uses the same number of inputs but can produce a larger amount of output. Meanwhile, inefficient Islamic banks are generally caused by three things, namely: (i) the existence of a prolonged bureaucratic chain, (ii) mis-allocation in the use of existing resources, and (iii) the absence of economies of scale. Thus, banks to maintain good performance or ROA of Islamic banks, Islamic banks must consider BOPO by doing the following:

▪ Creating a lean organizational structure so that bureaucracy between work unit functions can be avoided, so that it has an impact on the speed of business processes and cost savings;
▪ Allocation of resources effectively, such as the allocation of appropriate capital resources for investments that are following the needs and desires of the current market, namely through the development of digital banking applications;

▪ In running their business, Islamic banks must also save costs that do not generate optimal income. These savings can be in the form of reducing costs for out-of-town services that do not generate significant income, which can be replaced with virtual meetings or meetings.

Effect of FDR on ROA

The main business of Islamic banking as an intermediary institution is to channel financing to the public. Therefore, the greater the ratio of financing distribution to third-party funds collected (FDR) will impact increasing profits so that the ROA of Islamic banks will also increase (Fakhruddin & Purwanti, 2015). Therefore, Islamic banks as banks based on four aspects, namely financial aspects, social aspects, environmental aspects, and spiritual aspects, must maintain their sustainability to contribute to society's welfare. Furthermore, referring to the results of statistical processing in this study, it is known that FDR does not affect ROA in the short and long term. Thus, the distribution of financing from Islamic banks has not been optimal compared to conventional banks. Thus, Islamic banks have not been able to compete with conventional banks for their financing products, so they are less desirable by people who are looking for capital to expand their business.

The Effect of exchange rate moderated revenue ratio on ROA

As one of the macroeconomic indicators, the exchange rate plays an essential role in economic growth and income from Islamic banks. If the USD exchange rate against the rupiah increases, then there is the potential for the economy to be shaken. The Indonesian economy experienced this condition during the 1997-1998 monetary crisis, caused by an increase in the USD rate against the Rupiah that could not be controlled (Anisah, 2013). Therefore, although Islamic banks have good internal performance, because macroeconomic indicators do not support it, the performance of Islamic banks or ROA is not achieved correctly. This study's statistical results show that the ratio of financing income moderated by the exchange rate has a positive and significant effect on ROA. Therefore, the better the income from the distribution of financing moderated by the exchange rate will improve the performance of the profitability of Islamic banks (ROA). Based on this, in carrying out its business, Islamic bank management, in addition to focusing on the internal condition, the Islamic banks must also focus on external conditions, so the business continuity of Islamic banks is adequately maintained and it can meet the expectations of all stakeholders of Islamic banks.

Effect of exchange rate moderated securities income ratio on ROA

The placement of securities in Islamic banks is carried out on the excesses of liquidity owned by the Islamic bank or using the secondary reserve bank. If the distribution of Islamic banks on financing is getting bigger, the smaller the portion of funds placed in securities. Therefore, if the placement of funds in financing increases, it will decrease the portion of the income from securities (Anik & Prastiwi, 2017). Therefore, the results of the data on this study are known that the ratio of funds placement income from securities at which the exchange rate is moderated in the long term negatively and significantly affects the profitability (ROA) of Islamic banks. This shows that if, in the long run, Islamic banks are unable to carry out their primary business, namely the distribution of financing and macroeconomic conditions, and the exchange rate has increased, as a result, Islamic banks' ROA will erode (Nugroho et al., 2020b). Nevertheless, the ratio of securities income moderated by the exchange rate to ROA in the short term had no significant effect. Thus, Islamic banks must maintain their business by optimizing bank revenue through the distribution of financing to maintain the ROA of Islamic banks appropriately.

Effect of exchange rate on ROA

The exchange rate is one of the leading macroeconomic indicators that can affect the business of Islamic banks, and this is because the more controlled on the USD exchange rate against the rupiah, the business world will be more stable in carrying out buying and selling transactions and trading. Therefore, if there is an upheaval in the exchange rate increase, then there is the potential to cause a monetary crisis in 1997-1999 caused by the USD exchange rate increasing uncontrollably against the Rupiah (Sudarsono, 2009). Based on this, the results of this study show that the exchange rate has a negative and significant effect on the ROA of Islamic banks in the long and short term. Therefore, the exchange rate indicator is always included in the simulation when preparing a bank business plan. If the exchange rate increases, Islamic banks must have a strategy to mitigate it.

Conclusion

The conclusions of the analysis of the variables that affect ROA used in this study are as follows:
▪ BOPO from Islamic banks must be controlled, so that Islamic banks can optimize the profits they receive and maintain the level of ROA following the expectations of stakeholders;

- The distribution of financing from Islamic banks represented by the Financing to Deposit Ratio is not yet optimal. The impact of the distribution of financing on ROA is not significant. Based on this, Islamic banks must be able to develop financing products to compete with credit products from conventional banks;

- The ratio of financing income moderated by the exchange rate has a positive and significant effect on ROA. Therefore, banks must be able to increase the quantity and quality of financing to generate optimal income to contribute to the increase in ROA following the expectations of stakeholders;

- The securities income ratio moderated by the exchange rate in the short term has no effect. However, in the long term, it has a negative and significant effect on ROA, therefore following the nature of the source of funds, placement of securities comes from the remaining undistributed TPF or is called secondary reserve. Therefore, based on this function, the placement of securities is to keep the funds from being idle or idle so that the purpose of the placement of securities is to keep the minus gap from idle funds and the cost of funds from getting bigger;

- The exchange rate is one of the leading indicators of the macro economy. Therefore, the existence of the exchange rate becomes essential so that both in the short and long term, the exchange rate has negative and significant implications for ROA.

This research produces valuable findings for the management of Islamic banks and Islamic banking practitioners as well as all relevant stakeholders, including:

- Cost control for Islamic banks has a vital role in improving the performance of Islamic banks in addition to financing distribution;

- Income from the distribution of financing, which is moderated by the exchange rate, is the primary source of income so that the distribution of financing must be accompanied by adequate quality and quantity to improve the performance of Islamic banks (ROA);

- In the long term, the ratio of income from securities has a negative and significant impact. Therefore, the function of the placement of securities is to keep the negative spread from deepening when the distribution of financing does not function properly.

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