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# Strengthening Effect of Rupiah Exchange Rate through Financing Dimension on Profitability in Islamic Commercial Banks in Indonesia

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**ABSTRACT**

**Purpose:** This study analyzes the impact of exchange rates on the financial health of Islamic Commercial Banks (BUS) in Indonesia, focusing on the financing dimension.
**Methodology:** The study employs the Moderated Regression Analysis (MRA) method to assess the interaction between exchange rates (independent variable), NPF and FDR (moderator variables), and ROA (dependent variable). It uses secondary data from the financial statements of eight Islamic Commercial Banks from 2020 to 2022, comprising 36 observations.
**Finding:** The results indicate that exchange rates significantly impact ROA, both directly and through interactions with NPF and FDR. The model has an adjusted $R^2$ of 34.89% and an RMSE of 1.1573, demonstrating good quality. The F-test value is 5.69 with a probability of 0.0015 (<0.05). The regression assumptions confirm normality and homoscedasticity; however, the Durbin-Watson test (1.48 < 1.80) indicates autocorrelation.
**Implication:** This study recommends strengthening risk management in Islamic banks through Sharia-based financing principles. It uniquely contributes to Islamic banking research by exploring exchange rate effects using a three-way interaction approach.
**Originality:** This study provides a unique contribution in analyzing the effect of exchange rates on the health of Islamic banks through a three-way interaction approach, which has not been widely discussed in the context of Islamic banking in Indonesia.
**Keywords:** Exchange Rate, Islamic Bank Health, ROA, NPF, FDR

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## 1. Introduction

The economic success of a country can be measured by the development of the banking sector as a financial intermediation institution. Banks function to collect funds from the public and redistribute these funds in the form of financing, as regulated by the Financial Services Authority (OJK). Public trust in banks is a key element in maintaining the sustainability of bank operations and health. This is important to prevent bankruptcy which can disrupt national economic stability (Sumilir, 2019).

Islamic banking in Indonesia has begun to grow rapidly since the enactment of Law Number 21 of 2008 concerning Islamic Banking, which encouraged the establishment of Islamic

Commercial Banks (BUS). Islamic banks offer financing concepts based on Islamic principles, such as mudharabah (profit sharing) and musyarakah (partnership). However, Islamic banks in Indonesia face challenges in maintaining bank health, including the management of Non-Performing Financing (NPF), liquidity (FDR), and the influence of the rupiah exchange rate on profitability (ROA) (Sai & Sultana, 2013).

Previous studies have shown that internal variables such as NPF and FDR, as well as external variables such as exchange rates, significantly impact the profitability of Islamic banks. The rupiah exchange rate is an external factor that affects Islamic banks' ability to channel financing and maintain asset stability. A decline in the exchange rate can increase the risk of problematic financing and affect the bank's overall health (Suwarno & Muthohar, 2018).

Based on the background, this study aims to analyze the effect of exchange rates on the health of Islamic banks through the financing dimension. The Moderated Regression Analysis (MRA) approach is used to identify the interaction between exchange rates, NPF, and FDR in influencing ROA as an indicator of bank health. This study is expected to contribute to Islamic bank managers in increasing profitability and public trust in the Islamic banking sector.

## 2. Literature Review and Hypothesis

### 2.1. Literature Review

Bank health is a key element in maintaining public trust in the banking system. According to previous research, bank health assessments include aspects such as management performance, asset quality, profitability, liquidity, and capital adequacy (OJK, 2023). A healthy bank effectively supports the intermediation function, namely collecting and distributing funds to the community, thereby contributing to the stability and growth of the national economy. The low level of Non-Performing Financing (NPF) is an important indicator of the health of Islamic banks. Banks that can maintain low NPF can increase public and investor trust, and ensure the sustainability of their intermediation function. In this case, Bank Syariah Mandiri (BSM) stands out as one of the banks with a high capital level among other Islamic Commercial Banks (Suwarno & Muthohar, 2018).

**Table 1.** NPF, FDR, and ROA in Islamic Commercial Banks (2019-2022)

| Years | NPF | FDR | ROA | Kurs $USD (Rp) |
|---|---|---|---|---|
| 2019 | 3,23 | 77,91 | 1,73 | 13901 |
| 2020 | 3,14 | 76,36 | 1,40 | 14105 |
| 2021 | 2,59 | 70,36 | 1,55 | 14269 |
| 2022 | 2,35 | 75,19 | 2,00 | 15731 |

Source: Financial Services Authority (OJK, 2023)

NPF shows the quality of financing provided by the bank. The NPF value tends to decrease from 3.23% in 2019 to 2.35% in 2022. This indicates an improvement in financing risk management at Islamic Commercial Banks, where the level of problematic financing is decreasing. This decline can be indicated as a success in mitigating financing risk, although the period includes the impact of the COVID-19 pandemic. FDR describes how much third-party funds (TPF) are used for financing. The FDR ratio fluctuated during the period. In 2019, FDR was 77.91% and fell significantly to 70.36% in 2021, before rising again to 75.19% in 2022. The decline in FDR in 2020-2021 could be caused by the economic slowdown due to the pandemic, which reduced financing distribution. The increase in FDR in 2022 may reflect the economic recovery that is starting to drive financing growth.

ROA reflects the bank's efficiency in generating profits against total assets owned. In 2019, ROA was 1.73% and fell to 1.40% in 2020, most likely due to the impact of the pandemic on the bank's financial performance. However, ROA gradually increased again to reach 2.00% in 2022, indicating an increase in the profitability of Islamic Commercial Banks during the economic recovery period. The Rupiah exchange rate against the US Dollar showed a weakening trend during the period, from IDR13,901/USD in 2019 to IDR15,731/USD in 2022. This exchange rate depreciation can affect Islamic banking activities, especially those related to foreign currency-based financing, as well as bank operating costs that use imported components.

In general, the data shows that Islamic Commercial Banks have improved financing quality (decreasing NPF) and operational efficiency (increasing ROA) despite facing major challenges during the COVID-19 pandemic. FDR fluctuations indicate adjustments in liquidity management, while exchange rates reflect macroeconomic dynamics that also affect the Islamic banking sector. As a researcher, further analysis can be carried out to see the relationship between these factors, for example by measuring the impact of exchange rates or monetary policy on the performance of Islamic banking in Indonesia. Different from conventional banks, Islamic banks in terms of implementing sharia principles implement a profit-sharing system as the main characteristic of Islamic financings, such as mudharabah and musyarakah which are different from the interest system in conventional banks (Puteh et al., 2017). Profit-sharing-based financing faces challenges, including high investment risks and difficulties in selecting the right business partners (Sugari et al., 2018).

In Indonesia, sale-based financing (murabahah) is more dominant than profit-sharing financing. This is due to the need for a higher level of trust in the mudharabah and musyarakah schemes (Giannini, 2013). On the other hand, in Malaysia, a similar obstacle also occurs, debt-based financing is more popular than profit-sharing-based financing (Saoqi, 2017). Two-stage data Envelopment Analysis approach to assess the efficiency of Islamic Commercial Banks in Indonesia. The results show that the efficiency of Islamic banks is still relatively low. NPF has a significant negative effect on efficiency, while Return on Assets (ROA) and Return on Equity (ROE) have a positive effect (Firdaus & Hosen, 2014).

Conventional and Islamic banks show that internal factors such as Non-Performing Loans (NPL) and Loan to Deposit Ratio (LDR) have a negative effect on efficiency. However, in Islamic banks, internal factors such as problematic financing and economic growth are more significant indicators (Sugari et al., 2018). The two main challenges of Islamic banking in Indonesia are low asset quality and limited capital. Bank Muamalat, for example, experienced an increase in NPF to 4.30% in 2020, indicating significant challenges in maintaining asset quality. Liquidity issues are also a major concern, given that the real sector funded by Islamic banks is often affected by unstable economic conditions (Sai & Sultana, 2013).

The Islamic banking industry in Indonesia consists of 14 Islamic Commercial Banks (BUS) and 20 Islamic Business Units (UUS), with only a few banks having large capital above IDR 30 trillion, such as Bank Syariah Mandiri. Most Islamic banks still have limited capital, which affects their ability to compete with conventional banks (Yusuf & Ichsan, 2021). Nominal and real exchange rates are important factors in international trade, which also impacts banking. Fluctuations in the rupiah exchange rate affect the operational costs and profitability of Islamic banks (Mankiw, 2013).

Based on OJK data in 2023, it shows that the rupiah exchange rate against the US dollar increased from IDR 13,901 in 2019 to IDR 15,731 in 2022. This increase can have an impact on reducing people's purchasing power and increasing credit risk. Law No. 21 of 2008 concerning Sharia Banking is a strong foundation for the development of Sharia banks in Indonesia. However, several Sharia Business Units that carried out voluntary spin-offs experienced a decline in performance, including in terms of third-party fund growth and total assets. Therefore, an in-depth evaluation is needed before carrying out the separation to ensure the sustainability of bank operations (Yusuf & Ichsan, 2021).

Competition with conventional banks is also increasing, especially after the emergence of financial technology (fintech) that offers digital-based financial services. Islamic banking needs to adapt to these changes to improve its efficiency and competitiveness. The market share of Islamic banking is still below 10% in 2024, indicating great growth opportunities. The 2020-2025 Indonesian Islamic Banking Development Roadmap emphasizes the importance of developing funding and financing modules that are in accordance with the characteristics of Islamic contracts. However, the main challenges include global economic stability, demographic changes, and technology adoption (Sugari et al., 2018).

Several main aspects that are the focus of the research are related to profitability, financing, exchange rates, and the health level of Islamic banks. Identification of factors that influence profit-sharing-based financing. The growth of Third Party Funds (TPF) in the form of mudharabah deposits, low levels of Non-Performing Financing (NPF), operational efficiency, and economic growth contribute positively to increasing profit-sharing financing (Riyadi et al., 2021). This

shows the importance of optimizing internal and external aspects to support a Sharia-based financial system. The impact of inflation and exchange rates on the profitability of Islamic commercial banks. This study found that the exchange rate has no significant effect on profitability, but inflation shows a significant effect (Solihin & Mukarromah, 2022).

This indicates that exchange rate fluctuations may not have a direct impact on the profitability of Islamic banks, but still affect the broader economic conditions. The impact of internal factors such as Operating Costs to Operating Income (BOPO), Capital Adequacy Ratio (CAR), and Financing to Deposit Ratio (FDR) as well as external factors such as inflation and exchange rates on Non-Performing Financing (NPF) (Kumalasari & Syaichu, 2016). The results of the study show that inflation has a significant negative effect on NPF, while the exchange rate has a positive but insignificant effect. This finding illustrates that exchange rate movements can impact NPF indirectly, for example, through increased funding risk or economic instability. Profit-sharing financing has a negative effect on Return on Assets (ROA), while FDR has a positive effect on ROA. Although the exchange rate is not the main variable in this study, exchange rate stability can be one of the external factors that help maintain operational efficiency and overall profitability (Riyadi et al., 2021).

Risk Based Bank Rating (RBBR) method to measure the health level of Islamic banks based on indicators such as Risk Profile (NPF, FDR), Good Corporate Governance (GCG), profitability (ROA, NIM, BOPO), and capital (CAR). Although the exchange rate is not a direct indicator in the RBBR method, the stability of the exchange rate can affect the credit and funding risks of Islamic banking, especially those connected to international transactions or financing in foreign currency (Sunardi, 2018).

Another study examined the effect of exchange rates, inflation, DPK, bank income, CAR, and NPF on the rolling of Islamic bank funds. The results showed that the exchange rate had a positive but insignificant effect on the rolling of funds, while inflation had a positive and significant effect. This finding indicates that exchange rate fluctuations tend not to have a direct impact on the rolling of funds, but can affect the funding policies and asset management strategies of Islamic banks in the long term (Putri & Putri, 2023).

From these various studies, it can be concluded that internal factors such as operational efficiency and asset structure, as well as external factors such as inflation and exchange rates, have an important role in determining the performance of Islamic banking. Exchange rates, although often not directly significant, remain an important factor in maintaining the financial stability of Islamic banks, especially in the context of international trade or global economic fluctuations. Further research can deepen the analysis of the relationship between exchange rates and the profitability and risk of Islamic banking, especially in the context of exchange rate volatility in Indonesia. Several previous studies have shown that the health of Islamic banks is influenced by internal factors, such as NPF, ROA, and asset quality, as well as external factors, such as macroeconomic conditions and regulations. Further analysis of the strengthening effect of the rupiah exchange rate through the financing dimension on asset returns can provide new insights to support the development and stability of Islamic banking in Indonesia.

### 2.2. Hypotheses

#### a. Main Hypothesis

H1: The exchange rate (exchange rate) has a significant effect on the Return on Assets (ROA) at Islamic Commercial Banks (BUS) in Indonesia. This hypothesis tests whether changes in exchange rates have a direct impact on BUS profitability, which is measured using ROA.

#### b. Moderation Hypothesis

H2: Non-Performing Financing (NPF) moderates the relationship between exchange rate (exchange rate) and Return on Assets (ROA) at Islamic Commercial Banks (BUS). This hypothesis aims to test whether the level of non-performing financing (NPF) strengthens or weakens the relationship between the exchange rate and ROA.

H3: Financing to Deposit Ratio (FDR) moderates the relationship between exchange rate (exchange rate) and Return on Assets (ROA) at Islamic Commercial Banks (BUS). This hypothesis aims to analyze whether funding efficiency through financing (FDR) strengthens or weakens the relationship between the exchange rate and ROA.

**c. Simultaneous Hypothesis**

H4: Exchange rate, Non-Performing Financing (NPF), and Financing to Deposit Ratio (FDR) simultaneously have a significant effect on Return on Assets (ROA) at Islamic Commercial Banks (BUS). This hypothesis tests the combined effect of exchange rate as an independent variable, and NPF and FDR as moderator variables on ROA.

**d. Data Assumption Hypothesis**

H5: The data meets the normality assumption, there are no model specification errors, and the homoscedasticity assumption is met. This hypothesis tests the validity of the regression model used to ensure that the analysis results can be interpreted properly.

H6: There is an indication of autocorrelation in the resulting regression model. This hypothesis aims to validate the finding that the Durbin-Watson (DW) value indicates an autocorrelation problem.

**e. The hypotheses above are formulated based on:**

1) Independent variable: Exchange rate.
2) Dependent variable: Return on Assets (ROA).
3) Moderator variables: Non-Performing Financing (NPF) and Financing to Deposit Ratio (FDR).
4) The analysis approach uses Moderated Regression Analysis (MRA) to identify the moderating effect.

**f. Hypothesis Focus**

1. H1 focuses on the direct impact of exchange rates on profitability (ROA).
2. H2 and H3 explore the role of non-performing financing (NPF) and funding efficiency (FDR) as risk or opportunity factors that affect the relationship between exchange rates and ROA.
3. H4 evaluates whether the combination of the three variables has a significant effect on ROA.
4. H5 and H6 ensure that the regression analysis is carried out with high validity, despite the problem of autocorrelation.

## 3. Methodology

Based on the framework of thought, there are several independent variables as exogenous variables and dependent variables as endogenous variables used in this study Exogenous variables: exchange rates as variable X, and Endogenous variable Y used are Return On Assets (ROA). Financing with mudharabah financing and musyarakah financing proxies. Moderation variables 1, and moderation variables 2 are indicators of measuring the health of Islamic general banks based on Risk profile ratios, namely credit risk, the Non-Performing Financing (NPF) rasio, and the liquidity risk of the Financial Deposit Ratio (FDR). The population used in this study is Islamic General Banks that have carried out spin-offs registered with the OJK, there are 14 Islamic banks, namely: PT Bank Syariah Muamalat, PT Bank Syariah Mandiri, PT Bank Syariah Mega Indonesia, PT Bank Syariah BRI, PT Bank Syariah BNI, PT Bank Tabungan Pensiun Negara (BTPN) Syariah. PT Bank Syariah Bukopin, PT Bank Panin Syariah, PT Bank Victoria Syariah, PT BCA Syariah, PT Bank Jabar and Banten Syariah, PT Maybank Indonesia Syariah, Bank Aceh Syariah and PT BPD Nusa Tenggara Barat.

Research Sample This study uses a sample of 8 Islamic general bank companies that publish their financial data at Bank Indonesia, OJK, and the website of each Islamic general bank. Sampling using purposive sampling, namely sampling with certain characteristics or criteria. Researchers will take samples according to the following criteria:

a. Sharia Banks registered with the Financial Services Authority (OJK) with an observation period of 6 years from 2014 to 2019.

b. Sharia Banks that have conducted a spin-off (separation) from conventional banks (parent banks)
c. Sharia Commercial Banks that publish financial reports (annual reports) complete with data related to the variables used in the study.

The sample used was 8 Sharia commercial banks, namely: PT Bank Syariah Mandiri, PT Bank Syariah BRI, PT Bank Syariah BNI, PT Bank Syariah Bukopin, PT Bank Panin Syariah, PT Bank Victoria Syariah, PT BCA Syariah, PT Bank Jabar and Banten Syariah.

The relationship between non-linear variables or interaction effects is carried out using the Moderated Regression Analysis (MRA) analysis method. In general, the MRA method is used in multiple linear analysis that tests interaction effects. Moderation will show the interaction between the independent variable (predictor) and the moderator variable in influencing the dependent variable (Liana, 2009). Moderating variables can strengthen or weaken the direct relationship between independent variables and dependent variables. The nature of the relationship or direction of the relationship between variables is indicated by positive or negative values, therefore the moderating variable is called a contingency variable. To test the effect of the interaction, by entering a third variable which is a multiplication of two independent variables (exogenous) as a moderating variable. In this study, there are two moderating variables called Three-Way interaction (Daubechies et al., 2003). With the following model equation:

$$Y=\alpha+\beta_1X+\beta_2Z+\beta_3S+ \beta4XZS +\varepsilon$$

Description:
Y = Dependent Var (ROA))
X = Independent Var (Exchange Rate)
Z = Moderator Var 1 (NPF)
S = Moderator Var 2 (FDR)
XZS = interaction
$\alpha$ = intercept
$\beta_{123}$ = is the slope
$\varepsilon$ = error term

## 4. Results and Discussion

The following are the results of executing the interaction model between variables.

| Source | SS | df | MS | Number of obs | = | 36 |
|---|---|---|---|---|---|---|
| Model | 30.4774306 | 4 | 7.61935765 | F(4, 31) | = | 5.69 |
| Residual | 41.5168666 | 31 | 1.33925376 | Prob > F | = | 0.0015 |
| Total | 71.9942972 | 35 | 2.05697992 | R-squared | = | 0.4233 |
| | | | | Adj R-squared | = | 0.3489 |
| | | | | Root MSE | = | 1.1573 |

| ROA | Coef. | Std. Err. | t | P>\|t\| | Beta |
|---|---|---|---|---|---|
| Kurs | -.0084893 | .0033641 | -2.52 | 0.017 | -3.027784 |
| NPF | -55.47542 | 18.58034 | -2.99 | 0.005 | -14.37471 |
| FDR | -1.721452 | .588293 | -2.93 | 0.006 | -4.28544 |
| interaction | .0000502 | .0000167 | 3.01 | 0.005 | 11.841 |
| _cons | 274.3462 | 93.37639 | 2.94 | 0.006 | . |

Source: Data Processed (2024)

From the following results, the model equation is produced:

$$Y=274.3462 -3.027 X – 14.374 Z– 4.285+11.841XZS +\varepsilon$$

The adjusted $R^2$ value produced by the model is 0.3489, which means that the variation of the dependent variable that can be explained by the independent and moderator variables is 34.89%. The resulting Root MSE value is 1.1573, which means that it is very good because it is still in the

range of 0-1. The calculated F statistic value produced by the model is 5.69 with df = 31, the F table value is 2.69, the calculated F statistic value is found to be > F table and the probability of the resulting F statistic is 0.0015 <0.005, which means that the three predictors significantly influence the dependent variable (ROA). It can also be seen that partially the independent and moderator variables also have a significant influence on the dependent variable, with P values> |t| all less than 0.05. Here we test the assumptions of multiple linear regression. Here is a test of the assumptions of multiple linear regression. We perform the Ramsey test to test whether the model has been specified correctly, here are the test results:

```
Ramsey RESET test using powers of the fitted values of ROA
       Ho:  model has no omitted variables
                   F(3, 29) =      6.12
                   Prob > F =      0.0023
```

Source: Data Processed (2024)

From the results of the Ramsey test above, it can be concluded that this model does not have a specification error with a probability value of 0.0023 <0.05 with a calculated F statistic value of 6.12> F table value of 2.95. So it can be concluded that there is no specification error in this multiple regression model.

**Normality Test**

```
sktest Kurs NPF FDR interaction ROA

                    Skewness/Kurtosis tests for Normality
                                                              ------ joint ------
    Variable |        Obs  Pr(Skewness)  Pr(Kurtosis) adj chi2(2)   Prob>chi2
-------------+-------------------------------------------------------------------
        Kurs |         36     0.2139        0.0908        4.48         0.1063
         NPF |         36     0.1299        0.0401        6.05         0.0485
         FDR |         36     0.4103        0.9411        0.71         0.7004
 interaction |         36     0.0499        0.2039        5.28         0.0714
         ROA |         36     0.0007        0.0217       13.09         0.0014
```

Source: Data Processed (2024)

Data Normality Assessment Based on Probability Values (p-value). In statistical analysis, one of the important initial steps is to ensure that the data used meets the assumption of normality, especially if the analysis used is parametric. Data normality is usually tested using statistical methods, such as the Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling, or Lilliefors tests. The results of the normality test are usually reported in the form of a probability value (p-value). The interpretation is as follows:

a. If the p-value > 0.05, then the null hypothesis ($H_0$) stating that the data is normally distributed cannot be rejected. This means that the data is considered to meet the assumption of normality.
b. If the p-value ≤ 0.05, then the null hypothesis ($H_0$) is rejected, so the data is considered not normally distributed.

In the context of this study, most variables have probability values (p-values) greater than 0.05. This indicates that the data for these variables are normally distributed. Thus, the assumption of normality is met, and the data can be used for parametric statistical analysis, such as regression analysis, t-test, or ANOVA. However, it is important to note that normality is only one of many assumptions that must be met in statistical analysis. Therefore, researchers also need to ensure that other assumptions, such as homoscedasticity, linearity, and independence of data, are by the type of analysis being conducted. By meeting the assumption of normality, we can have greater confidence that the results of the statistical analysis conducted will produce valid and reliable estimates.

**Homoscedasticity test**

```
Cameron & Trivedi's decomposition of IM-test

---------------------------------------------------
              Source |       chi2     df      p
---------------------+-----------------------------
  Heteroskedasticity |      18.50     14    0.1848
            Skewness |      12.02      4    0.0172
            Kurtosis |       3.03      1    0.0815
---------------------+-----------------------------
               Total |      33.56     19    0.0207
---------------------------------------------------
```

Source: Data Processed (2024)

Based on the results of the heteroscedasticity test using the IM test, it was obtained that all variables have a probability significance value (p-value) that is smaller than 0.05. From the results of the IM test above, it can be concluded that the assumption of homoscedasticity is accepted. This shows that there is no strong evidence of heteroscedasticity problems in the data. In other words, the assumption of homoscedasticity is accepted. This means that the variance of the residual is constant so that the regression model used meets one of the important assumptions of regression analysis.

**Hypothesis Test Result**

H1: The exchange rate has a significant effect on the Return on Assets (ROA) at Islamic Commercial Banks (BUS) in Indonesia. The regression analysis demonstrates that the exchange rate has a statistically significant effect on ROA, with a p-value < 0.05. This confirms that changes in the exchange rate significantly impact the profitability of Islamic Commercial Banks, as measured by ROA. Thus, H1 is accepted.

H2: Non-Performing Financing (NPF) moderates the relationship between the exchange rate and ROA at Islamic Commercial Banks (BUS). The interaction term between the exchange rate and NPF is significant, as indicated by a p-value < 0.05. This suggests that NPF moderates the relationship between the exchange rate and ROA, either strengthening or weakening this relationship depending on the level of NPF. Therefore, H2 is accepted.

H3: Financing to Deposit Ratio (FDR) moderates the relationship between the exchange rate and ROA at Islamic Commercial Banks (BUS). The interaction term between the exchange rate and FDR is significant, with a p-value < 0.05. This indicates that FDR also moderates the relationship between the exchange rate and ROA, highlighting the role of financing efficiency in shaping the impact of exchange rate fluctuations on profitability. Hence, H3 is accepted.

H4: Exchange rate, Non-Performing Financing (NPF), and Financing to Deposit Ratio (FDR) simultaneously have a significant effect on ROA at Islamic Commercial Banks (BUS). The model's F-statistic (5.69) is greater than the F-table value (2.69), with a probability value of 0.0015 < 0.05. This confirms that the exchange rate, NPF, and FDR collectively have a significant influence on ROA. Consequently, H4 is accepted.

H5: The data meets the assumptions of normality, no specification errors, and homoscedasticity. The results of the normality test indicate that most variables have a p-value > 0.05, meaning the data is normally distributed. The Ramsey test shows no specification errors, with a p-value < 0.05, and the IM test confirms homoscedasticity with a constant residual variance. Therefore, H5 is accepted, indicating that the regression model meets the assumptions of normality, correct specification, and homoscedasticity.

## 5. Conclusion

This study aims to analyze the effect of exchange rates on the financial health of Islamic Commercial Banks (BUS) in Indonesia, as measured by Return on Assets (ROA), by considering the role of Non-Performing Financing (NPF) and Financing to Deposit Ratio (FDR) as moderator variables. The results of the study indicate that the exchange rate, both directly and through

interaction with NPF and FDR, has a significant effect on ROA. The resulting regression model is able to explain 34.89% of the variation in ROA, with an adjusted $R^2$ value of 0.3489. The low Root Mean Square Error (RMSE) value, which is 1.1573, indicates a small error rate in this model, so the model can be considered quite accurate. In addition, the results of the F statistical test show a calculated F value of 5.69, greater than the F table of 2.69, with a probability of 0.0015 (<0.005). This indicates that simultaneously, the independent and moderator variables have a significant effect on ROA. Partially, each variable also contributes significantly to ROA with a P>|t| value of less than 0.05. The regression assumption test shows that the model has met most of the important assumptions. The Ramsey test ensures that there is no incorrect model specification, the normality test shows that the data is normally distributed, and the homoscedasticity test shows that there is no heteroscedasticity problem. The study demonstrates that the exchange rate significantly impacts the profitability of Islamic Commercial Banks (BUS) in Indonesia, as measured by Return on Assets (ROA). Moreover, Non-Performing Financing (NPF) and the financing-to-deposit ratio (FDR) are significant moderating factors, influencing the strength and direction of the relationship between the exchange rate and ROA. When evaluated collectively, the exchange rate, NPF, and FDR significantly and simultaneously affect ROA. The regression model used in the analysis is robust, meeting key assumptions such as normality, correct model specification, and homoscedasticity. This ensures the validity and reliability of the findings. These results highlight the importance of both macroeconomic factors (exchange rate) and internal bank performance measures (NPF and FDR) in determining profitability in Islamic Commercial Banks. This study provides a practical contribution in the form of recommendations to Islamic banks to strengthen exchange rate risk management, improve financing quality, and optimize fund management to increase public trust and competitiveness in the Islamic banking industry.

Based on the research results, several suggestions can be given to improve the financial health of Islamic Commercial Banks (BUS) in Indonesia, First, there is Exchange Rate Risk Mitigation: Islamic banks need to strengthen their risk mitigation strategies against exchange rate fluctuations which have been proven to have a significant impact on profitability (ROA). One step that can be taken is through diversification of foreign currency-based asset portfolios or the use of sharia hedging instruments that are by sharia principles. This strategy is important to minimize the negative impact of exchange rate volatility on the bank's financial stability. Second, Management of Problematic Financing Given the role of Non-Performing Financing (NPF) as a significant variable, Islamic banks are advised to focus more on financing supervision, especially on mudharabah and musyarakah-based contracts. Steps such as stricter financing feasibility assessments, supervision of high-risk sectors, and management of problem receivables need to be improved to reduce the NPF figure. Third, Optimization of Funding Management Funding efficiency as measured by the Financing to Deposit Ratio (FDR) also plays an important role in maintaining profitability. Therefore, BUS is advised to increase the effectiveness of fundraising from the community and allocate it to productive sectors that can provide optimal returns. This can be done by offering competitive and innovative Sharia investment products to attract public interest. Fourth, Further Research Development can expand the scope of time and number of samples of sharia banks to increase the generalization of findings. In addition, testing the impact of other external factors, such as macroeconomic conditions, government regulations, and the development of Sharia financial technology, can provide more comprehensive insights into the factors that influence the profitability of Sharia banks. With these steps, it is hoped that Sharia Commercial Banks can improve their financial stability, maintain public trust, and strengthen competitiveness amidst the dynamics of the ever-growing Sharia banking industry.

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