Abstract

This study aims to analyze the effect of the yuan exchange rate on non-performing financing in Islamic banking for the period March 2012 to February 2022. The type of data used in this study is quantitative data and the source of data used in this study is secondary data obtained from the official website of the Authority, Financial Services (OJK) and Bank Indonesia (BI). The data analysis model in this study uses multinomial logit regression analysis, where multinomial logistic...
regression is a logistic regression used when the dependent variable has a polychotomous or multinomial scale. The results of the analysis show that the yuan exchange rate has a positive and insignificant effect on non-performing financing of Islamic banking when the NPF ratio is in a Medium Risk condition. In High Risk the yuan exchange rate has a positive and significant effect on non-performing financing of Islamic banking and when in Very High Risk conditions, the yuan exchange rate has a positive and insignificant effect on non-performing financing of Islamic banking. The Pseudo R-Square value is 0.1057 which means that the value of the variation of the dependent variable that can be explained by the independent variable is 10.57% while the remaining 89.43% is explained by other variables.

**Keywords**: Yuan Exchange, non-performing financing and Multinomial Logit

**Citation:**

**INTRODUCTION**

The banking sector is currently growing rapidly and is one of the success factors for the country’s economic development. In its development, the banking industry is one of the sources of financing for business actors in running their business. A common phenomenon that occurs in the world of Islamic banking today is non-performing financing, where customers are unable to repay their loans to banks during the agreed time limit.

Based on Law Number 10 of 1998, the bank is a financial intermediary institution whose job is to collect funds from the public and then distribute these funds to the community to improve the standard of living of the people. Law Number 21 of 2008 states that Islamic banking is a financial institution that carries out its activities according to sharia principles.
Banks as financial institutions have the main function of acting as financial intermediaries between parties who have more funds (surplus units) and parties who need funds (over-loss units). In carrying out its role as an intermediary institution, financing is the main activity carried out by banks and is the main source of bank income (Rahmayati & Pertiwi, 2018). The existence of financing in this bank is considered to be able to help the community in meeting their funding needs, especially business actors who need capital. However, in practice, not all of the total financing provided to the community is classified as good, some of the financing is of poor quality or problematic (Rahmayati & Pertiwi, 2018). Non-performing financing is financing in which customers experience difficulties in making payments for funds that have been provided by Islamic banking (Khairunisa, 2020).

The parameter used to measure non-performing financing is the Non-Performing Financing (NPF) ratio, where this NPF is a comparison between non-performing financing and financing channeled by Islamic banking (Sudarsono, 2018). In BI Regulation No. 17/II/PBI/2015 states that Bank Indonesia has determined that the highest measure for the NPF ratio is 5%. Thus, if the NPF ratio exceeds 5%, the bank can be assumed to have failed in financing management. Based on data obtained from OJK, the average NPF ratio at Islamic Commercial Banks in Indonesia continued to fluctuate during the 2012-2022 research period.
In Figure the development of the NPF above, it can be seen that there are fluctuations in non-performing financing at Islamic Commercial Banks in each period. The NPF ratio reached its highest value in August 2014 of 8.83%. This figure is considered quite high considering the maximum limit set by Bank Indonesia for the non-performing financing ratio of 5%. While the smallest ratio occurred in January 2013 at 2.49%.

This problematic financing can be influenced by macroeconomic conditions that occur in a country. One of the macroeconomic variables that affect non-performing financing is the exchange rate (Yolanda & Ariusni, 2019). Where the weakening of the rupiah exchange rate can result in a decrease in a company’s income due to rising commodity prices due to increased production costs. This situation makes business actors prefer to reduce business capital obtained from bank financing. On the other hand, financing faces the risk of financing problems due to increased production costs (Sudarsono, 2018).

A country’s exchange rate policy will also determine the movement of that country’s exchange rate. Indonesia is currently implementing a free floating exchange rate system. A free floating exchange rate system is an exchange rate system that is allowed to-
fluctuate according to conditions in the market without any interference from the government. "In the history of the Indonesian economy, a fixed exchange rate system, a controlled floating system, and a free floating system have been implemented in Indonesia. A fixed exchange rate system was adopted from 1973 to March 1983. Meanwhile, a strictly controlled floating exchange rate system was applied from March 1983 to September 1986. Furthermore, a more flexible controlled floating exchange rate system was implemented in Indonesia from September 1986 – January 1994 and with the intervention band mechanism from January 1994 – August 1997. Meanwhile, a floating exchange rate system has been implemented in Indonesia since August 14, 1997 until now” (Bank Indonesia, 2015: 80). Indonesia experienced a significant depreciation in the value of the rupiah around July – August 1997 due to speculative attacks on the Thai baht currency which then prompted foreign investors to withdraw their funds on a large scale at the same time. The Indonesian government then changed its exchange rate system to a free floating exchange rate system. If the government continues to implement a controlled floating system, it is feared that the country’s depleting foreign exchange reserves could be drained and cause a serious trade balance crisis. The movement of a country’s exchange rate can also be affected by changes in exchange rates that occur in other countries, especially countries that have an important role in the global economy.

One of the countries that has an important influence in the global economy is China. China is also one of Indonesia's largest trading partners (Bank Indonesia, 2021). Quoted from the conversation website, in September 2020, China and Indonesia signed a cooperation agreement to promote the use of the yuan and rupiah in trade and investment transactions between the two countries. The deal will reduce China and Indonesia's dependence on the US dollar, which is considered the world's main currency. The agreement will also have a major impact on Indonesia due to international trade between Indonesia and China, as well as a sharp increase in the flow of Chinese foreign investment to Indonesia in recent years. This is reinforced by the regulation of the members of the Board of Governors no. 23/16/PADG/2021 which states that to reduce dependence on certain currencies, Bank Indonesia and the People's Bank of China cooperate-
to encourage the settlement of bilateral transactions using rupiah and yuan through banks.

However, if Indonesia uses the yuan, it is feared that Indonesia’s imports from China will soar, which will have a negative impact on the domestic market. In addition, in recent years, China has often implemented currency devaluation policies to make the yuan more sensitive to market forces. This will certainly have an impact on the Indonesian economy and will cause problems in banking financing in Indonesia.

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\text{Source: Bank Indonesia, data processed}
\]

\text{Figure Kurs Yuan Progress 2012-2022 Period}

The graph of the development of the yuan exchange rate above shows the movement of the rupiah exchange rate against the yuan which has fluctuated in each period. In March 2020 the exchange rate/exchange rate was at its highest peak, namely IDR 2,309.12. Meanwhile, the lowest exchange rate of IDR 1,458.46 occurred in March 2012. The weakening of the rupiah exchange rate can result in a decrease in a company's income due to rising commodity prices due to increased production costs. This situation makes business actors prefer to reduce business capital obtained from bank financing. On the other hand, financing faces the risk of problematic financing due to increased production costs (Sudarsono, 2018).
LITERATURE REVIEW

Non-Performing Financing

Financing is funding provided by the bank to the customer in need in accordance with the agreement of the two parties, where the customer is required to pay the funds up to a predetermined time limit in exchange for ujrah, without compensation, or profit sharing (Hidayatullah, 2014). In Law Number 10 of 1998, it is stated that financing based on sharia principles is the provision of money or an equivalent claim based on an agreement or agreement between the bank and another party that requires the party being financed to return the money or claim after a certain period of time in exchange for or profit sharing.

Non-performing financing is a condition where the customer is unable to pay part or all of the amount of money from the agreed price with time exceeding the agreed payment or installment limit (Turmudi, 2016). Non-performing financing is a comparison between the amount of financing and the total credit provided by the bank (Rahmayati & Pertiwi, 2018).

Exchange rate

The exchange rate is a measure of the relative price calculation between the foreign currency value and the domestic currency (Ichsan, 2014). Rahmayati & Pertiwi (2018) states that the exchange rate or exchange rate is the price or value of a country’s currency expressed in the value of another country’s currency. While Miskhin (2008) states that the exchange rate is Domestic assets (bank deposits, bonds, stocks, and others in local currency) are represented as foreign assets (similar to assets in foreign currency).

Changes in the rupiah exchange rate will have a different effect on bank debtors. For debtors who are engaged in exporters, the strengthening of the rupiah against foreign currencies will reduce their income, but for debtors who are engaged in importing, the opposite will happen, namely the strengthening of the rupiah will increase their income. This difference causes the effect of changes in the rupiah exchange rate on debtor performance to be different so that the effect on NPF will also be different. (Auliani & Syaichu, 2016).
METHODOLOGY

Data

This research is a quantitative research using applied research. Where applied research is research carried out with the aim of applying, testing and evaluating the ability of a theory that is applied in solving practical problems (Sugiyono, 2015). This study uses secondary data in the form of monthly data on the rupiah exchange rate against the yuan and monthly data on the NPF ratio for the period March 2012 to February 2022 obtained from the official websites of the Financial Services Authority (OJK) and Bank Indonesia (BI).

The dependent variable is a variable that is influenced by the independent variable/independent variable. In this study, the dependent variable is the ratio of Non-Performing Financing / financing problems in Islamic banking in Indonesia. In this study, the dependent variable will be divided into four categories of NPF risk levels, namely low risk, medium risk, high risk and very high risk.

The independent variable/independent variable is a variable that is influenced by the dependent variable/bound variable. In this study the independent variable is the exchange rate (X).

Multinomial Logit Regression

This study uses multinomial logit regression analysis which is calculated using the static application. According to Imelda & Alodia (2017) logit regression analysis is used to analyze the effect of a number of independent variables on the dependent variable which is a categorical variable (binomial, multinomial, or ordinal) and also to predict the value of the dependent variable (in the form of categorical variables) based on the value of the independent variable. The purpose of using multinomial logistic regression analysis is to obtain a more in-depth analysis of the effect of the yuan on the level of the NPF ratio in banking.

This study uses a multinominal logit regression model as follows:

\[
\ln \frac{p}{1-p} = \beta_0 + \beta_1 \text{Kurs Yuan}
\]
Information:
Ln : Natural logarithm
P : Non-Performing Financing (NPF) the probability that $Y = 0, Y = 1, Y = 2, Y = 3$
$\beta_0$ : The constant value of the regression equation
Exchange Rate: Rupiah exchange rate against Yuan

**Assessing Model Fit**

In conducting a multinomial logit analysis, the first step is to assess the overall fit of the model or assess the overall model to the data. Several statistical tests are given to assess this.

**Rating -2 Log Likelihood**

Statistical -2 Loglikelihood ratio can be used to determine if an independent variable is added to the model whether it significantly improves the model fit. The overall assessment of the regression model uses a value of -2 Likelihood where if there is a decrease in the value of -2 Likelihood in the second block when compared to the first block, it can be concluded that the regression model is better (Ghozali, 2016).

**Value of Goodness of Fit**

The feasibility test of the regression model (the goodness of fit coefficient test) is used to test the null hypothesis that whether the empirical data fits the model (there is no difference between the model and the data so that the model can be said to be fit). A low Chi-square value can produce an insignificant probability value ($a > 0.05$) (Ghozali, 2016).

**R-Square Pseudo Value**

The Pseudo R-Square value is the R-square statistic value in logistic multinomial analysis.

**Estimated Parameter Value**

The classification table is used to calculate the correct and incorrect estimation values.
RESULTS AND DISCUSSION

Case Processing Summary

<table>
<thead>
<tr>
<th>range npf</th>
<th>Freq.</th>
<th>Percent</th>
<th>Cum.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%-2.5%</td>
<td>3</td>
<td>2.50</td>
<td>2.50</td>
</tr>
<tr>
<td>2.6%-5%</td>
<td>80</td>
<td>66.67</td>
<td>69.17</td>
</tr>
<tr>
<td>5.1%-7.5%</td>
<td>27</td>
<td>22.50</td>
<td>91.67</td>
</tr>
<tr>
<td>7.6%-10%</td>
<td>10</td>
<td>8.33</td>
<td>100.00</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>100.00</td>
<td></td>
</tr>
</tbody>
</table>

Source: Results of data processing with Stata

In table 4.10 the case processing summary shows that the data studied are complete and there is no missing data. With the amount of data processed as much as 120 or N = 120. Data that is at the Low Risk level (0%-2.5%) is 3 or 2.50%, data that is at the Medium Risk level (2.6%-5 %) as much as 80 or 66.67%, data at the High Risk level (5.1%-7.5%) as much as 27 or 22.50% and data at the Very High Risk level (7.6%- 10%) as much as 10 or 8.33%.

Logit Multinomial Analysis Results

<table>
<thead>
<tr>
<th>Iteration</th>
<th>log likelihood</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-108.6276</td>
</tr>
<tr>
<td>1</td>
<td>-100.03757</td>
</tr>
<tr>
<td>2</td>
<td>-97.672049</td>
</tr>
<tr>
<td>3</td>
<td>-97.168959</td>
</tr>
<tr>
<td>4</td>
<td>-97.143228</td>
</tr>
<tr>
<td>5</td>
<td>-97.143157</td>
</tr>
<tr>
<td>6</td>
<td>-97.143157</td>
</tr>
</tbody>
</table>

Multinomial logistic regression

| Coef.     | Std. Err. | z     | P>|z|  | [95% Conf. Interval] |
|-----------|-----------|-------|------|----------------------|
| 1 (base outcome)                                  |
| 2         | -.0265864 | .0118872 | -2.24 | 0.025 | -.049885 | -.0032879 |
| 3         | -.0218694 | .0118757 | -1.84 | 0.066 | -.0451453 | 0.0014066 |
| 4         | -.0237057 | .0119951 | -1.98 | 0.048 | -.0472156 | -.0001958 |

Source: Results of data processing with Stata

Table 1 Multinomial Logit Regression

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Assessing Model Fit

The fit model in the multinomial logistic regression table shows that the initial -2 Log Likelihood value (intercept only) is -108.6276, the final value is -97.143157, there is a decrease in the -2 likelihood value of 11.484443. This shows that the multinomial logit regression model with independent variables can provide better accuracy for analysis.

Value of Goodness of Fit

From the multinomial logit regression table, it can be seen that the probability value of chi square is 0.000. The probability value is less than 0.05 and it can be concluded that the model is fit and acceptable.

R-Square Pseudo Value

Based on the multinomial logit regression table, the Pseudo R-Square value is 0.1057 which means that the value of the variation of the dependent variable that can be explained by the independent variable is 10.57% while the remaining 89.43% is explained by other variables.

Estimated Parameter Value

Based on table it can be seen that when the bank is in a Medium Risk condition, the yuan exchange rate variable has an influence on non-performing financing of 0.025 with a coefficient parameter value of -0.265864 and a significance level of -0.0032879 <0.05. When the bank is in a high risk condition, the yuan exchange rate variable has an effect on non-performing financing of 0.066 with a coefficient parameter value of -0.0218694 and a significance level of 0.0014066 <0.05. When the bank is in a Very High Risk condition, the yuan exchange rate variable has an influence on non-performing financing of 0.048 with a coefficient parameter value of -0.0237057 and a significance level of -0.0001958 <0.05.

Analysis

The results of the study using multinomial logit analysis with data used as base income having a Low Risk category, it was found that:

1. In a Medium Risk condition, the yuan exchange rate variable had an effect on non-performing financing of 0.025 with a coefficient
parameter value of \(-0.265864\) and a significance level of \(-0.0032879 < 0.05\).

2. In a high risk condition, the yuan exchange rate variable has an effect on non-performing financing of 0.066 with a coefficient parameter value of \(-0.0218694\) and a significance level of \(0.0014066 < 0.05\).

3. In a Very High Risk condition, the yuan exchange rate variable has an influence on non-performing financing of 0.048 with a coefficient parameter value of \(-0.0237057\) and a significance level of \(-0.0001958 < 0.05\).

**CONCLUSION AND RECOMMENDATION**

**Conclusion**

Based on the results of data analysis in this study it can be concluded that the yuan exchange rate has a positive and insignificant effect on non-performing financing of Islamic banking when the NPF ratio is in Medium Risk condition. In High Risk the yuan exchange rate has a positive and significant effect on non-performing financing of Islamic banking and when in Very High Risk conditions, the yuan exchange rate has a positive and insignificant effect on non-performing financing of Islamic banking.

**Recommendation**

This study proves that the yuan exchange rate has a positive effect on non-performing financing of Islamic banking with different levels of significance according to the level of risk of non-performing financing. For Islamic banking, it should be more responsive to conditions of uncertain macroeconomic developments in order to reduce the occurrence of non-performing financing. In addition, Islamic banking must also be more thorough in analyzing customer financing requests and supervising customers' businesses by looking at economic opportunities in the future.
REFERENCES


BI Regulation No. 17/II/PBI/2015 regarding interest rates offered by banks


