Analysis of the Effects of Inflation, Exchange Rates, BI Rate, and Liquidity on Non-Performing Islamic Banking in Indonesia

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Abstract

The purpose of this research is to analyze the effect of the inflation, exchange rate, and BI Rate as a macroeconomic variable and the liquidity variable as an internal variable on problematic financing in Islamic banking in Indonesia. This research is a quantitative descriptive research using multiple linear regression analysis. The populations in this research are all published Islamic banking financial reports. The sample of this research is the financial statements of Islamic banking during the 2014-2018 periods. The results of the analysis and discussions that have been carried out show that inflation and BI Rate do not have an effect on problematic financing of Islamic banking in Indonesia. Meanwhile, exchange rate has a significant negative effect and liquidity has a significant positive effect on problematic financing of Islamic banks. Some conventional bank customers deliberately move their money to Islamic banks in case a conventional bank goes bankrupt when the rupiah exchange rate weakens against the US dollar. This has led to an increase in the amount of Third Party Funds entering Islamic banks. In problem financing, which is proxied by the NPF ratio, this ratio will decrease if the amount of non-performing financing remains, while the amount of financing disbursements increases.

Keywords

Non performing financing; inflation; exchange rate; BI rate; liquidity

1. Introduction

The last few years in Indonesia and in various countries the trend of development of Islamic banking finance has been very good. This development is not only in countries where the majority of the population is Muslim, but even those with Muslim minorities have experienced very significant developments (Ahmad & Noor, 2011). In Indonesia, although the assets of Islamic banks are less than conventional banks, if seen from the level of asset growth, Islamic banking is actually much higher than the growth of conventional banking assets (Elsa, Utami, & Nugroho, 2018); (Shaban, Duygun, Anwar, & Akbar, 2014). This proves that Islamic banking is able to maintain its existence in facing the economic situation compared to conventional banks with various limitations they have.

Based on a source released by the Financial Services Authority, although Islamic banking has experienced higher asset growth than conventional banking, the total

assets of Islamic banking are still far behind with conventional banking. The total assets of Islamic banking in Indonesia are 5.7% of the total assets owned by conventional banking as a whole (Hendarsyah, 2018).

Non-performing financing is unavoidable for banking financial institutions, especially Islamic banking financial institutions. Failure to pay financing is an important thing for Islamic banking. Risk of default on financing is a term for financing installments that have the potential to default. From this financing distribution banking activity, Islamic banking will benefit, however, the greater the financing, without being followed by a strict analysis for customers, it will cause more and more problematic installments from the financing activity.

Table 1. The Average NPF Ratio of Islamic Banking in Indonesia 2014-2018

Year	Average NPF ratio
2014	8,27%
2015	5,28%
2016	5,25%
2017	4,70%
2018	4,27%

Source: processed data, 2020

Based on the table above, the NPF ratio from 2014-2015 has decreased. Meanwhile, according to BI Regulation No. 17 / II / PBI / 2015 the maximum limit of problem financing determined by Bank Indonesia is 5%. This means that Islamic banking continues to improve its performance, especially in dealing with problem financing, so that in 2017 and 2018 Islamic banking began to reach the maximum limit target for problem financing set by Bank Indonesia. Troubled financing cannot be underestimated. It is necessary to observe the things that affect the customer to get stuck in installments. One of the factors that influence customer problem financing is often related to monetary problems such as inflation, BI rate, exchange rates, and so on.

This study aims to determine the effect of the inflation variable, exchange rate, the BI Rate as a macroeconomic variable and the liquidity variable as an internal variable on problematic financing in Islamic banking. Internal liquidity variables were included in this study because of various fluctuations.

The Relationship between Inflation and Problematic Financing

High inflation causes a decline in people's purchasing power without being followed by an increase in labor wages. The economy has become sluggish, people's operating profits have decreased, and it has a general impact on customers' installment ability. Payment of customer obligations is getting less due. This has led to an increase in financing problems (Mileris, 2014); (Anjom & Karim, 2016). An increase in inflation is usually accompanied by an increase in interest rates on savings and loans. As a result, non-performing loans increased due to higher interest expenses, while debtors would find it difficult to pay their debts to banks. Inflation also encourages public panic in facing rising prices for goods. The economy has become abnormal. Some people buy goods, some don't get goods. Scarcity of goods causes inflation (Bresciani-Turroni, 2013); (Semuel, & Nurina, 2014); (Angelina & Nugraha, 2020).

H_1: Inflation has a significant positive effect on financing problems

The Relationship between BI rate and Non Performing Financing

The determination of the profit sharing ratio at Islamic banks is inseparable from conventional bank interest rates. The BI rate is a reference for conventional bank interest rates, while conventional bank interest rates are used as a reference for Islamic

banks in determining margins and ratios (Doktoralina & Nisha, 2020); (Iskandar & Adirestuty, 2018). The BI Rate is a reference interest rate that is set by Bank Indonesia periodically at a certain time which serves as a signal for monetary policy. The BI rate also influences people's behavior in financing payments which has an impact on the risk of bad credit. If the BI rate falls, the margins of Islamic banks are higher than conventional banks. This results in customers preferring conventional banks. So Islamic banks also reduce the ratio for the results and margins. The high profit sharing ratio of Islamic banks causes customers to object to financing payments. High interest rates can increase the risk of problem financing (Dell'Ariccia, Laeven, & Marquez, 2014); (Messai & Jouini, 2013). Even though the banking profit is high, the amount of financing installment payments which is the burden of *mudarib* becomes higher. A high BI rate has an impact on reducing problem financing (Setiawan & Putri, 2013).
H_2: BI rate has a significant positive effect on financing problems

The Relationship between Exchange Rates and Non-Performing Financing
Exchange rate is the exchange rate of one currency for another. The exchange rate also has an impact on the ability to pay installments of customer financing (Macit, 2012). Exchange rates play a role in the characteristics of customer installments associated with economic activity. Indonesia is a country with the majority of imports. The weakening of the rupiah exchange rate against the US dollar has an impact on the high prices of production factors and production output itself. The depreciation of the rupiah exchange rate against the US dollar had an impact on foreign currency borrowing, as a result, the burden of foreign debt obligations was noticeably higher with the depreciation. The increase in the number of liabilities causes a decrease in the ability of debtors to complete financing, even to the point of default and becomes problematic financing (Mileris, 2014).
H_3: BI rate has a significant positive effect on problem financing

The Relationship between Liquidity and Troubled Financing
Liquidity in banking is proxied by the ratio of Financing to Deposit Ratio (FDR), which is the ratio between disbursed financing and the amount of third party funds, including loans received and excluding subordinated loans. The FDR ratio illustrates the ability of banks to meet their withdrawal obligations to customers by relying on the return on financing they receive as a source of liquidity. A high FDR ratio indicates the lower liquidity capacity of banks (Simorangkir, 2004).
Liquidity plays an important role in indicating the expansion rate of bank financing distribution. The amount of the banking liquidity ratio is 92% and the minimum limit is 78%. This is regulated in Bank Indonesia Regulation (PBI) number: 15/7 / PBI / 2013. High liquidity ratios, causing banks to reduce providing financing or making financing more difficult (Van den End & Kruidhof, 2013). This also has an impact on the ratio of problem financing. In this study, problematic financing is proxied by Non Performing Financing (Pape, 2020).
H_4: Liquidity has a significant positive effect on financing problems.

2. Research Method
This type of research is a quantitative research. The variables in this study are inflation, the rupiah exchange rate against the US dollar, the BI Rate, liquidity, and Non-Performing Financing. The population in this research is the published financial statements of Islamic banking. The sample in this study is data from 2014-2018. The sampling technique used purposive sampling.
Non Performing Financing (NPF) is a financial ratio related to credit risk. NPF shows the ability of bank management to manage problem financing provided by the bank.

Non-performing loans are loans of substandard, doubtful and bad quality. NPF can be found with the formula:

$$NPF = \frac{Non\ Performing\ Loan}{Total\ Financing}$$

Inflation is an increase in prices as a whole in an economy continuously during a certain period. The indicator for measuring inflation is the Consumer Price Index (CPI). Inflation can be calculated using the formula:

$$Inflation\ (t) = \frac{CPI\ (t) - CPI\ (t-1)}{CPI\ (t-1)}$$

Currency exchange rate or what is often referred to as exchange rate is the price of a unit of foreign currency in domestic currency or it can also be said that the price of domestic currency against foreign currency. The exchange rate in this study uses the rupiah exchange rate against the US dollar. The exchange rate can be calculated using the formula:

$$Middle\ Rate = \frac{Selling\ rate + Buying\ Rate}{2}$$

The BI rate is a policy interest rate that reflects the monetary policy stance or stance set by Bank Indonesia and announced to the public.

Liquidity in this study is proxied by the ratio of Financing to Deposit Ratio (FDR). FDR is the ratio between the total amount of credit provided by the bank and the funds received by the bank. FDR can be obtained by the formula below:

$$FDR = \frac{Total\ Financing}{Third - party\ funds}$$

This research uses multiple linear regression analysis with the regression equation model as follows:

$NPF = \alpha + \beta_1 Inf + \beta_2 Kurs + \beta_3 BI\_Rate + \beta_4 FDR$

Variable Description:

Inf : Inflation
Kurs (Exchange rate) : The rupiah exchange rate against the US dollar
BI_Rate : Bank Indonesia interest rate (BI Rate)
NPF : Non Performing Financing
FDR : Financing to Deposit Ratio

3. Result and Discussion

3.1. Classical Assumption Test Results

The results of the normality test with the One-Sample Kolmogorov-Smirnov Test, show the asymp value. Sign (2-tailed) as follows:

Table 2. Normality Test Results
One-Sample Kolmogorov-Smirnov Test

Asymp. Sig. (2-tailed)	.200 < 0,05	Data is normally distributed

Source: Data processed, 2020

The results of the normality test with Kolmogorov Smirnov, showed the asymp value. Sign (2-tailed) regression equation model 0, 200> 0.05, which means that the data in this study are normally distributed.

To detect the presence or absence of autocorrelation, you can use the Durbin-Watson Test (DW test) method. One measure to determine whether autocorrelation exists or not with the Durbin-Watson (DW) test according to Danang Sunyoto (2013: 89) is that there is no autocorrelation if the DW value is between -2 and +2 or -2 <DW <+2.

Table 3. Autocorrelation Test Results
Durbin Watson Test

Durbin-Watson	0,664	There is no autocorrelation

Based on the table above the results of the autocorrelation test with the Durbin Watson Test are 0.664, where -2 <0.664 <+ 2, meaning that there is no autocorrelation or pass the autocorrelation test.

The multicollinearity test results with the Variance Influence Factor (VIF) and Tollerance test showed the following values:

Table 4. Multicollinearity Test Results
VIF and Tolerance Test

Tollerance	VIF	Description
0,636	1,568	
0,440	2,268	Multicollinearity does not occur
0,622	1,603	
0,448	2,228	

Source: Secondary data, 2020

Based on the multicollinearity test results of the table above, the regression equation shows the Tollerance value of the inflation, exchange rate, BI rate and FDR variables respectively 0.636 > 0.1., 0.440 > 0.1., 0.622 > 0.1., And 0.448 > 0 , 1 while the VIF values were 1.568 < 10., 2.268 <10., 1.603 < 10, and 2,228 < 10. This shows that there is no multicollinearity between the independent variables or pass the multicollinearity test.

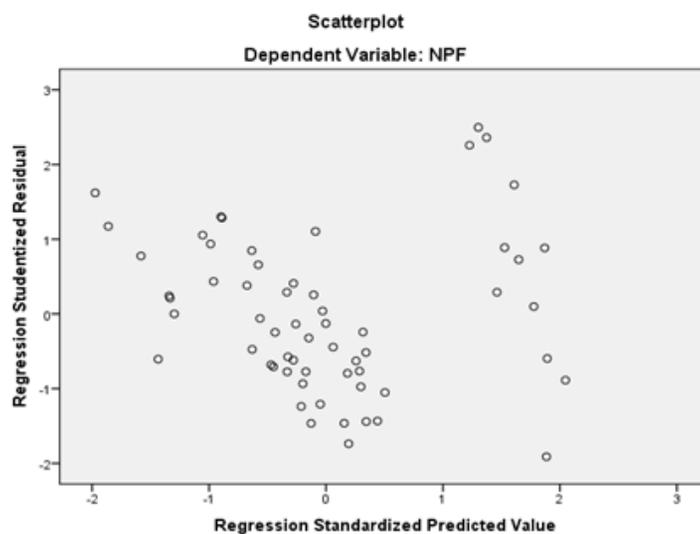Heteroscedasticity test with the Scatter plot test as follows:

Figure 1.Source Scatterplot Test Results
Data processed by SPSS, 2020

Based on the figure, it can be seen that the bubble dots spread randomly, not forming a certain pattern. This means that the data does not occur heteroscedasticity or passes the heteroscedasticity test

3.2. Hypothesis Test Results

The results of testing the multiple linear regression hypothesis using SPSS version 24. The equation model for testing the hypothesis is as follows:
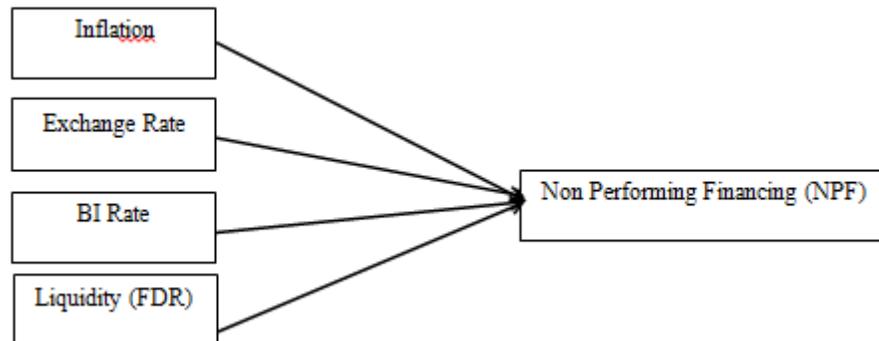
$$NPF = \alpha + \beta_1 Inf + \beta_2 Kurs + \beta_3 BI\_Rate + \beta_4 FDR$$

Variable Description :

Inf : Inflation
Kurs (Exchange rate) : The rupiah exchange rate against the US dollar
BI_Rate : Bank Indonesia interest rate (BI Rate)
NPF : Non Performing Financing
FDR : Financing to Deposit Ratio

Tabel 5. Hasil Uji t

Variable	Beta Coefficient	Sign	t table	t count	Description
Constant	12,523				
Inflation	31,366	0,195		1,308	Has no significant effect
Exchange rate	-0,001	0,000	2,00404	-6,832	Has a significant negative effect
BI rate	2,106	0,227		1,220	Has no significant effect
FDR	0,075	0,002		3,332	Has a significant positive effect

Source: processed data, 2020

Hypothesis testing in this research uses the t test and F test. The t test is used to partially influence the independent variable on the dependent variable, while the F test is performed to jointly prove the effect of the independent variable on the dependent variable.

3.3. Discussion

Inflation is the process of increasing the price of goods continuously at a certain time period. The results of this study indicate that inflation has no significant effect on problematic financing of Islamic banks.

The exchange rate in this study has a significant effect in a negative direction on financing problems. The weaker the exchange rate (the value of the rupiah exchange rate against the dollar increases), it will reduce problematic Islamic banking financing. The results of this study are different from proposing the hypothesis that the exchange rate has a significant positive effect on problem financing. The results of this study show that the exchange rate has a significant negative effect on problem financing. It

can be explained by the weakening of the rupiah exchange rate against the US dollar. In fact, some Islamic banks can increase the number of customers. Islamic banks do not do many foreign exchange transactions. Islamic banking is more focused on the real sector. This makes Islamic banks safer in the weakening of the rupiah exchange rate. Customers prefer Islamic banks because there is a guarantee of certainty. In addition, some conventional bank customers deliberately move their money to Islamic banks in case a conventional bank goes bankrupt when the rupiah exchange rate weakens against the US dollar. The increase in the number of Islamic bank customers was also followed by an increase in the number of Third Party Funds. The increase in third party funds was also followed by an increase in the amount of sharia bank financing distribution. In problem financing, which is proxied by the NPF ratio, this ratio will decrease if the amount of non-performing financing remains, while the amount of financing disbursements increases. This means that when the rupiah exchange rate weakens against the US dollar, it will have an impact on increasing problematic financing in Islamic banking. However, the increase in non-performing financing is much smaller than the increase in the distribution of Islamic banking financing. This has resulted in non-performing financing which is projected with a fixed NPF ratio or even decreasing.

The BI rate in this research does not have a significant effect on problem financing. The higher the Bank Indonesia interest rate, the higher the NPF of Islamic banking. The results of this study are not supportive.

In addition, the internal factor of Islamic banking, namely the liquidity variable, has a significant positive effect on problematic financing of Islamic banking. This means that the higher the liquidity, the more problematic financing will be. The results of this study can be explained by if a bank has a high FDR ratio, the bank will be more at risk of facing higher uncollectible financing. This has resulted in more and more problematic financing.

The results of this research are also in accordance with the hypothesis of this study, namely liquidity has a significant positive impact on non performing loan.

4. Conclusion

The results of the research from the analysis and discussion that have been conducted show that inflation and the BI Rate have no effect on problematic financing of Islamic banking in Indonesia. Meanwhile, the exchange rate has a significant negative effect and liquidity has a significant positive effect on problematic financing of Islamic banks. Some conventional bank customers deliberately move their money to Islamic banks in case a conventional bank goes bankrupt when the rupiah exchange rate weakens against the US dollar. This has led to an increase in the amount of Third Party Funds entering Islamic banks. In problem financing, which is proxied by the NPF ratio, this ratio will decrease if the amount of non-performing financing remains, while the amount of financing disbursements increases.

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