Analysis of Macro Variables on NPF of Traditional Banks in Indonesia

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Abstract. NPF) relationship analysis. Namely, the NPF variables and the design, methodology, approach. The samples used in this study are macro-variables obtained from Bank Indonesia and also from Wordbank. The period from January 2015 to December 2020. long and short term. The results of this study show that the BI rate variable has a significant negative impact on NPLs, while the inflation variable has a limited positive impact on NPFs. Exchange rates have a large positive effect on non-performing loans (NPFs) in the traditional banking sector.

Keywords: NPF, BI_Rate, inflation, exchange rate

1 Introduction

A bank is an entity that raises funds and distributes them in the form of credit or otherwise from the public to the public in order to improve the standard of living of the Indonesian people. Banks, like other financial institutions and companies, are motivated by business returns (returns) and are constantly exposed to risk.

Law no. 10 of 1998 on conventional banking establishes that the provision of the loan is one of the functions of a conventional bank as an intermediary. The traditional bank loan distribution system is governed by banking regulation due to its role in managing bank liquidity. Regular loan management affects liquidity targets and improves the health of banks. A healthy bank can manage its finances to avoid its own risk profile.

The assessment of the risk profile of a banking business can be divided into several parts. One of these is the funding risk caused by the customer's failure to fulfill his obligations to the bank under the agreed contract. One of the indicators for assessing the regularity of customer debt fulfillment is the bad debt ratio (NPF). NPF is

It shows a comparison between non-performing loans and conventional bank loans (Sdarsono, 2018). NPF in traditional banking in terms of macroeconomic variables in the form of short- and long-term internal banking conditions.

In addition, research or studies on the factors influencing NPF as a form of forecasting in the banking sector are needed. In particular, the traditional banking system must look at macroeconomic conditions and control the levels of bad loans (Poetry & Sanrego, 2011).

There are three main factors of NPF in the traditional banking sector: factors internal to the bank, factors internal to the borrower, and external factors other than banks and borrowers. From within the bank, the weakness of bank funding officers and pressure from third parties, the bank's aggressiveness in allocating funding, weak supervisory regimes, excessive shareholder interference, inadequate collateral and funding traditional are not covered. Bank (Haifa, 2015)).

Therefore, the researchers are interested in conducting a study entitled "Analysis of Macrovariables on NPF of Traditional Banks in Indonesia". The purpose of this research is to:

Apply macro variables (BI_Rate, inflation and exchange rate) partially and simultaneously to Indonesian conventional bank non-performing loans (NPF). The problem formulation used in this study is:

H1: How does the BI_Rate variable affect traditional bank bad debt (NPF) processing?
H2: What is the impact of inflation variables on banks' traditional bad loan assignments (NPF)?
H3: What is the impact of the Industrial Production Index (IPI) variable on banks' traditional write-offs of bad loans (NPF)?
H4: What is the exchange rate for the traditional NPF bank?

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2 Literature Review

(Simon, 2010) In his study entitled "Analysis of the impact of financial shocks on Indonesia's NPL report". Empirical studies show that there is a short-term relationship between the BI rate, the inflation rate, the exchange rate, and the non-performing loan ratio. Granger's causation test shows the occurrence of bidirectional causation between NPL and BI rates and between BI rates and inflation. There is also a one-way causal relationship between the inflation rate and the exchange rate of non-performing loans. Vector autoregression (VAR) also provides results that support the first hypothesis that shocks on financial variables have a small impact on NPLs. The results of the VAR estimate can be verified by the impulse response and variance decomposition tests. The results of the impulse response show that the occurrence of inflation and exchange rate shocks have a positive impact on changes in NPLs. On the other hand, however, non-performing loans reacted negatively to key interest rate shocks. The results of the variance decomposition show that the contribution of inflation and the reference interest rate (rate BI) is the largest relative to the contribution of the exchange rate, Poetry & Sanrego, (2011).

Meanwhile, according to previous literature, the other most influential macroeconomic variable is inflation. According to Bank Indonesia, high inflation will continue to reduce the real incomes of those who have bonds, lowering people's living standards and ultimately making everyone poorer, especially the poor. Firmansari & Supryogi (2015), as it can lead to problematic financing.

One of the indicators of banking crises is the ratio of non-performing loans. (NPF), therefore, the analysis of the factors that determine the level of non-performing loans is critical and important for the financial stability and management of the bank. The investment sector is an important branch of cyclical money flows in the economy. This investment sector is a direct link between financial institutions and the real sector, the goods and services sectors. When the ratio level or bad loans are high, banks will be more cautious in issuing bank loans, thus making it difficult for people in need of funds. The 2008 global crisis pushed lending up and down, with macroeconomic indicators such as rising inflation followed by BI rates. In terms of monetary policy, banks play a very important role in the Indonesian economy. This is because banks control the entire financial sector in terms of asset ownership, fundraising and fund distribution. In macroeconomics, inflation and the BI rate also affect how savings and public loans are spent. High and uncontrolled inflation disrupts banks' efforts to raise public funds and slows lending activity (Lidyah, 2016).

3 Research Methods

This type of search uses secondary data and authors obtained through the official websites of relevant institutions such as Bank Indonesia (www.bi.go.id), Financial Services Authority (www.ojk.go.id). This is a quantitative survey. Latest obtained from the World Bank (www.worldbank.org). The data used is a monthly time series from January 2015 to December 2020. The monthly data is used because the data density represents the object under study and minimizes the variation in the data for each variable. The variables used in this study are NPF (independent variable), BI_Rate, inflation, IPI and exchange rate (dependent variable).

The method of this study uses VAR (Vector Auto Regression) or VECM (Vector Error Correction Model) and E-view. In traditional banking, both short and long term. The analyzes used in the VAR / VECM method are the stationarity test, the optimal lag test, the cointegration test and finally the impulse response function test.

4 Results and Discussion

4.1 Stationarity test

The first step that must be performed to obtain a VECM estimate is a data stationarity test. That is, to influence the results of the VAR / VECM estimation test by each variable from both independent and dependent variables. For this study, we need to test the Augmented Dickey Fuller (ADF) using an interception model to detect whether any data is stationary with respect to independent and dependent variables. This test is performed on level and first level diff. The steady-state ADF test for each variable can be shown in Table 2 below.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Level - 1(0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>barrier</td>
<td>-4.172112</td>
</tr>
<tr>
<td>bell</td>
<td>-0.376186</td>
</tr>
<tr>
<td>T-statistic of the ADF</td>
<td>-1.934419</td>
</tr>
<tr>
<td>Critical Value McKinnon 5 people</td>
<td>0.3146</td>
</tr>
<tr>
<td>problem</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>NPF</td>
<td>-1.934419</td>
</tr>
<tr>
<td>BI_Rate</td>
<td>-1.660874</td>
</tr>
<tr>
<td>Infrastructur</td>
<td>-4.172112</td>
</tr>
<tr>
<td>LN</td>
<td>-0.376186</td>
</tr>
<tr>
<td>Kars</td>
<td></td>
</tr>
<tr>
<td>-2.913549</td>
<td></td>
</tr>
<tr>
<td>Source: Eviews 9 (processed)</td>
<td></td>
</tr>
</tbody>
</table>

It can be explained that the MFN is not stationary at the level level. We can see that the profitability of the statistical variable t ADF NPF is less than the value of the Mckinnon Critical Value 5% (0.05 was used in this study). That is, -1.934419 <-2.913549. This means that H0 is accepted and H1 is rejected for this study. In other words, the study data is not stationary.

Second, at that level the BI_Rate variable does not satisfy the requirement of data stationarity. We can see that the probability of the statistical variable t of the BI_Rate ADF is greater than the Mckinnon Critical Value 5% (0.05 was used in this study). In other words, the BI_Rate value for the ADF t statistics is -1.660874 <-2.912631. This means that H0 is accepted, H1 is rejected and in other words the BI_Rate variable is not stationary.
The steady-state GDP inflation variable of the ADF t-statistic at a level known to have a probability greater than the 5% McKinnon critical value (0.05 was used in this study), i.e., \(-1.72112\) > \(-2.916566\). It means that H0 is rejected and H1 is accepted. That is, the data for the inflation variable is stationary.

Now for the last variable in this study, LN_Kurs at the same level (Level). We can see that the probability of the ADF t-statistic for the exchange rate variable is greater than the McKinnon critical value by 5% (0.05 was used in this study). \(-2.916566\) is rejected and H1 is accepted with the term that the other is not at rest.

Therefore, in this study, there are three variables, NPF, BI_rate, and LN_Kurs, whose data is not stationary at the level of the ADF test interception model at the level level, so the solution is to differentiate the data at the first level of difference. The results of the first ADF test of the difference level can be shown in Table 3 below.

### Table 2. Result Of The First Drive Root Test

<table>
<thead>
<tr>
<th>Variable</th>
<th>Critical Value McKinnon</th>
<th>Problem</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPF</td>
<td>-2.913549</td>
<td>0.3146</td>
<td>Not stationary</td>
</tr>
<tr>
<td>BI_Rate</td>
<td>-2.912631</td>
<td>0.4455</td>
<td>Not stationary</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>-2.916566</td>
<td>0.0017</td>
<td>Not stationary</td>
</tr>
<tr>
<td>LN_Kurs</td>
<td>-2.960411</td>
<td>0.9014</td>
<td>Not stationary</td>
</tr>
</tbody>
</table>

Source: Eviews 9 (processed)

From Table 3 above, we can see that all the variables used in the survey data are stationary at the first level of difference. You can see it for each variable, like so:

The NPF variables at the ADF test level of the interception model at the first level of difference show that the ADF t-statistic is greater than the MC-quinone critical value by 5% (0.05 was used in this study). \(-5.598225\) > \(-2.963972\), this study rejects H0 and accepts H1, which means that the data is stationary.

From the above test data, all variables meet the stationarity requirement for the ADF test data. Here the t-statistic of the ADF is greater than the McKinnon critical value by 5% for the first level of difference. Since all data variables are stationary at the first level of difference, we can perform the next step in VECM estimation: determine the optimal delay length.

### 4.2 Determination of the length of the fin

A delay test is used to determine the optimal delay length to use for further analysis. The optimal delay test is an important step that must be performed when using the VECM model. The first step in this test is to create the VAR equations to achieve the optimal delay and stability of the VAR. Then you can create the VECM equation. The information criteria to determine the appropriate delay lengths must use the Final Prediction Error (FPE) model, the Akaike Information Criterion (AIC), the Schwarz criterion (SC), and the Hannan Quinn (HQ) selection criteria. This optimal delay length test is very useful for eliminating autocorrelation problems in estimating VAR. Then, using the optimal delay, we hope that the autocorrelation problem does not recur. When testing lag selection against these criteria, lag candidates are obtained with each criterion referencing the best lag. In Eviews 9, the lowest AIC and SC values are marked with an asterisk (Gujarati, 2004).

### Table 3. Length test of the fins

<table>
<thead>
<tr>
<th>Carpet</th>
<th>LogL</th>
<th>LR</th>
<th>FPE</th>
<th>AIC</th>
<th>SC</th>
<th>Main office</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-66.987</td>
<td>0.0013</td>
<td>4.7325</td>
<td>4.91935</td>
<td>4.79229</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>44.388</td>
<td>25</td>
<td>2.34e-06</td>
<td>1.6259</td>
<td>-0.69178</td>
<td>-1.32708</td>
</tr>
<tr>
<td>2</td>
<td>88.039</td>
<td>0.035</td>
<td>3.95e-07</td>
<td>-3.4692</td>
<td>-1.78783</td>
<td>-2.931362</td>
</tr>
</tbody>
</table>

Source: Eviews 9 (processed)

From table 4 above, we can see that the optimal fin length is on the second fin. We choose flap 2 as the best flap as based on our review results there are more stars in flap 2. Now that we’ve found the optimal delay length, we can run the next test: cointegration. Test (Johansen cointegration test).

### 4.3 Cointegration test (Johansen cointegration test)

The third phase of the test, the VECM estimation, is the cointegration test. A cointegration test aims to determine the long-term relationship of each variable. A requirement of the VECM estimate is that there is a cointegrating relationship. If there is no integration relationship, VECM estimation is not used, but the Vector Atouregression (VAR) model should be used. The criterion for this test phase, the presence or absence of cointegration between variables, is determined by comparing the probability value of the trace statistic, or...
the value of the trace statistic, with a critical value of 5%. A statistical trace value greater than 5% of the critical value indicates the presence of cointegration between the variables. In this study, the cointegration test used the Johansen cointegration test available in the review software with a critical value of 0.05. The results of the cointegration test are reported in Table 5.

Table 4. Result of the cointegration test (Johansen cointegration test)

<table>
<thead>
<tr>
<th>Number Of EC Hypotheses</th>
<th>Eigenvalue</th>
<th>Trace Statistics</th>
<th>0.05 Critical Value</th>
<th>Problem**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nobody*</td>
<td>0.578108</td>
<td>54.83803</td>
<td>47.85613</td>
<td>0.0096</td>
</tr>
<tr>
<td>Up to 1 *</td>
<td>0.483048</td>
<td>29.81087</td>
<td>29.79707</td>
<td>0.0498</td>
</tr>
<tr>
<td>2 at the most</td>
<td>0.300409</td>
<td>15.49471</td>
<td>15.49846</td>
<td>0.2322</td>
</tr>
<tr>
<td>3 at most</td>
<td>0.010837</td>
<td>0.315998</td>
<td>3.841466</td>
<td>0.5740</td>
</tr>
</tbody>
</table>

Source: Eviews 9 (processed)

The trace test shows 5 cointegrating equations at the 0.05 level
* indicates the rejection of the hypothesis at the 0.05 level

From Table 5 above, it can be explained that at the 5% (0.05) test level, there are four ordinal variables that are cointegrated. This can be evidenced by the trace statistic value of 29.81087, which is above the critical value of 0.05. This means that H0 is rejected and H1 is accepted. That is, the variables used have a long-term (cointegrating) relationship with each other. Other. Therefore, Granger causality testing can be performed.

4.4 Granger's causality test

The Granger causality test is used to evaluate the predictive ability of a time series variable in the previous period versus another time series variable in the current period. Tested H0 indicates no causal relationship between variables, H1 indicates causal relationship between variables. To reject or accept H0, this study uses a critical value of 5% so that we can see the probability value against the confidence level. H0 is rejected if the probability value is greater than 5%. This means that there is a causal relationship between the variables under test. (Gujarat, 2004)

Table 5. Trial for Granger Victims

<table>
<thead>
<tr>
<th>Null hypothesis</th>
<th>t Statistic</th>
<th>Partial Statistics t</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI_Rate influenced by NPF</td>
<td>-0.189201</td>
<td>(0.59105)</td>
</tr>
<tr>
<td>D (NPF (-1))</td>
<td>-0.325600</td>
<td>(1.70392)</td>
</tr>
<tr>
<td>D (BI_RATE (-1))</td>
<td>1.165657</td>
<td>(-0.50974)</td>
</tr>
<tr>
<td>D (BI_RATE (-2))</td>
<td>4.538018</td>
<td>(-1.51272)</td>
</tr>
<tr>
<td>D (inflation (-1))</td>
<td>0.718854</td>
<td>(2.25552)</td>
</tr>
<tr>
<td>D (inflation (-2))</td>
<td>-0.659259</td>
<td>(-1.90240)</td>
</tr>
<tr>
<td>D (LN_KURS (-1))</td>
<td>-9.445796</td>
<td>(-0.68516)</td>
</tr>
<tr>
<td>D (LN_KURS (-2))</td>
<td>-9.445796</td>
<td>(1.12529)</td>
</tr>
</tbody>
</table>

Source: Eviews 9 (processed)

Based on table 6, the probability values are 0.0215 <0.05, so in this study there is a Granger causality in the LN_Kurs affected by NPF. If the probability value is greater than 0.05, you can conclude that there is no causal relationship between the variables. Therefore, after running the Granger causality test, you need to run the next test, the Vector Error Correction Model (VECM).

4.5 VECM estimate

The Vector Error Correction Model (VECM) is a special method of VAR that helps to verify the long-term equilibrium relationship of the cointegrating equations. The trick is to limit some variables from the equation. If the variables used are cointegrated, they have a long-term equilibrium and obviously a short-term imbalance. In other words, this method is a long-term way of considering the impact of another variable (Gujarat, 2004).

The fact that after performing a series of pre-estimation steps: data stationarity test, delay length determination, cointegration test and VECM stability, in this study there are 3 ranks of cointegration at the test level 0.05 (5%). i.e., VECM (vector error correction model). The use of the VECM estimate follows the formulation of the problem of this study. That is, to identify the short and long-term relationships of the influence of the independent variable on the dependent variable. The results of the VECM estimate can be shown in Table 7 below.

Table 6. Result of the estimation of the VECM (Vector Error Correction Model) in the short term

<table>
<thead>
<tr>
<th>Value</th>
<th>Coffee Partial Statistics t</th>
</tr>
</thead>
<tbody>
<tr>
<td>D (NPF (-1))</td>
<td>-0.189201 (0.59105)</td>
</tr>
<tr>
<td>D (NPF (-2))</td>
<td>-0.325600 (1.70392)</td>
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<tr>
<td>D (BI_RATE (-1))</td>
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<td>-0.659259 (-1.90240)</td>
</tr>
<tr>
<td>D (LN_KURS (-1))</td>
<td>-9.445796 (-0.68516)</td>
</tr>
<tr>
<td>D (LN_KURS (-2))</td>
<td>-9.445796 (1.12529)</td>
</tr>
</tbody>
</table>

Source: Eviews 9 (processed)

From table 7 we can describe the short term (one year depending on the type of data used, or monthly data for the period 2008-2012). A short-run Vector Error Corrected Model (VECM) estimate shows that the inflation variable is a partial t-statistic, with t-table values of 2.25552 > 2.021. Overall, the results of the long-term VECM estimate are shown in Table 8 below.

Table 7. Long-term Vector Error Correction Model (VECM) Estimation Results
The long-term vecm estimates in Table 8 above explain the significant negative impact of the BI_Rate variable at delay 1 on NPF -2.04843. The partial t-statistic value for the BI_rate variable at delay 1 is -2.04843> 2.021. This means that H0 is rejected and H1 is accepted.

Long-term estimates of the VECM show that the lagging inflation variable 1 has a positive impact on NPF with values of [1.15720] and is not significant. The partial t-statistic for lagging inflation variable 1 is [1.15720] < from 2.021. That is, H0 is accepted and H1 is rejected.

The last variable, the result of the long-term estimate vecm of the exchange rate at lag 1, has a positive and significant impact on the NPF of 2.80490. The partial t-statistic values for the BI_rate variable at delay 1 are >2.021 to 2.80490. This means that H0 is rejected and H1 is accepted. Therefore, after estimating the vector error correction model (VECM), we need the next test, the impulse response function (IRF) test.

### 4.6 Impulse Response Function (IRF) Test.

The impulse response can be interpreted as the response to changes in variable Y when another variable Y is in shock or impulse. The impulse response function tracks the impact of the standard deviation of shock or surprise on innovation on the current and future values of variable Y. A shock that occurs in one variable directly affects that variable and is passed on to other variables Y through dynamic structures.

![Fig 1. Results of the IRF Analysis of Currency Shocks](image)

Figure 1 shows the impulse response function (IRF) test shows that changes in BI_Rate are reacted by the NPF in the first month with a value of -0.00, and then in the second to the sixth period the response is positive. This is indicated by the IRF line which tends to rise above the horizon until the 6th period. In the 7th period the response becomes negative again with a value of -0.04, in the 8th period there is a change in the positive response (0.03) and in the 9th and 10th period the negative response changes again to This is indicated by the trend of the IRF line below the horizon up to the 10th period.

The inflation variable shows that the change in response to the NPF responds positively from period 1 to period 8, starting from values between 0.00 and 0.10, indicating that the IRF line tends to rise above the horizon until 8° indicated by, period. On the other hand, also the final negative answers from the 9th month and values between 0.15 and 0.18. This is indicated by the trend of the IRF line below the horizon up to the 10th period.

And for the last variable, we show that the change in LN_Kurs to which NPF replied gets a negative answer. This is shown by the IRF line, which tends to be horizon. However, at 3 months there was a positive response with a value of 0.12. This is indicated by the IRF line which tends to rise above the horizon in the third period.

### 5 Discussion

#### 5.1 Effect of Bi_Rate on NPF

Short-term BI rates have a significant negative impact on NPF. If bank lending rates rise as a result of the BI rate hike, the interest burden on borrowers will increase, which could lead to an increase in NPLs. Traditional banks are unaware of the interest rate system and all its commercial activities, but both traditional banks and traditional banks as commercial institutions face competition in the banking sector.

Research by Sudarsono (2018) shows that fluctuations in interest rates in traditional banking can influence customer decisions when they invest and credit / lend funds. So, when the BI rate rises, traditional banks participate in interest rate increases to maintain their profits. Rising interest rates at traditional banks will cause customers to switch to traditional banks in funding, as the profit share is considered low relative to the interest on the loan they have to pay. As more funds are disbursed in the form of loans, traditional banks are likely to face higher levels of loan risk.

These findings are reinforced by the Lidyah study (2016). As the BI rate increases, traditional banks' profit-and-loss ratios will be able to compete with rising interest rates on traditional bank loans (making traditional banks more competitive). Traditional bank lending products become more competitive. This means that if the BI rate rises, traditional bank lending rates will follow suit. The traditional bank's margin or profit-sharing rate, determined by business capacity and the borrower's profit and loss, does not just increase, but the margin is more competitive than the bank's lending rate. Borrowers tend to look for lower interest rates when
lending, so when a higher BI rate pushes traditional bank lending rates higher, borrowers have other options. Traditional bank interest rates currently in use. I earn.

Research findings (Kusmayadi, Firmansyah & Badruzaman, 2018) explain that monetary policy issued by BI via the Bank of Indonesia’s interest rate (BI rate) does not interfere with the banking sector’s non-performing loan ratio. Banking conventional or conventional. This means that interest rates are not the cause of the rise in non-performing loan ratios, as traditional bankers expected to improve the quality of the distribution of funds. Bank management successfully selects clients for credit/loan so that the scale of lending rates set by traditional banks due to high BI interest rates does not hinder clients' ability to meet their obligations. Similarly, the impact on traditional banks is indirectly due to changes in BI rates, which determine the attitude of customers in this sector towards traditional bank credit. In fact, during the research period, its effectiveness was not proven. This is proof that traditional bank profits have responded well to the public. Therefore, it can be concluded that BI monetary policy by determining the amount of the BI rate does not affect the quality of traditional bank non-performing loans and traditional bank loans. Based on the above explanation, we can formulate the following hypothesis:

**It has a significant negative impact on Non-Performing Financing (NPF).**

### 5.2 Impact of inflation on NPF

If the debtor can pay the credit installments before inflation rises, but after inflation hits, while the debtor's income does not increase, the debtor installments will be paid at very high prices and capacities will weaken. Already used to meet the needs of families due to rising prices.

This condition prevents the debtor from paying the loan installments. And if most of the bank's debtors are unable to pay the credit installments, the traditional bad debt (NPF) bank debt will surely increase. Studies by Mutamimah (2012) and (Haifa, 2015) indicate that, in general, the difficulties that banks face relate to how credit risk changes as macroeconomic conditions change and how long it takes for macroeconomic changes to judge accurately. In this case, inflation is managed by the bank. Another reason is that this indicates that the borrower feels a responsibility or commitment to fulfill the obligation in terms of repaying the loan to the bank, so even if inflation rises, non-performing loans in traditional banks will not increase.

In addition to the existence of an underlying contract in the loan agreement between Shahibul Maal and Mudarib, due to its binding nature, in this case, even if the macroeconomic conditions worsen, despite the increase in inflation, The Mudarib (debtor) is still obliged to repay the loan.

This is supported by a study (Popita, 2013) in which inflation is not significantly positive for NPF.

Based on the above explanation, we can formulate the following hypothesis:

**H2: Inflation has a positive but not significant impact on Non-Performing Financing (NPF).**

### 5.3 Impact of the exchange rate on the NPF

Short-term exchange rates have a large impact on the NPF. An increase in the value of the Rupee against the US dollar means an increase in the value of the national currency (appreciation), resulting in relatively higher prices for domestic goods than for foreign ones. This could increase the use of imported goods and reduce the number of sales by domestic companies. Declining sales will impact reduced profits and customers' ability to repay loans. A depreciation of the rupee exchange rate is accompanied by a decline in the ability of banks to pay off their debts and even insolvency, indicating an increase in the NPF (Sudarsono, 2018).

**Significantly positive impact on non-performing loans (NPF)**

### 6 Conclusion

The study allows to draw both short-term and long-term conclusions for both the NPF variable and the macro variables, i.e., BI_Rate, inflation and exchange rate, showing different impacts on the dependent variable, i.e., NPF. In the short run, macro variables have a different impact on each MFN level lag, but the inflation variable has a relatively larger impact on the MFN variable than the other variables. In the long run, however, the BI_Tasso and Exchange rate variables show a relatively greater impact than the inflation macro variable.

In this study, the impact of the BI rate variable has a significant negative impact on the NPF ratio of traditional commercial banks, while the impact of the variable inflation rate has a positive impact on NPFs. It proved to be influential and insignificant. ratio, and for the last variable, the exchange rate has a significant positive effect. the proportion of non-performing loans (NPF) in traditional banking.

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