Analysis of Macroeconomic Factors Affecting Non-Performing Loans in Multinational Banking in Indonesia

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Abstract:- **This research intends to analyze the macroeconomic factors affecting Non-Performing Loans (NPL) of multinational banking in Indonesia using the approach of quantitative to-causality. The population consists of 68 private commercial bank companies in Indonesia which are owned by foreign parties and private parties as well as Indonesian citizens (multinational ownership). The research sample is 19 companies with the criteria of private commercial banks in Indonesia which are owned by foreign parties and private parties as well as Indonesian citizens (multinational ownership) listed on the Indonesian Stock Exchange from 2013-2021 accompanied by foreign parties as the majority shareholder. Sample screening by purposive methods. The research data were obtained through secondary data from published websites on the Indonesia Stock Exchange, Bank Indonesia, Ministry of Trade, Global-rates, Macrotrends, and Central Statistics Agency. Then analyzed using the panel data regression analysis method. The results found that international interest rates have a positive effect on NPL of multinational banking in Indonesia, but inflation and crude oil prices have a negative effect on NPL of multinational banking in Indonesia, while exchange rates and exports have no effect on NPL of multinational banking in Indonesia.**

Keywords:- Non-Performing Loans (NPL), Multinational Banking, Macroeconomics, Inflation, Exchange Rates, International Interest Rates, Crude Oil Prices, and Exports.

I. INTRODUCTION

Non-Performing Loans (NPL) is still one of the interesting topics in current banking issues, especially when recent unstable economic conditions have had an impact on the global financial crisis and the vulnerability of the banking sector in the economic crisis (Firdaus, 2017). The condition of the economic crisis in terms of credit loan financing creates difficulties for debtors in repaying their loans which results in high levels of NPL. NPL is a bad loans and an indicator of banking quality assessment and is considered a serious threat to the structure of the banking industry that can trigger a financial crisis that we can see from various previous financial crises such as the Asian financial crisis, the Finnish crisis, and the Swedish financial crisis (Syed, 2021).
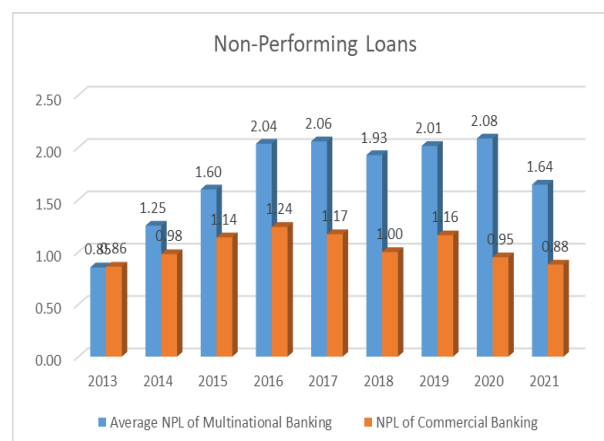

Fig. 1: Non-Performing Loans

Source: Average NPL of Multinational Banking: Data Processing Results NPL of Commercial Banking: Data of Financial Services Authority

Figure 1 shows the NPL value of conventional commercial banks from 2013 to 2021 showing a relatively stable percentage in the range of 1%. Meanwhile, the average NPL of multinational banks from 2013 to 2021 shows a more volatile value. The percentage of NPL which was initially 0.85% increased for four consecutive years to become 2.06% in 2017. But after that for three consecutive years, it was relatively stable at around 2.0% and after that, in 2021 the NPL fell to 1.64%. This indicates that multinational banking companies are less consistent in maintaining the quality of their performance. The quality of banking performance is needed by debtors, investors, and the public, as a positive signal so that they feel confident, safe, and secure, and can be an indicator of triggering a country's financial crisis (Syed, 2021).

The gap in ownership of national and multinational banks is felt because the owners have the authority to determine the management and the orientation of banking policies. Different ownership status results in differences in the culture and character of the bank. These differences can affect banking performance through management policies (Abdullah, Bulotio, and Lanuu, 2021). In addition, multinational banks have the opportunity to obtain cheaper foreign funding sources through the international relations. The main purpose of bank management is profit motive for the owner or stake holder, then the bank owner will appoint management who are considered proficient in carrying out bank operations in a proper and profitable. (Nursatyani, 2011).

According to Louzis, Vouldis, and Metaxas (2010), the factors that contribute to the growth rate of NPLs are bank-specific and macroeconomic. Bank-specific factors, also called bank internal aspects, are factors that arise from bank operational activities by measuring credit expansion, credit quality, credit growth, capital availability, bank size, credit structure, and also in terms of ownership (Magfiroh, 2017). While macroeconomic factors are external aspects that have an impact on the sustainability of the bank or aspects that are beyond the control of the bank, such as the economic condition of the states (Arsani, 2008).

In the concern of adding references for research, a study of previous research was conducted. For some previous studies related to NPL such as research conducted by Dewi and Purwono (2020), Khan, Ahmad, Khan, and Ilyas (2018), Koju, Koju, and Wang (2018) which discussed about NPL in Asian countries, Polat (2018), Saif-Alyousfi, Saha, and Md-Rus (2018) which examines NPL in Middle East countries, Mazreku, Morina, Misiri, Spiteri, and Grima (2018) which discussed about NPL in transition countries, Ouhibi, Hammami, and Ezzeddine (2017) which discussed about NPL in Southern Mediterranean countries, Asaolu and Adibe (2020), Kure, Adigun, and Okedigba (2017), which discussed about NPL in Nigeria, Sinaga, Muda, and Silalahi (2020), Addury (2019), Shonhadji (2020), Djauhari, Achsani, and Sapton (2017), Kartikasary, Marsintauli, Serlawati, and Laurens (2020), Astuti, Elizabeth, and Keristin (2018), Fiani (2020), Rizal, Zulham, and Asmawati (2019), Poerba and Kurniasih (2019) which examines the NPL in Indonesia, Idris and Nayan (2017), Al-Khazali and Mirzaei (2017) which discussed about NPL in oil exporting countries, as well as Khan, Bari, Ali, and Ahmad (2021) which discussed about NPL in oil importing countries. Then Fauzukhaq, Sari, and Wiranata (2020), Hernawati and Puspasari (2018) which examines the NPL in Islamic banks. Then research conducted by Nugroho, Sutanto, and Riduwan (2021), Viphindrartin (2021), Hernando, Miranda, Theodora, Kadarusman, and Ariyan (2020), Hayet and Suratman (2020) which examines the macroeconomic determinants of NPL, as well as Magfiroh (2017), Rahman and Fatmawati (2020) which discussed about internal factors that cause NPL.

The results of the research on NPL do not show consistency with the factors that influence NPL, therefore further research is needed to find the consistency of research. In addition, there have been many research efforts to describe some of the causes of NPL, but most of them focus on bank-specific factors with research subjects in the form of conventional banks or Islamic banks.

The focus of the researchers in this study is only on the macroeconomic aspect, because macroeconomic factors are beyond the control of the bank so more anticipation is needed to prevent business failure in a bank, especially for multinational banks that have close connection with macroeconomic components. By knowing the main factors that have a significant impact on the macro economy, banks can focus on these main factors without paying attention to other factors that do not actually affect them. Therefore, this study intends to examine and analyze the effect of components that can represent macroeconomic indicators,

which are inflation, exchange rates, international interest rates, crude oil prices, and exports, on NPL at multinational banks in Indonesia.

II. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

A. Theoretical Studies

Signaling theory can be said as an action taken by management in providing investors with a view of the company's opportunities. The information provided by management is an important factor for investors and businessmen because it inherently represents exposure, indication, or explanation of past, present, and future conditions regarding the sustainability of the company and its impact on the market (Besley dan Brigham, 2008). The signaling theory was originally introduced by Spence (1973) to explain the behavior of the labor market, signaling theory describes the behavior of two parties when they get different access to information. Now, this issue has been widely used in various studies to provide an overview of giving a signal by management about the company through various aspects of financial information disclosure. According to Triyani (2018), signaling theory explains how to give signals in conveying the successes and weaknesses of the management to the owners. The stimulus to send a signal arises from the information asymmetry between the bank and external parties, because the market reaction is very dependent on the basis issued by the bank. Thus, banks need to continuously give positive signals to debtors, investors, and the public, so that they feel confident, safe, and secure related to the healthiness and efficiency of banks by maintaining their credit levels at all times to avoid placing at high levels of NPL. Escalation of NPL can be one of the signals in the assessment of banking quality and is considered a serious threat to the structure of the banking industry that can trigger a financial crisis (Syed, 2021).

Based on the Law of the Republic of Indonesia No. 10 of 1998 dated November 10, 1998, regarding Banking, Bank is an institution that collects public funds in the form of savings and generally distributes them in the form of loans and other forms to improve people's living standards. According to Kasmir (2011), the types of banks can be seen in terms of ownership. This ownership can be seen in the articles of association of the bank and the ownership of the shares. The types of banks in terms of ownership are: 1) state banks, 2) national private banks, 3) cooperative banks 4) foreign banks 5) multinational banks.

Based on the Law of the Republic of Indonesia, banks are institutions that raise funds in the form of savings and distributes them in the form of loans and other forms to improve people's living standards. According to Kasmir (2011), the types of banks can be seen in terms of ownership. This ownership can be seen in the articles of association of the bank and the ownership of the shares. Types of banks seen from their ownership are state banks, private local banks, cooperative banks, foreign banks, and multinational banks.

Multinational companies are corporations that have a cross-border business, including international economic activities as well as inter-state ownership. Different ownership status results in different company culture and character. These differences can affect the company's performance through its management policies (Abdullah, *et al.*, 2021). Dunning (1993) states that multinational companies have foreign investments and operate in many countries. The relationship between countries will affect economic, political, social, and cultural conditions, both at the micro and macro levels. Vice versa, the economic, political, social, and cultural conditions of a country can have an impact on the condition of multinational companies (Madura, 2006).

Macroeconomics is a knowledge that studies economic actions and activities as a whole (aggregate), including aspects that have an impact on the quality of the economy as well as aggregate economic activity (Muana, 2001). The macroeconomic environment has a strong impact on the banking industry. Pressures from various macroeconomic aspects can provide systematic risks that have an impact on the operations of the banking industry, which is reflected in the risk of Non-Performing Loans (Ginting, 2016).

The NPL ratio is a measure of management's capability to deal with credit problems at a bank (Dendawijaya, 2009). NPL is assessed through a comparison of bad loans to total loans. Meanwhile, according to Maudhita and Thamrin (2018), NPL or commonly called bank creditworthiness is a loan that cannot be repaid on time and shows the competence of bankers in managing their credit problems. The level of NPL reflects loan risk, the higher proportion of NPL results in a greater risk to creditors (Ali, 2004). The NPL status is fundamentally based on the observance of the debtor's obligation to pay, both interest and principal payments. Proper credit distribution and control procedures are expected to minimize bad loans. Thus, the ability of banks to process loans and be oriented towards credit management, such as post-loan monitoring and warnings about indications of default, greatly affects the high NPL (Djohanputro and Kountur, 2007).

Inflation is the overall and continuous increase in prices. An increase in the price of one commodity cannot be called inflation unless the increases causes an increase in prices for most other commodities (Boediono, 2005). On the other hand, Irham and Hadi (2009) describe inflation as a condition when the local currency depreciates and commodity prices increase systematically. Inflation shows the state of a country when there is excess demand for goods and services throughout the economy. This excess demand is a drive of inflation which causes overall prices to be higher. Rising inflation certainly accompanies an increase in interest rates and tends to increase the value of NPL banks because the interest expense that must be paid by debtors is relatively high. It is even more difficult for debtors to pay their bank debts since the income value is relatively unchanged (Sukirno, 2008).

The opposite could also happen, when inflation hits, banks become more careful and selective to distribute their credit in order to avoid the possibility of default (Sugiyono, 2021). Furthermore, there is fear among the public and businessmen to apply for bank loans because they feel they cannot pay their debts, therefore that bank lending will decrease and bad loans will decrease as well (Barus and Erick, 2016). On the other hand, a controlled inflation level can increase profits for companies, then stimulate investment which ultimately accelerates economic growth and also credit growth for banks (Sutawijaya, 2012). However, the rapid credit growth resulted in an increase in losses. This can happen when banks try to be lenient in their credit standards in terms of increasing lending, which in the end resulted in many incompetent debtors who will only bring bad credit problems (Kusuma and Haryanto, 2016).

However, previous research by Hernawati and Puspasari (2018) revealed different things, according to them, when inflation changes in the short term are not too volatile, debtors will still have a commitment to their obligations in paying their installment so inflation will not have an impact on bad loans.

The exchange rate, which is usually called the exchange rate, is the unit value of the foreign currency against the local currency or vice versa, the unit value of the local currency against foreign currency (Simorangkir and Suseno, 2004). The price to get one dollar in rupiah, or vice versa is referred to as the rupiah exchange rate in dollars. Exchange rates are usually volatile and changes can be in the form of depreciation or appreciation. The depreciation of the rupiah indicates a decrease in the price of the rupiah, which makes the price of local products cheaper for foreign parties. While the appreciation of the rupiah indicates an increase in the price of the rupiah, which makes domestic products more expensive for foreign parties (Sukirno, 2004). According to Firdaus (2017), if the rupiah exchange rate depreciates, domestic business actors will be faced with the exchange rate and credit risk, especially those using bank loan facilities to finance their operations. Business actors who are more affected by depreciation are companies that use imported components. A depreciating local currency means that the price of imported goods will rise. An increase in production costs without an increase in revenue will generally disrupt the cash flow and budget of the company and businessmen, including the schedule of debt repayments. When a financial disturbance occurs, it will disrupt the company's debt payment schedule, it affects the bank's source of income. The greater number of debtors who have financial problems, the higher number of bad loans which leads to an increase in NPL.

Previous research by Dewi and Purwono (2020) actually revealed the opposite, for export-oriented countries, depreciation has advantages and reduces credit risk, because depreciation causes the selling price of products to other countries to be higher, which leads to an increase in the income received by export-oriented companies and a greater chance of repaying their loans, which then leads to a reduction in NPL.

Meanwhile, a different situation occurs when banks tighten the distribution of foreign currency loans in response to the weakening of the rupiah as well as efforts to curb the application of foreign currency financing from businessmen due to the increased risk of foreign exchange differences which has an impact on increasing the cost of borrowing. So that changes in exchange rates do not interfere with the debtor's ability to repay the loan (Hernando *et al.,* 2020).

The interest rate is the price for using money, or the price for renting money, in other words, the price for borrowing money to use its purchasing power, generally used for a specific period in percentage units. The need for reliable prices from qualified market players has led to the invention of LIBOR and other interest rate references. The origin of LIBOR is based on the fact that banks need to know the interest rates on loans that bring commonality to international financial markets (Astuti, 2018). International interest rates are international monetary indicators that affect interest rate trends in various countries, especially in countries with open economic systems such as Indonesia (Sidabalok, 2011). Loan interest rates in a country generally rise following the increase in international interest rates. Rising interest rates certainly burden debtors in paying their debts, especially for loans with floating rates. The growth of the LIBOR reference rate can occur when banks as lenders demand higher returns and are also reluctant to provide loans for long periods of time due to uncertainty that leads to increased credit risk, resulting in higher LIBOR interest rates (Hou dan Skeie, 2014). For banks, raising interest rates is very attractive because of high loan income, but high-interest rates are risky because debtors will have difficulty paying and are at high risk of default (Clichici and Colesnicova, 2014). On the other hand, when interest rates are lower, it will make loan payments easier, then banks will get a reduction in problem loans (Barus and Erick, 2016).

Different things happen when various financial institutions such as banks gradually shifted their use of LIBOR and began to replace international interest rate references with various alternative benchmarks such as SOFR, TONAR, SONIA, Ameribor, and SARON (Iwuoha, 2020). Therefore, the international interest rate proxied by LIBOR no longer has an impact on non-performing loans in banks.

The volatility of crude oil prices is highly determined by the principles of the market economy through the supply and demand mechanism as the basic factor for price levels in the international market. In terms of the demand mechanism, the growth of crude oil prices is strongly influenced by global economic growth. In many cases, the high rate of global economic growth will increase the demand for crude oil which then pushes up oil prices. In terms of the supply mechanism, the availability or supply of oil by producing countries globally greatly affects the volatility of oil prices, the availability is related to oil refinery facilities, production levels, and the amount of investment (Nizar, 2012). Purnomo, Istiqomah, and Badriah (2020) stated that the growth in international oil prices will cause a surge in production costs for businessmen which consequently decreases the company's ability to repay its debts on time and increase the possibility of default.

However, the growth of international oil prices can also have the contrary effect on NPL, the turmoil in the global market will drive the acceleration of domestic inflation because the increase in oil prices will have an impact on the high prices of refined oil products such as gasoline and other fuels whose use plays an important role in the production process (Purnomo *et al.,* 2020). Bank Indonesia (2014) also states a similar thing, where an increase in oil prices causes higher production costs, including transportation costs in the business world which then causes higher prices or what is commonly referred to as inflation. When inflation hits, banks become more careful and selective to distribute their credit in order to avoid the possibility of default (Sugiyono, 2021).

Meanwhile, previous research by Saif-Alyousfi *et al.,* (2018) revealed a different condition, during the economic prosperity period and stable government, fluctuations in oil prices did not have an impact on NPL, due to an increase in overall prosperity and an increase in the financial health of debtors, so that does not interfere with the payment behavior of the debtor.

Exports are interpreted as supplying and physically selling domestic products to other countries. In open-economy countries, exports are the main part because the products are sold domestically or exported abroad (Mankiw, 2007). The comparative theory of David Ricardo (1817) states that it is possible for a country to have an advantage in the value of different uses. This advantage can be obtained when the country is able to produce various kinds of commodities in large quantities, but at lower prices. According to Zeman and Jurča (2008) exports are a series of transporting goods to other countries. Export performance positively affects sectors with a foreign business orientation which then affects the totality of the economy. Under these circumstances, credit repayments for companies and industries will increase and of course will increase the chances of repaying their loans, which will lead to a reduction in NPL.

However, previous research by Koju *et al.,* (2018) revealed the opposite, according to him, when a country has an export volume that is smaller than its import volume, a trade deficit occurs. An increase in exports in a trade deficit country causes domestic companies to fall due to the failure of domestic products to compete with imported goods of higher quality thus the banks that invest in domestic companies will face an increase in NPL.

A different thing was also revealed by previous research of Shonhadji (2020), according to him, exports did not have an effect on banking NPLs because the majority of bank lending is not export-oriented. Credit export is less desirable and is considered riskier than credit in the domestic sector, because export credit requires greater costs both for banks and for exporters themselves, as well as a longer export shipping process, thus requiring a longer cash cycle (Paravisini, 2010). Rappoport, Schnabl, and Wolfenzon, 2011).

B. *Hypothesis Development*

a) The Effect of Inflation on Non-Performing Loans

Inflation shows the state of a country when there is excess demand for goods and services throughout the economy. This excess demand is a drive of inflation which causes overall prices to be higher. Rising inflation certainly accompanies an increase in interest rates and tends to increase the value of NPL banks because the interest expense that must be paid by debtors is relatively high. It is even more difficult for debtors to pay their bank debts since the income value is relatively unchanged (Sukirno, 2008). Based on this description, inflation is indicated to have a positive effect on NPL.

H1: **Inflation have a positive effect on Non-Performing Loans (NPL).**

b) The Effect of Exchange Rate on Non-Performing Loans

According to Firdaus (2017), if the rupiah exchange rate depreciates, domestic business actors will be faced with the exchange rate and credit risk, especially those using bank loan facilities to finance their operations. Business actors who are more affected by depreciation are companies that use imported components. A depreciating local currency means that the price of imported goods will rise. An increase in production costs without an increase in revenue will generally disrupt the cash flow and budget of the company and businessmen, including the schedule of debt repayments. When a financial disturbance occurs, it will disrupt the company's debt payment schedule, it affects the bank's source of income. The greater number of debtors who have financial problems, the higher number of bad loans which leads to an increase in NPL. Based on this description, the exchange rate is indicated to have a positive influence on NPL

H2: **The Exchange Rate has a positive effect on Non-Performing Loans (NPL).**

c) The Effect of International Interest Rates on Non-Performing Loans

Fluctuations in interest rates could be a parameter of systematic risk that affect the value of investments as well as lending (Bodie, Kane, and Marcus, 2006). In lending, the international interest rate is a determinant for the distribution of foreign currency loans because the banking industry can use LIBOR as the benchmark of interest rate. Loan interest rates in a country generally rise following the increase in international interest rates. Rising interest rates certainly burden debtors in paying their debts, especially for loans with floating rates. For banks, raising interest rates is very attractive because of high loan income, but high-interest rates are risky because debtors will have difficulty paying and are at high risk of default (Clichici and Colesnicova, 2014). Based on this description, international interest rates are indicated to have a positive influence on NPL.

H3: **International Interest Rates have a positive effect on Non-Performing Loans (NPL).**

d) The Effect of Crude Oil Prices on Non-Performing Loans

The volatility of crude oil prices is highly determined by the principles of the market economy through the supply and demand mechanism as the basic factor for price levels in the international market (Nizar, 2012). Purnomo *et al.,* (2020) stated that the growth in international oil prices will cause a surge in production costs for businessmen which consequently decreases the company's ability to repay its debts on time and increase the possibility of default. Based on this description, crude oil prices are indicated to have a positive influence on NPL.

H4: **Crude Oil Prices have a positive effect on Non-Performing Loans (NPL).**

e) The Effect of Exports on Non-Performing Loans

According to Zeman and Jurča (2008) exports are a series of transporting goods to other countries. Export performance positively affects sectors with a foreign business orientation which then affects the totality of the economy. Under these circumstances, credit repayments for companies and industries will increase and of course will increase the chances of repaying their loans, which will lead to a reduction in NPL. Based on this description, exports are indicated to have a negative effect on NPL.

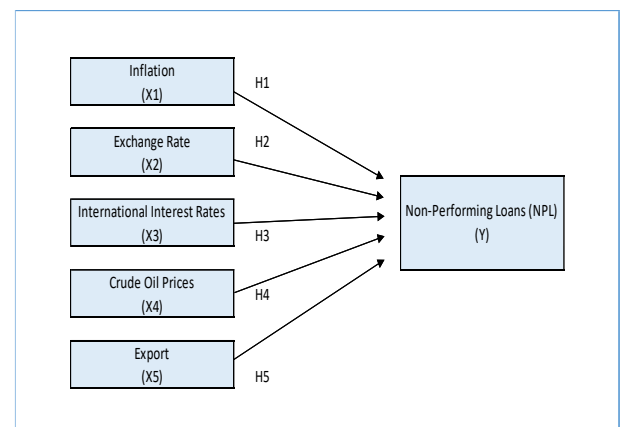**H5:** **Exports have a negative effect on Non-Performing Loans (NPL).**

Fig. 2: Diagram of Conceptual Framework

III. RESEARCH METHODS

This study uses a quantitative causality approach, which is research by examining the correlation or implications of the independent variable (X) on the dependent variable (Y). The research data was obtained through secondary data from websites published by the Indonesia Stock Exchange, Bank Indonesia, Ministry of Trade, global rates, macrotrends, and the Central Bureau of Statistics during the research period using the documentation method.

The population consists of 68 private commercial bank companies in Indonesia which are owned by multinational ownership. Sample screening by purposive methods with the following criteria:

- Private commercial banks in Indonesia which are owned by foreign parties and private parties as well as Indonesian citizens (multinational ownership).
- Listed on the Indonesian Stock Exchange from 2013-2021
- Foreign parties as the majority shareholder.

The samples that meet the criteria consist of 19 companies from 68 banking companies with multinational ownership in Indonesia.

The research was analyzed using the panel data regression method. If there are differences in units and quantities in the independent variables, a natural logarithm (Ln) regression equation model is needed. The following is the transformation of the panel data regression model in the natural logarithm equation:

$$LnY_{it} = \alpha + \beta_1 LnX_{1it} + \beta_2 LnX_{2it} + \beta_3 LnX_{3it} + \beta_4 LnX_{4it} + \beta_5 LnX_{5it} + e_{it}$$

Keterangan:

Ln	= Natural logarithm
Y	= Non-Performing Loan (NPL)
α	= Constant
β1 – β5	= Parameter Coefficient
X1	= Inflation
X2	= Exchange Rate
X3	= International Interest Rates
X4	= Crude Oil Prices
X5	= Export
e	= Error term (interference variable)
t	= period
i	= entity

RESULTS AND DISCUSSIONS

A. Analisis Regresi Data Panel

Test Type	Test Criteria	Statistics	Test Result	Conclusion
Chow	Cross-section F	5.722872	0.0000	Fixed Effect Model
Hausman	Cross-section random	0.000000	1.0000	Random Effect Model
Lagrange Multiplier	Cross-section	-	0.0000	Random Effect Model

Table 1: Selection of Panel Data Regression Estimation Model

Source: Data processing results

Variabel	Coefficient	Std. Error	t-Statistic	Prob.
Constants	133.3573	69.89255	1.908033	0.0581
Ln Inflation	-1.749093	0.670909	-2.607049	0.0100
Ln Exchange Rate	-16.21370	8.717308	-1.859943	0.0647
Ln International Interest Rates	0.533634	0.191199	2.790990	0.0059
Ln Crude Oil Prices	-1.299072	0.631534	-2.057009	0.0413
Ln Export	2.389465	1.516154	1.576004	0.1169
R-squared	0.221860			
Adjusted R-squared	0.198280			
F-statistic	9.408795			
Sig (F-statistic)	0.000000			

Table 2: Results of Random Effect Model Regression

Source: Data processing results using Eviews 9, 2022.

Based on the output of the panel data regression estimation model selection test in table 1, it is concluded that the best model to use is the random effect model. The following is the resulting random effect model equation:

Ln NPL = 133.3573 - 1.749093 Ln Inflation - 16.21370 Ln Exchange Rate + 0.533634 Ln International Interest Rates - 1.299072 Ln Crude Oil Prices + 2.389465 Ln Export The interpretation of the results of these equations can be described as follows:

- The constant shows 133.3573, meaning that when all independent variables, which are inflation, exchange rates, international interest rates, crude oil prices, and exports are considered zero, then the NPL level is 133.3573.
- The regression coefficient value of the inflation variable after being transformed using the natural logarithm shows a value of -1.749093, meaning that there is an indication of a negative correlation between inflation and NPL. That is if an increase in inflation will be followed by a decrease in NPL, and vice versa when inflation decreases, it is followed by an increase in NPL. If there is an increase in inflation of 1% while the exchange rate variables, international interest rates, crude oil prices, and exports are considered fixed, the NPL will decrease by 1.749093, and vice versa when inflation decreases by 1% while the exchange rate variables, international interest rates, prices crude oil, and exports are considered fixed, the NPL will increase by 1.749093.
- The value of the regression coefficient of the exchange rate variable after being transformed using the natural logarithm shows a value of -16.21370, meaning that there is an indication of a negative correlation between the exchange rate and the NPL. That is, if there is an increase in the exchange rate it will be followed by a decrease in NPL, and vice versa when the exchange rate decreases, it is followed by an increase in NPL. If there is an increase in the exchange rate of 1 rupiah while the inflation variable, international interest rates, crude oil prices, and exports are considered fixed, the NPL will decrease by 16.21370, and vice versa when the exchange rate decreases by 1 rupiah

while the inflation variable, international interest rates, prices crude oil, and exports are considered fixed, the NPL will increase by 16.21370.

- The regression coefficient value of the international interest rate variable after being transformed using the natural logarithm shows a value of 0.533634, meaning that there is an indication of a positive correlation between international interest rates and NPLs. That is, if there is an increase in international interest rates, it will be followed by an increase in NPL, and vice versa when international interest rates decrease, it will be followed by a decrease in NPL. If there is an increase in international interest rates by 1% while the inflation variable, exchange rate, crude oil prices, and exports are considered fixed, the NPL will increase by 0.533634, and vice versa if the international interest rate decreased by 1% while the inflation variable, exchange rate, price crude oil, and exports are considered fixed, the NPL will decrease by 0.533634.

- The regression coefficient value of the crude oil price variable after being transformed using the natural logarithm shows a value of -1.299072, meaning that there is an indication of a negative correlation between crude oil prices and NPL. That is, if there is an increase in the price of crude oil, it will be followed by a decrease in the NPL, and vice versa if the price of crude oil decreases, it will be followed by an increase in the NPL. If there is an increase in the price of crude oil by 1 USD while the variables of inflation, exchange rates, international interest rates, and exports are considered fixed, the NPL will decrease by 1.299072, and vice versa when the price of crude oil decreases by 1 USD while the variables of inflation, exchange rate, interest rates international interest rates, and exports are considered fixed, the NPL will increase by 1.299072.

- The value of the regression coefficient of the export variable after being transformed using the natural logarithm shows a value of 2.389465, meaning that there is an indication of a positive correlation of exports to NPL. That is, if there is an increase in exports, it will be followed by an increase in NPL, and vice versa when exports decrease, it will be followed by a decrease in NPL. If there is an increase in exports by 1 million USD while the variables of inflation, exchange rates, international interest rates, and crude oil prices are considered constant, the NPL will increase by 2.389465, and vice versa when exports decrease by 1 million USD while the inflation variables, exchange rates, interest rates international interest rates, and crude oil prices are considered fixed, the NPL will decrease by 2.389465.

B. Feasibility Test (Goodness of Fit)
  a) F Test
     The output of table 2 produces an F-statistic of 9.408795, and the F-distribution table value is 2.2689317, with a significance level of 0.05 at the degree of freedom 165. Based on this output, F-statistic (9.408795) > F-distribution table (2.2689317), and the significance value is 0.000000, meaning that it is less than (<) 0.05 then Ha is accepted. So it can be concluded that inflation, exchange rate, international

interest rates, crude oil prices, and exports simultaneously have an effect on NPL.

  b) Determination Coefficient Test
     The output of table 2 produces an Adjusted R-Squared value of 0.198280 which indicates that the dependent variable of NPL can be explained simultaneously by all the independent variables of 19.82%. While the remaining 80.18%, is explained by other variables. The resulting Adjusted R-Squared value is close to zero, it implies a very limited ability of the independent variable in explaining the dependent variable.

  c) t Test
     The t-distribution table value is 1.97445, obtained through the t-statistic distribution table at the degree of freedom 165, with a significance of 0.05 and a two-sided test. Therefore the results of the t-test can be interpreted as follows:
     a. Inflation
        The output of table 2 produces the t-statistic of the inflation variable of -2.607049 with a negative coefficient direction. Based on the output results, the t-statistic (-2.607049) > t-distribution table (-1.97445), and the significance value of the inflation variable is 0.0100, which means <0.05. This condition indicates that Ha is accepted and Ho rejected, then it is concluded that inflation has a negative effect on NPL.

     b. Exchange Rate
        The output of table 2 produces the t-statistic of the exchange rate variable of -1.859943 with a negative coefficient direction. Based on the output results, the t-statistic (-1.859943) < t-distribution table (-1.97445), and the significance value of the exchange rate variable is 0.0647 which means >0.05. This condition indicates that Ho is accepted and Ha rejected, then it is concluded that the exchange rate has no effect on NPL.

     c. International Interest Rates
        The output of table 2 produces the t-statistic of the international interest rates variable of 2.790990 with a positive coefficient direction. Based on the output results, the t-statistic (2.790990) > t-distribution table (1.97445), and the significance value of the international interest rate variable is 0.0059, which means <0.05. This condition indicates that Ha is accepted and Ho is rejected, then it is concluded that the international interest rates have a positive influence on NPL.

     d. Crude Oil Prices
        The output of table 2 produces the t-statistic of the crude oil price variable of -2.057009 with a negative coefficient direction. Based on the output results, the t-statistic (-2.057009) > t-distribution table (-1.97445), and the significance value of the crude oil price variable is 0.0413 which means <0.05. This condition indicates that Ha is accepted and Ho is

rejected, then it is concluded that crude oil prices have a negative effect on NPL.

e. Exports

The output of table 2 produces the t-statistic of the export variable 1.576004 with a positive coefficient direction. Based on the output results, the t-statistic (1.576004) < t-distribution table (1.97445), and the significance value of the export variable is 0.1169, which means > 0.05. This condition indicates that Ho is accepted and Ha rejected, then it is concluded that export has no effect on NPL.

C. Discussions

a) The Effect of Inflation on Non-Performing Loans

The results of the study concluded that inflation has a negative effect on NPL. This is contrary to the initial hypothesis and popular inflation theory, which states that inflation has a positive effect on NPL. Considering that inflation during the research period tends to decline to a level that is still below 10% or commonly known as creeping inflation, it can be said that the inflation rate is under control and is able to support economic stability. According to Sutawijaya (2012), a low and stable inflation rate will provide a stimulator for economic development. Controlled inflation levels can increase profits for companies, then stimulate investment which ultimately accelerates economic growth and also credit growth for banks. However, the rapid credit growth resulted in an increase in losses. This can happen when banks try to be lenient in their credit standards in terms of increasing lending, which in the end resulted in many incompetent debtors who will only bring bad credit problems (Kusuma and Haryanto, 2016).

On the other hand, high inflation has a negative impact on economic stability, including threatening corporate finances. Rising inflation could lead to higher raw material and commodity prices, lower income and profits, lower consumer purchasing power, and an economic slowdown, forcing businesses to adjust the prices of their goods and services. When inflation hits, banks become more careful and selective to distribute their credit in order to avoid the possibility of default (Sugiyono, 2021). Furthermore, there is fear among the public and businessmen to apply for bank loans because they feel they cannot pay their debts, therefore that bank lending will decrease and bad loans will decrease as well (Barus and Erick, 2016). Therefore, it can be concluded that inflation has a negative effect on NPL. The results of previous studies that are in line are Dewi and Purwono (2020), Sinaga *et al.,* (2020), Mazreku *et al.,* (2018), and Nugroho *et al.,* (2021) which concluded that inflation has a negative effect on NPL. The relationship between inflation and NPL can be illustrated in the following chart.
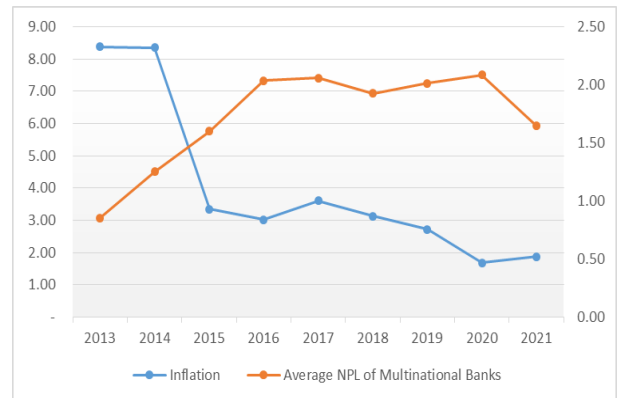

Fig. 3: Chart of Inflation and Non-Performing Loans

Source: Inflation: Bank Indonesia

Average NPL of Multinational Banks: Data Processing Results

b) The Effect of The Exchange Rate on Non-Performing Loans

The results of the study concluded that the exchange rate had no effect on the NPL. This rejects the initial hypothesis because the local currency exchange rate (rupiah) in the period of this study has weakened, which indicates the difficulty of obtaining 1 US dollar. However, the weak value of the rupiah did not interfere with the debtor's ability to repay the loan, because banks have tightened the distribution of foreign currency loans in response to the weakening of the rupiah as well as efforts to curb the application of foreign currency financing from businessmen due to the increased risk of foreign exchange differences which has an impact on increasing the cost of borrowing (Hernando *et al.,* 2020).

Indonesian Banking Statistics show that in the 2013-2021 period, foreign currency credit loans from commercial banks in Indonesia only accounted for 14% to 17% of total loans to debtors and the rest was loans in local currency (rupiah). Mutamimah and Chasanah (2012) mentioned that banks that do not lend foreign currency to debtors tend to unchanged in their NPL as an impact of exchange rate fluctuations. In terms of characteristics, multinational bank debtors are more resistant to rupiah depreciation and have a more stable response to the depreciation (Arsana, 2005). Therefore, exchange rate fluctuations have no effect on the NPL level. The results of previous studies that are in line are Polat (2018), Djauhari *et al.,* (2017), Ouhibi *et al.,* (2017), and Fauzukhaq *et al.,* (2020) which concluded that the exchange rate had no effect on NPL. The relationship between exchange rate and NPL can be illustrated in the following chart.
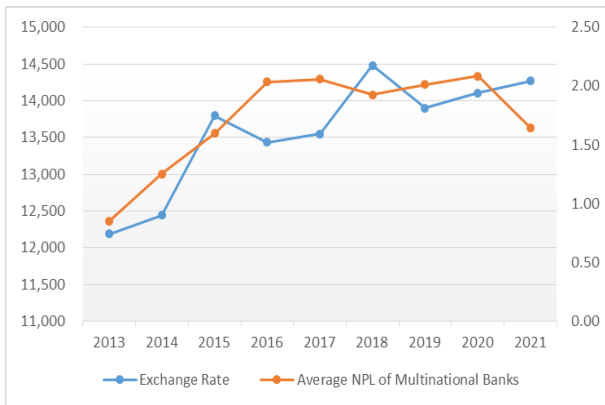
Fig. 4: Chart of Exchange Rate and Non-Performing Loans

Source: Exchange Rate: Ministry of Trade
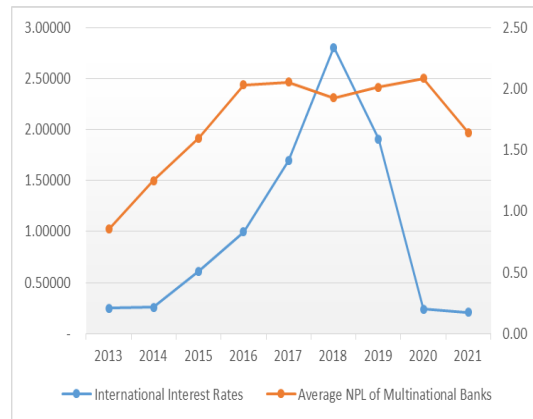Average NPL of Multinational Banks: Data Processing
Results

c) The Effect of International Interest Rates on Non-Performing Loans

The results of the study concluded that international interest rates have a positive effect on NPL. This is because the international interest rate proxied by LIBOR has long been an international monetary indicator and interest rates loans in a country generally rises following the increase in international interest rates. Rising interest rates certainly burden debtors in paying their debts, especially for loans with floating rates. The growth of the LIBOR reference rate can occur when banks as lenders demand higher returns and are also reluctant to provide loans for long periods of time due to uncertainty that leads to increased credit risk, resulting in higher LIBOR interest rates (Hou and Skeie, 2014).

The results of this study are in accordance with the initial hypothesis and the theory of Clichici and Colesnicova (2014) which states that many banks are tempted to increase loan interest rates in order to obtain high loan income, but high interest rates are risky because debtors will have difficulty paying and have a high risk of default. This can be seen in the Indonesian Banking Statistics for the period 2013-2021, where the interest income of commercial banks in Indonesia can be said to continue to grow from year to year.

On the other hand, when interest rates are lower, it will make loan payments easier, then banks will get a reduction in problem loans (Barus and Erick, 2016). Therefore, it can be concluded that international interest rates have a positive effect on NPL. The results of previous studies that are in line are Dewi and Purwono (2020), as well as Asaolu and Adibe (2020) which concluded that international interest rates have a positive effect on NPL. The relationship between international interest rates and NPL can be illustrated in the following chart.

Fig. 5: Chart of International Interest Rates and Non-Performing Loans

Source: International Interest Rates: Global rates
Average NPL of Multinational Banks: Data Processing
Results

d) The Effect of Crude Oil Prices on Non-Performing Loans

The results of the study concluded that crude oil prices have a negative effect on NPL. This is contrary to the initial hypothesis which states that crude oil prices have a positive effect on NPL, because the price of brent crude oil during the research period tends to fluctuate, but is still under control in the price range of 40 USD per barrel to 80 USD per barrel, causing inflation to be controlled. According to Purnomo et al., (2020), the turmoil in the global market will drive the acceleration of domestic inflation because the increase in oil prices will have an impact on the high prices of refined oil products such as gasoline and other fuels whose use plays an important role in the production process.

Bank Indonesia (2014) also states a similar thing, where an increase in oil prices causes higher production costs, including transportation costs in the business world which then causes higher prices or what is commonly referred to as inflation. When inflation hits, banks become more careful and selective to distribute their credit in order to avoid the possibility of default (Sugiyono, 2021). In other words, fluctuations in crude oil prices are in line with inflationary movements, therefore crude oil prices also have an effect on NPL as well as inflation. The results of previous studies that are in line are Idris and Nayan (2017), Kure et al., (2017), Al-Khazali and Mirzaei (2017), and Addury (2019) which concluded that crude oil prices have a negative effect on NPL. The relationship between crude oil prices and NPL can be illustrated in the following chart.
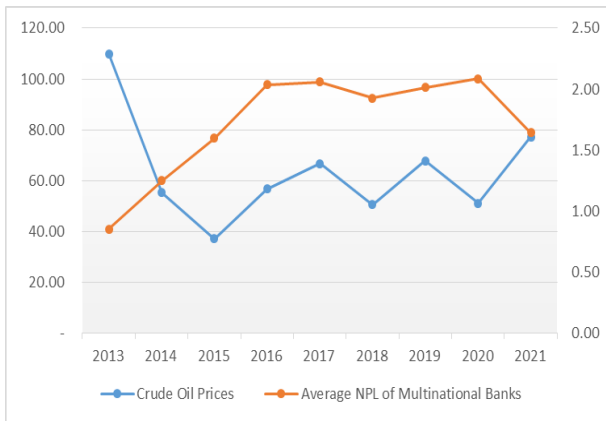
Fig. 6: Chart of Crude Oil Prices and Non-Performing Loans

Source: Crude Oil Prices: Macrotrends
Average NPL of Multinational Banks: Data Processing Results

e) The Effect of Exports on Non-Performing Loans
The results of the study conclude that exports have no effect on NPL. It rejects the initial hypothesis but support the theory presented by Shonhadji (2020). According to him, exports did not have an effect on banking NPL because the majority of bank lending is not export-oriented. Credit export is less desirable and is considered riskier than credit in the domestic sector, because export credit requires greater costs both for banks and for exporters themselves, as well as a longer export shipping process, thus requiring a longer cash cycle (Paravisini *et al.,* 2011). This can be seen in the Indonesian Banking Statistics for the period 2013-2021, where the export-oriented credit loans from commercial banks in Indonesia only accounted for 2% to 3% of total loans to debtors. The results of previous studies that are in line are Shonhadji (2020), Mazreku *et al.,* (2018), and Ouhibi *et al.,* (2017) which concluded that exports have no effect on NPL. The relationship between exports and NPL can be illustrated in the following chart.
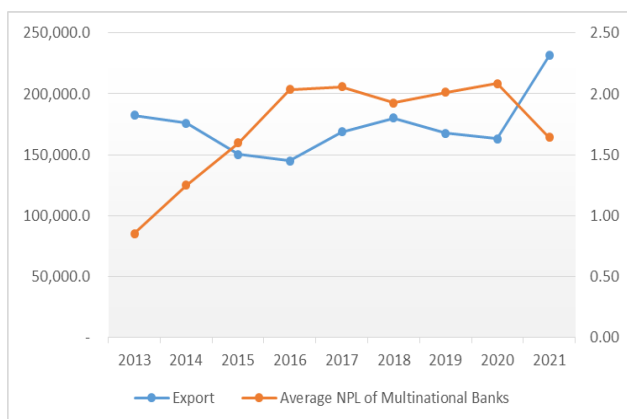

Fig. 7: Chart of Export and Non-Performing Loans

Source: Export: Central Statistics Agency Average NPL of Multinational Banks: Data Processing Results

IV. CONCLUSIONS AND SUGGESTIONS

A. Conclusions

The results of the study concluded that international interest rates have a positive effect on the NPL of multinational banks in Indonesia, but inflation and crude oil prices have a negative effect on the NPL of multinational banks in Indonesia, while the exchange rate and exports have no effect on the NPL of multinational banks in Indonesia.

B. Suggestions

a) For banking
The results show that the macroeconomic factor that has a positive effect on the NPL of multinational banking in Indonesia is international interest rates, for that the bank should pay more attention to movements in international interest rates according to money market fluctuations because according to the Liquidity Preference theory proposed by Keynes (1936), the interest rate is described as a monetary phenomenon that is largely determined by supply and demand in the money market.

Furthermore, macroeconomic factors that have a negative effect on NPL in multinational banks in Indonesia are inflation and crude oil prices, in the discussion of inflation and crude oil prices are closely related to management decisions, according to Berger and DeYoung (1997) in Bad Management theory, poor management practices in banking will have the impact of decreasing the quality of credit given to debtors which ultimately leads to bad credit problems for banks, therefore it is necessary to recruit a board of directors who are competent in running the banking business and act according to the applicable standard operating procedure.

b) For Authority
For the Indonesian government, in particular the Financial Services Authority (FSA) as the supervisor of micro banking activities, to be more vigilant in overseeing banking performance, because bank internal factors seem to have more potential to affect bad loans in Indonesia than macroeconomic factors (Magfiroh, 2017). In addition, in order to avoid the practice of bad management (Berger and DeYoung, 1997), FSA needs to conduct regular fit and proper tests on every management of banking companies in Indonesia, especially multinational banks.

c) For Further Research
There is a need for further research in order to develop research literature related to non-performing loans in multinational banking companies whose operational areas are not only in Indonesia, but also multinational banks with operating areas in several parts of the world, such as JP Morgan in America, Barclay in the UK, ICBC in China, and other multinational banks. According to Abdullah, *et al.,* (2021) multinational companies whose operations are in many countries have the opportunity to earn greater income through a

wider investment range, and also have a greater opportunity to be able to maintain their performance.

Furthermore, further research is also recommended to examine the determinants of NPL using variables outside of macroeconomics, for example bank internal variables (bank-specific) as researched by Magfiroh (2017) and Rahman and Fatmawati (2020).

C. Research Limitations

The following limitations can be taken into consideration in further research in order to obtain precise results:

- The scope of the research only examines macroeconomic factors. Meanwhile, the coefficient of determination is only 19.82%, which means that these macroeconomic factors are only a minority of the many other variables outside the study that have more potential to have an influence on NPL such as bank-specific factors or also known as bank internal factors.
- This type of research sample is limited to multinational banking with its operational area coverage only in Indonesia and is a subsidiary company with a legal entity that is independent regardless of the parent company, so it is less precise as the multinational company.

REFERENCES

[1.] Abdullah, C., Bulotio, N., & Lanuu, H. (2021), Analisis Kinerja Keuangan Yang Mempengaruhi Modal Perusahaan Multinasional Dan Perusahaan Domestik Di Bursa Efek Indonesia. *Jurnal Ilmiah Ilmu Manajemen dan Kewirausahaan,* 1 (2). 494-509. DOI: 10.46306/vls.v1i2.

[2.] Addury, M.M. (2019). Pengaruh Harga Minyak Dunia Dan Nilai Tukar Terhadap Resiko Perbankan Syariah Di Indonesia Periode 2007-2018. *Jurnal Studi Keislaman Wahana Islamika*, 5 (1), 1-18.

[3.] Al-Khazali, O.M., & Mirzaei, Ali. (2017). The Impact of Oil Price Movements on Bank Non-Performing Loans: Global Evidence From Oil-Exporting Countries. *American University of Sharjah*, 1-32. DOI: 10.1016/j.ememar.2017.05.006.

[4.] Ali, H.M. (2004). *Asset Liability Management, Menyiasati Risiko Pasar dan Risiko Operasional dalam Perbankan.* PT Elex Media Komputindo. Jakarta.

[5.] Arsana, I.G.P. (2005). Pengaruh Nilai Tukar Terhadap Aliran Kredit dan Mekanisme Transmisi Kebijakan Moneter Jalur Kredit. *Jurnal Ekonomi Pembangunan Indonesia*, 5 (2), 121-140.

[6.] Arsani, K.S. (2008). *Analisis Pengaruh Indikator Makroekonomi Terhadap Profitabilitas Perbankan Di Indonesia Periode Januari 2006-Desember 2008*. Skripsi Program Sarjana Fakultas Ekonomi Universitas Indonesia, Jakarta.

[7.] Asaolu, A.A., & Adibe, O.J. (2020). Effects of Macroeconomic Indices on Non-Performing Loans in Nigeria Banks. *IAR Journal of Business Management,* 1 (4), 304-312.

[8.] Astuti, Y., Elizabeth, S.M., & Keristin, U. (2018). Pengaruh Kurs, Inflasi, Suku Bunga Terhadap Non Performing Loan (NPL) Produk Mulia Baru Pada PT Pegadaian Palembang Periode 2015-2017. *Jurusan Manajemen STIE Multi Data Palembang.*

[9.] Bank Indonesia. (2014). *Kajian Stabilitas Keuangan*. Jakarta.

[10.] Barus, A.C., & Erick. (2016). Analisis Faktor-Faktor Yang Mempengaruhi Non Performing Loan Pada Bank Umum Di Indonesia. *Jurnal Wira Ekonomi Mikroskil*, 6 (2), 113-122.

[11.] Berger, A.N, & DeYoung, R. (1997). Problem Loans and Cost Efficiency in Commercial Banks. *Journal of Banking and Finance*, 21.

[12.] Besley, S., & Brigham, E.F. (2008). *Essentials of Managerial Finance*. Thomson South Western.

[13.] Bodie, Z., Kane, A., & Marcus, A.J. (2006). *Investasi.* Edisi Keenam. Salemba Empat. Jakarta.

[14.] Boediono. (2005). *Ekonomi Moneter*. Edisi Ketiga. BPFE. Yogyakarta.

[15.] Clichici, D., & Colesnicova, T. (2014). The Impact of Macroeconomic Factors on Non-Performing Loans in the Republic of Moldova. *Journal of Financial and Monetary Economics,* 1 (1), 73-78.

[16.] Dendawijaya, L. (2009). *Manajemen Perbankan*. Edisi Kedua. Ghalia. Bogor.

[17.] Dewi, K.P., & Purwono, R. (2020). Analysis of The Effects of Macroeconomic Variables on Non-Performing Credit Risk in Emerging Market Asia 2010-2018. *Jurnal Ilmu Ekonomi Terapan,* 5 (2), 66-85.

[18.] Djauhari, R.R.A., Achsani, N.A., & Sapton, I.T. (2017). The Effect of Domestic and International Macroeconomic Variables on Sectoral Non Performing Loan (NPL) in Indonesia. *International Journal of Science and Research*, 6 (11), 570-584, DOI: 10.21275/ART20176540.

[19.] Djohanputro, B., & Kountur, R. (2007). Non Performing Loan (NPL) Bank Perkreditan Rakyat (BPR). *Laporan Penelitian kerjasama antara GTZ dan Bank Indonesia.*

[20.] Dunning, J.H. (1993). *Multinational Enterprises and The Global Economy*. Wokingham Addison Wesley. New York.

[21.] Fauzukhaq, M.F., Sari, D., & Wiranata, S. (2020). Pengaruh Inflasi, BI Rate, Kurs, CAR dan FDR Terhadap Non Performing Financing Bank Syariah Mandiri. *Media Ekonomi*, 28 (2), 129-140. DOI: 10.25105/me.v28i2.7169.

[22.] Fiani, P.K. (2020). Macroeconomic Stress Testing Pada Risiko Kredit Perbankan Indonesia Tahun 2001-2020. *Jurnal Ilmiah Fakultas Ekonomi dan Bisnis Universitas Brawijaya*. 9 (2), 1-18.

[23.] Firdaus, N.N. (2017). *Analisis Determinan Non Performing Loan Pada Bank Umum Konvensional Di Indonesia*. Skripsi Program Studi Manajemen, Fakultas Ekonomi Universitas Negeri Yogyakarta, Yogyakarta.

[24.] Ginting, A.M. (2016). Pengaruh Makroekonomi Terhadap Non Performing Loan (NPL) Perbankan. *Jurnal Ekonomi & Kebijakan Publik*, 7 (2), 159-170.

[25.] Hayet, & Suratman, E. (2020). The Determinant of Non-Performing Financing on Micro, Small, and Medium Enterprises (MSME) Financing of Islamic

Banking in Indonesia. *Conference on Islamic Finance and Technology.* DOI: 10.4108/eai.21-9-2019.2293967.

[26.] Hernando, A., Miranda, E., Theodora, L.L.A., Kadarusman, Y.B., & Ariyan, G.A. (2020). Dampak Faktor Makroekonomi Terhadap Non Performing Loan Pada Kredit Produktif Bank Umum Di Indonesia. *Studi Akuntansi dan Keuangan Indonesia,* 3 (1), 1-28.

[27.] Hernawati, H., & Puspasari, O.R. (2018). Pengaruh Faktor Makroekonomi Terhadap Pembiayaan Bermasalah. *Journal of Islamic Finance and Accounting*, 1 (1), 29-44.

[28.] Hou., D & Skeie., D. (2014). LIBOR: Origins, Economics, Crisis, Scandal, and Reform. *Federal Reserve Bank of New York Staff Reports*, 667.

[29.] Idris, I.T., & Nayan, S. (2017). A Pooled Mean Group Approach to the Joint Effects of Oil Price Changes and Environmental Risks on Non-Performing Loans: Evidence from Organisation of the Petroleum Exporting the Countries. *International Journal of Energy Economics and Policy,* 7 (3), 345-351.

[30.] Irham, F., & Hadi, Y.L. (2009). *Teori Portofolio dan Analisis Investasi*. Alfabeta. Bandung.

[31.] Iwuoha, O.E. (2020). Insight: How The Exit Of Libor Will Impact The Nigerian Financial Market. *The Gravitas Review of Business & Property Law,* 11 (4), 77-87.

[32.] Kartikasary, M., Marsintauli, F., Serlawati, E., & Laurens, S. (2020). Factors Affecting the Non-Performing Loans in Indonesia. *Accounting* 6, 97-106, DOI: 10.5267/j.ac.2019.12.003.

[33.] Kasmir. (2011). *Manajemen Perbankan*. Rajawali Pers. Jakarta.

[34.] Keynes, J.M. (1936). *The General Theory of Employment, Interest and Money*. Palgrave Macmillan. London.

[35.] Khan, I., Ahmad, A., Khan, M.T., & Ilyas, M. (2018). The Impact of GDP, Inflation, Exchange Rate, Unemployment and Tax Rate on the Non Performing Loans of Banks: Evidence From Pakistani Commercial Banks. *Journal of Social Sciences and Humanities*, 26 (1), 141-164.

[36.] Khan, M., Bari, K.M., Ali, S., & Ahmad, R. (2021). Oil Prices, Early Warning Indicator and Banking Crisis: A Study of an Oil Importing Country, Pakistan. *Psychology and Education*, 58 (3), 2322-2332.

[37.] Koju, L., Koju, R., Wang, S. (2018). Macroeconomic and Bank-Specific Determinants of Non-Performing Loans: Evidence from Nepalese Banking System. *Journal of Central Banking Theory and Practice*, 7 (3), 111-138, DOI: 10.2478/jcbtp-2018-0026.

[38.] Kure, E., Adigun, M., & Okedigba, D. (2017). Non-Performing Loans in Nigerian Banks: Determinants and Macroeconomic Consequences. *Economic and Financial Review,* 55 (3), 1-24.

[39.] Kusuma, E.C., & Haryanto, A.M. (2016). Analisis Pengaruh Variabel Kinerja Bank (CAR, ROA, BOPO, dan LDR), Serta Pertumbuhan Kredit dan Kualitas Kredit Terhadap Non Performing Loan (NPL). *Diponegoro Journal of Management*, 5 (4), 1-13.

[40.] Louzis, D.P., Vouldis, A.T., & Metaxas, V.L. (2010), Macroeconomic and Bank-Specific Determinants of Non-Performing Loans in Greece: A Comparative Study of Mortgage, Business and Consumer Loan Portfolios. *Bank of Greece Eurosystem Working Paper*. 118. 1-44.

[41.] Madura, J. (2006). *International Corporate Finance, Keuangan Perusahaan Internasional.* Edisi Kedelapan. Salemba Empat. Jakarta.

[42.] Magfiroh, S. (2017). *Analisis Pengaruh Bank Specific Variables (BSV), Struktur Pembiayaan Dan Status Kepemilikan Terhadap Risiko Pembiayaan Bank Umum Syariah Di Indonesia*. Tesis Program Studi Hukum Islam, Fakultas Syari'ah dan Hukum Universitas Islam Negeri Sunan Kalijaga, Yogyakarta.

[43.] Mankiw, N.G. (2007). *Teori Makro Ekonomi*. Edisi Keenam. Erlangga. Jakarta.

[44.] Maudhita, A., Thamrin , H. (2018). Analisis Faktor-Faktor Yang Mempengaruhi Kinerja Keuangan Pada Bank Buku 4 Periode Tahun 2012-2016. *Jurnal Ilmiah Manajemen & Bisnis*, 2 (2), 30-44. DOI: 10.22441/indikator.v2i2.3271.

[45.] Mazreku, I., Morina, F., Misiri, V., Spiteri, J.V., & Grima, S. (2018). Determinants of the Level of Non-Performing Loans in Commercial Banks of Transition Countries. *European Research Studies Journal,* 21 (3), 3-13.

[46.] Muana, N. (2001). *Makro Ekonomi, Teori, Masalah dan Kebijakan*. Edisi Perdana. PT Raja Grafindo Persada. Jakarta.

[47.] Mutamimah & Chasanah, N.S.Z. (2012). Analisis Eksternal dan Internal Dalam Menentukan Non Performing Financing Bank Umum Syariah Di Indonesia. *Jurnal Bisnis dan Ekonomi*, 19 (1), 49-64.

[48.] Nizar, M.A. (2012). Dampak Fluktuasi Harga Minyak Dunia Terhadap Perekonomian Indonesia. *Buletin Ilmiah Litbang Perdagangan*, 6 (2), 189-210. DOI: 10.30908/bilp.v6i2.131.

[49.] Nugroho, I.A., Sutanto, A., & Riduwan. (2021). Determinan Volatilitas Makro Ekonomi Terhadap NPL Bank Jateng. *Jurnal Proaksi Fakultas Ekonomi Universitas Muhammadiyah Cirebon,* 197-210.

[50.] Nursatyani, A. (2011). *Analisis Pengaruh Efisiensi Operasi, Risiko Kredit, Risiko Pasar, Dan Modal Terhadap Kinerja Keuangan Perbankan*. Skripsi Program Studi Ekonomi Manajemen, Fakultas Ekonomi Universitas Diponegoro, Semarang.

[51.] Ouhibi, S., Hammami, A., & Ezzeddine, S. (2017). Non-Performing Loans and Systemic Risk: Empirical Evidence to Tunisia and Morocco. *International Journal of Managerial Studies and Research,* 5 (3), 40-48. DOI: 10.20431/2349-0349.0502001.

[52.] Paravisini, D., Rappoport, V., Schnabl, P., & Wolfenzon, D. (2011). Dissecting the Effect of Credit Supply on Trade: Evidence from Matched Credit-Export Data. *National Bureau of Economic Research Working Paper*, 16975.

[53.] Poerba, A.D., & Kurniasih, A. (2019). Faktor Penentu Non Performing Loan Perbankan Buku II Terdaftar Di Bursa Efek Indonesia. *Prosiding Seminar Nasional Peningkatan Mutu Perguruan Tinggi.* 64-75.

[54.] Polat, A. (2018). Macroeconomic Determinants of Non-Performing Loans:Case of Turkey and Saudi Arabia. *Journal of Business Research-Turk,* 10 (3), 693-709. DOI: 10.20491/isarder.2018.495.

[55.] Purnomo, S.D., Istiqomah, & Badriah, L.S. (2020). Pengaruh Harga Minyak Dunia Terhadap Pertumbuhan Ekonomi, Inflasi, dan Pengangguran di Indonesia. *Jurnal PROFIT: Kajian Pendidikan Ekonomi dan Ilmu Ekonomi,* 7 (1), 13-24. DOI: 10.36706/jp.v7i1.11025.

[56.] Rahman, T., & Fatmawati, K. (2020). The Influence of Financial Ratios on Non Performing Financing of The Sharia Rural Banks of Special Region of Yogyakarta (BPRS DIY) Period 2015-2018. *Asian Journal of Islamic Management*, 2 (1), 25-35. DOI: 10.1108/AJIM.vol2.iss1.art3.

[57.] Ricardo, D. (1817). *On the Principles of Political Economy and Taxation.* John Murray Albemarle-Street. London.

[58.] Rizal, A., Zulham, T., & Asmawati. (2019). Analisis Pengaruh Pertumbuhan Ekonomi, Inflasi, Dan Suku Bunga Terhadap Kredit Macet Di Indonesia. *Jurnal Ekonomi Dan Kebijakan Publik Indonesia*, 6 (1), 1-16.

[59.] Saif-Alyousfi, A.Y.H., Saha, A., & Md-Rus, R. (2018). Impact of Oil and Gas Price Shocks on the Non-Performing Loans of Banks in an Oil and Gas Rich Economy: Evidence from Qatar. *International Journal of Bank Marketing*, 1-24. DOI: 10.1108/IJBM-05-2017-0087.

[60.] Shonhadji, N. (2020). What Most Influence on Non-Performing Loan in Indonesia? Bank Accounting Perspective with Mars Analysis. *Journal of Accounting and Strategic Finance,* 3 (2), 136-153. DOI: 10.33005/jasf.v3i2.85.

[61.] Sidabalok, R.S.M. (2011). *Analisis Pengaruh Suku Bunga Internasional, Kurs, dan Inflasi terhadap Penanaman Modal Asing di Indoneisa*. Skripsi Program Studi Ekonomi Pembangunan, Fakultas Ekonomi Universitas Sumatera Utara, Medan.

[62.] Sinaga, J.S., Muda, I., & Silalahi, A.S. (2020). The Effect of BI Rate, Exchange Rate, Inflation and Third Party Fund (DPK) on Credit Distribution and Its Impact on Non Performing Loan (NPL) on XYZ Commercial Segment Bank. *Universal Journal of Accounting and Finance,* 8 (3), 55-64, DOI: 10.13189/ujaf.2020.080301.

[63.] Simorangkir, I., & Suseno. (2004). *Sistem dan Kebijakan Nilai Tukar*, Seri Kebanksentralan No.12. Pusat Pendidikan dan Studi Kebanksentralan Bank Indonesia (PPSK BI). Jakarta.

[64.] Spence, M. (1973). Job Market Signaling. *The Quarterly Journal of Economic*, 87 (3), 355-374.

[65.] Sugiyono, L. (2021, April 23). Pengaruh Inflasi Terhadap Saham, *Jatengdaily*.

[66.] Sukirno, S. (2004). *Teori Pengantar Makro Ekonomi*. Edisi Ketiga. Raja Grafindo Persada. Jakarta.

[67.] _____. (2008). *Makro Ekonomi Teori Pengantar*. Raja Grafindo Persada. Jakarta.

[68.] Sutawijaya, S. (2012). Pengaruh Faktor-Faktor Ekonomi Terhadap Inflasi di Indonesia. *Jurnal Organisasi dan Manajemen,* 8 (2), 85-101.

[69.] Syed, A. A., (2021). Determinants of Nonperforming Loans: A Review of Empirical Evidence. *New Challenges for Future Sustainability and Wellbeing*, 287-316. DOI: 10.1108/978-1-80043-968-920211015.

[70.] Triyani. (2018). *Pengaruh Financing To Deposit Ratio (FDR) dan Office Channeling terhadap Profitabilitas Unit Usaha Syariah Periode 2015-2017*. Skripsi Program Studi Perbankan Syariah, Fakultas Ekonomi dan Bisnis Islam, Universitas Islam Negeri Raden Intan, Lampung.

[71.] Viphindrartin, S. (2021). Dampak Makro Ekonomi Terhadap Stabilitas Keuangan di Indonesia. *Jurnal Manajemen Jayanegara,* 13 (1), 13-19. DOI: 10.52956/jmj.v13i1.

[72.] Zeman, J., & Jurca P. (2008). Macro Stress Testing of The Slovak Banking Sector. *National Bank of Slovak Working Paper*, 1, 1-26.