

ANALYSIS OF FACTORS AFFECTING FOREIGN EXCHANGE RESERVES IN INDONESIA, 2005-2020

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ARTICLE INFO

Keywords:

Foreign exchange reserves
Foreign loans
Import
Export
Foreign investment

ABSTRACT

The aim of this research is to analyze the effect of foreign loans, imports, exports and foreign investment for the foreign exchange reserves' growth in Indonesia during 2005-2020. This research used secondary data which tends to be time-series published by Bank Indonesia, The Ministry of Trade Republic of Indonesia, Central Agency on Statistics Indonesia in the year of 2005-2020. The result of the regression by using ordinary least squares (OLS) method showed that the foreign loans and exports take effect positively to the foreign exchange reserves. It indicates that the increase in foreign loans and exports could affect the foreign exchange reserves in Indonesia during 2005-2020. Otherwise, the interest rate could not affect the foreign exchange reserves in Indonesia during 2005-2020.

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1. INTRODUCTION

With the start of industrialization in Indonesia, foreign exchange is automatically needed. Sources of foreign trade financing are kept in foreign exchange reserves, which are accounted for by Bank Indonesia, and recorded in Bank Indonesia's balance of payments. The more we actively carry out industrialization, the more foreign exchange we need, and this need is for consumption goods but now it is slowly changing to fulfill capital goods and raw materials. Foreign exchange is also widely used for the construction of industrial projects and projects such as roads, bridges, wharves, airports and terminals.

During the period of development of domestic industrialization, of course, the question was the source of our country's foreign exchange reserves. Foreign exchange reserves are of course a strong indicator to see how far a country is able to trade and show the country's economy. The initial source of foreign exchange reserves is the belief that Indonesia has abundant natural resources and of course it should be traded abroad and the rest Funding can be obtained through foreign aid either through foreign loans or through grants or often called capital outflow.

Priadi and Sekar (2008) explain that foreign exchange reserves have an important role and are an indicator to show the strength and weakness of a country's economic fundamentals, besides that it is the main key for a country to be able to avoid economic and financial crises. The impact of the economic crisis when viewed from the point of view of the balance of payments is the depletion of the country's foreign exchange reserves. Development of Indonesia's foreign exchange reserves for the 2005-2020 period.

The highest development of Indonesia's foreign exchange reserves for the period 2005 - 2020 occurred in 2020, namely 135,897 million USD. Where in 2005 it was 34,723 million USD and in 2006 - 2007 it increased by 56,920 million USD, in 2008 it again decreased by 51,639 million USD further in 2009 - 2012 foreign exchange reserves in Indonesia have trended up by 66,105 million USD 96,207 million USD 110,123 million USD and 112,781 million USD. In 2013 - 2015 foreign exchange reserves in Indonesia fluctuated and were still below the total foreign exchange reserves in 2012, but in 2016 - 2017 foreign exchange reserves rose again sharply by 116,362 million USD and 130,196 million USD and then fell again in 2018 - 2019 of 129,183 million USD,

Foreign exchange reserves are a very important indicator in measuring a country's trade and economic development. Several factors can affect Indonesia's foreign exchange reserves, including foreign loans, inflation, imports and exports. Foreign loans can be used as a factor that can be used to increase the country's foreign exchange reserves. The most frequent phenomenon occurs when a country's lack of foreign exchange reserves is caused by a higher value of imports than exports. In addition, Indonesia's foreign exchange reserves have been eroded because Indonesia made foreign loans to overseas institutions such as the IMF, ADB, World Bank or loans from other countries to cover liquidity and or finance domestic development. If the increase in imports cannot be stopped due to the low competitiveness of domestically made similar products, it is not impossible that one day the domestic market will be completely controlled by products from abroad, especially the high value of imported raw materials for the manufacturing industry which is increasingly high level of development and activity.

Indonesia's condition after the economic crisis showed that foreign exchange reserves were sucked up for domestic needs, because export foreign exchange was lower than imported foreign exchange. In an effort to maintain foreign exchange reserves at a safe level, it is necessary to know the factors that affect foreign exchange reserves in Indonesia, namely foreign loans, imports, exports and foreign investment.

2. METHOD

2.1 Data collection

In this study the authors used library research, namely research conducted through library materials in the form of scientific writings, journals, articles, magazines, scientific research reports related to the topic under study. The data collection technique used is direct recording in the form of 16 year time series data.

2.2 Data analysis

In analyzing the influence of the independent variables on the dependent variable, an econometric model is used. The analysis technique used is the ordinary least squares method (Ordinary Least Square or OLS).

The data used were analyzed quantitatively using statistical analysis, namely multiple linear equations. The equation model used is as follows

$$Y=f(X_1,X_2,X_3,X_4).....(1)$$

The function is then transformed into a non-linear equation as follows:

$$eY=\beta X \beta_1e\beta_2X_2+\beta_3X_3 \beta_4X_4+\mu.....(2)$$

Then the function is transformed into a linear regression equation model with the following model specifications:

$$Y=\alpha + \beta_1X_1+\beta_2X_2+ \beta_3X_3 + \beta_4X_4 + \mu.....(3)$$

Where :

- Y = Foreign Exchange Reserves (Million USD)
- α = Intercept / Constant
- $\beta_1, \beta_2, \beta_3, \beta_4$ = Regression Coefficient
- X1= Foreign Loans (Million USD)
- X2= Imports (Million USD)
- X3= Exports (Million USD)
- X4 = Foreign investment (million USD)
- μ = Term of Error

3. RELUST AND DISCUSSION

3.1 Significance Test

Dependent Variable: Y

Method: Least Squares

Date: 07/11/22 Time: 15:32

Samples: 1 16

Included observations: 16

Variables	coefficient	std. Error	t-Statistics	Prob.
C	-45053.68	12806.17	-3.518123	0.0048
X1	0.197708	0.046652	4.237976	0.0014
X2	-0.450480	0.191522	-2.352107	0.0383
X3	0.877103	0.218492	4.014352	0.0020
X4	0.820898	0.671015	1.223369	0.2468
R-squared	0.966546	Mean dependent var		95039.13
Adjusted R-squared	0.954381	SD dependent var		33366.86
SE of regression	7126712	Akaike info criterion		20.83139
Sum squared residue	5.59E+08	Schwarz criterion		21.07283
Likelihood logs	-161.6512	Hannan-Quinn criter.		20.84376
F-statistics	79.45221	Durbin-Watson stat		2.370331
Prob(F-statistic)	0.000000			

Test the individual significance of the Foreign Loan variable (X1) in Table above partially has a positive and significant relationship to Foreign Exchange Reserves in Indonesia for the 2005-2020 period. The variable (X1) shows a probability value of 0.0000 less than a significance of 5 percent (0.05). The regression coefficient of the variable Foreign Loans (X1) shows the number 0.197708 meaning that every 1 percent increase in Foreign Loans results in an increase in foreign exchange reserves of 0.19 percent. 2020, because the probability value is 0.0383 less than a 5 percent significance, (0.05). The regression coefficient of the Import variable (X2) shows the number -0.450480 meaning that every 1 percent increase in imports results in a 0.37 percent decrease in foreign exchange reserves. Then the Export variable (X3) in Table 4.7 partially has a positive and significant effect on Foreign Exchange Reserves in Indonesia for the 2005-2020 period. Variable (X3) shows a probability value of 0.0020 less than a significance of 5 percent, (0.05). The export regression coefficient shows the number 0.877103 meaning that every increase in exports by 1 results in an increase in foreign exchange reserves by 0.87 percent.

The foreign investment variable (X4) in table 4.7 partially has a positive and insignificant effect on Indonesia's Foreign Exchange Reserves for the 2005-2020 period because the variable (X4) shows a probability value of 0.2468, more than a significance of 5 percent, (0.05).

Simultaneously the variables X1, X2, X3, and X4 have a significant effect on the Foreign Exchange Reserves in Indonesia for the 2005-2020 period. The probability F statistic shows a value of 0.0000 less than a significance of 5 percent.

3.2 Determination Test R²

The results of the regression model of the influence of the variables Foreign Loans (X1), Imports (X2), Exports (X3), and Foreign Investment (X4) on the Foreign Exchange Reserves variable (Y) obtained R-Square of 0.966546 in Table 4.7. This means that variations in the independent variables Foreign Loans (X1), Imports (X2), Exports (X3), and Foreign Investment (X4) can explain variations in the variable Foreign Exchange Reserves (Y) in Indonesia by 96 percent. The remaining variations of other variables outside the model are 4 percent.

3.3 Statistical Test F

Testing the validity of the model, namely the effect of all the independent variables in the model can be obtained from the F-statistic test of the regression coefficients of the independent variables simultaneously on the dependent variable. Based on the results of the observed data in Table 4.7, it is known that with a probability F statistic of 0.000000 using a 95 percent confidence level ($\alpha=0.5$). It can be interpreted that together the variables Foreign Loans (X1), Imports (X2), Exports (X3), and Foreign Investment (X4) have an influence on Foreign Exchange Reserves (Y) at the 95 percent confidence level ($\alpha = 0.5$).

3.4 Statistical Test t

In Indonesia for the 2005-2020 period using a 95% confidence level ($\alpha = 0.05$) and the degree of freedom ($df = nk = 16-5 = 11$) we obtain a t-table of 1,796. It is known that the variable Foreign Loans (X1) has t-statistic of 4.237967 so it can be concluded that the Foreign Loan variable (X1) is significant to the Foreign Exchange Reserves variable (Y). Where are the t-statistics > t-table ($9.696794 > 1.796$). Then the variable (X2) has a t-statistic of -2.352107, so it can be concluded that the Import variable (X2) is significant to the Foreign Exchange Reserves variable (Y). Where the t-statistic > t-table ($-2.594847 > 1.796$), the Export variable (X3) has a t-statistic of 4.014352, so it can be concluded that the Export variable (X3) is significant to the Foreign Exchange Reserves variable (Y). Where the t-statistic > t-table ($4.065705 > 1.796$), and the foreign investment variable (X4) has a t-statistic of 1.223369, so it can be concluded that the foreign investment variable (X4) is not significant to the foreign exchange reserve variable (Y). Where t-statistics < t-table ($1.223369 < 1.796$).

3.5 Discussion

a. The Effect of Foreign Loans on Foreign Exchange Reserves for the 2005-2020 Period

The results of the data analysis show that the variable Foreign Loans has a positive and significant effect on Foreign Exchange Reserves, which means that if foreign loans increase, foreign exchange reserves will increase significantly. Foreign Loans are one of the macroeconomic variables that describe financial conditions in terms of external financing. As we know foreign loans are divided into two parts, namely private and government. From year to year, foreign loans always increase in nominal terms. This result is consistent with the research hypothesis and previous studies which state that an increase in foreign loans will increase foreign exchange reserves, because basically, any flow of funds into the country can increase foreign exchange reserves with the additional funds.

The results of this study are in line with the results of previous research conducted by Made Santana Putra Adiyadnya (2017) who conducted a study examining the effect of inflation, US dollar exchange rates, lending rates and foreign loans on Indonesia's foreign exchange reserves in 1996-2015.

b. The Effect of Imports on Foreign Exchange Reserves for the 2005-2020 Period

The results of the data analysis show that the Import variable has a negative and significant effect on Foreign Exchange Reserves. These results are consistent with the research hypothesis which states that imports have a negative and significant effect on foreign exchange reserves but are not in accordance with the research results of Reny Agustina (2014) which states that imports have no effect on foreign exchange reserves. It can be explained that the higher the import, the lower Indonesia's foreign exchange reserves will be. This is because if a country imports, that country will pay for imports with foreign exchange, so that the country's foreign exchange reserves will be depleted or reduced. According to Adam Smith's absolute advantage theory, if a country is more efficient and has an absolute advantage than other countries in producing other commodities, then the two countries can benefit by specializing in producing a commodity. The wealth of a country is achieved from the export surplus. That is, with international trade between countries (export > import), a country can enjoy benefits by increasing or increasing foreign exchange reserves.

c. Effect of Exports on Foreign Exchange Reserves for the 2005-2020 Period

Results data analysis shows that Exports have a positive and significant effect on Foreign Exchange Reserves. These results are consistent with the research hypothesis which states that exports have a positive and significant effect on foreign exchange reserves. When exports increase, foreign exchange reserves also increase which is the result of sales of exports of goods and services that are paid in foreign currency, so it can be said that export proceeds have a sizable contribution to the economy, in this case, one of which is as sources of additional foreign exchange reserves, especially since exports account for 70% of Indonesia's total foreign exchange reserves. The results of this study are in line with the results of previous studies conducted by Reny Agustina (2014) and Pundy Sayoga and Syamsurijal Tan (2017) which stated that exports have a positive effect on foreign exchange reserves.

d. Effect of Foreign Investment on Foreign Exchange Reserves for the 2005-2020 Period

Results data analysis shows that Foreign Investment has a positive and not significant effect on Foreign Exchange Reserves. These results are consistent with the hypothesis and research results of Afnika Murti Siregar (2018), which states that foreign investment has a positive and insignificant effect on foreign exchange reserves. This insignificant effect is because foreign investment does not directly have an impact or effect on increasing Indonesia's economic progress. Foreign investment is a form of investment, so the return on investment cannot be felt immediately, but it takes quite a long time (long term). Thus, the increase in foreign direct investment has an indirect effect on the accumulation of foreign exchange reserves.

4. CONCLUSION

Based on the results of data analysis and discussion it can be concluded is foreign Loans (X1) have a positive and significant effect on foreign exchange reserves in Indonesia for the 2005-2020 period. Imports (X2) are negatively related and have a significant effect on foreign exchange reserves in Indonesia for the 2005-2020 period. Exports (X3) are positively related and have a significant effect on foreign exchange reserves in Indonesia for the 2005-2020 period. This means that the larger the export, the more it will affect the increase in foreign exchange reserves, whereas if the smaller the export, it will affect the amount of foreign exchange reserves. Foreign Investment (X4) has a positive and no significant effect on foreign exchange reserves in Indonesia for the 2005-2020 period. Foreign Loans (X1), Imports (X2), Exports (X3), and Foreign Investment (X4) simultaneously have an impact on foreign exchange reserves in Indonesia for the 2005-2020 period.

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