The Effect of USD Exchange, Inflation and Export Levels on 1988-2017 Indonesian Device Reserves

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Abstract: ***The variable US dollar exchange rate, inflation rate, export and foreign exchange reserves in international trade have a causal relationship between one another. In this study, the foreign exchange reserve variable is placed as a dependent variable that can change at any given time because of changes in the US dollar exchange rate, inflation and export rates. Therefore, this study analyzes the relationship of these variables, the extent of the influence of the US dollar exchange rate, inflation and export rates can influence changes in foreign exchange reserves. This research was conducted in Indonesia using secondary data for 30 years from 1988 to 2017. The analysis technique used was multiple linear regression. The results of this study indicate the effect of the US dollar exchange rate, inflation rate and simultaneous export of foreign exchange reserves of 0,808, meaning that the influence of the three variables is 80.8 percent and the remaining 19,2 percent is influenced by other factors not included in this study . This study produced a regression equation $\hat{Y}$ = 2,529 + 0,633 X1 – 0,276 X2 + 0,253 X3. The variable US dollar exchange rate shows the biggest influence that is equal to 63,3 percent compared to the other two variables.***

Keywords: US dollar exchange rate, inflation rate, exports, foreign exchange reserves

1. Introduction

International trade will have consequences both in terms of economy and non-economy, both positive and negative. One of the international trade is exports. Export is one part of the economy that plays an important role and through market expansion will encourage other sectors to grow and develop in the economy (Suhartono, 2009). Exports generate foreign exchange that will be used to finance the import of raw materials and capital goods needed in the production process which will form added value (Kusuma Juniantara, 2011: 28). A country can export its products to another country if the goods are needed in another country and they cannot produce the goods or their production cannot meet domestic needs. A more important factor is the ability of the country to issue goods that can compete in the international market. That is, the quality and price of goods traded (exported) must be at least the same as those traded in the international market (Sri Wahyuni, 2011).

Export relations with foreign exchange reserves are in carrying out export activities so that a country will obtain in the form of the value of a sum of money in foreign exchange or commonly referred to as foreign exchange, which is one of the sources of income of the country. So that exports are international trade activities that provide stimuli to generate domestic demand which causes the emergence of large factory industries, along with stable positive structures and efficient social institutions (Todaro, 2011).

Foreign trade is an activity of exchanging goods and services carried out between residents of a country and residents of other countries. Foreign trade is carried out by many countries because it benefits both parties. In conducting trade, the two countries both benefit, so that if the country is trading, it will indirectly accelerate the pace of the country's economy (Wishanesta and WiwinSetyari, 2017). In the flow of globalization, the trade economy continues to grow, giving influence and obstacles to trade activities that must be faced by all countries including Indonesia. In an integrated global economy, specialization in trade is an increasingly prominent strategy (Coxhead and Li, 2008).

Trade between two countries will arise due to differences in demand and supply. The difference between demand and supply is caused by the number and type of needs, the amount of income, culture, interim and others (Nopirin, 2000). International trade of a country is very good needed from outside and inside the country because it is to meet the needs of each individual and group in the country.

International trade carried out between various countries benefits the countries involved. According to Alam (2012), the effectiveness of any country's international trade policies in relation to the balance of payments and economic development largely depends on the amount of income and the elasticity of the prices of exports and imports. Jhingan (2002) divides benefits into categories, namely direct and indirect benefits. Direct benefits, if a country specializes in producing certain items, so that it can export cheap commodities to be exchanged for commodities produced by other countries at lower costs. Foreign trade will bring profits, so that national income will rise, and eventually will increase output, and economic growth, or in other words that international trade can expand markets and stimulate investment, income, and savings through more efficient allocation of resources.

Foreign exchange reserves are a very important source of financing needed in international trade. The foreign exchange reserves in Article 13 of the BI Law are formulated that Bank Indonesia manages foreign exchange reserves. Foreign exchange reserves are deposits of foreign currencies that are stored in several reserve currencies that can be used as important indicators of the weakness of a country in international trade and also an external asset of Bank Indonesia as the monetary authority which has a role to finance balance of payments imbalances, intervene in the market in order to maintain exchange rate stability, and

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maintain economic resilience (Bank Indonesia, 2014). In addition, foreign exchange reserves are used to finance export and import activities, pay off foreign debt, and intervene in the foreign exchange market to stabilize exchange rates (LucyanaLeonufna, et al, 2016).

Agustina and Reny (2014) suggest that foreign exchange reserves are one of the most important factors used in any country in determining the strength of a country's economic fundamentals and to see how far the country can conduct international trade. The country of Indonesia is one of the countries that has little availability in foreign exchange reserves, resulting in Indonesia being unable to stabilize the exchange rate and make payments when experiencing a balance of payments deficit and a drop in the rupiah exchange rate.

2. Methods

The location of this research is carried out in Indonesia, where the country carries out export transactions to meet domestic needs and trade potential in the country. Indonesia was chosen as the research location because monetary conditions in Indonesia are constantly changing which is influenced by the US dollar exchange rate, inflation rate, exports and foreign exchange reserves. The object of this study includes one dependent variable and four independent variables. The object of research in this study is the US dollar exchange rate, inflation rate and exports to Indonesia's foreign exchange reserves.

The data collection method in this study is to use the method of collecting non-participant observation data, data collection techniques by observing, recording and studying books, journal documents and records relevant to the research. The researcher conducted independent observations regarding US Dollar Exchange Rate, Inflation Rate, Exports to Indonesian Foreign Exchange Reserves in 1988 - 2017.

In this study the data analysis technique used is multiple linear regression analysis to determine the effect of US dollar exchange rates, inflation and export rates on Indonesia's foreign exchange reserves using estimation techniques with the least squares method or method of ordinary Least Square (OLS) that has been transformed into in the form of natural logarithms, while operational data processing is carried out with the SPSS software program.

3. Result

Based on the results of processed data with the help of SPSS, estimation regression models (samples) can be arranged as follows.

$\hat{Y} = b_0 + b_1X_1 + b_2X_2 + b_3X_3$ .... (4.1)

$\hat{Y} = 2{,}529 + 0{,}633\ X_1 - 0{,}276\ X_2 + 0{,}253\ X_3$

SE = (0,834) (0,176) (0,119) (0,112)

T_{value} = 3,033 3,599 -2,314 2,2525

Sig = 0,005 0,001 0,029 0,033

F = 41,710

Sig F = 0,000

R^2 = 0,828

dF = 26

Based on the results of processed SPSS data, it can be seen that the value of Fcount = 41.71. Because Fcount (41.71)>Ftable (2.98) then Ho is rejected and H1 is accepted which means the dollar as exchange rate, inflation and export rates simultaneously have a significant effect on Indonesia's foreign exchange reserves. With a determination coefficient number of 0.808, it can be interpreted that 80.8 percent of Indonesia's foreign exchange reserves are affected by variations in the US dollar exchange rate, inflation and export rates and the remaining 19.2 percent is influenced by other variables outside the model.

Therefore, t = 3.599> t table = 1.706, then Ho is rejected, meaning the US dollar exchange rate partially has a positive and significant effect on foreign exchange reserves in Indonesia. The value of b2 = 0.633, if the US dollar exchange rate increases by 1 Rupiah, the foreign exchange reserves will increase by 0.633 Million US $ assuming other variables are constant, which means that the greater the US dollar exchange rate, the higher Indonesia's foreign exchange reserves. The results of this study are supported by Narayam and Russell (2006) who suggest that long-term exchange rates have a positive effect on foreign exchange reserves. A positive sign in the exchange rate indicates that the price of goods traded is relative to the price of goods that are not traded and can cause exchange rate depreciation, which causes export expansion, and is reflected in the increase in foreign exchange reserves. The results of this study were also supported by Juniantara (2012) which showed that the US dollar exchange rate against Indonesia's foreign exchange reserves had a significant effect. If the exchange rate strengthens, then foreign exchange reserves will also indirectly increase, but if the exchange rate weakens then foreign exchange reserves will also decline.

Therefore, thitung = -2,314 <t table = 1,706, then Ho is rejected, meaning the variable inflation rate partially has a negative and significant effect on foreign exchange reserves in Indonesia. B3 value = -0,276, if the inflation rate increases by 1%, foreign exchange reserves will decrease by 0.276 Million US $ assuming other variables are constant, which means that the greater the inflation rate, the lower Indonesia's foreign exchange reserves. The results of this study are supported by Rahmawati (2018) entitled The Effect of Exports, Imports, Circulating Money Amounts and Inflation on Indonesian Foreign Exchange Reserves for the April 2012-June 2017 period stating that the inflation variable has a negative and significant effect on Indonesia's foreign exchange reserves in the short and long term Research period April 2012-June 2017. This is consistent with previous research conducted by Agustina and Reny (2014), the results of the research conducted concluded that the inflation value affects foreign exchange reserves negatively and significantly. This is in line with the theory which states that if the prices of goods and the service sector tend to increase, or so-called inflation, it will cause economic activity in the country concerned. So that the country needs more foreign exchange to be able to transact outside the country. Therefore, to prevent the increase in inflation, the amount of currency in circulation must be in accordance with the needs, so that the stability of the exchange rate can be maintained.

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Therefore, thitung = 2.252> t table = 1.706, then Ho is rejected, meaning that the export variable partially has a positive and significant effect on foreign exchange reserves in Indonesia. The value of b4 = 0.253, if the export volume increases by 1 Million US $, the foreign exchange reserves will increase by 0.253 Million US $ assuming other variables are constant, which means that the greater the export volume, the higher Indonesia's foreign exchange reserves. The results of this study are supported by Rahmawati (2018) entitled The Effect of Exports, Imports, Circulating Money Amounts and Inflation on Indonesian Foreign Exchange Reserves The April 2012-June 2017 period states that the export variable has a positive and significant effect on Indonesia's foreign exchange reserves in the short and long term April 2012-June 2017 research period. These results are consistent with previous studies conducted by PundySayoga and Stamsurijal Tan (2017) which use export variables. The results of his research concluded that exports had a positive and significant effect on foreign exchange reserves in Indonesia. If exports experience an increase, the source of state revenues will also increase because of increased exports characterized by high exports rather than imports. Receipt of proceeds from exports of goods and services also plays an important role in foreign exchange reserves. If exports increase, the amount of foreign money received increases which results in an increase in the amount of foreign exchange reserves.

The independent variable that has a dominant influence on Indonesia's foreign exchange reserves can be seen from the absolute value of the Standardized Beta Coefficient. The highest Standardized Coefficient Beta value is shown in Table 1.

Table 1. shows that the highest Standardized Coefficient Beta value is the US Dollar Rate of 0.561. These results indicate that the US Dollar Exchange Rate variable is the dominant variable that influences Indonesia's foreign exchange reserves.

Table 1

Model	*Standardized Coeffisient Beta*
USD Rate (X1)	0,561
Inflation (X2)	-0,201
Export (X_3)	0,355

Standardized Coefficient BetaTesting Result
Primary Data, 2018

4. Conclusion

The simultaneous test results show that the US dollar exchange rate, inflation and export rates have a significant effect on Indonesia's foreign exchange reserves. R2 = The multiple coefficient of determination of 0.808 indicates that 80.8% of the ups and downs of Indonesia's foreign exchange reserves are affected simultaneously by the US dollar exchange rate variable, the inflation rate variable and the export variable. While the remaining 19.2% is influenced by other variables not included in the model.

The exchange rate of the US dollar (X1) partially has a positive and significant effect on Indonesia's foreign exchange reserves. If the exchange rate strengthens, then foreign exchange reserves will also indirectly increase, but if the exchange rate weakens then foreign exchange reserves will also decline.

The inflation rate (X2) partially has a negative and significant effect on Indonesia's foreign exchange reserves. The higher the inflation rate in the country, the lower the Indonesia's foreign exchange reserves.

Export (X3) partially has a positive and significant effect on Indonesia's foreign exchange reserves. If exports experience an increase, the source of state revenues will also increase because of increased exports characterized by high exports rather than imports.

The exchange rate of the US dollar (X1) is the variable that has the dominant influence between the inflation and export rates on Indonesia's foreign exchange reserves with the highest beta value of 0.561.

Based on the conclusions described, it can be said that the exchange rate stability must be maintained by the government which can be done by maintaining the stability of the Rupiah with the use of foreign exchange which includes export and import activities that go in and out of Indonesia, as more foreign funds enter Indonesia, the rupiah exchange rate will also strengthen.

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