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The Effect of International Trade on Foreign Exchange Reserves in Indonesia 2016-2021

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Abstract

This study was conducted to analyze BPS data to find out where international trade, such as imports and exports, has an impact on Indonesia's foreign exchange. The study was conducted by collecting data from various statistical databases available at BPS. The Data were reviewed from the period 2016 to 2021. A quantitative study of the impact of international trade on currencies using the difference between exports (x1) and imports (x2) and currencies (y). Multiple analysis using SPSS applications 22. Based on the research results of data analysis, it can be concluded that international trade ie. imports and exports have a significant impact on the Indonesian currency. Exports and imports have different roles in the impact of currency, exports can lead to currency declines.

Keywords: International Trade, Exports, Imports, Foreign Exchange Reserves

Introduction

In the international economy, foreign exchange reserves have an important role in maintaining global economic stability. Large foreign exchange reserves can provide guarantees for foreign investors and strengthen a country's position in international trade.

Unbalanced international trade conditions can affect a country's economic stability and affect the exchange rate of the domestic currency. Therefore, it is important for a country to monitor and balance import and export levels and maintain sufficient foreign exchange reserves to deal with possible financial crises and strengthen its bargaining position in international trade.

Table 1 Data on Exports, Imports and Indonesian Foreign Exchange Reserves in 2016-2021

Year	Export Value	Import Value	Foreign exchange reserves
2016	145134	135652	116362
2017	168828	156985	130196
2018	180013	188711	120654
2019	167683	171275	129183
2020	163191	141568	135897
2021	231609	196190	144905

Source: Data Badan Pusat Statistik, processed

Indonesia's international trade from 2016 to 2021 will experience fluctuations due to various global and domestic factors.

Following are some important points about Indonesia's international trade during this period:

- Indonesia's total export value in 2016 was USD 144.73 billion, and it increased to USD 168.8 billion in 2019, and then decreased to USD 150.88 billion in 2020 due to the COVID-19 pandemic. In the first semester of 2021, Indonesia's total export value reached USD 104.9 billion, an increase of 35.43% compared to the same period the previous year.
- Indonesia's total import value in 2016 was 135.16 billion USD, increasing to 188.69 billion USD in 2019, then decreasing to 139.05 billion USD in 2020. In the first half of 2021, Indonesia's total import value reached 96. 2 billion USD, up 33.09% when compared to the period for the previous year.
- Indonesia has a trade balance deficit that occurred in the 2016-2021 period, with the highest trade deficit occurring in 2018 of USD 8.54 billion.
- Indonesia's main export commodities during this period were oil and gas, palm oil, rubber, agricultural products, and coal. Meanwhile, Indonesia's main import commodities are crude oil, machinery, industrial raw materials, motor vehicles and electrical equipment.
- Indonesia conducts international trade with various countries, with countries such as China, the United States, Japan and Singapore being its main trading partners.
- The Indonesian government continues to make various efforts to increase international trade, including by conducting various free trade and carrying out structural reforms to increase the competitiveness of Indonesian products in the global market.

The growth of Indonesia's foreign exchange reserves during the 2016-2021 period showed a positive trend despite fluctuations. In 2018, there was a decrease in foreign exchange reserves due to the weakening of the rupiah exchange rate and an increase in the global economy. However, in 2020, Indonesia's foreign exchange reserves have increased again due to sizable inflows of foreign capital.

Indonesia's sizeable foreign exchange reserves can act as a buffer when movements occur in global financial markets and help maintain the stability of the rupiah exchange rate. This is very important to maintain Indonesia's economic stability in the long term.

International trade as the exchange of goods and services between individuals or companies in different countries. Export is an activity of selling goods or services abroad, while import is a type of activity of buying goods or services from abroad. International trade occurs due to differences between countries in terms of natural resources, technology, and expertise. Countries that have abundant natural resources are able to produce certain goods at a lower cost and sell them to other countries that need these goods. Likewise, a country that has certain technologies and skills can produce goods or services at a lower cost and sell them to other countries that need those goods or services (Mankiw et al., 2014).

Export and import activities are needed in conducting international trade because they are able to provide beneficial benefits for the country, including increasing economic growth, creating jobs, and providing wider market access for domestic products. However, keep in mind that export and import activities may also pose conflict risks and certain risks, such as currency exchange rate fluctuation risks, international trade regulatory and tariff risks, and political and social risks in the destination country (Aprita & Adhitya, 2020).

International trade is the exchange of goods and services between countries around the world. This happens because of differences in resources, technology, and consumer preferences in each country. With international trade, countries can obtain goods and services that cannot be produced efficiently at home. International trade involves the export and import of goods and services. Higher export conditions are better than higher import conditions. This is because if the export condition is higher it will show that foreign exchange reserves will experience an effective and efficient increase (Cut, 2020).

Literature Review

Foreign exchange reserves are monetary assets owned by a country in the form of foreign currency that can be used to pay off foreign debt, overcome exchange rate volatility, and finance imports of goods and services (Virgoana Gandhi, 2006).

Bank Indonesia is the institution responsible for managing Indonesia's foreign exchange reserves. The foreign exchange reserves managed by Bank Indonesia consist of several types of assets, such as foreign currency deposits, foreign government securities and gold. The importance of foreign exchange reserves for a country is related to its function as a buffer when there is expansion in global financial markets and helping to maintain the stability of the country's currency exchange rate. In addition, backup devices can be used as a source of financing in emergency or crisis situations (Virgoana Gandhi, 2006). Overall, holders of foreign exchange reserves at Bank Indonesia have an important role in maintaining Indonesia's economic stability and providing protection against implementation in global financial markets.

M. Kuswantoro (2017)said that two things are interrelated in international trade, namely exports and imports. Both of these activities have an important role in the economy of a country. However, it should be remembered that the balance between exports and imports must be maintained so as not to disturb the stability of trade and the country's foreign exchange reserves.

Research Method

The data source used in this research is secondary data, namely research that uses existing data collected by other parties in this study (in this case, secondary data) as the main source (Afifah et al., 2020). The research was conducted by collecting data from various statistical data sources available from the Central Bureau of Statistics (BPS). The data is a sample taken from the period 2016 to 2021. Quantitative research on the effect of international trade on foreign exchange reserves and using export (x1) and import (x2) and foreign exchange reserves (y) variables. Multiple analysis methods with the application of SPSS 22 can be used to test the significance of the variables tested in the study and provide more accurate conclusions about the effect of these variables on foreign exchange reserves.

For the research conducted, data analysis tools were used. Through determination coefficient test or R-Square, simultaneous test, normality test, multicollinearity test, heteroscedasticity Test, t test (partial test), normality test, and autocorrelation test.

Research Results and Discussion

1. **Research result**

a. **Normality test**

Table 2. Normality Test

		Unstandardized residual
	N	6
Normal Parameters [a,b]	Means	,0000000
	std . Deviation	5125,65734756
Most extreme Differences	absolute	,170
	Positive	, 133
	Negative	-,170
	test Statistics	,170
	Asymp . Sig . (2-tailed)	,200c [,d]

Source: Processed Data (SPSS 22)

Normality test is a process to determine whether the data used is normally distributed or not. In this study the normality test used was the *Kolmogorov-Smirnov test.* Based on the analysis in table 2, it can be seen that the significance value of *Asiymp.Sig (2-tailed)* is 0.200 > 0.05. Then it can be concluded that the data is normally distributed.

b. **Multicollinearity Test**

Table 3. Multicollinearity Test

	Model	B	std . Error	Betas	t	Sig .	tolerance	VIF
1	(Constant)	.4946,681	6553,361		2,281	,107		
	EXPORT	-.046	.060	-,568	-,773	,496	,302	3,310
	IMPORT	-,016	,071	-,168	-,229	,834	,302	3,310

Source: Processed Data (SPSS 22)

To find out whether the data analyzed has a correlation between export and import variables or not, then in can be seen on *collinearity* column *Statistics tolerance* and *VIF* .

In analysis it can be concluded that the export variable has a VIF 3.310 and *a tolerance* of 0.302. Likewise, the import variable has a VIF value of 3.310 and *a tolerance* of 0.302. So it can be concluded that the export and import variables have a VIF value <10 and *tolerance* > 0.1. This means that the data used does not experience multicollinearity problems.

c. Heteroscedasticity Test with Glejser Test

In this case the heteroscedasticity test is used with the *Glejser test* . Based on the results of the data processing above, the (Sig .) for the export (X1) is 0.302. Likewise, the significance value (Sig .) for exports is also the same, namely 0.302. Because the significance value of the two independent variables is > 0.05, the regression model does not contain heteroscedasticity .

d. Autocorrelation Test with *Durbin-Watson*

Table 4. Autocorrelation Test Results

Model	*Durbin-Watson*
1	1,762

Source: Processed Data (SPSS)

The Durbin-Watson (d) value is 1.762. This value will be compared to the *Durbin-Watson* table value at 5% significance with the formula (k:N). Then (1 ; 18). Then the dL is 1.1576 and the dU is 1.3913. This means that there is no autocorrelation problem .

e. Multiple Analysis Results

Table 5. Multiple Linear Analysis Results

	B	std . Error	Betas	Q	Sig	erance	VIF
(Constant)	96902,806	20073,825		4,827	,017		
EXPORT	,491	, 183	1.407	2,689	,074	,302	3,310
IMPORT	-,326	,218	-,783	-1,496	,231	,302	3,310

Data Source: Processed Data (SPSS 22)

Based on the analysis above, the equation for multiple regression is obtained

$$\mathbf{Y = 96902.806 + 0.491X_1 - 0.326X_2}$$

The meaning of the regression equation:

1) A constant of 96902.806 . This means that if exports and imports increase, foreign exchange reserves will increase.

2) The export relations coefficient has a positive value of 0.491. The values in the table show that if exports increase or increase by 1%, foreign exchange reserves will increase by 0.491. The regression coefficient is positive, explaining that as exports increase , foreign exchange reserves will increase .
3) Import variable relation coefficient is -0.326. This value shows a negative effect (opposite direction) between import variables and foreign exchange reserves. This means that if the import variable increases by 1% then the foreign exchange reserve variable will decrease by 0.326.

f. Test the Coefficient of Determination or *R- Square*

Table 6. Test Results for the Coefficient of Determination

Model R	R Square	Adjusted R Square	Error of the Estimates
,867a	,752	,587	6617,19518

Source: Processed Data (SPSS 22)

The table above explains that the value of the multiple correlation coefficient (R) is 0.867 and also the value of the coefficient of determination of multiple regression is 0.752. This means that 75.2% of foreign exchange reserves can be influenced by exports and imports. While the remaining 24.8% of the variables that do not exist in this study.

g. Simultaneous Test (*F- test)*

Table 7. Simultaneous Test Results

	Model	*Sum of Squares*	f	*Means Square*	F	Sig .
1	*Regression*	398311014,611	2	199155507,305	4,548	, 124 b
	residual	131361816,223	3	43787272,074		
	Total	529672830,833	5			

Data Source: Processed Data (SPSS 22)

SPSS output table above explains that the simultaneous test obtained the $_{calculated}$ F value of 4.548 and F_{table} for α = 0.05; db1=2;db2=3, ie F_{tab} (0.05;2;3) = 9.552. So that F_{hit} (4.548) < F_{tab} (9.552), then Ho is accepted. This means that simultaneously there is no significant effect of exports and imports on foreign exchange reserves at the α level of 5%.

h. Partial Test *(t- test)*

The effect of exports on the amount of foreign exchange reserves by controlling the import variable obtained t_{value} = 2.689 . Then compare it with the $t_{table\ value}$ (0.05, 3) = 3.182, so $t_{count} > t_{table\ ,.}$ This means that partially there is a positive effect of the export variable on foreign exchange reserves at α 5%.

The effect of imports on foreign exchange reserves by controlling the export variable obtained t_{value} = -1.496 . Then compare it with the $t_{table\ value\ (\ 0.05\ ;}$ 10) = 3.182, so tcount $_{<}$ ttable

. This means that partially there is no positive and significant effect of import variables on foreign exchange reserves at α 5%.

2. Discussion

Based on the research results, it can be concluded that the difference between exports and Indonesia's foreign exchange reserves shows that the greater the export value produced, the greater the foreign exchange earnings and foreign exchange reserves. However, there is a negative relationship between imports and Indonesia's foreign exchange reserves. This indicates that the greater the value of imports made, the greater the expenditure of foreign exchange and reduce foreign exchange reserves.

In line with the research of I Putu Kusuma Juniantara and Made Kembar Sri Budhi (2011), Almutmainnah (2016),(2017) the results of his research show that exports and imports have a positive and significant effect on national foreign exchange reserves, because exports are the main source of foreign exchange reserves. On the other hand, imports also have an influence on national foreign exchange reserves, because imports can affect demand with foreign values used to pay for these imports.

In Laeli Lafi's research Khusunatun and Hutajulu (2021)regarding their research, namely the analysis of factors that affect reserves and foreign exchange shows that the two variables, namely exports and imports, show a significant influence on foreign exchange reserves in Indonesia.

Indonesia is one of the largest export-producing countries in Southeast Asia, and exports have an important role in influencing Indonesia's foreign exchange reserves. When Indonesia exports goods and services to other countries, it will generate foreign exchange earnings which can increase foreign exchange reserves. Thus, the greater the export value generated, the greater the income earned in foreign exchange and Indonesia's foreign exchange reserves. Conversely, if the value of exports decreases, then foreign exchange earnings will also decrease, so that it can affect Indonesia's foreign exchange reserves.

Conclusion

Based on research with data analysis that has been done, it can be concluded that international trade, namely exports and imports, has a significant influence on Indonesia's foreign exchange reserves. Exports and imports have different roles in influencing foreign exchange reserves, where exports can increase foreign exchange reserves while imports can reduce foreign exchange reserves.

It is important for the country to maintain a balance between exports and imports in order to strengthen foreign exchange reserves and maintain the health of the trade balance. In maintaining this balance, the government can carry out various policies to increase export values and reduce import values, such as providing incentives for exporters, reducing import duties, and improving the quality of domestic products.

In order to increase foreign exchange reserves, it is also important for the country to continue to develop the export sector and strengthen trade relations with trading partner countries. This can be done by improving product quality, opening new market access, and carrying out intensive export promotions.

Indonesia's total export value in 2016 was USD 144.73 billion, and it increased to USD 168.8 billion in 2019, and then decreased to USD 150.88 billion in 2020 due to the COVID-19 pandemic. In the first semester of 2021, Indonesia's total export value reached USD 104.9 billion, an increase of 35.43% compared to the same period the previous year.

Indonesia's total import value in 2016 was 135.16 billion USD, increasing to 188.69 billion USD in 2019, then decreasing to 139.05 billion USD in 2020. In the first half of 2021, Indonesia's total import value reached 96. 2 billion USD, up 33.09% when compared to the period for the previous year. Indonesia has a trade balance deficit that occurred in the 2016-2021 period, with the highest trade deficit occurring in 2018 of USD 8.54 billion. Indonesia's main export commodities during this period were oil and gas, palm oil, rubber, agricultural products, and coal. Meanwhile, Indonesia's main import commodities are crude oil, machinery, industrial raw materials, motor vehicles and electrical equipment. Indonesia conducts international trade with various countries, with countries such as China, the United States, Japan and Singapore being its main trading partners. The Indonesian government continues to make various efforts to increase international trade, including by conducting various free trade and carrying out structural reforms to increase the competitiveness of Indonesian products in the global market.

Recomendation

If Indonesia wants to get a positive side in Indonesian Trade, Indonesia must be able to export more than import activities. The number of problems that occur with the export and import activities is so that the government is required to conduct the right policy and right on target. The government should make clear regulations for export and import goods so that these activities are smooth.

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