Jurnal SEKURITAS (Saham, Ekonomi, Keuangan dan Investasi)

ISSN (*online*) : 2581-2777 & ISSN (*print*) : 2581-2696

Analysis The Effect of Net Exports and The Rate of Exchange On Indonesia's Foreign Exchange Reserves in 1990-2020

Rasika Dhuita Haya Minhaj[1]; Ickhsanto Wahyudi[2]

[1-2]Universitas Esa Unggul. Email : rasikadhuita@gmail.com; ickhsanto.wahyudi@esaunggul.ac.id

ARTICLES INFORMATION

ABSTRACT

JURNAL SEKURITAS
(*Saham, Ekonomi, Keuangan dan Investasi*)

Vol.5 , No. 2, Januari 2022
Halaman : 159 – 168

ISSN (*online*) : 2581-2777
ISSN (*print*) : 2581-2696

Keyword :
Net Exports; Rate of Exchange; Indonesia's Foreign Exchange Reserves

JEL. classification :
C33, G21, G24, N15, N25

Contact Author :

PRODI MANAJEMEN UNPAM
JL.Surya Kencana No.1
Pamulang Tangerang Selatan – Banten
Telp. (021) 7412566, Fax (021) 7412491
Email :
sekuritas@unpam.ac.id

Abstract. *The research aims to determine the effect of net exports and the Rate of Exchange on Indonesia's foreign exchange. The sample in this study is data on net exports, rate of exchange, and Indonesia's foreign exchange reserves in 1990-2020. Data used in this study come from the Bank of Indonesia and the Central Bureau of the Statistics Republic of Indonesia. The data were analyzed using a correlation test and descriptive statistical analysis. The data analysis technique used is multiple regression analysis techniques to obtain a comprehensive picture of the relationship between one variable and another. And also use F-test, T-test, and determination coefficient test to test the hypothesis. The research results show that simultaneously net exports and the Rate of Exchange affect Indonesia's foreign exchange reserves. Partially, net exports and the Rate of Exchange significantly affect Indonesia's foreign exchange reserves*

ISSN (*online*) : 2581-2777 & ISSN (*print*) : 2581-2696

A. INTRODUCTION

Indonesia as a country has long played an active role in international trade activities. International trade is trade between countries in the world where there are export and import activities. International trade is unavoidable because a country will not be able to meet all its domestic needs. With global trade, countries in the world can exchange their respective resources. (Sonia & Setiawina, 2016).

Foreign exchange reserves are assets owned or stored in foreign currency which are used as a source of foreign financing. Simply put, what is meant by foreign exchange reserves is the amount of foreign currency owned by a country. According to (2006), foreign exchange reserves have two important functions: financing to balance payments imbalances, usually to finance imports and pay foreign obligations. Second to maintain monetary stability / to maintain currency Rate of Exchanges. With international trade, a country can increase its foreign exchange reserves. According to Uli, (2016), foreign exchange reserves can be used as a source of international trade financing where Bank Indonesia accounts for the foreign exchange reserves. This provision is contained in Bank Indonesia Act Number 23 of 1999, amended by Act Number 3 of 2004.

Indonesia is one of the developing countries where the Indonesian state has carried out a lot of development in all fields to improve the community's welfare. One of the critical sources of funding used by Indonesia to carry out national development is foreign exchange. According to Sitohang & Sudiana, (2017). The availability of foreign exchange reserves in Indonesia is still low, so it cannot make international payments and causes a decline in the Rate of Exchange due to the balance of payments deficit.

Various factors influence foreign exchange reserves, including net exports and the Rate of Exchange. If a country wants international transactions to run stably, its must be maintained foreign exchange reserves. Keeping the Rate of Exchange is the objective of foreign exchange management because if foreign exchange reserves value reduces, speculators will speculate on the rupiah. Maintaining Rate of Exchange stability helps meet liquidity needs. This study uses the Rate of Exchange against the U.S. dollar because, so far, the U.S. dollar is a constant or stable international currency in the world. The U.S. dollar is also the most robust global currency; thus, many countries or companies make transactions using this currency (U.S. Dollar) (Palatte & Akbar, 2016).

Based on this background, this study aims to analyze "The Effect of Net Exports and Rate of Exchanges on The Development of Indonesia's Foreign Exchange Reserves in 1990-2020".

B. LITERATURE REVIEW

International Trade

The process of exchanging goods and services between economic actors in different countries is referred to as international trade. The same motive basically drives international trade activities as trading activities in general (eg trade between individuals, villages, districts, or provinces within a country), namely the desire to benefit from these activities. In the theory of economic equilibrium, this includes two activities, namely exports (X) and imports (M) of goods and services (Rosyidi, 2005).

ISSN (*online*) : 2581-2777 & ISSN (*print*) : 2581-2696

Absolute Advantage Theory

According to Smith et al., (2013), the absolute advantage theory is based on actual, not monetary, quantities/variables, so it is often known as the pure international trade theory. Pure in a sense, Adam's approach focuses its attention on actual variables. Variable such as the value of goods is measured by the amount of labor used to produce goods. The more labor used, the higher the value of the goods (Labor theory of value).

Comparative Advantages Theory

This theory states that a country will produce and then export a good with the most significant comparative advantage and import goods with comparative advantage (a product that can be made cheaper and import goods that, if delivered by itself, cost a lot of money). This theory also states that the value of an item is calculated from the amount of labor used to produce it. The theory of comparative advantage is able to explain how much the Rate of Exchange is and how much profit is generated from the exchange, whereas the theory of absolute advantage cannot explain both of these things (Diphayana, 2021).

Heckscher Ohlin Theory

Pioneers of the modern theory were Heckscher and Ohlin, and Samuelson. Classical theory and partial theory are a form of criticism of the views of the classical group. The contemporary theory says that every country that carries out international trade activities has neoclassical production factors. The neoclassical factors of production include land, labor, and capital in different proportions. Producing certain goods and services is a combination of the use of factors of production is permanently fixed (Faruq & Mulyanto, 2017).

Export

Export is the delivery of goods and services to other countries by domestic companies. The main thing factor that determines exports is the ability of a country to offer competitive products in foreign markets (Sukirno, 2013).

.

Import

According to Susilo (2013), imports can be interpreted as an effort to bring goods from abroad into the customs area of a country. This definition shows that import activities have involved two nations. This activity can be represented by the interests of two companies located in two different countries. Of course, one company in a country acts as a supplier and the other acts as a company in the receiving country. Import is buying goods from abroad following a government-regulated procedure, which is then paid for in a foreign currency.

Net Exports

Net exports are the value that shows the difference between the value of a country's export and import transactions within a certain period (balance of trade). The trade balance is the most significant component in the balance of payments because it is an indicator to measure all international transactions. In practice, the trade balance has two characteristics, positive and negative. A country is said to have a positive trade balance if the country exports more than imports. Conversely, when a country receives more imports from other countries than exports, that country has a negative trade balance.

ISSN (*online*) : 2581-2777 & ISSN (*print*) : 2581-2696

Rate of Exchange

According to Nopirin, (2000), the Rate of Exchange is the value exchanged between two different currencies, will there be a comparison of value or price between two particular currencies? So the Rate of Exchange is a comparison of values.

Foreign Exchange Reserves

Foreign exchange reserves are all foreign exchange assets controlled by the monetary authority which can be used at any time to finance the balance of payments imbalances or monetary instability through foreign exchange market intervention and other purposes. Based on this definition, the benefits of foreign exchange reserve a country can be used to maintain a stable Rate of Exchange and fiscal deficits in the balance of payments (Benny, 2013).

C. RESEARCH METHODOLOGY

The type of data used is secondary data obtained from the annual reports of Bank Indonesia and the Central Statistics Agency of the Republic of Indonesia for the period 1990-2020. The population in this study is all data on exports, imports, the Rate of Exchanges, and Indonesia's foreign exchange reserves. While the sample is part of the number and which represents the characteristics of the population. The samples used in this study are export data, import data, and Rate of Exchanges, and the foreign exchange reserves of the Republic of Indonesia for 1990-2020.

Furthermore, the export and import values sampled in this study will be used to calculate the net export value by look for the difference between export and import values. This study uses one dependent variable (Indonesian foreign exchange reserves) and two independent variables (net export and Rate of Exchange). In this study, the operational definition of each variable is as follows:

Exports represent foreign purchases of domestic goods and services. Imports are purchases of foreign products and services by local consumers. Thus, net exports are obtained at the value of exports minus imports. In this research: Exports are the value of all oil and gas goods shipped abroad, measured in a million U.S. $ in Indonesia 1990-2020.

Meanwhile, import is the value of all oil and gas goods (crude oil, oil and gas products) and non-oil and gas (machinery and mechanical equipment, electric machines and equipment, plastics and plastic goods, vehicles and parts thereof, organic chemicals, fertilizers, seeds, oil, weapons and ammunition, fruits and vegetables) obtained from abroad measured in a million U.S. $ in Indonesia 1990-2020.

This study is being conducted in the United States dollars, measured in Indonesian rupiahs in 1990-2020. So far, the U.S. Dollar is a constant or stable international currency in the world. The U.S. dollar is also the most potent global currency, so many countries or companies make transactions using this currency. Foreign exchange reserves are foreign currency deposits of central banks measured in millions of USD in Indonesia in 1990-2020.

D. RESULTS AND DISCUSSION

Correlation Test

The correlation test shows the ability of the relationship between independent variables. The Correlation test figures generated in this test help indicate the strength and weaknesses of the relationship between the independent variables.

Based on the correlation test, the result obtained is -0.471531, which means that the independent variables (net exports and Rate of Exchange) are not strongly correlated. So it can be concluding, the data is good to research.

Descriptive Statistical Analysis

Descriptive statistical analysis is a statistical number used to analyze data by interpreting or interpreting the data collected. According to Gozali (2009), this analysis summarizes or determines information about observable variables from mean, minimum, maximum, and standard deviation values. Descriptive statistics are statistics used to interpret data in a way that is easier to understand and comprehend.

Variable	Mean	Maximum	Minimum	Std. Dev
Net Export	101912.0	203496.6	25675.30	58848.22
Rate of Exchange	8581.484	14318.00	1842.000	4215.471
Indonesia's foreign exchange reserves	66975.71	135897.0	8661.000	44379.49

Source: Secondary data processed using EViews 10, 2021

Based on the descriptive test results, it can be seen that the average Indonesian foreign exchange reserve variable is 66975.71, the maximum value is 135897.0, and the minimum value is 8661.000 with a standard deviation of 44379.49.

Net exports show a minimum value of 25675.30 and a maximum of 203496.6 with a standard deviation of 58848.22, mean or average shows 101912.0, meaning that the average export that occurs from all samples in Indonesia is 101912.0.

The Rate of Exchange is the ratio between the value of the rupiah and foreign currencies. Rate of Exchanges are used to represent the Rate of Exchange from one currency to another. Table 4.3 shows that during the 1990-2020 period, the Rate of Exchange had the lowest (minimum) value of 1842.000, while the highest (maximum) value was 14318.00. The average value during the 1990-2020 period was 8581.484, with a standard deviation of 4215.471.

Classical Assumption Test

This classical assumption test was carried out using statistic software, and the results of data processing were as follows:

Normality Test

The normality test aims to determine the distribution of information in the variables used in the study. The data used in this study is data that have a normal distribution. The estimation of the validity of the data was carried out using the JARK-Bera (JB) test. If the calculated JB probability is more significant than 0.05, the data is normally distributed, but it will not normally be distributed if it is less than 0.05. Based on the results obtained, the

probability value of Jucker-Bera is 0.387622. Therefore, it can be concluded that the data of the variables in this study are normally distributed.

Autocorrelation Test

The autocorrelation test is intended to test whether in the linear regression model there is a correlation between the confounding error in period t and the confounding error in period t-1 (previously). A good regression model does not need to be linked or independent of autocorrelation. One way to detect autocorrelation in EViews 10 is by using the LM Breusch-Godfrey Test. Yen Prob. Chi-Square <0.05, therefore there is autocorrelation. If not, if Prob. Chi-Square> 0.05, so there is no autocorrelation. Based on the calculation results, Prob. Chi-Square 0.0647 is larger than the alpha level of 0.05, so it can be concluded that there is no autocorrelation

Heteroscedasticity Test

Heterogeneous variance was used to test for differences in residual variance from one observation period to another. A good regression model is homoscedasticity or heteroscedasticity, which does not apply. Use the ARCH test to detect the presence or absence of heteroscedasticity. The bottom line is if there is a high probability when the chi-square is <0.05, there is heteroscedasticity in terms of probability. Conversely, if chi-square > 0.05, there is no heteroscedasticity. Based on the heteroscedasticity test, 0.2387 > 0.05, so there is no heteroscedasticity.

Multicollinearity Test

Multicollinearity is a characteristic where the relationship between certain variables in a reproduction model is very positive or close. Regression models experience multicollinearity whether there is a positive line for some or all of the activity-specific variables. Furthermore, the answer is that it is difficult to get the influence between a particular variable and the dependent type how to determine whether someone is multicollinearity or not by looking at the Inflation Factor (VIF) variance value. If the VIF is less than ten, it is said that multicollinearity will not occur.

Based on the result that there is no multicollinearity problem, the VIF value on Centered VIF for the three independent variables is less than 10. The value of the net exports variable is 2.800309 less than 10, and the Rate of Exchange variable is 2.800309 less than 10.

Multiple Linear Regression Analysis

Multiple regression analyzes are used to identify the effect of the dependent variable in influencing the independent simultaneously variable or partially. The multiple regression equation is as follows: $\mathbf{Y = \alpha + \beta 1X1 + \beta 2X2 + e}$

The values in the Coefficient Variable Column X1 (Net Exports) and X2 (Rate of Exchange) are the values of β1 and β2, respectively. Meanwhile, Variable C (constant) is the value of α. Therefore, the regression of the equation in this example can be constructed as follows:

$$\mathbf{Y= -15216.73 + 0.347180\ (X1) + 5.454839\ (X2) + e}$$

ISSN (*online*) : 2581-2777 & ISSN (*print*) : 2581-2696

From the above regression equation, the following can be deduced:

α = -15216.73, which means that if net exports and the Rate of Exchanges are 0, Indonesia's foreign exchange reserves are -15216.73.
β1 = 0.347180, assuming the Rate of Exchange is fixed, then every 1% increase in Indonesia's net foreign exchange reserves will increase by 0.347180%.
β2 = 5.454839, i.e., Assume that net exports are addressed, then any 1% Rate of Exchange increase will increase Indonesia's foreign exchange reserves by 5.454839%.

Hypothesis Testing

Testing the hypothesis in this study was conducted by the adjusted R2, F-test, and t-test. This hypothesis test was carried out using EViews 10, and the results of data processing were as follows:

No	Test	Result (Prob. Value)	Information
1.	F-test	0.000000	Accepted
2.	T-test (H1)	0.0005	Accepted
3.	T-test (H2)	0.0001	Accepted

Source: Secondary data processed using EViews 10, 2021

F-test (Simultaneous)

The F-test is used to determine how net exports and the Rate of Exchange will simultaneously affect Indonesia's foreign exchange reserves from 1990 to 2020. Accept or reject the hypothesis: If p-value > α, then H0 is accepted, and ha is rejected, and Ha is accepted. (Determined by researchers and in economic and business research, generally using α = 5%).

In this study, the hypothesis is :

H0: There is no relationship between net exports and the Rate of Exchange with Indonesia's foreign exchange reserves.

Ha: There is a relationship between net exports and the Rate of Exchange with Indonesia's foreign exchange reserves.

Based on the calculation, the prob value (statistical F) of 0.00000 is less than 0.05. This indicates that H0 is rejected and Ha is accepted. Thus, it can be concluded that all independent variables affect the dependent variable. This means that net exports and the Rate of Exchange will significantly impact Indonesia's foreign exchange reserves simultaneously.

T-test (Partial)

The t-test is used to test the effect of the dependent variable on the independent variable partially. The basis for the decision-making used in the t-test is as follows: If p-value> α, then H0 is accepted, and Ha is rejected. Moreover, if the p-value <α, then H0 is rejected, and Ha is accepted. (Determined by researchers and in economic and business research, generally using α = 5%).

In this study, the hypothesis:

Net Export

H0: There is no relationship between net exports and Indonesia's foreign exchange reserves.

Ha: There is a relationship between net exports and Indonesia's foreign exchange reserves.

Rate of Exchange

H0: There is no relationship between the Rate of Exchange and Indonesia's foreign exchange reserves.

Ha: There is a relationship between the Rate of Exchange and Indonesia's foreign exchange reserves.

Based on the calculation, the prob value from the independent variable net exports is 0.0005, and the prob value of the independent variable Rate of Exchange is 0.0001. It shows that the variable net exports and the Rate of Exchange are smaller than 0.05. It has a significant effect on dependent variable Indonesia's foreign exchange reserves at 5% alpha. It can be concluding that H0 is rejected and Ha is accepted.

Test of Determination Coefficient (Adjusted R^2)

The coefficient of determination (regression) determines how much X's contribution to the fluctuation of Y. The greater the R^2 value, the better the regression formed.

Based on the calculation result, the R^2 value is 0.862925, meaning that the variation of all independent variables (net exports and Rate of Exchange) can affect the dependent variables (Indonesia's foreign exchange reserves) by 86.29%. Simultaneously, the rest is 13.71% (100% -86.29%) by other variables outside the research.

The Effect of Net Exports on Indonesia's Foreign Exchange Reserves

This is based on some consensus analysis or from the results of T-tests. Exports have a significant impact on Indonesia's foreign exchange reserves. This had a positive effect. If the effect of net exports or an increase is positive, Indonesia's exchange reserves will also increase and vice versa.

To improve net exports, the way to do that is by increasing exports and reducing imports. According to the Ministry of National Development Planning of the Republic of Indonesia, the following are the five main points of Indonesia's export improvement strategy: expanding export markets to non-traditional markets, intensifying service exports, participating in trade mission programs and exhibitions, product refocusing from raw materials to semi-finished and finished products, optimizing the free trade agreement

Meanwhile, the way to reduce the value of imports is through quota and tariff policies. Quotas are government policies that limit the number of goods imported. This policy also aims to protect the domestic economy from the invasion of imported goods. Meanwhile, tariffs are government policies to overcome the rush of imported goods by increasing import taxes. With this policy, the price of imported goods will increase so that people prefer to use domestic goods because they are cheaper than foreign products. So, with the increase in net exports, Indonesia's foreign exchange reserves will also increase.

The Effect of the Rate of Exchange on Indonesia's Foreign Exchange Reserves

The multiple linear regression analysis partially or from the T-test results shows that the Rate of Exchange significantly affects Indonesia's foreign exchange reserves. It has a positive effect, or an increase in the Rate of Exchange will affect foreign exchange reserves.

The Rate of Exchange will remain strong, and foreign exchange reserves will increase if the economy is stable.

Things that must be done to keep the value of the rupiah strengthening: buying domestic products and refraining from imported products, not hoarding dollars and exchanging them for rupiah, entrepreneurship with export orientation, traveling and enjoying domestic tourism, traveling by public transportation, invest in the country, and do not take advantage of the weak condition of the rupiah. If all these things are done, the rupiah Rate of Exchange will increase, increasing Indonesia's foreign exchange reserves.

The Effect of Net Exports and the Rate of Exchange on Indonesia's Foreign Exchange Reserves

The research results showed that net exports and the Rate of Exchange significantly affected Indonesia's foreign exchange reserves in 1990-2020. The impact of net exports and the Rate of Exchange simultaneously on foreign exchange reserves shows a substantial and positive relationship. It means that if the value of net exports and the Rate of Exchange increases, the value of foreign exchange reserves will also increase.

E. CONCLUSION

Based on the first hypothesis's test results, the net exports variable has a positive and significant effect on Indonesia's foreign exchange reserves. It shows that if the rate of net exports increases, Indonesia's foreign exchange reserves will increase.

Based on the results of testing the second hypothesis partially, the Rate of Exchange variable has a positive and significant effect on Indonesia's foreign exchange reserves. It shows that if the Rate of Exchange increases, Indonesia's foreign exchange reserves will increase.

The F test results show that the net exports and the Rate of Exchange simultaneously significantly affect Indonesia's foreign exchange reserves. It is evidenced by obtaining a Prob. value (F-statistic) of 0.000000 less than 0.05.

Based on the problems and discussion of the effect of net exports and the Rate of Exchange on Indonesia's foreign exchange reserves in 1990-2020, the following suggestions can be drawn: For The Government; The government must improve the Indonesian economy by increasing exports, reducing imports, reducing foreign debt, maintain the Rate of Exchange, maintain the circulation of the money supply, increase the number of foreign tourists. For the Bank of Indonesia, the Bank of Indonesia should maintain foreign exchange reserves and control the value of a foreign currency to make it relatively stable. For Indonesian Citizens; As an Indonesian citizen, it is best to understand its economic conditions. So that every economic behavior carried out can benefit the country. Reducing the use of products from abroad and loving local products will save the country's foreign exchange. For Further Researchers; For research in the future, it is advisable to add variables that can affect foreign exchange reserves, such as interest rates, external debt, and foreign investment. In addition, further researchers are advised to increase the observation period by following the development period for further research by extending the observation period. For further study, check whether the independent variables are correlated before analyzing because that is the most important.

REFERENCES

Benny, J. (2013). Ekspor Dan Impor Pengaruhnya Terhadap Posisi Cadangan Devisa Di Indonesia. *Jurnal Riset Ekonomi, Manajemen, Bisnis Dan Akuntansi*, *1*(4), 1406–1415.

Diphayana, W. (2021). *Teori Perdagangan Internasional Teori Keunggulan Absolut, Dan Komparatif*. https://www.academia.edu.

Faruq, U. Al, & Mulyanto, E. (2017). *Sejarah Teori-Teori Ekonomi* (S. A. Desain (ed.); 1st ed., Issue 1). UNPAM PRESS.

Gandhi, D. V. (2006). Pengelolaan Cadangan Devisa di Bank Indonesia. In *Seri Kebanksentralan* (Issue 03).

Husain, T., & Sunardi, N. (2020). Firm's Value Prediction Based on Profitability Ratios and Dividend Policy. *Finance & Economics Review*, *2*(2), 13-26.

Nopirin. (2000). *Ekonomi Moneter* (4th ed.). BPFE UGM.

Nardi Sunardi Et Al (2020). Determinants of Debt Policy and Company's Performance, International Journal of Economics and Business Administration Volume VIII Issue 4, 204-213

Palatte, M. H., & Akbar, A. (2016). Pengaruh Nilai Tukar Mata Uang Dan Tingkat Suku Bunga Terhadap Perkembangan Indeks Harga Saham Gabungan Di Bursa Efek Indonesia Periode 2009-2013. *Jurnal Manajemen STIE Muhammadiyah Palopo*, *1*(2), 39–57. https://doi.org/10.35906/jm001.v1i2.122

Rosyidi, S. (2005). *Introduction to Economic Theory Approaches to Micro and Macro Economic Theory*. Rajawali Pers/Raja Grafindo Persada.

Sitohang, T. A., & Sudiana, I. K. (2017). Pengaruh Net Ekspor, Kurs Dollar dan Inflasi Terhadap Cadangan Devisi Indonesia pada Kurun Waktu Tahun 1990-2016. *Jurnal Ekonomi Pembangunan*, *1*(1), 152–178.

Smith, A., Cannan, E., & Stigler, G. J. (2013). An Inquiry into the Nature and Causes of the Wealth of Nations. *Readings in Economic Sociology*, *CChicago : University of Chicago Press*, *1976*, 6–17. https://doi.org/10.1002/9780470755679.ch1

Sonia, A. P., & Setiawina, N. D. (2016). Pengaruh Kurs, JUB, dan Tingkat Inflasi Terhadap Ekspor, Impor, dan Cadangan Devisa Indonesia. *E-Jurnal Ekonomi Pembangunan Universitas Udayana*, *5*(10), 1077–1102.

Sukirno, S. (2013). *Mikroekonomi Teori Pengantar* (3rd ed.). PT. Raja Grafindo Persada.

Susilo, A. (2013). *Panduan Pintar Export Import*. Trans Media.

Uli, L. B. (2016). Analisis Cadangan Devisa Indonesia. *Jurnal Perspektif Pembiayaan Dan Pembangunan Daerah*, *4*(1), 15–24. https://media.neliti.com/media/publications/125764-ID-analisis-cadangan-devisa-indonesia.pdf