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Aspects influencing the foreign exchange reserves of Indonesia

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ABSTRACT

Analysis of Factors Affecting Indonesia's Foreign Exchange Reserves using the Error Correction Model (ECM) Approach. This study aims to determine and analyze the effect of American interest rates, Indonesian interest rates, foreign debt, the rupiah exchange rate, net exports and foreign investment on Indonesia's foreign exchange reserves in 1991-2022. The data used in this study is time series data, using secondary data obtained from the publication of the official websites of Bank Indonesia, the World Bank and the Central Bureau of Statistics, totaling 32 years. The analysis technique used in this study is the error correction model with the Eviews 10 tool. The results of this study indicate that in the long term, American interest rates and Indonesian interest rates have a negative effect on Indonesia's foreign exchange reserves. Foreign debt, rupiah exchange rate and net exports have a positive influence on Indonesia's foreign exchange reserves. Meanwhile, foreign investment has no effect on Indonesia's foreign exchange reserves. In the short term, American interest rates, Indonesian interest rates, rupiah exchange rates, net exports and foreign investment have no effect on Indonesia's foreign exchange reserves. Meanwhile, foreign debt has a positive effect on Indonesia's foreign exchange reserves.

Keywords: foreign debt, rupiah exchange rate, net exports, Indonesia's foreign exchange reserves, ECM

I. INTRODUCTION

Foreign Exchange Reserves play a crucial role in facilitating international payment transactions. Foreign exchange reserves refer to the total value of assets or savings held in foreign currency. Foreign exchange reserves are a tangible manifestation of a country's holdings of foreign cash (Rahman, 2021). Indonesia's growing demands are gradually driving a shift from the previous predominant emphasis on the agricultural sector to the industrialization sector, with the objective of achieving self-sufficiency and reducing reliance on foreign nations to fulfill domestic need. Indonesia is currently transitioning towards becoming an industrial-focused nation, which will ultimately necessitate significant financial assistance from foreign currency reserves. Foreign exchange is utilized not only for industrial projects but also for the development of infrastructure, including roads, docks, airstrips, terminals, and similar facilities (Fanelli & Straub, 2021).

Foreign currency reserves are a crucial metric for evaluating a nation's capacity to engage in international commerce. Trade is inherently linked to the balance sheet, which serves as a means to assess whether Indonesia's foreign exchange reserves are in a surplus or deficit state (Arifin & Juniawaty, 2022). Foreign exchange reserves are crucial in assessing a country's economic stability and serve as a

primary safeguard against economic and financial disasters. The economic crisis has resulted in the depletion of the country's foreign exchange reserves, as seen from a balance of payments perspective. The country's foreign exchange reserves have been depleted due to interventions aimed at mitigating the depreciation of the rupiah exchange rate versus the US dollar. The primary objective of utilizing this currency is to fund international commercial transactions, settle payments for imported commodities, and cover the installments and interest on overseas loans (Suhatman et al., 2022).

Foreign exchange reserves offer a comprehensive view of a country's currency and balance of payments during economic operations. The decrease in the nation's foreign exchange reserves necessitates the implementation of monetary policy measures. The objective of monetary operations is to implement currency devaluation in relation to foreign currencies (Siregar, 2020). The 1997-1998 monetary crisis, triggered by the depreciation of the rupiah versus the US dollar, posed a significant threat to Indonesia, a country with an open economic system. In 2008, a similar occurrence took place when a worldwide financial crisis occurred, resulting in repercussions across multiple industries in Indonesia, notably the depreciation of the rupiah exchange rate. In 2020, a financial slump occurred in Indonesia and other regions of the world, indicating that the financial crisis was not limited to a single event (Arafah, 2022).

The economy was entirely immobilized as a consequence of the Covid-19 outbreak. Furthermore, there is a concerning projection that a worldwide recession would occur in 2023, resulting in a significant decline in the economy and a further deterioration in its condition (Susilawati et al., 2020). Caused by a complex combination of factors, the multifaceted crisis encompasses rising inflation, economic contraction resulting in recession, and an unpredictable global geopolitical landscape. Studies exist on the etiology and repercussions of the occurrence of a financial crisis event. The primary factors contributing to the crisis are the deterioration of economic fundamentals, the lack of coherence in government policies, and various other elements that have led to the financial crisis. These include the escalation of interest rates, growing uncertainty, the influence of assets on the balance sheet, issues within the banking sector, and imbalances in public finances (Purba et al., 2023).

II. LITERATURE REVIEW

Mercantilism assessed a nation's worth based on its accumulation of valuable metals. Today, we assess a nation's affluence based on factors such as population size, human output, and the abundance of natural resources for the production of products and services. There is a direct relationship between the amount of valuable resources available and the amount of goods and services produced to satisfy human wants. As a result, the standard of living in a country increases (Salvatore, 2020).

The BI rate is an official interest rate that represents the monetary policy position established by Bank Indonesia and publicly disclosed. Interest rates represent the cost associated with borrowing or using investment capital. The interest rate serves as a determinant in assessing an individual's inclination towards investment or savings (Katmas & Indarningsih, 2022). According to interest rate theory, the domestic interest rate can be calculated by adding the foreign interest rate to the expected appreciation of the foreign currency. Alternatively, it can be calculated by subtracting the estimated local currency appreciation from the foreign interest rate. If the domestic interest rates exceed the foreign interest rates, it is anticipated that the foreign currency will experience a positive appreciation, which will counterbalance the depreciation caused by the lower foreign interest rates. If the interest rates in both nations are equal, meaning that the domestic and international interest rates are the same, one of the countries will raise its interest rate (Suhatman et al., 2022). Differences in interest rates across countries lead to a capital movement towards countries that increase their interest rates, so bolstering the value of their currency. Capital is being withdrawn from countries that have not increased their interest rates. In this scenario, nations raise their interest rates in order to restore equilibrium to capital flows and currency rates that have been undermined by capital movements (Ho & Saadaoui, 2022).

The inception of foreign debt commenced with the conclusion of World War II. The objective is

to extend loans to developing nations, such as Indonesia, in order to support their economic growth and address fiscal shortfalls. Foreign debt refers to any financial obligation incurred by a government, whether in the form of money or credit, that must be repaid according to specific terms and conditions. During a financial crisis, a country may seek to stabilize its economic situation by obtaining foreign loans. Similarly, if a country requires additional funds for infrastructure development or other expenses, it may implement economic policies to secure loans from other countries or international financial institutions (Rangkuty & Hidayat, 2021).

The exchange rate, often known as the foreign exchange rate, refers to the value of one currency in relation to another currency (Salvatore, 2019). An exchange rate refers to the value of one currency in terms of another currency. The exchange rate, usually referred to as the currency exchange rate, is a formal agreement that determines the value of one currency in relation to another currency for present or future transactions between two countries or regions (Inoue & Rossi, 2019). An exchange rate refers to the conversion rate between two distinct currencies, allowing for a comparison of their respective values or prices (Forbes et al., 2018).

The exchange rate between two countries represents the valuation of the currencies that are utilized in trade between those countries. The demand and supply of currency are mostly influenced by exports and imports. Therefore, it can be inferred that currency transactions refer to foreign payments that involve the exchange of one country's currency for another country's currency. Mankiw categorizes exchange rates into two components: nominal exchange rates and actual exchange rates. The nominal exchange rate refers to the value of a currency when it is exchanged for another currency. On the other hand, the real exchange rate is the value used when goods and services are exchanged between countries, taking into account the price levels of each country (Mankiw, 2022).

Exports refer to the process of transferring products from one geographical area to another. Entrepreneurs in the micro to medium business group frequently employ this activity as a crucial strategy to enhance competition in the global arena. Exporters are individuals or entities who sell and deliver items abroad. Exports refer to the process of acquiring goods manufactured by domestic enterprises in one country by foreign countries. The competitiveness of a nation's exports is heavily influenced by its capacity to manufacture commodities that can effectively rival those produced by other countries on the global market (Carrasco & Tovar-García, 2021).

Imports refer to the acquisition of products from foreign countries and their subsequent introduction into the domestic economy. This movement of products leads to an outflow or reduction of spending from the domestic sector to the business sector. These leaks or outflows ultimately decrease the achievable national income. The impact of exports and imports on the national income balance is contingent upon net exports, which is calculated as the difference between exports and imports. Positive net exports result in a rise in the economy's overall consumption. This scenario contributes to the growth of the country's overall revenue and creates more job prospects (Sutarjo et al., 2021).

Adam Smith's thesis on capital accumulation and investment is the fundamental investment theory proposed by classicists. Smith asserts that the primary prerequisite for economic progress is the accumulation of capital, specifically the capacity of individuals to save and invest a greater amount of capital. Smith argues that investments are motivated by the anticipation of future rewards by capital owners. Capital accumulation can be achieved by increased savings or investment of individuals' income or output (Dzwigol & Dzwigol-Barosz, 2020). Capital formation is widely regarded as a crucial determinant of economic progress. The emergence of development goals is contingent upon the rapid occurrence of domestic capital production (Magdalena & Suhatman, 2020).

Foreign Exchange Reserves are a component of a country's savings that reflect its growth. The quantity of these reserves serves as an indicator to global financial markets, providing information on the legitimacy of the country's monetary policy and its creditworthiness (Caplinska & Tvaronavičienė, 2020). Foreign Exchange Reserves, as defined by the IMF's concept of international reserves and foreign currency liquidity (IRFCL), refer to all foreign assets under the control of the monetary authority. These

reserves can be utilized at any given time to address imbalances in the balance of payments or to maintain monetary stability through intervention in the exchange market. They can also serve other purposes. Foreign exchange reserves serve two primary purposes: funding imbalances in the balance of payments and ensuring stability in the monetary system (Beatris & Zakiah, 2022). The purpose of foreign exchange reserves is to fund imports and fulfill international obligations in accordance to the balance of payments. Additionally, these reserves serve as a means to sustain monetary stability by ensuring the maintenance of the exchange rate. The magnitude of a nation's foreign exchange reserves is often influenced by its trade activities, encompassing both exports and imports, as well as capital movements. Meanwhile, the sufficiency of foreign exchange reserves is decided by the extent of import requirements and the specific exchange rate system employed by the nation (Akdogan, 2020).

III. METHODS

The research utilizes secondary data derived from multiple sources, including the Central Statistics Agency, Bank Indonesia, prior research, and relevant literature. The research utilizes time series data spanning from 1991 to 2022. Data gathering approaches can be implemented in diverse circumstances, utilizing a range of sources and methodologies (Sugiyono, 2019). Given that the research solely relies on secondary data, the data collection method involves conducting extensive library research on documents or statistical records found in annual reports published by authoritative institutions, such as the Central Bureau of Statistics and Banks' websites. Indonesia. The error correction model (ECM) regression procedure and cointegration test are employed as data analysis techniques to determine the presence of a link between the dependent variable and the independent variable. The ECM (Error Correction Model) regression method is employed for identifying short-term relationships, whilst the cointegration test is utilized for identifying long-term relationships.

IV. RESULTS AND DISCUSSION

Prior to doing regression using ECM, it is imperative to ascertain the stationarity of the variables employed. If the data is categorized as non-stationary, it will lead to an inaccurate regression analysis, the occurrence of autocorrelation problem, and the inability to generalize the regression results to different time periods. Furthermore, OLS regression is applicable to stationary data, but for non-stationary data, the level of integration must be assessed to determine data stationarity. In addition, non-stationary information at different levels can exhibit cointegration, necessitating the use of cointegration tests. Once the data has achieved cointegration, it is possible to do ECM testing (Basuki et al., 2020)

Table 1. Stationary Test results

Variable	Prob.	Information
LogCDI	0.4925	Not stationary
SBA	0.2517	Not stationary
SBI	0.0000	Stationary
LogULN	0.7536	Not stationary
LogKURS	0.3286	Not stationary
LogEXNT	0.2825	Not stationary
LogPMA	0.1089	Not stationary

The aforementioned results demonstrate that the variables foreign exchange reserves, US interest rates, foreign debt, rupiah exchange rate, net exports, and foreign investment have probability figures exceeding the significance level of 5%. This implies that these variables contain a unit root, indicating that the data is non-stationary.

The root test will be repeated at this stage to determine the level at which the data becomes stationary, as it is currently not stationary. At a significance level of 5% or lower.

Table 2. Integration Degree Test results

Variable	Prob	Information
D(LogCDI)	0.0002	Stationary
D(SBA)	0.0066	Stationary
SBI	0.0000	Stationary
D(LogULN,2)	0.0000	Stationary
D(LogKURS)	0.0001	Stationary
D(LogEXNT)	0.0001	Stationary
D(LogPMA)	0.0003	Stationary

The preceding results demonstrate that the variable data has achieved stationarity. Specifically, in stage I, the Indonesian interest rate variable has exhibited stationarity. The variables Foreign Exchange Reserves, US interest rates, net exports, and foreign investment have exhibited stationary data at the first difference or I stage. At the 2nd difference stage, the foreign debt variable has exhibited steady data. It is evident that all variables have exhibited steady data and are appropriate for regression into the ECM model.

After achieving stationary variables, the subsequent stage involves conducting long-term regression, also known as multiple linear regression, to assess the long-term impact of the independent variable on the dependent variable. This is done prior to examining the short-term effects in the regression stage.

Table 3. regression test results

Dependent Variable: LCDI
Method: Least Squares
Date: 01/30/23 Time: 14:31
Sample: 1991 2022
Included observations: 32

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.399147	1.108441	-2.164433	0.0402
SBA	-0.039636	0.015691	-2.526046	0.0182
SBI	-0.015746	0.004939	-3.188380	0.0038
LULN	0.601886	0.146086	4.120080	0.0004
LKURS	0.351889	0.074096	4.749102	0.0001
LEXNET	0.555109	0.129320	4.292537	0.0002
LPMA	-0.149944	0.079527	-1.885441	0.0710

R-squared	0.978887	Mean dependent var	10.78013
Adjusted R-squared	0.973820	S.D. dependent var	0.871676
S.E. of regression	0.141039	Akaike info criterion	-0.888928
Sum squared resid	0.497297	Schwarz criterion	-0.568298
Log likelihood	21.22284	Hannan-Quinn criter.	-0.782648
F-statistic	193.1871	Durbin-Watson stat	1.620137
Prob(F-statistic)	0.000000		

LCDI = -2.39914714174 - 0.0396362209816*SBA - 0.015746400686*SBI + 0.601885569287*LULN + 0.35188876469*LKURS + 0.555109046697*LEXNET - 0.149943786297*LPMA

The findings of the long-term regression analysis indicate that nearly all factors have a statistically significant impact on the dependent variable. Specifically, the probability values associated with these variables are lower than the predetermined significance level of 0.05 (5%). The research provides a long-term estimate of the Error Correction Model (ECM) based on the R-Squared values, which is 0.978887 or 98%. The study finds that 98% of the variations in the dependent variable, foreign exchange reserves, can be attributed to changes in the independent variables, namely American interest rates, Indonesian interest rates, foreign debt, rupiah exchange rate, and net exports. The remaining 2% of the variations are impacted by factors not considered in this research. However, the variable representing foreign investment demonstrates a statistically negligible probability outcome of 0.0710.

The ECM model is utilized to mitigate the occurrence of false regression tendencies. If the variable data is not stationary but is cointegrated, it indicates the presence of a long-term relationship or equilibrium between the variables. Nevertheless, there exists a potential for an imbalance or disequilibrium, therefore necessitating the need for correction using ECM. ECM, or Error Correction

Model, is a method used to rectify both immediate and prolonged disparities. It elucidates the connection between dependent and independent variables in both the present and the past. The ECM model was initially proposed by Sargan, then refined by Hendry, and gained widespread recognition through the work of Engle-Granger (Gujarati, 2021).

Table 4. Error Correction Term Cointegration Test results

Null Hypothesis: ECT has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.926717	0.0004
Test critical values:	1% level	-3.661661	
	5% level	-2.960411	
	10% level	-2.619160	

*MacKinnon (1996) one-sided p-values.

The foregoing results indicate that the ADF test, when applied to the residual data, decides with a probability of less than 0.05 that the residue is stationary at the given data level. Consequently, it may be inferred that the data exhibits cointegration, indicating a long-term relationship between the variables that is also present in the short term.

Once the error correction term has been obtained and verified for stationarity. The subsequent step involves conducting short-term projections utilizing the ECM model. The short-term ECM probabilities for the American interest rate, Indonesian interest rate, foreign debt, rupiah exchange rate, net export, and foreign investment variables are 0.3110, 0.1783, 0.0296, 0.8327, 0.3247, and 0.1309, respectively. The variables of American interest rates, Indonesian interest rates, rupiah exchange rate, net exports, and foreign investment are deemed insignificant due to their probability values above the alpha level of 5% (0.05). The short-term ECM model is solely affected by foreign debt as it has a significant influence, indicated by a probability value of 0.0296, which is lower than the alpha threshold of 0.05.

Table 5. Short Term Analysis Results

Dependent Variable: D(LCDI)
Method: Least Squares
Date: 01/30/23 Time: 15:00
Sample (adjusted): 1992 2022
Included observations: 31 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SBA)	-0.014677	0.014169	-1.035883	0.3110
D(SBI)	-0.006639	0.004781	-1.388415	0.1783
D(LULN)	0.830952	0.358259	2.319420	0.0296
D(LKURS)	0.039586	0.185252	0.213685	0.8327
D(LEXNET)	0.162098	0.161073	1.006365	0.3247
D(LPMA)	-0.102976	0.065739	-1.566455	0.1309
ECT(-1)	-0.441980	0.235377	-1.877753	0.0732
C	0.027097	0.035291	0.767819	0.4504

R-squared	0.306772	Mean dependent var	0.083355
Adjusted R-squared	0.095790	S.D. dependent var	0.119879
S.E. of regression	0.113993	Akaike info criterion	-1.287731
Sum squared resid	0.298869	Schwarz criterion	-0.917669
Log likelihood	27.95982	Hannan-Quinn criter.	-1.167100
F-statistic	1.454018	Durbin-Watson stat	1.707166
Prob(F-statistic)	0.232622		

By applying the ECM regression approach to analyze the short-term equation, we obtain the coefficient ECT(-1). The ECT(-1) coefficient quantifies the relationship between the regression and response variables at each interval of divergence from equilibrium. The ECT(-1) coefficient of -0.441980 indicates that there is a discrepancy of -0.441980 between the current value of foreign exchange reserves and the equilibrium value. This difference is expected to be corrected within a period of 1 year. The study revealed that the residual probability, commonly known as the error correction term (ECT), had a value of 0.0732 and a coefficient of 0.441980. The ECT coefficient has a negative value that is less than 1 in absolute terms, indicating that the ECM model specification is applicable and valid. The short-term ECM estimates can be represented by an R-Squared value of 0.306772 or 31%, indicating that the remaining portion of the dependent variable is impacted by independent variables that are not included in the model.

The purpose of the simultaneous test is to assess the collective impact of all independent variables

on the dependent variable. The regression analysis utilizing the short-term Error Correction Model (ECM) yielded an F-statistic probability of 0.232622. This indicates that, in the immediate period, the variables of American interest rates, Indonesian interest rates, foreign debt, rupiah exchange rate, net exports, and foreign investment collectively do not exert a substantial impact on Indonesia's Foreign Exchange Reserves. The F test, derived from the F-Statistic results in the ECM regression model, yields a value of 1.454018. If the estimated F-value exceeds the critical F-value from the table, then the alternative hypothesis (H1) is accepted, indicating that a group of independent factors is indeed demonstrated to collectively impact the dependent variable. Based on the F-Table value of 2.490, it is evident that the calculated value of 1.454018 is less than 2.490. This implies that the F-Table value is higher, leading to the acceptance of the null hypothesis (H0). Therefore, it can be concluded that the independent factors do not have a significant joint influence on the dependent variable.

The long-term ECM regression approach has varying outcomes, with an F-statistic likelihood of 0.000000. The findings indicate that over a prolonged period, the factors of American interest rates, Indonesian interest rates, foreign debt, rupiah exchange rate, net exports, and foreign investment collectively exert a substantial impact on Foreign Exchange Reserves in Indonesia. Upon evaluating the computed F in the long-term regression, the F-Statistic was determined to be 193.1871. The F-Table value of 2.490 indicates the critical value for the F test. The calculated F test value of 193.1871 is greater than the F-Table value, indicating that the F-Statistic is also greater. Therefore, we can accept the alternative hypothesis (H1), which claims that a set of independent factors has a significant joint influence on the dependent variable.

The short-term impact of American interest rates on foreign exchange reserves is determined by the calculated t-value of -1.035883, which is compared to the t-table value of 2.056. Since the calculated t-value (1.035883) is less than the critical t-value (2.056), we accept the null hypothesis (H0). This means that the independent variable has no significant effect on the dependent variable. The probability value of 0.3110 indicates that the American interest rate variable has a statistically insignificant and negative impact. In the long term, the calculated t value is -2.526046, which is compared to a t table value of 2.056. Since the calculated t value of 2.526046 is more than the critical t value of 2.056, we can accept the alternative hypothesis (H1). This means that the independent variable has a partial influence on the dependent variable. The probability value of 0.0182 indicates that the American interest rate variable has a statistically significant and positive impact on Foreign Exchange Reserves in the long term.

The short-term impact of Indonesian interest rates on foreign exchange reserves is determined by a t-value of -1.388415, which is compared to a t-table value of 2.056. Since the calculated t-value (1.388415) is less than the critical t-value (2.056), we accept the null hypothesis (H0). This means that the independent variable has no significant effect on the dependent variable. The probability value of 0.1783 indicates that the Indonesian interest rate variable has a statistically insignificant and negative impact. In the long term, the t count is -3.188380, which is lower than the t table value of 2.056. Since the calculated t value (3.188380) is more than the critical t value (2.056), we accept the alternative hypothesis (H1). This means that the independent variable has a partial influence on the dependent variable. The probability value of 0.0038 indicates that the Indonesian interest rate variable has a statistically significant and positive impact on Foreign Exchange Reserves in the long term.

The short-term impact of foreign debt on foreign exchange reserves is determined by the calculated t-value of 2.319420, which exceeds the critical t-value of 2.056 from the t-table. Based on the comparison between the calculated t value (2.319420) and the critical t value from the table (2.056), we may conclude that the alternative hypothesis (H1) is accepted. This means that the independent variable has a partial influence on the dependent variable. The probability value of 0.0296 indicates that the Indonesian interest rate variable has a statistically significant and positive impact. In the long term, the t count is 4.120080, which exceeds the t table value of 2.056. Since the calculated t value (4.120080) is more than the critical t value (2.056), we accept the alternative hypothesis (H1). This means that the independent variable has a partial influence on the dependent variable. The probability value of 0.0004

indicates that the foreign debt variable has a statistically significant and positive impact on Foreign Exchange Reserves in the long term.

The short-term impact of the rupiah exchange rate on foreign exchange reserves is determined by the computed t-value of 0.213685, which is compared to a t-table value of 2.056. Since the calculated t-value (0.213685) is less than the critical t-value (2.056) from the t-table, we accept the null hypothesis (H0). This means that the independent variable has no significant effect on the dependent variable. The probability value of 0.3827 indicates that the variable for the rupiah exchange rate has a statistically insignificant and negative impact. In the long term, the t count is 4.749102, which exceeds the t table value of 2.056. Since the calculated t-value (4.749102) is greater than the critical t-value (2.056), we accept the alternative hypothesis (H1). This means that the independent variable has a partial influence on the dependent variable. The probability value of 0.0001 indicates that the rupiah exchange rate variable has a statistically significant and positive impact on Foreign Exchange Reserves in the long term.

The short-term impact of net exports on foreign exchange reserves is determined by the calculated t-value of 1.006365, which is compared to the critical t-value of 2.056 from the t-table. Since the calculated t-value (1.006365) is less than the critical t-value (2.056), the null hypothesis (H0) is accepted. This means that the independent variable has no significant effect on the dependent variable. The probability value of 0.3247 indicates that the net export variable has a statistically insignificant and negative influence. In the long term, the t count is 4.292537, which exceeds the t table value of 2.056. Given that the calculated t value (4.292537) is greater than the critical t value (2.056), we accept the alternative hypothesis (H1). This implies that the independent variable has a partial influence on the dependent variable. The probability value of 0.0002 indicates that the net export variable has a statistically significant and positive impact on Foreign Exchange Reserves in the long term.

The short-term impact of foreign investment on Foreign Exchange Reserves is determined by the calculated t-value of -1.566455, which is compared to the critical t-table value of 2.056. Since the calculated t value (-1.566455) is less than the critical t value (2.056), we accept the null hypothesis (H0). This means that the independent variable has no significant effect on the dependent variable. The probability value is 0.1309, indicating that the foreign investment variable has a statistically non-significant negative effect. In the long term, the t count is -1.885441, which is less than the t table value of 2.056. Since the calculated t value (-1.885441) is less than the critical t value (2.056), we accept the null hypothesis (H0). This means that the independent variable has no significant effect on the dependent variable. The probability value of 0.0710 indicates that the foreign investment variable has a statistically insignificant and negative impact on Foreign Exchange Reserves in the long term.

The short-term estimated coefficient of determination is 0.306772. The independent variable component has a significant influence of 30.67% on the dependent variable component, while 69.33% is influenced by external variables not included in the model. Furthermore, the long-term estimated coefficient of determination is 0.978887. The independent variable component has a significant impact of 97.88% on the dependent variable component, with the remaining 2.12% being influenced by external variables not included in the model.

V. CONCLUSION

From the evaluated research findings, the following deductions may be made American interest rates exert a detrimental and substantial impact on Indonesia's foreign exchange reserves over an extended period of time. Hence, study hypothesis one can be deemed valid. In the short run, American interest rates exert a negligible and adverse impact on Indonesia's foreign exchange reserves. Hence, study hypothesis two is invalidated. Indonesian Interest Rates exert a detrimental and substantial impact on Indonesia's Foreign Exchange Reserves over an extended period of time. Therefore, research hypothesis three can be confirmed. Indonesian Interest Rates exert a detrimental and inconsequential impact on Indonesia's Foreign Exchange Reserves in the immediate term. Therefore, it is possible to accept study hypothesis four. In the long term, Foreign Debt exerts a positive and substantial impact

on Indonesia's Foreign Exchange Reserves. Therefore, it is possible to accept study hypothesis five. In the short term, Indonesia's Foreign Exchange Reserves are positively and significantly impacted by Foreign Debt. Therefore, study hypothesis six can be confirmed. The long-term impact of the Rupiah exchange rate on Indonesia's Foreign Exchange Reserves is both positive and significant. The research hypothesis seven can be confirmed. In the short run, the impact of the Rupiah exchange rate on Indonesia's foreign exchange reserves is both positive and negligible. Hypothesis eight, which states that the Rupiah Exchange rate has a positive but insignificant impact on Indonesia's Foreign Exchange Reserves in the short term, can be accepted. Net exports exert a favorable and substantial impact on Indonesia's long-term foreign exchange reserves. Therefore, study hypothesis nine can be confirmed. In the short term, net exports have a favorable but not considerable impact on Indonesia's Foreign Exchange Reserves. Hypothesis ten can be confirmed, indicating that Net Exports have a beneficial impact on Indonesia's Foreign Exchange Reserves in the short run, albeit this impact is not statistically significant. In the long run, foreign investment has a negligible and adverse impact on Indonesia's foreign exchange reserves. The research hypothesis eleven has been disproven. Foreign investment exerts a detrimental and inconsequential impact on Indonesia's short-term foreign exchange reserves. All twelve study hypotheses have been rejected.

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