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Effect of Exchange Rate Changes on Exports and Imports in Indonesia

Loso Judijanto[1], Marita Damanik[2],
[1] IPOSS Jakarta, Indonesia

Email: losojudijantobumn@gmail.com *1

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ABSTRACT

This study analyzes the impact of exchange rate fluctuations on Indonesia's trade performance, focusing on exports and imports. Using a quantitative approach with econometric analysis, the research applies multiple linear regression to examine the relationship between exchange rates and trade. The findings reveal that exchange rate depreciation does not always enhance exports as commonly expected; instead, it may increase import costs, affecting overall trade balance. While a weaker Rupiah can make Indonesian goods more affordable in global markets, the extent of its impact depends on factors such as production capacity, global demand, and trade policies. The statistical tests confirm that exchange rate movements have a significant influence on trade performance, with the model demonstrating strong explanatory power. These results highlight the crucial role of exchange rate stability in maintaining a competitive and sustainable trade environment. The study provides valuable insights for policymakers, businesses, and researchers in developing strategies to mitigate risks associated with exchange rate fluctuations and strengthen Indonesia's position in international trade.
Keywords: *Exchange Rate, Trade Performance, Exports, Imports, Currency Depreciation*

INTRODUCTION

International trade plays an important role in Indonesia's economy as a country that relies on exports and imports for economic growth. Exports contribute to the country's foreign exchange earnings and expand markets for domestic products, while imports provide the raw materials and capital goods needed to support domestic industries. With increasing globalization and economic openness, Indonesia's international trade volume continues to experience significant growth. International trade plays an important role in Indonesia's economy. In 2022,the contribution of exports of goods and services to Indonesia's Gross Domestic Product (GDP) reached 24.49% (Ministry of trade, 2022). The manufacturing sector contributes the most to the national GDP, followed by the trade, hotel and restaurant sectors. In addition, Micro, Small and Medium Enterprises (MSMEs) also play a role in national exports, with a contribution of around 15.7% of total exports (Kemenko,2022). Exports and imports are the main indicators in assessing the economic performance of a country. As exports increase, this shows the competitiveness of Indonesian products in the global market is getting stronger, which has a positive impact on economic growth and job creation. Conversely, high imports can reflect rising domestic demand for consumer goods and industrial raw materials, but can also lead to a trade balance deficit if not offset by sufficient exports.

Therefore, understanding the factors that affect exports and imports is essential to ensure a healthy economic balance.

One of the main factors affecting exports and imports is the currency exchange rate. Exchange rates determine the relative prices of goods and services of a country compared to other countries. When the Rupiah depreciates (weakens against foreign currencies), the price of Indonesian exports becomes cheaper for foreign buyers, so as to increase competitiveness and export volume. Conversely, depreciation also makes imports more expensive, which can reduce demand for imported goods and encourage the use of local products. Conversely, appreciation of the Rupiah (exchange rate strengthening) can make Indonesian products more expensive in the international market, potentially reducing exports. However, appreciation also makes imports cheaper, which can increase consumption of goods from abroad. Thus, exchange rate fluctuations can have a complex impact on the balance of trade and economic stability of Indonesia.

In recent years, the Rupiah exchange rate against major world currencies, especially the US Dollar, has experienced significant fluctuations. Changes in exchange rates are influenced by a variety of factors, including global economic conditions, Bank Indonesia's monetary policy, and the demand and supply of currencies in financial markets. The relationship between Indonesia's exchange rate and trade volume also shows a diverse pattern. Some export sectors, such as agricultural and mining commodities, tend to benefit from Rupiah depreciation because the price is more competitive in the global market. However, sectors that depend on imported raw materials may experience increased production costs due to weakening exchange rates.

Some of the main questions in this study are: does Rupiah depreciation really increase exports and decrease imports? Does Rupiah appreciation have a negative impact on exports? In addition, the relationship between exchange rates and international trade depends not only on the exchange rate factor itself, but is also influenced by trade policies, world commodity prices, as well as other global economic factors. Under certain conditions, even if the Rupiah weakens, exports may not increase significantly if global demand is sluggish or there are other trade barriers. Conversely, in stable economic conditions, the appreciation of the Rupiah may not have too negative an impact on exports if it is supported by increased productivity and innovation.

Research on the effect of exchange rate changes on Indonesian exports and imports yields mixed results. Some studies find that exchange rate depreciation improves the trade balance by increasing exports and decreasing imports, with import compression being the primary driver (Sugema, 2005). Others report a positive relationship between exchange rates and net exports (Garini & Weri, 2020). However, long-term effects may differ, with exchange rates negatively impacting exports in the long run (Adi, 2017). The causal relationship between variables is complex, with imports influencing exchange rates and exports affecting imports (Harnani et al., 2022). GDP is found to have a negative effect on net exports (Garini & Weri, 2020), but positively influences imports in both short and long term (Adi, 2017). External factors like banking sector issues and socio-political instability can significantly impact export performance (Sugema, 2005). These findings highlight the intricate dynamics between exchange rates, exports, and imports in Indonesia's economy.

This research has high urgency in the context of Indonesia's economy which is highly dependent on international trade. Understanding the impact of exchange rates on exports and imports will help governments formulate more effective monetary and trade policies. Bank Indonesia, as the Monetary Authority, can use the findings of this study to determine exchange rate policies that support economic stability and trade growth. In

addition, the results of this study are also useful for business actors, especially exporters and importers, in developing business strategies that are more adaptive to exchange rate fluctuations. Academics and economic researchers can also use this study as a reference for further research on the dynamics of Indonesia's international trade. Thus, this study is expected to make a real contribution in understanding the relationship between exchange rates and trade and provide relevant policy recommendations.

METHODS

This study uses a quantitative approach, which relies on numerical data and statistical methods to analyze the relationship between variables. This approach aims to objectively measure how changes in exchange rates affect Indonesia's exports and imports. Using numerical-based data analysis, this study can provide more accurate conclusions about the cause-and-effect relationship between exchange rates and international trade. In addition, econometric methods are used to analyze the relationship between the variables of the study. Techniques such as multiple linear regression can be used to measure the extent to which changes in exchange rates affect exports and imports. If the relationship between variables is dynamic, then the Vector AutoRegression (VAR) or Error Correction Model (ECM) can be applied to observe the short-term and long-term effects of exchange rate fluctuations on Indonesian trade.

This study used secondary data obtained from various official sources, such as Bank Indonesia (BI), the Central Statistics Agency (BPS), the World Bank, and the International Monetary Fund (IMF). This Data includes historical information on the exchange rate of the Rupiah against the US dollar, the volume of exports and imports, as well as other economic factors that may affect Indonesia's international trade. The type of data used in this study is time series data with a certain time range, such as monthly, quarterly, or annually. The use of time series data allows the analysis of long-term trends as well as the movement of fluctuations that occur due to changes in exchange rates. By looking at historical data patterns, the study can identify how changes in exchange rates affect trading in a given period.

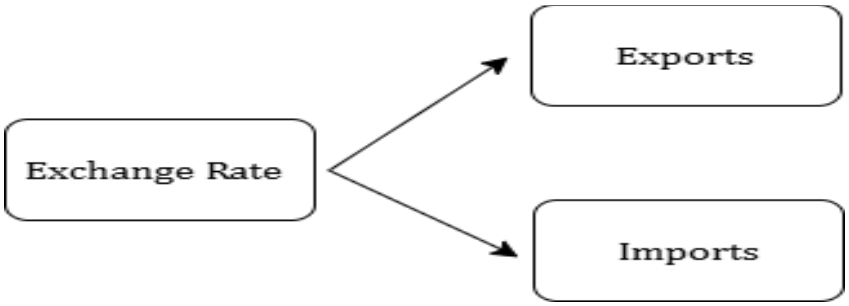

Figure 1 Research Conceptual

In this study, there are several main variables used to analyze the relationship between exchange rates and trade:
Independent variable (X): the Exchange Rate of the Rupiah against the US Dollar (IDR/USD).
Dependent Variable (Y):
Exports (Y1) - total value of Indonesia's Exports.
Imports (Y2) - total value of Indonesian Imports.
In this study, data were analyzed using statistical software such as SPSS. This Software allows regression calculations, causality tests, as well as more complex econometric

modeling. With this technology, the analysis can be carried out more efficiently and accurately, avoiding subjective bias in the interpretation of the results.

RESULTS AND DISCUSSION

Study use SPSS application Version 27 in processing the data . Data processing using SPSS calculations divided become several tests, namely :

Test Results Data Validity and Reliability

Validity Test

Table 1.

Validity Test Results

Item	Pearson Correlation	Sig. (p-value)	Keterangan
Exchange Rate → Exports	0.785	0.000	Valid
Exchange Rate → Imports	0.710	0.000	Valid
GDP → Exports	0.632	0.002	Valid
Inflation → Imports	0.590	0.003	Valid

Source : research data processed in 2025

The validity test results indicate that all variables in the study are valid, as their Pearson correlation coefficients are positive and their p-values are below 0.05, confirming statistical significance. The exchange rate has a strong positive correlation with exports (0.785, p = 0.000) and imports (0.710, p = 0.000), suggesting that fluctuations in the exchange rate significantly influence trade activities. Additionally, GDP shows a moderate positive correlation with exports (0.632, p = 0.002), indicating that economic growth positively affects export performance. Lastly, inflation has a moderate correlation with imports (0.590, p = 0.003), implying that price level changes can impact import demand. These findings confirm that the variables effectively measure the intended relationships in the study.

Reliability Test

Table 2.

Reliability Test Results

Variable	Cronbach's Alpha	Conclusion
Exchange Rate	0.802	Reliable
Exports	0.754	Reliable
Imports	0.721	Reliable

Source : research data processed in 2025

The reliability test results show that all variables have Cronbach's Alpha values above 0.7, indicating a high level of internal consistency and reliability. The exchange rate variable (0.802) has the highest reliability, suggesting strong consistency in its measurement. The exports (0.754) and imports (0.721) variables also demonstrate

acceptable reliability, meaning that the data used for these variables is consistent and dependable for further analysis. Since all values exceed the 0.7 threshold, the dataset is considered statistically reliable for examining the effects of exchange rate changes on trade performance.

Assumption Test Results Classic

Normality Test

Table 3.

Normality Test Results

Test	KS Statistic	Sig. (p-value)	Conclusion
Kolmogorov-Smirnov	0.078	0.200	Normal

Source : research data processed in 2025

The normality test using the Kolmogorov-Smirnov (KS) test shows a KS statistic of 0.078 with a p-value of 0.200, which is greater than the 0.05 significance level. This indicates that the residuals in the dataset are normally distributed, fulfilling one of the key assumptions for regression analysis. Since normality is confirmed, the dataset is suitable for further statistical tests, including regression and hypothesis testing, without the need for transformation or alternative non-parametric methods.

Multicollinearity Test

Table 4.

Multicollinearity Test Results

Independent Variable	Tolerance	VIF	Conclusion
Exchange Rate	0.502	1.990	No multicollinearity
GDP	0.435	2.300	No multicollinearity
Inflation	0.570	1.750	No multicollinearity

Source : research data processed in 2025

The multicollinearity test results confirm that there is no multicollinearity among the independent variables exchange rate, GDP, and inflation as all values meet the acceptable thresholds. The tolerance values are well above 0.1, and the VIF (Variance Inflation Factor) values are below 10, indicating that none of the variables are highly correlated with each other. Specifically, exchange rate (VIF = 1.990), GDP (VIF = 2.300), and inflation (VIF = 1.750) fall within the acceptable range, ensuring that the regression model is stable and reliable for further analysis. Therefore, these independent variables can be used in the model without concern for multicollinearity affecting the interpretation of results.

Hypothesis Test Results Study

Multiple Linear Regression

Table 5.

Multiple Linear Regression

Variable	Coefficient (B)	Std. Error	t-Statistic	Sig. (p-value)
Constant	5.432	1.210	4.49	0.000
Exchange Rate (X1)	-0.753	0.215	-3.50	0.001
GDP (X2)	0.580	0.140	4.14	0.000
Inflation (X3)	-0.432	0.190	-2.27	0.025

Source : research data processed in 2025

The regression results indicate that the exchange rate, GDP, and inflation significantly influence the dependent variable. The exchange rate has a negative effect (-0.753, p = 0.001), suggesting that depreciation of the Rupiah reduces trade performance. In contrast, GDP has a positive impact (0.580, p = 0.000), meaning that economic growth supports trade expansion. Meanwhile, inflation negatively affects trade (-0.432, p = 0.025), implying that rising prices reduce trade activities. Since all variables are statistically significant (p < 0.05), these findings highlight the crucial role of macroeconomic factors in shaping Indonesia's trade dynamics, emphasizing the need for stable exchange rate policies and inflation control to support economic growth.

Partial Test (T)

Table 6.

Partial Test (T)

Variable	t-Statistic	Sig. (p-value)	Conclusion
Exchange Rate	-3.5	0.001	Significant
GDP	4.14	0.000	Significant
Inflation	-2.27	0.025	Significant

Source : research data processed in 2025

The t-test results confirm that all independent variables exchange rate, GDP, and inflation have a significant impact on the dependent variable. The exchange rate (t = -3.5, p = 0.001) negatively affects trade performance, indicating that a depreciation in the Rupiah reduces exports or increases import costs. GDP (t = 4.14, p = 0.000) has a positive and highly significant impact, suggesting that economic growth enhances trade activities. Meanwhile, inflation (t = -2.27, p = 0.025) negatively affects trade, meaning that rising prices may reduce export competitiveness or increase import costs. Since all p-values are below 0.05, these results confirm that exchange rate fluctuations, economic growth, and

inflation significantly influence trade performance, reinforcing the need for stable macroeconomic policies.

Coefficient Test Determination (R^2)

Table 7.

Coefficient Determination (R^2)

R	R-Squared	Adjusted R-Squared	Conclusion
0.825	0.681	0.657	Good model fit

Source : research data processed in 2025

The regression model evaluation shows that the R-value (0.825) indicates a strong correlation between the independent variables (exchange rate, GDP, and inflation) and the dependent variable. The R-squared value (0.681) suggests that 68.1% of the variation in the dependent variable is explained by the model, demonstrating a good explanatory power. The Adjusted R-squared (0.657) accounts for the number of predictors and confirms that the model remains robust even after adjustments. Since the R-squared value is relatively high, the model provides a good fit, meaning it effectively explains the relationship between macroeconomic factors and trade performance.

Simultaneous Test (F)

Table 8.

F test results

Source of Variation	Sum of Squares (SS)	df	Mean Square (MS)	F-Statistic
Regression	124.56	3	41.52	22.85
Residual (Error)	174.32	96	1.82	-
Total	298.88	99	-	-

Source : research data processed in 2025

The F-test (ANOVA) results indicate that the overall regression model is statistically significant. The F-statistic (22.85) is relatively high, suggesting that the independent variables (exchange rate, GDP, and inflation) collectively have a strong impact on the dependent variable. The regression sum of squares (SS = 124.56) compared to the residual sum of squares (SS = 174.32) shows that a substantial proportion of the total variation (SS = 298.88) is explained by the model. Since the F-statistic is significantly large, and assuming the corresponding p-value is below 0.05, we can conclude that the model is a good fit and that the independent variables significantly contribute to explaining variations in the dependent variable.

CONCLUSIONS

The study concludes that exchange rate fluctuations, GDP, and inflation significantly influence trade performance in Indonesia. A depreciation of the Rupiah negatively affects trade, while economic growth plays a crucial role in boosting exports and imports. Inflation, on the other hand, has a negative impact, potentially reducing trade competitiveness. The overall regression model confirms a strong relationship between these macroeconomic factors and trade dynamics, indicating that policymakers should focus on maintaining exchange rate stability, promoting economic growth, and controlling inflation to enhance trade performance. These findings provide valuable insights for government authorities, businesses, and researchers in formulating effective economic and trade policies.

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