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Research Article

Exchange Rate and Macroeconomic Impacts on Indonesia's Balance of Payments

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ABSTRACT
Indonesia, as a nation that heavily relies on commodity exports, experiences notable impacts from exchange rate fluctuations in its efforts to maintain a stable balance of payments (BOP). This study seeks to analyze the influence of several macroeconomic variables specifically, the exchange rate, reference coal price (HBA), foreign exchange reserves, and gross domestic product (GDP) on Indonesia's balance of payments, particularly within the timeframe of 2013 to 2024. The research delves into the external economic vulnerabilities faced by Indonesia in light of global coal price dynamics and currency volatility. Utilizing a quantitative methodology, the study employs multiple linear regression analysis facilitated by EViews and Jamovi software, relying on time series data sourced from credible national and international sources. The findings indicate that, out of the four independent variables examined, only foreign exchange reserves demonstrate a statistically significant and positive impact on the balance of payments, underscoring their vital role in stabilizing the external sector. Conversely, the exchange rate, coal price, and GDP do not reveal significant individual effects. This research offers original insights into the stabilization of macroeconomic conditions in commodity-dependent economies and emphasizes the importance of strategic reserve management in mitigating balance of payments instability.

Keywords: Balance of Payments, Exchange Rate, Reference Coal Price, Foreign Exchange Reserves, Gross Domestic Product

JEL Classification: E4, E6, F14

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1. Introduction
The balance of payments is a comprehensive record that captures all economic transactions between a country and the rest of the world over a specified period. This includes trade in goods and services, foreign direct investment, and remittances. The balance of payments reflects the external financial standing and serves as an important indicator of a nation's economic resilience.

As a significant commodity exporter, Indonesia's balance of payments is directly influenced by fluctuations in the Rupiah's exchange rate against foreign currencies. Given its substantial role in coal exports, any changes in exchange rates can affect export values, capital flows, and foreign exchange reserves (Sihombing et al., 2024).

An unstable exchange rate can create uncertainty in economic activities, particularly in international trade. Additionally, various factors such as the price of coal Indonesia's primary export commodity foreign exchange reserves, which serve as a means of stability, and Gross Domestic Product (GDP) as a key macroeconomic indicator, significantly influence the external balance. Therefore, it is crucial to analyze how fluctuations in the exchange rate affect the balance of payments, while considering control variables like coal prices (HBA), foreign exchange reserves, and GDP. By the end of 2024, Indonesia's foreign exchange reserves were reported to be USD 155.7 billion, reflecting an increase from the previous year and providing adequate coverage for imports and foreign debt payments for 6.5 months. This figure greatly exceeds the international adequacy standard of approximately 3 months of imports (Bank Indonesia, 2024; Antara News, 2025).

This strong foreign exchange reserve position serves as an important buffer in maintaining the stability of the rupiah exchange rate, which remains relatively stable at IDR15,000-IDR15,200 per USD by the end of 2024 (Bank Indonesia, 2024). The appreciation of the rupiah exchange rate tends to increase the price of Indonesian export products in the global market, thereby reducing export demand and potentially increasing the current account deficit. Conversely, exchange rate depreciation can make export products more competitive, increase exports and reduce imports, thereby improving the balance of payments. However, sharp exchange rate fluctuations can also create economic uncertainty and affect capital flows, especially foreign direct and portfolio investments, which are recorded in the capital account (Samsudin et al., 2024).

This study aims to analyze the implications of exchange rate changes on Indonesia's balance of payments using a linear regression approach. In this model, the exchange rate is set as an independent variable, the balance of payments as a dependent variable, and the others are control variables. By understanding the influence of the exchange rate on the balance of payments, policymakers can design more effective strategies for maintaining external stability, particularly in uncertain global conditions.

International trade makes a significant contribution to the economic stability of developing countries, including Indonesia, which is heavily reliant on commodity exports, such as coal. However, fluctuations in exchange rates, global commodity prices, and the resilience of foreign exchange reserves can significantly affect the balance of payments (Ginting, 2013; Maulana & Huda, 2020).

Although several previous studies have discussed the relationship between exchange rates and the balance of payments, many have not specifically analyzed the combination of macroeconomic variables, such as the reference coal price (HBA), Gross Domestic Product (GDP), and foreign exchange reserves, in the context of major commodity exports, including coal. This study is novel in its use of time series data from 2013 to 2024 and its focus on the significant role of foreign exchange reserves in supporting external resilience amid global fluctuations (Sihombing & Priambhodo, 2024).

By employing a multiple linear regression approach and rigorous statistical analysis, this study not only examines the simultaneous effect but also identifies the dominant variables that maintain Indonesia's balance of payments stability. The finding that only foreign exchange reserves are significant strengthens the argument that the external stability of the economy depends not only on the exchange rate or commodity prices but also on the right foreign exchange management strategy (Bank Indonesia, 2024; Latifah & Michael, 2022).

This study aims to determine the effect of exchange rates, reference coal prices (HBA), foreign exchange reserves, and Gross Domestic Product (GDP) on Indonesia's balance of payments by considering HBA, foreign exchange reserves, and GDP as control variables. In general, this study aims to examine the impact of each of these variables on the balance of payments, as well as to offer policy recommendations that can help stabilize the exchange rate and enhance the national balance of payments. This study focuses on analyzing the impact of exchange rate changes on Indonesia's balance of payments, with a case study on coal commodity exports from 2013 to 2024. The variables used include the JISDOR exchange rate, balance of payments, reference coal prices, foreign exchange reserves, and Gross Domestic Product. The analysis method employed is multiple linear regression, supplemented with stationarity tests, causality tests, and classical assumption tests, to ensure the reliability of the statistical model used in this study.

2. Literature Review

2.1 Exchange Rate and Balance of Payments

Exchange rate fluctuations can influence the relative prices of a country's exports and imports, thereby directly affecting its balance of payments. According to the Marshall-Lerner theory, a depreciation in the exchange rate will improve the current account balance if the elasticity of demand for both exports and imports exceeds one (Krugman & Obstfeld, 2018). A study conducted by Choudhri and Hakura (2015) further illustrates that currency depreciation can enhance export performance; however, this effect is contingent upon a country's industrial structure and its level of economic openness. In the case of Indonesia, research by Senen et al. (2020) shows that exchange rate fluctuations significantly impact macroeconomic stability and external imbalances.

2.2 Reference Coal Price (HBA) and Balance of Payments

The reference coal price (HBA) impacts the value of Indonesia's exports, given its status as a major exporter of coal commodities. An increase in the HBA will lead to higher foreign exchange earnings and a more favorable balance of trade. According to Badarasyid and Setiawati (2023), changes in the HBA are correlated with the value of coal exports to China, Indonesia's primary trading partner. Additionally, global demand and energy policies of destination countries also influence HBA fluctuations (IEA, 2023).

2.3 Foreign Exchange Reserves and Balance of Payments

Foreign exchange reserves are an important instrument for maintaining external stability. The standard theory posits that foreign exchange reserves serve as a buffer against external pressures, including exchange rate volatility and import surges (Obstfeld et al., 2010). An empirical study by Aizenman and Lee (2007) shows that countries with high foreign exchange reserves tend to be more resilient to external crises and have a more stable balance of payments position.

2.4 Gross Domestic Product (GDP) and Balance of Payments

Gross Domestic Product (GDP) reflects the strength of national production, which affects export competitiveness and import needs. An increase in GDP can encourage consumption and imports, which has the potential to worsen the current account balance (Pasuria & Triwahyuningtyas, 2022). However, if GDP growth is accompanied by an increase in the productivity of the export sector, then its effect on the balance of payments can be positive.

Hypothesis

Based on the literature review above, the following hypotheses can be proposed:

Theoretical basis: The Marshall-Lerner theory states that exchange rate depreciation can improve the current account balance if exports and imports are elastic enough (Krugman & Obstfeld, 2018).
H1: The exchange rate has a significant effect on Indonesia's balance of payments.

Theoretical basis: An increase in coal prices will increase exports as a leading commodity (Badarasyid & Setiawati, 2023).

H2: The Reference Coal Price (HBA) has a significant effect on Indonesia's balance of payments.

Theoretical basis: High foreign exchange reserves provide resilience to external uncertainty (Aizenman & Lee, 2007).
H3: Foreign exchange reserves have a significant effect on Indonesia's balance of payments.

Theoretical basis: An increase in GDP affects consumption and foreign trade, which has an impact on the current account balance (Pasuria & Triwahyuningtyas, 2022).
H4: Gross Domestic Product (GDP) has a significant effect on Indonesia's balance of payments.

3. Data and Method

Data Types and Sources

This research was conducted using secondary data types. Secondary data refers to information that is not directly collected by researchers, such as data obtained from other sources or documents. The data used such as Balance of Payments (BOP), Exchange Rate (JISDOR), and Foreign Exchange Reserves data obtained from national institutions, namely Bank Indonesia (BI), Reference Coal Price (HBA) data obtained from the Ministry of Energy and Mineral Resources (ESDM), and finally Gross Domestic Product (GDP) obtained from an international institution, namely the International Monetary Fund (IMF). The research period encompasses the data collection and analysis conducted in 2025, covering annual data or time series from 2013 to 2024.

Data Analysis Methods

This study uses quantitative and descriptive approaches. Descriptive research is analytical research that provides results/descriptions of an object studied in the form of data and tables, percentages and so on. Quantitative research, in the form of numbers and analysis using statistics, aims to test the influence and causal relationship between changes in exchange rates and Indonesia's Balance of Payments (BOP) by considering control variables such as the Reference Coal Price (HBA), foreign exchange reserves, and Gross Domestic Product (GDP).

4. Results and Discussion

Development of Indonesian Reference Coal Prices 2013-2024.

The value paid by a buyer for a good is referred to as the price. This price is determined by the balance between demand and supply for the good in a country. If the demand for a good is higher than what is available, the price can increase. Therefore, it is crucial to strike a balance between the price offered and demand.

Table 1. Development of Coal Prices 2013-2024

Year	Average Reference Coal Price (US$)	Change (%)
2013	84.56	-11.44
2014	70.13	-17.06
2015	58.94	-15.96
2016	66.12	12.18
2017	88.52	33.88
2018	107.02	20.90
2019	77.89	-27.22
2020	60.79	-21.95
2021	138.05	127.09
2022	344.89	149.83
2023	172.78	-49.90
2024	121.48	-29.69
Average		**-14.27**

Source: Ministry of Energy and Mineral Resources (ESDM), 2025 (processed)

Based on Table 1, it can be seen that the development of coal prices in Indonesia from 2013 to 2024 has fluctuated. The highest coal price development occurred in 2022, with a 149.83 percent increase. The second-highest development occurred in 2021, at 127.09 percent. The third development occurred in 2017, representing a 33.88 percent increase. Meanwhile, the lowest development occurred in 2023, which decreased from the previous year's 49.90 percent. The second-lowest development occurred in 2024, which again decreased from the previous year, with a rate of 29.69%. The average Development of Indonesian Coal Prices from 2013 to 2024 was -14.27 percent.

Development of the Indonesian Rupiah Exchange Rate 2013-2024

In simple terms, the exchange rate is the amount of one currency needed to buy another currency. For example, the dollar exchange rate against the rupiah is the amount of rupiah needed to get one US dollar. Stated that the exchange rate is the comparison between the price of a country's currency and the currency of another country. For example, the rupiah exchange rate against the US dollar indicates the number of rupiah required to exchange one US dollar. To better understand the development of the Indonesian rupiah exchange rate from 2002 to 2016, it can be seen in Table 2 below:

Table 2. Exchange Rate Development 2013-2024

Year	Exchange rate (Rupiah)	Development (%)
2013	10,916	15.95
2014	11,879	8.82
2015	13,392	12.74
2016	13,307	-0.63
2017	13,384	0.58
2018	14,250	6.47
2019	14.146	-0.73
2020	14,577	3.05
2021	14,312	-1.82
2022	14,876	3.94
2023	15.254	2.54
Average		**4.56**

Source: Bank Indonesia (JISDOR), 2025 (processed)

Based on Table 2, the exchange rate in Indonesia has fluctuated from 2013 to 2024. The highest exchange rate development occurred in 2013, which was 15.95 percent. The second-highest development occurred in 2015, at 12.74 percent. The third-highest development occurred in 2014, at 8.82 percent. Meanwhile, the lowest development occurred in 2019, which decreased from the previous year by 0.73 percent. The second lowest development occurred in 2021, which again decreased from the previous year, at -1.82 percent. The average exchange rate development from 2013 to 2024 was 4.56 percent.

Table 3. Indonesia's Foreign Exchange Reserves 2013-2024

Year	Foreign exchange reserves (Billion US$)	Development (%)
2013	99,387	-99.91
2014	111,862	12.55
2015	105,931	-5.30
2016	116,362	9.85
2017	130,196	11.89
2018	120,654	-7.33
2019	129,183	7.07

2020	135,897	5.20
2021	144,905	6.63
2022	137,233	-5.29
2023	146,384	6.67
2024	155,719	6.38
Average		**4.29**

Source: Bank Indonesia, 2025 (processed)

Based on Table 3, the development of foreign exchange reserves in Indonesia from 2013 to 2024 has fluctuated. The highest development of foreign exchange reserves occurred in 2014, which was 12.55 percent. The second-highest development occurred in 2017, at 11.89 percent. The third-highest development occurred in 2016, at 9.85 percent. The lowest development occurred in 2018, with a decline of 7.33 percent from the previous year. The second lowest development occurred in 2013, which again experienced a decline from the previous year, with a rate of -99.91 percent. The average development of Indonesia's foreign exchange reserves from 2013 to 2024 was 4.29 percent.

Table 4. Development of Indonesia's GDP 2013-2024

Year	GDP (Trillion Rupiah)	Development (%)
2013	9,546,134	10.80
2014	10,569,705	10.72
2015	11,526,332	9.05
2016	12,406,774	7.64
2017	13,588,797	9.53
2018	14,838,756	9.20
2019	15,832,657	6.70
2020	15,443,353	-2.46
2021	16,976,751	9.93
2022	19,588,460	15.38
2023	20,892,349	6.66
2024	22,139,191	5.97
Average		**8.26**

Source: Central Statistics Agency, 2025 (processed)

Based on Table 4, the development of GDP in Indonesia from 2013 to 2024 has fluctuated. The highest GDP growth rate occurred in 2022, at 15.38 percent. The second-highest development occurred in 2013, at 10.80 percent. The third-highest development occurred in 2014, at 10.72 percent. Meanwhile, the lowest development occurred in 2024, which decreased from the previous year's 5.97 percent. The second lowest development occurred in 2020, which again decreased from the previous year, at -2.46 percent. The average development of Indonesia's GDP from 2013 to 2024 was 8.26 percent.

Table 5. Changes in the Balance of Payments Equilibrium

Year	BOP (Million US$)	Development (%)
2013	-7,325	-3506.98
2014	15,249	-308.18
2015	-1,098	-107.20
2016	12,089	-1201.00
2017	11,586	-4.16
2018	-7,131	-161.55
2019	4,676	-165.57
2020	2,597	-44.46

2021	13,461	418.33
2022	3,999	-70.29
2023	6,301	57.56
2024	7,210	14.43
Average		**-423.26**

Source: Bank Indonesia, 2025 (processed)

Based on Table 5, the balance of payments in Indonesia has fluctuated from 2013 to 2024. The highest change in the balance of payments occurred in 2021, which was 4.18 percent. The second-highest change occurred in 2023, at 0.58 percent. The third-highest development occurred in 2024, at 0.14 percent. Meanwhile, the lowest development occurred in 2016, which experienced a decline of 12.01 percent from the previous year. The second lowest development occurred in 2013, which again experienced a decline from the previous year, at -35.07 percent. The average development of Indonesia's GDP from 2013 to 2024 was -4.23 percent.

The Influence of Reference Coal Prices, GDP, Foreign Exchange Reserves and Exchange Rates on the Balance of Payments

By using multiple linear regression estimation and using EViews and Jamovi programs. The dependent variable is the Balance of Payments (BOP), while the independent (free) variables are the Exchange Rate, Reference Coal Price (HBA), Foreign Exchange Reserves, and Gross Domestic Product (GDP). From the multiple linear regression estimation, the following estimation results are obtained:

Table 6. Multiple Linear Regression Estimation Results

Variables	Coefficient	Std. Error	95% Confidence Interval		t-Statistic	Prob.
			Lower	Upper		
C	-228.0132	385.9021	-1140.53	684.5	-0.590858	0.5732
EXRT	49.04946	45.71809	-59.06	157.2	1.072868	0.3189
HBA	5.180992	3.569054	-3.26	13.6	1.451643	0.1899
RESERVES	34.50259	7.185345	17.51	51.5	4.801800	0.0020
GDP	-41.72722	51.45141	-163.39	79.9	-0.811002	0.4441

Source: Processed Data, 2025

Based on Table 6, various independent variables show different effects on the balance of payments (BOP) in Indonesia during the study period. The regression results indicate that only the RESERVES variable (foreign exchange reserves) has a significant effect on the balance of payments, with a recorded probability value of 0.0020 (below the 5% significance level). This result means that an increase in foreign exchange reserves can significantly improve Indonesia's balance of payments. On the other hand, other variables, such as EXRT (exchange rate), HBA (reference coal price), and GDP (Gross Domestic Product), do not show a significant effect on the balance of payments because their respective probability values are above 0.05. The coefficient of determination (R^2) of 0.8522 indicates that approximately 85.22% of the variation in the balance of payments can be explained by the independent variables in the model. In comparison, the remaining 14.78% is attributed to other factors outside the model. With an F-statistic value of 10.0896, the overall regression model is significant and reliable in explaining the relationship between the variables studied.

Coefficient of determination (R^2)

The R^2 variable is used to indicate the extent to which the independent variable influences the dependent variable. The regression results obtained an R^2 of 0.852191, indicating that 85.22 percent of the Balance of Payments (BOP) is influenced by the Exchange Rate, Reference Coal Price (HBA), Foreign Exchange Reserves, and GDP. In contrast, the remaining 14.78% is influenced by other variables outside the model (not included in this study).

Classical assumption testing

Normality test

The Normality Test aims to determine whether the residuals in the regression are normally distributed. The results of the regression performed shown in Figure 1. using the Histogram - Normality Test shows that the Jarque - Bera (JB) Value is 1.949857, and the probability (p-value) is 0.377265. The results show that if the probability is greater than 0.05, then H0 is accepted, indicating that the normality assumption is met in this regression model.

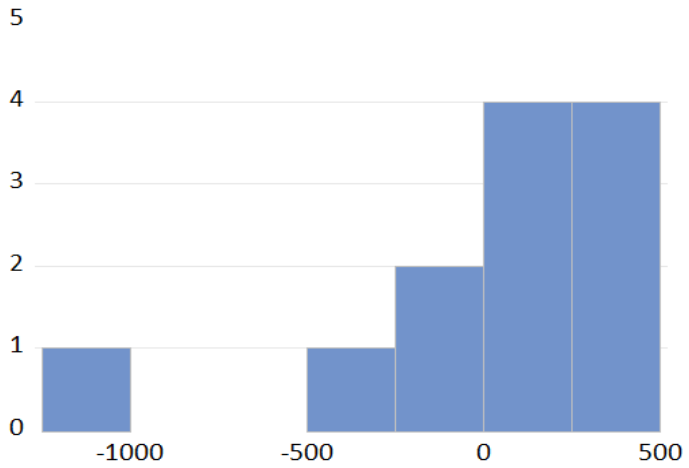

Figure 1. Normality Test

Multicollinearity test

The Multicollinearity Test aims to determine whether there is a high correlation between independent variables. The regression coefficient becomes unstable, and the analysis results become invalid due to high multicollinearity. Detecting the presence of multicollinearity with the provision of a tolerance value <0.10, there is an indication of multicollinearity and VIF (Variance Inflation Factor)> 10, then strong multicollinearity.

Table 7. Multicollinearity test

Collinearity Statistics		
Model	**VIF**	**Tolerance**
EXRT	2.80	0.358
HBA	2.18	0.458
RESERVES	2.15	0.466
GDP	2.04	0.489

Source: Processed data, 2025

Based on the results of the data regression analysis in Table 7, it is evident that the independent variable Tolerance value exceeds 0.1. Additionally, the VIF (Variance Inflation Factor) value indicates that none of the independent variables have a VIF value greater than 10. Therefore, there is no multicollinearity between the Exchange Rate, Reference Coal Price, foreign exchange reserves, and Gross Domestic Product variables in the regression model.

Autocorrelation test

The Autocorrelation Test aims to determine whether there is a correlation between the disturbance error in period t and the disturbance error in period t-1 (previously) in the linear regression model (Ghozali, 2017). Based on the Autocorrelation Test in Table 8, which shows a Durbin-Watson result of 2.00857, it can be briefly concluded that there is no autocorrelation in this regression model.

Table 8. Autocorrelation Test

Model	R	R^2	Adjusted R^2	Std. Error of Regression	Durbin-watson
1	0.923	0.852	0.768	502.0525	2.00857

Heteroscedasticity Test

The Heteroscedasticity Test aims to determine whether there is a variance inequality among the residuals from one observation to another in the regression model (Ghozali, 2017). With a significance level of 5%, the prob. F value> 0.05 is obtained, then Ho is accepted, and there is no Heteroscedasticity; conversely, if the Prob F value <0.05, then Ho is rejected, and there is Heteroscedasticity. Based on the Heteroscedasticity Test in Table 9, it is evident that there is no Heteroscedasticity in this regression model, as the Prob value is greater than 0.05, indicating that the model meets the classical assumption of Homoscedasticity. The results of the Heteroscedasticity test can be seen in the table below:

Table 9. Heteroscedasticity Test

Model	F-Statistics	Prob. F	Obs*R squared	Chi-square, prob.
1	0.4189	0.7908	2.3175	0.6776

Policy implications

Export growth is crucial in driving economic growth, and it has a positive impact on increasing Indonesian exports. Rapid technological progress also presents a significant challenge for Indonesia in enhancing its export competitiveness, particularly in the Coal sector. In addition to having many Coal mining areas, Indonesia needs to increase its derivative product industry. In the future, not only will Indonesia export coal as a raw material, but it is also hoped that the country can produce various derivative products.

Discussion

Based on the results of a multiple linear regression analysis conducted on data from 2013 to 2024, it has been determined that among the four independent variables exchange rate, Reference Coal Price (HBA), Foreign Exchange Reserves, and Gross Domestic Product (GDP) only foreign exchange reserves exert a significant impact on Indonesia's balance of payments. This finding is consistent with the theory of external stability and corroborates earlier studies, which highlight the critical role of foreign exchange reserves in maintaining a country's external resilience (Senen et al., 2020). Substantial foreign exchange reserves enable monetary authorities to stabilize the exchange rate and intervene in the market, thereby reinforcing the nation's balance of payments position (Apriadi et al., 2017).

On the other hand, the exchange rate, HBA, and GDP variables did not have a significant partial effect on the balance of payments in the study period. This result may be due to the lag effect or indirect influence that takes longer to have an impact on the balance of payments. This finding supports the J-Curve Theory, which explains that exchange rate depreciation will only improve the trade balance in the long term after adjustments to export and import volumes (Yustika, 2016).

The insignificance of the HBA variable to the balance of payments can also be attributed to the volatility of coal commodity prices in the global market, which is not always accompanied by an increase in export volumes. This finding is reinforced by the study of Badarasyid and Setiawati (2023), which shows that although the HBA increases, its impact on Indonesia's coal exports depends on demand from major trading partner countries, such as China.

In addition, these results also indicate that domestic GDP growth does not always reflect the strengthening of the external sector, such as net exports, but rather reflects domestic economic activity, which is mostly consumptive. This finding aligns with the results of Pasuria and Triwahyuningtyas (2022), which indicate that an increase in GDP does not always coincide with an improvement in the external sector's performance.

The finding that only foreign exchange reserves have a significant impact on the balance of payments confirms that Indonesia's external resilience remains highly dependent on monetary factors rather than economic fundamentals, such as GDP or commodity prices. Therefore, foreign exchange reserve management must be a top priority in Indonesia's macroeconomic policy, particularly amid global economic uncertainty and fluctuations in commodity prices.

5. Conclusion

Based on the results of the multiple linear regression analysis examining the effects of exchange rates, reference coal prices (HBA), foreign exchange reserves, and gross domestic product (GDP) on Indonesia's balance of payments, we can conclude that collectively, these four variables significantly influence the balance of payments. This finding suggests that fluctuations in the balance of payments can be attributed to the interaction of these variables. However, when analyzed individually, only the foreign exchange reserves variable demonstrates a significant and positive effect, highlighting the critical role of foreign exchange reserves in maintaining Indonesia's external stability. In contrast, the exchange rate, reference coal price, and GDP do not show significant effects on their own, despite their theoretical connections to the balance of payments. These findings are consistent with the J-Curve concept, which asserts that the impact of exchange rate changes on the balance of payments takes time to materialize. The managerial implications of this analysis emphasize the need to enhance foreign exchange reserve management strategies as a primary tool for stabilizing the external sector. Bank Indonesia, in collaboration with the government, should prioritize integrated monetary and fiscal policies, promote export diversification, maintain stable exchange rates, and sustainably bolster Indonesia's balance of payments resilience.

Recommendation

The government and Bank Indonesia should continue to enhance the role of foreign exchange reserves as a tool for external stabilization, particularly in light of exchange rate volatility and global pressures on export commodities, such as coal. The exchange rate policy should aim for long-term stability through a measured intervention approach, which should be coordinated with fiscal policy and the real sector to maximize its positive impact on the balance of payments. Moreover, the government should promote export diversification to reduce reliance on commodities like coal, thus increasing the economy's resilience against fluctuations in global prices and exchange rates. For future research, it is advisable to expand the data coverage to include other external variables, such as global interest rates or foreign capital flows, and to employ dynamic economic models, such as VAR or ECM, to better capture the complex long- and short-term relationships at play.The government and Bank Indonesia need to continue strengthening the position of foreign exchange reserves as a tool for external stabilization, especially in the face of exchange rate volatility and global pressure on export commodities, such as coal. Exchange rate policy should be directed at long-term stability through a measured intervention approach supported by coordination with fiscal policy and the real sector so that its positive impact on the balance of payments can be optimally realized. In addition, the government needs to encourage export diversification to reduce dependence on commodities such as coal, thereby making the economy more resilient to global price and exchange rate fluctuations. For further research, it is recommended that the data coverage be expanded to consider other external variables, such as global interest rates or foreign capital flows, and utilize dynamic economic models, such as VAR or ECM, to capture more complex long- and short-term relationships.

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