International Journal of Business and Applied Economics (IJBAE)
Vol. 4, No. 6, 2025: 3535-3550

Exchange Rate Volatility, Monetary Conditions, and Trade Performance in Indonesia

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ARTICLEINFO

Keywords: Trade, Inflation, Exchange Rate, Economic Growth

Received: 6, October
Revised: 26, October
Accepted: 28, November

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ABSTRACT

This study aims to analyse the short-term and long-term relationships and causal directions between the main macroeconomic variables and Indonesia's trade performance. Using annual time series data from 1975 - 2023 from the World Bank, using the ARDL method and the Granger causality test. These findings reveal complex dynamics, in the long run, inflation, economic growth, and money supply have a significant positive effect on trade. However, in the short term, exchange rate volatility has a significant negative impact, the depreciation of the Rupiah in the previous one to two years depresses current trading performance. The Granger causality test shows one-way causality from inflation to trade and from exchange rate to trade, as well as two-way causality between inflation and exchange rates. The implications of this study provide a strategic basis for the formulation of Indonesia's monetary and trade policy.

DOI: https://doi.org/10.55927/ijbae.v4i6.516
ISSN-E: 2963-6124
https://nblformosapublisher.org/index.php/ijbae

INTRODUCTION

In the last two decades, in the global context, especially developing countries, they have experienced periods of intense macroeconomic uncertainty. For example, the global financial crisis, the COVID-19 pandemic, the Russia-Ukraine war, supply chain shocks, and rising energy and food prices have caused global inflationary pressures to increase sharply (Aharon & Qadan, 2022). In 2022, global inflation reached 8.7% (IMF, 2023), the highest in nearly four decades, prompting central banks, especially the Federal Reserve, to raise interest rates aggressively. Global factors, including fluctuations in commodity prices, weakening supply chains, trade wars, and inflationary pressures, drive exchange rate volatility and inflation in many countries. High global inflation followed by weakening exchange rates in developing countries due to the strengthening of the US dollar, causing monetary policy adjustments to maintain stability (BIS, 2023).

This creates a challenging environment for international trade stability and performance. Indonesia, as a developing economy with open characteristics, often experiences macroeconomic fluctuations and faces challenges in maintaining price stability, stable exchange rates, and sustained economic growth. World Bank data shows that Indonesia's inflation jumped from 1.6% in 2021 to 4.2% in 2022 (WDI, 2022). On the other hand, Indonesia's economic growth contracted by 2.07% in 2020 before recovering to 5.3% in 2022. Instability during the period indicates internal and external pressures that continue to affect macroeconomic performance. This combination of internal and external factors creates a dynamic and volatile economic environment, exchange rate fluctuations directly affect export competitiveness and import costs, while domestic inflation can erode purchasing power and disrupt production costs. This combination of internal and external pressures creates a dynamic and complex environment for Indonesia's trade performance.

Theoretically, classical studies emphasise that output is determined by real factors such as labour and capital, while inflation occurs when the growth of the money supply exceeds the growth of real output. Keynesians argue that demand shocks can affect prices and output in the short term. Meanwhile, monetarists assert that money supply growth is the primary determinant of inflation in the long run. Additionally, the Mundell-Fleming framework suggests that exchange rate depreciation can trigger import inflation and negatively affect the external balance. Thus, classical, Keynesian, monetarist, and Mundell-Fleming theories have different explanations of how inflation, exchange rates, economic growth and trade are interrelated.

Several studies have also examined the relationship between inflation, exchange rates, economic growth, and trade in various countries, with mixed results. reflecting the complexity and dependence on the country's context and analysis methods. For example, a study in the MENA region (Middle East and North Africa) found that exchange rate variability and inflation are challenges to economic stability, inflation significantly inhibits growth and confirms that rising inflation is hurting investment (Mohamed et al., 2025). Meanwhile, in the context of Southeast Asia, 5 ASEAN countries show that Indonesia is the only country

that has a significant influence of exports, imports, inflation, and exchange rates on GDP (Alfiani et al., 2025). Studies by (Minteh et al., 2025) show that inflation and trade support growth. However, the exchange rate and FDI have the opportunity to reduce GDP. These findings suggest that it is necessary to model with several macro variables simultaneously, not only inflation and exchange rates, but also other structural variables, such as economic growth and investment, to capture the complex mechanisms that affect trade.

Therefore, this research is important to conduct. Using annual data for the period 1975–2023, along with variables of inflation, exchange rate, money supply, FDI, trade, and GDP growth, this study employs the ARDL and Granger causality approaches to examine the short-term, long-term, and causal direction relationships between variables. This research contributes to explaining how inflation and exchange rates affect trade. It aims to provide a more comprehensive and data-driven understanding of Indonesia's evolving macroeconomic dynamics, enrich the empirical literature, and provide a strategic basis for more effective monetary and exchange rate policy formulation. The results are expected to provide a new framework for monetary policy formulation, exchange rate management, and strategies to attract foreign investment, thereby creating sustainable macroeconomic stability.

LITERATURE REVIEW

Inflation is one of the primary indicators that affects macroeconomic stability, particularly in terms of trade performance. Classical and modern literature explains that high and unstable inflation can reduce economic performance through reduced purchasing power, increased uncertainty, and distortion of price signals (Fischer, 1993). According to the study by Firdaus & Septiani, (2022) High and unstable inflation will inhibit growth by lowering people's purchasing power, increasing uncertainty for business actors, and distorting the allocation of resources, however, inflation at certain levels can also reflect strong domestic demand that can attract imports (Firdaus & Septiani, 2022). With these theoretical foundations and empirical findings, the hypothesis of this study is as follows: H1, inflation has a significant influence on economic growth. Based on these theories and findings, the hypothesis of this study is as follows: H1: Inflation has a significant influence on trade.

In the Mundell–Fleming Model, an extension of the IS–LM framework, the main basis for understanding the interaction between exchange rates, monetary policy, and economic output is provided. Explaining exchange rate changes is an important channel in the transmission of macroeconomic policies. In a flexible exchange rate regime, monetary expansion lowers domestic interest rates, drives capital outflows, and causes currency depreciation. Depreciation enhances export competitiveness, enabling increased output and economic growth. In contrast, in fixed-rate regimes, monetary policies are less effective because central bank intervention is needed to maintain exchange rate parity. For example, the study of Leightner, (2024) shows that under a flexible exchange rate regime, monetary policy becomes more effective in influencing trade performance and output, in line with predictions that changes in the money supply and exchange

rates affect GDP in the short term. Based on this theory, the second hypothesis of this study, H2: the exchange rate has a significant influence on trade.

Economic growth has a reciprocal relationship with international trade. Endogenous growth theory emphasises the importance of international trade as a channel for technology and knowledge transfer that can drive economic growth (Romer, 1990). Empirical studies of Chiwira et al., (2023) found a two-way relationship between exports and economic growth, suggesting increased trade activity can drive output expansion. Although international trade can boost growth, its effectiveness depends on domestic policies and the suitability of transferred technologies to the needs of developing countries (Puspitasari et al., 2024). In this context, the hypothesis is proposed, H3: Economic growth affects trade**.**

The role of money supply in shaping inflation and economic activity has long been explained through the Quantity Theory of Money. For example, the analysis shows that the increase in M2 correlates positively with economic activity, including international trade, and is significant in relation to the rate of GDP growth, after controlling for other variables such as inflation and FDI. Therefore, assessing how the money supply affects inflation and growth in Indonesia is crucial for understanding the effectiveness of monetary policy, although the study focuses more on the relationship between inflation, exchange rates, and trade.

The relationship between macroeconomic variables in the Indonesian context is seen as a dynamic system. The conceptual framework of this study posits trade (TRADE) as a dependent variable that is simultaneously influenced by inflation (IFL), exchange rate (ER), economic growth (GDPG), money supply (MS), and foreign direct investment (FDI). The money supply affects inflation and exchange rates, which in turn impact trade. Economic growth interacts with trade through aggregate demand mechanisms, while FDI influences trade through the integration of global production networks. Inflation plays a role as a variable that can strengthen or weaken the impact of external factors on trade.

METHODOLOGY

This study will examine the relationship between inflation rate, exchange rate, money supply, FDI, GDP growth, and trade in Indonesia. The data used in this study were collected from various credible sources, including the World Bank (WB). The approach used in this study is quantitative, employing time series analysis for the period from 1975 to 2023. In addition, this study employs the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests as statistical tools to examine the stationarity of the data, determining whether it exhibits a unit root or not. The data description and specifications are explained in Table 1.

Table 1. Variable Description

Parameter	Code	Measurement	Source
Trade	TRADE	(% of GDP)	World Bank
Inflation Rate	IFL	(annual %)	World Bank
Exchange Rate	ER	LCU Per US$,	World Bank
Money Supply	MS	(% of GDP)	World Bank
Foreign Direct Investment	FDI	Net Inflows (Bop, current US$)	World Bank
GDP Growth	GDPG	(annual %)	World Bank

ADF and PP are types of stationarity tests used to determine the accuracy of the ARDL method. These tests need to be performed to check whether our data is stationary or non-stationary. The ADF test is performed by adding a lag to overcome autocorrelation in the residuals. Additionally, the PP is more flexible in addressing heteroscedasticity and autocorrelation in the error term, without the need to add lags, as is required with the ADF. This test is conducted using two approaches to obtain stronger and more valid results that are not misleading.

Additionally, this study employs the ARDL approach, a cointegration method, to examine the short-term and long-term relationships between the dependent and independent variables. Additionally, the ARDL cointegration test is well-suited for research with limited data (Pesaran et al., 2001). The ARDL is also used to simplify the general model, allowing it to be adjusted to the available data by taking into account the time effect (lag).

The Granger causality test is then conducted to determine the direction of the relationship between the dependent variable and the independent variable in the future. In this context, this test aims to determine whether the relationship between the independent variable and the dependent variable in the past has a significant influence. If it is significant, this may indicate that the independent variable has the ability to predict the dependent variable. The results of this test can indicate whether there is a one-way, two-way, or no causal relationship, which is important because it relates to the purpose of this study, namely, to formulate statistics-based policies.

After conducting tests to estimate the ARDL model, diagnostic tests must be performed to determine whether the model is valid. The diagnostic test series involves conducting a normality test to determine whether the model is normally distributed. Next, an autocorrelation test is needed to determine whether the errors are correlated with each other or over time. Additionally, a heteroscedasticity test is conducted to determine whether the data variance is constant. If, after conducting these tests, inaccuracies or failure to meet the

requirements are found, corrective measures must be taken to avoid misinterpreting the estimation results.

RESEARCH RESULT

Descriptive Statistic

The results of the descriptive statistical analysis of all the variables in the study are presented in Table 2. The average values are as follows: trade is 51.14286, inflation is 9.306122, exchange rate is 6524.816, money supply is 37.36735, foreign direct investment is 6.88E+09, and the average GDP growth is 5.163265. The dataset consists of 49 observations for each variable, representing time series data from 1975 to 2023 within the scope of Indonesia. The variable with the highest standard deviation is foreign direct investment (FDI), which shows a value of 9.19E+09.

Table 2. Descriptive Statistics

	TRADE	IFL	ER	MS	FDI	GDPG
Mean	51.14	9.306	6524.82	37.37	7E+09	5.16
Median	50.00	8	8422.00	39.00	2E+09	6.00
Maximum	96.00	58	15237.00	60.00	3E+10	10.00
Minimum	33.00	2	415.00	16.00	-5E+09	-13.00
Std. Dev.	10.40	8.42	5238.55	12.29	9E+09	3.31
Skewness	1.70	4.13	0.19	-0.41	9E-01	-3.58
Kurtosis	8.47	24.05	1.48	2.24	2E+00	19.98
Jarque-Bera	84.67	1043.72	5.00	2.54	8E+00	693.26
Probability	4.1E-19	2.3E-227	8.2E-02	0.28	2E-02	0.00
Sum	2506	456	319716	1831.00	3E+11	253.00
Sum Sq. Dev.	5194	3402.41	1E+09	7255.39	4E+21	526.69
Observations	49	49	49	49	49	49
Correlation	TRADE	IFL	ER	MS	FDI	GDPG
TRADE	1.000					
IFL	0.689	1.000				
ER	-0.093	-0.216	1.000			
MS	0.427	0.031	0.532	1.000		
FDI	-0.455	-0.401	0.727	0.181	1.000	
GDPG	-0.443	-0.597	-0.337	-0.373	-0.023	1.000

Stationarity Test

Table 3. Stationarity Test

	ADF		PP	
	Level	1st difference	Level	1st difference
TRADE	0.026**	0.000***	0.024**	0.000***
ER	0.913	0.000***	0.945	0.000***
FDI	0.612	0.000***	0.728	0.000***
GDPG	0.000***	0.000***	0.000***	0.000***
IFL	0.000***	0.000***	0.000***	0.000***
MS	0.377	0.002***	0.409	0.001***

* Show significance at the 10%
** Show significance at the 5%
*** Show significance at the 1%

Table 3 shows the results of the unit root test to assess whether the variables used are stationary or not. In this test, the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests were used for estimation. The findings from the ADF and PP tests indicate that ER, FDI, and MS are not stationary at the level; however, after applying the first difference, these variables become stationary, as evidenced by the probability values being less than 0.05. Additionally, TRADE, GDPG, and IFL variables at the level meet the stationarity test. Therefore, based on the results of the stationarity test conducted and the absence of stationary variables at the second difference, the autoregressive distributed lag (ARDL) model is suitable for use.

Lag Optimum Test

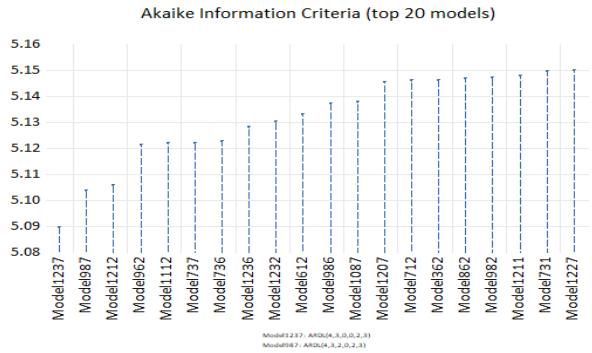


Figure 2. Lag Optimum Test

Figure 2 shows the estimation results from the optimum lag test that will be used for the ARDL model. The figure shows that the best lag is ARDL (4, 3, 0, 0, 2, 3). Therefore, when broken down, it can be seen that the Trade variable is at lag 4, the ER variable at lag 3, FDI at lag 0, GDPG at lag 0, IFL at lag 2, and the MS variable at lag 3. Thus, the ARDL (4, 3, 0, 0, 2, 3) is obtained to estimate the ARDL model.

Cointegration Test (Bound Test)

Table 4. Cointegration Test (Bound Test)

Test Statistic	Value	10%		5%		1%	
F-statistic	8.280	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
K	5	2.306	3.353	2.734	3.92	3.657	5.256

To test whether there is a long-term relationship between the variables in the model, a cointegration test is conducted using the Bound Test method. Based on the results shown in Table 4, the F-statistic value of 8.280 is compared with the Lower Bound (I(0)) and Upper Bound (I(1)) values at 10%, 5%, and 1% significance levels.

The F-statistic values obtained were found to be greater than the upper bound values at all significance levels (3.553, 3.657, and 5.256, respectively). This indicates that the null hypothesis of no cointegration can be rejected. In other words, there is a significant cointegration relationship between the variables in the model.

This finding indicates that although each variable may be non-stationary in level, the long-run cointegration relationship between them remains stable. Therefore, future models may involve estimating the long-run relationship between variables using the ARDL approach.

Long Run ARDL Model

Table 5. Estimation Result of Long-Term ARDL Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TRADE(-1)*	-0.428	0.125	-3.435	0.002
ER(-1)	0.000	0.000	1.484	0.149
FDI**	0.000	0.000	1.379	0.179
GDPG**	0.488	0.241	2.020	0.053
IFL(-1)	1.767	0.246	7.179	0.000
MS(-1)	0.121	0.071	1.706	0.100
C	-3.610	6.543	-0.552	0.586

Table 6 presents the results of the Long-Term ARDL model, which reveals that inflation, exchange rate, foreign direct investment, GDP growth, and money supply are significant factors influencing trade in Indonesia. The results indicate that the variables with a long-term impact on trade are trade itself and inflation. The table above indicates that the GDP variable has no significant impact on the trade variable, while the exchange rate, FDI, and money supply variables do not have a significant impact on the trade variable in the long term.

Short-Term ARDL Model

Table 6. Estimation Result of Short-Term ARDL Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COINTEQ*	-0.428	0.051	-8.417	0.000
D(TRADE(-1))	-0.416	0.104	-4.016	0.000
D(TRADE(-2))	-0.243	0.073	-3.317	0.002
D(TRADE(-3))	-0.217	0.059	-3.707	0.001
D(ER)	-0.001	0.001	-0.939	0.354
D(ER(-1))	-0.002	0.001	-4.258	0.000
D(ER(-2))	-0.003	0.001	-4.587	0.000
D(IFL)	1.092	0.103	10.568	0.000
D(IFL(-1))	-0.572	0.121	-4.749	0.000
D(MS)	0.380	0.187	2.030	0.050
D(MS(-1))	0.290	0.182	1.598	0.120
D(MS(-2))	0.843	0.199	4.229	0.000

R-squared	0.950
Adjusted R-squared	0.933

Table 6 presents the results of short-term estimation using the ARDL model. The COINTEQ coefficient value of -0.4283, significant at the 1% level, indicates that the model is adjusting towards long-term equilibrium. This means that if there is a deviation from long-term equilibrium, approximately 42.83% of the deviation will be adjusted back in the next period. This negative and significant value confirms the presence of error correction in the model, which is a characteristic of cointegration. In the short term, the trade variable (TRADE) shows a negative and significant coefficient at lags 1, 2, and 3. This indicates that an increase in trade in previous periods actually reduces the dependent variable in the short term. This may reflect the lag effect or short-term pressure from the trade balance, especially if the composition of imports is high.

Furthermore, the exchange rate variable (ER) is not significant at the current value, but ER at lags 1 and 2 has a significant negative effect. This means that past exchange rate depreciation exerts pressure on the dependent variable in the short term, possibly because a volatile exchange rate undermines the stability of trade and investment. The inflation variable (IFL) has a significant positive effect on t at present and a significant negative effect on lag 1, indicating a fluctuating effect. Current inflation may stimulate economic activity (through consumption), but this effect is not sustainable and actually has a negative impact in the following period.

Finally, the money supply variable (MS) has a positive and significant effect on lag 2. This indicates that the effects of monetary expansion on the dependent variable are only felt after two periods. The R-squared value of 0.9499 and the adjusted R-squared value of 0.9338 indicate that the model explains the data variation very well, with over 93% of the variation in the dependent variable explained by the independent variables in the model.

Granger Causality Test

Table 7. Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.	Decision
ER ↛ TRADE	47	3.912	0.028	TRADE ↛ ER
TRADE ↛ ER		0.334	0.718	
FDI ↛ TRADE	47	1.400	0.258	TRADE ↛ FDI
TRADE ↛ FDI		0.929	0.403	
GDPG ↛ TRADE	47	0.680	0.512	TRADE ↛ GDPG
TRADE ↛ GDPG		0.229	0.796	
IFL ↛ TRADE	47	4.361	0.019	IFL → TRADE
TRADE ↛ IFL		2.519	0.093	
MS ↛ TRADE	47	1.459	0.244	TRADE ↛ MS
TRADE ↛ MS		0.830	0.443	

FDI ↛ ER	47	1.590	0.216	ER ↛ FDI
ER ↛ FDI		3.020	0.059	
GDPG ↛ ER	47	0.388	0.681	ER ↛ GDPG
ER ↛ GDPG		0.358	0.701	
IFL ↛ ER	47	3.833	0.030	ER ↛ IFL
ER ↛ IFL		3.630	0.035	
MS ↛ ER	47	1.678	0.199	ER ↛ MS
ER ↛ MS		1.154	0.325	
GDPG ↛ FDI	47	0.265	0.768	FDI ↛ GDPG
FDI ↛ GDPG		0.382	0.685	
IFL ↛ FDI	47	2.503	0.094	FDI ↛ IFL
FDI ↛ IFL		1.866	0.167	
MS ↛ FDI	47	0.060	0.942	FDI ↛ MS
FDI ↛ MS		0.302	0.741	
IFL ↛ GDPG	47	1.340	0.273	GDPG ↛ IFL
GDPG ↛ IFL		1.817	0.175	
MS ↛ GDPG	47	2.000	0.148	GDPG ↛ MS
GDPG ↛ MS		2.834	0.070	
MS ↛ IFL	47	0.503	0.608	IFL ↛ MS
IFL ↛ MS		1.473	0.241	

The results of Granger's causality test (1987) can be used to understand the causal relationship between dependent and independent variables. The findings of this study are presented in Table 7, which indicates a causal relationship between the exchange rate and inflation. In addition, inflation causes trade, and the exchange rate causes trade.

Model Stability Test of CUSUM and CUSUMQ

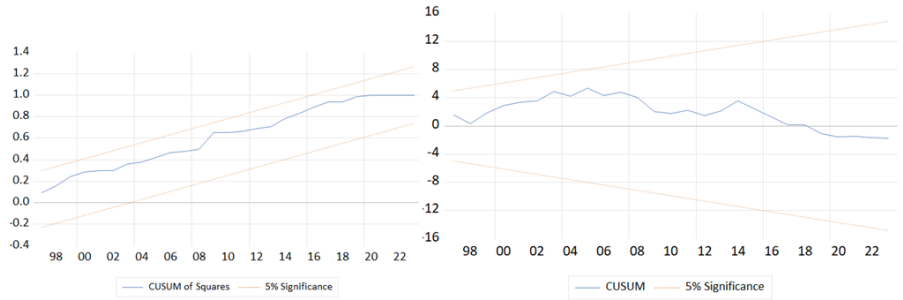


Figure 3. Model Stability Test of CUSUM and CUSUMQ

The stability test of the model using CUSUM and CUSUMQ aims to determine the model's stability in terms of its parameter coefficients. The results of the stability test using CUSUM can be seen based on the CUSUM and CUSUMQ lines, which do not cross the upper and lower limits that indicate significance. According to the results of the stability test shown in Figure 3, it is evident that the model used is stable.

Diagnostic Test

Table 8. Diagnostic Test

Diagnostic Test	Coefficient	Prob.	Decision
Jarque-Bera Test	0.168	0.919	Residuals are normally distributed
Lagrange multiplier Test	0.046	0.977	No autocorrelation occurs
Breusch-Pagan-Godfrey Test	12.29	0.782	No heteroskedasticity occurs
Test Ramsey	2.884	0.101	Linear

Based on Table 8, it can be seen that the four classical assumption tests have been fulfilled. The normality test is supported by a probability value of 0.9194, which is greater than 0.05. Therefore, it can be concluded that the residuals are normally distributed. Next is the autocorrelation test, which can be seen based on the probability value of 0.9771 > 0.05, so it can be concluded that the data for each variable does not contain autocorrelation. The heteroscedasticity test is supported by the probability value of 0.7825, which is greater than 0.05. The final test conducted is the linearity test, which yielded a probability value of 0.1014, indicating that it is greater than 0.05. Therefore, it can be concluded that the model is linear.

DISCUSSION

The findings of this study provide interesting empirical evidence on Indonesia's trade dynamics, particularly in relation to two key macroeconomic variables: inflation and exchange rates. The results reveal a complex pattern of relationships in both the short and long term, some of which support and others challenge the existing economic theory's conventions. First, regarding the influence of inflation on trade, the first hypothesis (H1) that inflation has a significant impact on trade is strongly supported in this study, albeit with an interesting and seemingly paradoxical pattern. In the long run, inflation shows a positive and significant influence on trade. This finding initially contradicted conventional economic theory (Fischer, 1993), which posits that high inflation tends to erode export competitiveness through increased production costs. However, these findings find justification when examined through a more contextual lens.

In emerging economies like Indonesia, the inflation levels contained in this long-term data can be a proxy for strong domestic demand. High demand not only stimulates domestic production but also attracts imports of raw materials and capital goods to meet industrial needs. In other words, this positive relationship is more reflective of the demand-pull side in a growing economy, where trade activities, especially imports, also increase in line with the economy's growth.

A more interesting pattern is seen in the short-term results. Inflation for the current period has a significant positive effect, which is consistent with the demand-pull explanation above. However, what is very interesting is the lag

effect; inflation in the previous period actually had a negative and significant impact. This "positive-now, negative-later" pattern reveals two sides of the inflationary currency. Initially, the price increase encourages potential activity, as higher price expectations in the future lead to increased buying. However, if it continues, its negative effects, such as purchasing power erosion and increased uncertainty, begin to dominate in subsequent periods, ultimately weighing on trade. The Granger Causality test, which shows inflation leads to trade, strengthens the position of inflation as a leading indicator for Indonesia's trade.

Second, regarding the impact of exchange rates on trade. The second hypothesis (H2), that the exchange rate has a significant effect on trade, is also supported; however, the effect is observed in a short-term framework and is actually negative. In the long run, the exchange rate is insignificant. This is a crucial finding that implies that the depreciation of the Rupiah does not necessarily provide long-term competitive advantages according to the Mundell-Fleming theory. In contrast, in the short term, exchange rate volatility is clearly detrimental. The exchange rates at lag 1 and 2 showed a negative and highly significant influence. This means that the weakening of the rupiah in the previous year or two actually suppressed trade performance in the current year. This can be attributed to several factors, including Indonesia's industrial structure, which remains heavily reliant on imports of raw materials and machinery. The depreciation of the rupiah makes these production inputs more expensive, thus increasing production costs and reducing export competitiveness. Second, the exchange rate uncertainty that often accompanies depreciation creates an environment that is not conducive to long-term planning for export-import business. Granger Causality tests showing a reciprocal relationship exacerbated these results, creating a vicious circle where depreciation triggers inflation, and inflation can ultimately weaken exchange rates further.

Third, according to H3**,** economic growth has a significant positive influence on trade in the long run. This is consistent with the theory that developing economies have strong domestic demand, which in turn drives imports, as well as greater export production capacity. The money supply also has a significant positive effect in the long run, and the positive impact in the short term is only felt in the 2nd pause. These findings align with the Money Quantity Theory, which posits that monetary expansion provides the liquidity necessary to finance trading activities, albeit with a time lag in its transmission. Interestingly, FDI is not significant in both the short and long term. It indicates that FDI entering Indonesia has not been fully integrated with the international trade sector.

This finding basically strengthens the Mundell-Fleming theory regarding the potential negative effects of depreciation through the import inflation pathway, while providing a critical note on it: in the context of Indonesia, which is dependent on imports of intermediate goods, the positive effect of depreciation on exports is not automatic, and even tends to be negative in the short term. Meanwhile, the long-term positive relationship between inflation and trade enriches the theoretical discussion by showing that, in complex economic

dynamics, inflation is not always the "enemy" of trade, but can be a marker and driver of demand that actually binds the domestic economy to the global market. As such, these discussions highlight that policies that focus solely on maintaining competitive exchange rates without considering industrial structures and domestic price stability may be less effective. Macroeconomic stability, particularly controlling inflation and reducing exchange rate volatility, turns out to be more crucial to Indonesia's trade climate than simply chasing weak exchange rates.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of data analysis and discussions conducted, this study concludes that Indonesia's trade dynamics are influenced by complex macroeconomic factors with distinct patterns between the short and long term. In the long run, inflation, economic growth, and the money supply are proven to have a significant positive influence on trade. An interesting finding is that although inflation is conventionally considered a negative factor, in the Indonesian context, it actually shows a positive relationship with trade, indicating that inflation, to some degree, may reflect strong domestic demand that drives trade activity. However, in the short term, exchange rate volatility shows a significant negative impact on trade, where the depreciation of the Rupiah in the previous period actually suppresses trading performance in the current period. This reveals the vulnerability of Indonesia's trade structure, which remains dependent on imports of raw materials and intermediate goods.

Based on these findings, this study recommends several policy implications. First, the government needs to focus on creating exchange rate stability, considering that exchange rate volatility has a negative impact on trade. Second, inflation control policies must be implemented carefully, taking into account the impact on domestic demand. Third, monetary authorities need to consider the time lag in monetary policy transmission, given that the impact of the money supply on trade is only felt significantly after two periods. Fourth, policies that encourage industrial structural transformation are needed to reduce dependence on raw material imports, allowing exchange rate depreciation to be more effective in boosting export competitiveness. Finally, it is essential to design policies that can direct FDI to sectors integrated with international trade, given that FDI has not shown a significant influence on trade. This policy recommendation is expected to strengthen Indonesia's trade fundamentals in the face of global challenges.

ADVANCED RESEARCH

This research has several limitations that need to be considered. First, the time series data up to 2023 does not fully capture the latest structural dynamics in the Indonesian economy, especially post-pandemic changes. Second, the ARDL model and causality test only measure linear relationships; therefore, the potential for non-linear relationships or threshold effects remains unexplained. Further research is recommended to include additional variables, such as interest

rates, and to employ non-linear approaches, such as NARDL, to obtain a more comprehensive result.

REFERENCES

Aharon, D. Y., & Qadan, M. (2022). Infection, invasion, and inflation: Recent lessons. *Finance Research Letters*, *50*, 103307. https://doi.org/10.1016/j.frl.2022.103307

Alfiani, N. P., Nasution, L. N., & Rangkuty. D. M. (2025). Analysis of Exports, Imports, Exchange Rates, and Inflation on Economic Growth in 5 ASEAN Countries. *Proceeding of the International Conference on Economics, Accounting, and Taxation*, *2*(2), 08–16. https://doi.org/10.61132/iceat.v2i2.132

Bajrami, R., Tafa, S., Gashi, A., & Hashani, M. (2025). Analysing the impact of money supply on economic growth: A panel regression approach for Western Balkan countries (2000–2023). *Regional Science Policy & Practice*, *17*(2), 100159. https://doi.org/10.1016/j.rspp.2024.100159

Bank for International Settlements. (2023). *BIS Annual Economic Report 2023*. Basel: BIS.

Chiwira, O., Muchingami, L., & Jambani, L. (2023). Exports and economic growth: Relationships and threshold analysis for the Southern Africa customs union. *International Journal of Research in Business and Social Science (2147- 4478)*, *12*(8), 274–288. https://doi.org/10.20525/ijrbs.v12i8.2912

Firdaus, E. N., & Septiani, Y. (2022). Effect Analysis of Inflation, Exports And Imports on Economic Growth In Indonesia. *Journal Of Humanities, Social Sciences And Business (JHSSB)*, *2*(1), 32–46. https://doi.org/10.55047/jhssb.v2i1.364

Fischer, S. (1993). The role of macroeconomic factors in growth. *Journal of Monetary Economics*, *32*(3), 485–512. https://doi.org/10.1016/0304-3932(93)90027-D

Friedman, M., & Schwartz, A. J. (1969). The Definition of Money: Net Wealth and Neutrality as Criteria. *Journal of Money, Credit and Banking*, *1*(1), 1. https://doi.org/10.2307/1991373

International Monetary Fund. (2023). *World Economic Outlook: Navigating Global Divergences*. Washington, DC.

Leightner, J. E. (2024). Small-Country Mundell–Fleming (IS/LM/BP) Model Predictions Under Both Fixed and Flexible Exchange Rates: Evidence from Australia and S. Korea. *Journal of Risk and Financial Management*, *17*(11), 495. https://doi.org/10.3390/jrfm17110495

Malec, K., Maitah, M., Rojik, S., Aragaw, A., & Fulnečková, P. R. (2024). Inflation, exchange rate, and economic growth in Ethiopia: A time series analysis. *International Review of Economics & Finance*, *96*, 103561. https://doi.org/10.1016/j.iref.2024.103561

Minteh, S., Amadou Gisseh, & Khan, E. (2025). The Impact of Inflation, Exchange Rate, Trade and Foreign Direct Investment on Economic Growth Of The Gambia: Evidence From ARDL Approach. *Journal of Macroeconomics and Social Development*, *2*(3), 16. https://doi.org/10.47134/jmsd.v2i3.658

Mohamed, E.-S., Khaoula, E., Idriss, O., Meryam, E.-A., & Mounir, B. (2025). The Impact of Exchange Rate and Inflation on Economic Growth: Empirical Evidence from the MENA region using Panel Data Analysis. *Journal of Ecohumanism*, *3*(8). https://doi.org/10.62754/joe.v3i8.5848

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, *16*(3), 289–326. https://doi.org/10.1002/jae.616

Puspitasari, R., Arif, Z. U., Sari, M. I., & Ahmed, A. M. (2024). The Contribution of International Trade to Economic Growth and Productivity. *Zabags International Journal Of Economy*, *2*(2), 112–117. https://doi.org/10.61233/zijec.v2i2.86

Romer, P. M. (1990). Endogenous Technological Change. *The Journal of Political Economy*, *98*(5,), S71–S102.

World Bank. (2022). GDP growth (annual %): Indonesia. World Development Indicators. Diakses dari https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG.

World Bank. (2022). Inflation, consumer prices (annual %): Indonesia. World Development Indicators. Diakses dari https://data.worldbank.org/indicator/FP.CPI.TOTL.ZG.