

A Time-Series Analysis of Indonesia's Economic Growth: The Roles of FDI, Trade, and Exchange Rate

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ARTICLE INFO			ABSTRACT
Article History:			<i>This study investigates the effects of Foreign Direct Investment (FDI), trade, and exchange rates on Indonesia's GDP from 1970 to 2022. The research uses the Error Correction Model (ECM) and other statistical tests, like the unit root test, cointegration test, and Granger causality test, to examine both short-term and long-term relationships. The results reveal that while GDP, FDI, trade, and exchange rates are strongly linked in the long run, only trade necessarily influences FDI in the short term. The study further confirms that investment and trade are key drivers of economic growth, with exchange rate stability playing a supporting role. Policymakers should focus on boosting FDI, strengthening trade, and ensuring exchange rate stability for sustained growth.</i>
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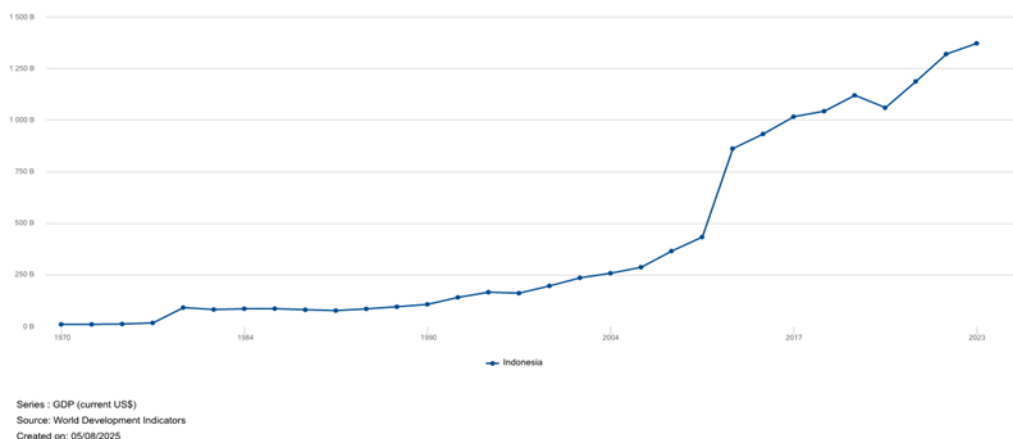
Introduction

Economic development acts as the main indicator of any country's total progress and prosperity, commonly calculated by Gross Domestic Product (GDP), which reflects the overall amount of goods and services a country produces. Increasing GDP often translates into increased employment opportunities, higher public investment in education, healthcare, and infrastructure, and an overall rise in living standards (Sangwan, 2015). However, economic growth alone is not sufficient. For it to be meaningful and inclusive, it must be stable, sustainable, and equitably distributed. Thus, understanding the underlying determinants and diverse factors influencing economic growth is essential for informed policy-making.

Economic growth is crucial in removing poverty and minimizing global inequality. Research conducted by the World Bank indicates that even a simple increase in per capita GDP may significantly alleviate poverty for several individuals in a country. In emerging nations such as Indonesia, economic growth is necessary for enhancing the quality of life for individuals. Indonesia's economy has consistently expanded, with GDP increasing from 3.7% in the early 2000s to over 5% recently. However, hurdles such as global financial crises, inflation, and policy alterations have impacted this process (Dao, 2017). Foreign Direct Investment (FDI), trade, inflation, and currency rates are among the main factors. Countries with higher trade volumes and robust finance systems often see increased growth (Islam et al., 2023). Obstacles like escalating inflation and fluctuating currency values have the potential to impede progress and raise investor uncertainty about prospects (Al Araby & Nawarb, 2024). In Indonesia, inflation and fluctuations in the currency rate have significantly influenced economic growth, impacting consumer expenditure and company investment decisions.

By analyzing how these factors interact and influence GDP, the research aims to offer policy-relevant insights for sustaining stable and inclusive growth in Indonesia and similar developing economies (Zieba & Mbugua, 2022). In 2022, Indonesia's economy reached a total GDP of around IDR 19,588.4 trillion, with each person on average contributing about IDR 71 million or roughly US\$ 4784 to the country's economic output, reflecting a robust growth rate of 5.31%, a notable increase from the 3.70% recorded in 2021 (BPS, 2021).

Figure 1: GDP trends of Indonesia (1970 – 2022)



In the above figure 1, it can be seen the noticeable fluctuations in Indonesia's economic growth from 1970 to 2022.

Indonesia's GDP experienced constant growth during the 1970s, tailed by a quick decline in 1998 due to the economic crises. Another drop occurred in 2020 with the beginning of the COVID-19 epidemic, but the economy began recovering gradually in 2021 and 2022. The change of Indonesia's GDP is closely linked to factors such as trade, foreign direct investment (FDI), and the official exchange rate. FDI plays a key role in boosting economic growth, while trade impacts exports, imports, and currency values. Tanoe (2021), using the Granger Causality method, found that FDI does not influence trade, although GDP does in the short term. Haryono (2021) highlighted that both exports and imports significantly affect GDP in the short and long run, but FDI does not, with exports contributing positively and imports negatively. Febiyansah (2017) confirmed that FDI, especially when combined with exports, enhances short-term economic growth and the global competitiveness of Indonesian products. This study builds on these findings

to investigate the dynamic relationship among GDP, FDI, trade, and the exchange rates in Indonesia.

Literature Review

Apart from Direct Investment (FDI), it occurs when people from outside nations give capital to a country's enterprises, sectors, or initiatives. It is considered an important element in increasing economic growth since it generates more capital, innovative technologies, projects, and employment possibilities. Various studies suggest that foreign direct investment (FDI) enhances GDP by supplying financial resources and skills that local enterprises may lack (Makki & Somwaru, 2004). Indonesia can attract foreign direct investment, a crucial aim for industrial development and infrastructural enhancement. Nevertheless, several research studies indicate that foreign direct investment does not invariably result in growth. The advantages are dependent upon elements such as economic stability, governmental policies, and the efficacy with which the nation can weigh foreign investments (Makki & Somwaru, 2004). The impact of foreign investment in Indonesia has changed from year to year, depending on government support and trade rules (Elfira, 2016).

Trade is a central element that influences the measure of economic growth. Nations that engage in extensive trade typically see accelerated growth, since trade facilitates corporate expansion, enhances efficiency, and creates increased revenue (Purnama & Yao, 2019). Exports and imports play a big role in driving Indonesia's economic growth. Some studies show that global trade has had a long-term impact on economy especially when combined with foreign investment. However, events like economic crises, rising inflation, and changes in global demand have sometimes reduced the benefits Indonesia gets from trade.

The exchange rate tells us how much one country's money is worth compared to another's. By lowering uncertainty, a stable exchange rate helps businesses and investors plan for the future. However, excessive fluctuations in the currency rate can create chaos. If the Indonesian Rupiah depreciates, Indonesian products become more affordable for foreign markets, potentially boosting exports. However, simultaneously, imports will get costlier, hence elevating the expense of living for Indonesians (Han, 2020). Prior research indicates that stable exchange rates facilitate accelerated economic growth, since firms and investors have heightened satisfaction (Bilawal et al., 2014). Excessive regulation of currency rates might generate economic hazards, hindering a nation's ability to address global economic difficulties (Akpan & Atan, 2011).

A study covering the years 2000 to 2015 found that foreign investment and trade had a strong positive impact on Indonesia's long-term economic growth. However, changes in exchange rates led to mixed results. Additionally, investigations have been conducted to confirm the causal link between GDP and several other factors. Tanoe (2021) concluded that international trade does not adversely affect GDP in the long run; however, Ma'in & Isa (2020) determined that trade impacts FDI and GDP in the short term. According to Manoharan and Vanitha (2020), trade and foreign investment affect each other in short term. But over the long run, its foreign investment that drives both economic growth and trade. Interestingly, when looking at trade as the outcome, only GDP growth has a noticeable short-term foreign investment doesn't seem to make such difference in that case.

Tanoe (2021) found through the Granger Causality that short-term GDP growth has a clear impact on international trade, while foreign investment doesn't seem to have much influence. Haryono's (2021) research indicates that both exports and imports considerably affect Indonesia's GDP in the short and long term; however, foreign direct investment (FDI) does not have a major impact. Exports positively influenced GDP, although imports negatively affected it. In the short term,

foreign direct investment (FDI) greatly contributes to economic development and increases the competitiveness of Indonesia's commodity exports, as discovered by Febiyansah (2017), particularly when combined with joint FDI-exports. Auboin and Ruta (2013) pointed out that unstable exchange rates can hurt international trade. On the other hand, Nicita (2013) agreed with recent studies that highlight the importance of exchange rate imbalances, but he also found that short-term ups and downs in exchange rates usually are not a big problem.

Wahyudi (2009), using a method called Vector Auto-Regression (VAR), found that foreign investment doesn't directly drive economic growth on its own. Interestingly, the link works the other way around not from GDP to FDI, but from FDI to GDP. By looking at real FDI and real GDP growth between 1980 and 2004, the study showed that foreign investment had a positive impact on Indonesia's economic growth during that time.

Data and Methods

Sample and Data Description

The study explores how changes in foreign investment (FDI), trade, and the official exchange rate (OER) affect Indonesia's economic growth, measured through GDP. It uses secondary data from the World Bank Indicators and looks at the both short-term and long-term relationships between these factors. To do this, the study applies methods like Ordinary Least Squares (OLS) and the Error Correction Model (ECM). In this research, GDP is the main outcome being analyzed, while FDI, trade, and the exchange rate are the key influencing factors.

Table 1: Operational variables

	Variable Name	Description	Unit	Data Source
Dependent Variable	GDP	Gross Domestic Product (current US\$)	US\$ *In this research, GDP is converted to log (GDP)	World Development Indicators
Independent Variable	FDI	Foreign Direct Investment, net inflows (% of GDP)	%	World Development Indicators
	Trade	Trade (% of GDP)	%	World Development Indicators
	OER	Official Exchange Rate (LCU per US\$,	Period average *In this research, OER is converted to log (OER)	World Development Indicators

This study used ECM analysis with EViews 12 software. The execution of the ECM analysis comprises a series of interrelated processes integrated within this study, including the Root Test, Lag Length Test, Stability Test, Cointegration Test, Granger Causality Test, Vector Error Correction Model (VECM), Impulse Response Analysis, and Forecast Error Variance Decomposition (FEVD) Analysis. The Stationarity Test, or Unit Root Test, is conducted on all variables without distinguishing between dependent and independent classes. The test aims to

determine the degree of stationarity of the data, which can be categorized into levels, first differences, or second differences. Our study used the Augmented Dickey-Fuller (ADF) test, utilizing automated lag selection through the Schwarz Information Criterion to assess stationarity. The Augmented Dickey-Fuller (ADF) test utilizes the Schwarz Information Criterion to automatically ascertain the suitable delays. On this occasion, it is unnecessary to convert all variables to the first difference level.

The Lag Length Test is used to determine the suitable Lag Length, which will then be applied in the next test and Vector Error Correction Model (VECM) analysis. In cases when many optimum lags exist, the largest Adjusted R-squared is selected. The second pre-estimation test entails performing a Stability Test at the specified latency. The stability test is essential for verifying that the data is valid prior to examining the impulse response function (IRF) and forecast error variance decomposition (FEVD). The stability test may be conducted using two distinct methodologies: either through tables or in the form of a polynomial. The Cointegration Test is employed to ascertain the presence or absence of long-run or short-run relationships among the variables. This study use the Johansen test technique to assess cointegration. This test exhibited trace statistic values (none) exceeding the critical value, as well as probability values below 5%. The result indicates the presence of cointegration, signifying both long-term and short-term correlations among the variables.

Model Specification

In this research, the long-term equation model was created as follows:

$$\text{LGDP}_t = a_0 + a_1 \text{FDI}_t + a_2 \text{TRADE}_t + a_3 \ln(\text{OER}_t) + \varepsilon_t$$

Where:

LGDP	= Logarithm of GDP
FDI	= Foreign Direct Investment
TRADE	= Trade
LOER	= Logarithm of Official Exchange Rate
a ₀	= Long-term constant
a ₁ , a ₂ , a ₃	= Long-term coefficient
t	= Observation subscript
ε	= Error term

Meanwhile, the short-term equation model was created as follows:

$$d\text{LGDP}_t = \beta_0 + \beta_1 d\text{FDI}_t + \beta_2 d\text{TRADE}_t + \beta_3 d\text{LOER}_t + \beta_4 u_{t-1} + \varepsilon_t$$

Where:

dLGDP	= First difference logarithm of GDP
dFDI	= First difference Foreign Direct Investment
dTRADE	= First difference Trade
dLOER	= First difference logarithm of Official Exchange Rate

- β_0 = Short-term constant
 $\beta_1, \beta_2, \beta_3$ = Long-term coefficient
 $ut-1$ = Lagged value of the error term
 t = Observation subscript
 ε = White noise error

The Granger Causality Test determines the continuation of a cause-and-effect link between two variables, which may conduct in both directions, unidirectionally, or not at all. The Vector Error Correction Model (VECM) encompasses data appropriate to both short-term and long-term fluctuations. The VECM framework explain both the long-term links among cointegrated variables and the short-term fluctuations in these associations. The subsequent phase is Impulse Response Analysis. This study aims to observe the response of the dependent variable to variations in the independent variables incorporated in the VECM system equations. Forecast Error Variance Decomposition (FEVD) Analysis is used to quantify the significance of each independent variable in a VECM model during shocks and to elucidate the impact of one variable on the others. The timeframe for this investigation will encompass the next five years.

Estimation of Results

Unit Root Test

The first phase of this approach involves assessing the stationarity of the time-series data. Assessing the stationarity of the variables is essential prior to performing causality tests and cointegration analyses. Causality tests are crucial metrics that can inform policymakers' decision-making. The Augmented Dickey-Fuller test is used to assess the stationarity of the dataset. The results of the unit root test are presented in Table 2. The research indicates that GDP and OER exhibit non-stationarity at their respective levels. The test findings determine that we do not reject the hypothesis that GDP levels and OER levels possess a unit root, as their p-values above 5%, although the p-values for FDI and Trade levels are below 5%. Despite analyzing the first disparities between GDP and OER, the null hypothesis of the unit root test remains unchallenged. The data indicates that two of the series exhibit non-stationarity, whilst the remaining series display non-stationarity in their initial differences. However, data shows that Foreign Direct Investment (FDI) and Trade exhibit non-stationary characteristics in their early differences. Therefore, it is determined that all series are stationary at first difference and integrated of order one, (1).

Table 2: Results of Unit Root Test

Variable	ADF-value	1% Critical Value	5% Critical Value	10% Critical Value	P-value	Conclusions
LGDP	-1.474	-3.565	-2.919	-2.598	0.5384	Non-stationary
d(LGDP)	10.854	-3.565	-2.919	-2.598	0.0000	Stationary
FDI	-3.426	-3.563	-2.919	-2.597	0.0144	Stationary
d(FDI)	-9.989	-3.563	-2.919	-2.597	0.0000	Stationary
Trade	-3.518	-3.563	-2.919	-2.597	0.0113	Stationary
d(Trade)	10.408	-3.565	-2.919	-2.598	0.0000	Stationary
OER	-1.019	-3.563	-2.919	-2.597	0.7401	Non-stationary
d(OER)	-7.444	-3.563	-2.919	-2.597	0.0000	Stationary

Lag Length Test

Symmetric lags are occasionally used to estimate Vector Autoregressive (VAR) or Vector Error Correction Models (VECM). This shows that the lag durations are uniform across all variables in the model equations. An assessment of Lag Length is essential to double check the suitable magnitude of the lag to be employed for testing and application inside VECM modeling. In cases when numerous optimal delays exist, the lag corresponding to the highest Adjusted R-squared value must be used. To decide how many time lags to include in the analysis, researchers often depend on statistical tools like the Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Criterion (SC), and Hanna-Quinn Criterion (HQ). In this study, the AIC was used to determine the most suitable lag length. As shown in Table 3, the results suggest that a lag order of one is the best fit.

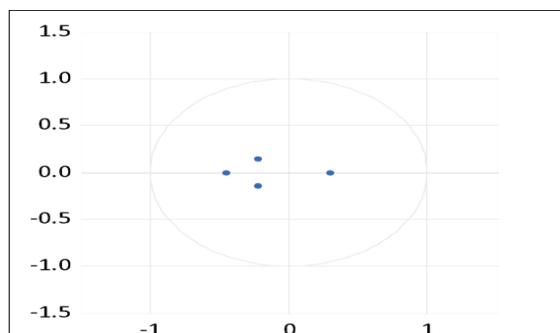
Table 3: Results of Lag Length Criteria

Lag	LR	FPE	AIC	SC	HQ
0	NA	6.539	13.229	13.386*	13.288
1	44.688*	4.472*	12.846*	13.633	13.142*
2	11.297	6.668	13.229	14.646	13.762
3	25.802	6.419	13.151	15.198	13.921
4	12.833	8.938	13.404	16.081	14.412
5	9.601	13.956	13.716	17.022	14.960

Stability Test

A safety assessment was conducted to ensure the VECM met adequate standards. This step arranges for the examination of the Impulse Response Function (IRF) and Forecast Error Variance Decomposition (FEVD), ensuring the accuracy of the results. Figure 2 presents the outcomes of the stability test for the Characteristics Polynomial, demonstrating that the VECM model satisfies the stability criteria. This is due to each root residing within the unit circle.

Figure 2: Stability Test Results Graph



Cointegration Test

Following the combination of four variable sets into the first order, trace or eigenvalue statistics are employed to conduct a cointegration test. The examination aims to evaluate the economic model utilizing nonstationary time series data about GDP, FDI, trade, and exchange rates. A consistent association among the four variables is anticipated to yield a trend, but subject to temporal volatility. We used Johansen's methodology to examine the presence of cointegration in

our study. Johansen's approach offers two test specifications to assess the likelihood of cointegration using either a trace test or an eigenvalue test. To check for cointegration, both the trace test and the maximum eigenvalue test were used, with the results compared to standard critical values at the 5% level of significance. Table 4 shows the findings from the Johansen cointegration test applied to the model. The findings from the trace test and the Max-Eigen test reveal four cointegration vectors, signifying a persistent link among the variables from 1970 to 2022.

Table 4: Results of the Cointegration Test

Max-Eigen Ho P-Value	Eigen value	Trace				
		Stat.		P-Value	Stat.	5%CV
None 0.0001	0.5979	113.291	47.856	0.0000	45.562	27.584
At most 1 0.0016	0.4595	67.728	29.797	0.0000	30.764	1.131
At most 2 0.0014	0.3739	36.964	15.494	0.0000	23.414	14.264
At most 3 0.0002	0.2373	13.550	3.841	0.0002	13.550	3.841

The null hypothesis of no cointegration among variables is rejected by both the Trade Statistic and Maximum Eigenvalue. This is due to the fact that the Trace Statistic and Maximum Eigenvalue values are greater than the critical value at 5% ($36.964 > 15.494$; $23.414 > 14.264$) and are statistically significant ($0.000 < 0.05$; $0.0014 < 0.05$). The restricted VAR Model (VECM) is employed to model the selected variables, as they are cointegrated and stationary at first difference.

Granger Causality Test

Once the model for the variables is set up, the Granger Causality Test is used to find out whether there's a cause-and-effect relationship between them. This test helps identify the direction of that relationship and whether any meaningful links exist between the variables (Table 5).

The Granger Causality Test mentioned above suggests that in Indonesia, there is a two-way relationship between FDI and GDP, as well as between the exchange rate (OER) and GDP, each of which influences the other. Trade has an impact on FDI and increases the GDP; however, GDP does not affect trade, and FDI does not influence trade. No causal relationships were identified between OER and FDI or between OER and trade.

Table 5: Results of Granger Causality Test

Null Hypothesis	F-Stat	Prob.	Decision
LGDP is not increased by FDI	1.275	0.264	Do not reject
LGDP does not increase FDI	0.400	0.529	Do not reject
Trade does not granger cause LGDP	5.454	0.023	Reject
Trade is unaffected by LGDP	1.093	0.300	Do not reject
LGDP does not gain from LOER	17.738	0.0001	Reject

LGDP doesn't cause LOER	4.444	0.040	Reject
Trade does not granger cause FDI	5.150	0.027	Reject
Trade is not boosted by FDI.	0.135	0.714	Do not reject
LOER does not increase FDI.	0.015	0.900	Do not reject
FDI does not increase cause LOER	0.144	0.705	Do not reject
Trade is unaffected by LOER.	0.188	0.188	Do not reject
Trade does not exacerbate. LOER	0.063	0.802	Do not reject

Vector Error Correction Model (VECM)

The VECM model develops both short-term and long-term dynamics. The T-statistics for FDI, trade, and the official exchange rate (OER) are higher than the T-table value of 2.009575 at the 5% significance level, as stated in Table 6. This suggests that FDI, trade, and OER have a substantial long-term influence on Indonesia's GDP, thus confirming their robust influence over time.

Table 6: VECM Long Run Estimation Results

Cointegrating Eq	Coefficients	Standard of Error	T-statistic
LGDP (-1)	1.000		
FDI (-1)	-4.762	0.886	-5.372
Trade (-1)	-0.385	0.117	-3.283
LOER (-1)	-3.213	0.686	-4.679
C	18.276		

The VECM short-run estimation results are displayed in Table 7. From Table 6 and Table 7, the VECM model can be written as below:

$$\begin{aligned}
 d(\text{LGDP}) = & -0.0863 (\text{LGDP}(-1) - 4.762 \text{ FDI}(-1) - 0.385 \text{ Trade}(-1) - 3.213 \text{ LOER}(1) + 18.276) \\
 & - 0.268 d(\text{LGDP}(-1)) - 0.292 d(\text{FDI}(-1)) - 0.067 d(\text{Trade}(-1)) + 4.209 d(\text{LOER}(-1)) \\
 & + 0.076 d(\text{FDI}) = 0.125 (\text{LGDP}(-1) - 4.762 \text{ FDI}(-1) - 0.385 \text{ Trade}(-1) - 3.213 \text{ LOER}(-1) + 18.276) \\
 & - 0.104 d(\text{LGDP}(-1)) - 0.141 d(\text{FDI}(-1)) + 0.057 d(\text{Trade}(-1)) - 1.907 d(\text{LOER}(-1)) \\
 & + 0.127 d(\text{TRADE}) = 0.065 (\text{LGDP}(-1) - 4.762 \text{ FDI}(-1) - 0.385 \text{ Trade}(-1) - 3.213 \text{ LOER}(-1) + 18.276) \\
 & + 0.818 d(\text{LGDP}(-1)) + 0.104 d(\text{FDI}(-1)) + 0.0187 d(\text{Trade}(-1)) - 13.239 d(\text{LOER}(-1)) \\
 & + 0.967 d(\text{LOER}) = 0.0019 (\text{LGDP}(-1) - 4.762 \text{ FDI}(-1) - 0.385 \text{ Trade}(-1) - 3.213 \text{ LOER}(-1) + 18.276) \\
 & + 0.016 d(\text{LGDP}(-1)) + 0.0006 (\text{FDI}(-1)) + 0.0005 d(\text{Trade}(-1)) + 0.115 d(\text{LOER}(-1)) + 0.057.
 \end{aligned}$$

Table 7: VECM Short Run Estimation Results

Error Correction	Value	d(LGDP)	d(FDI)	d(Trade)	d(LOER)
CointEq1	Coefficient	-0.863	0.125	0.065	0.001
	Std Error	0.093	0.028	0.266	0.006
	T-Stat	-0.925	4.379	0.245	0.298
d(LGDP(-1))	Coefficient	-0.268	-0.104	0.818	0.016
	Std Error	0.179	0.055	0.511	0.012
	T-Stat	-1.498	-1.890	1.598	1.301
d(FDI(-1))	Coefficient	-0.292	-0.141	0.104	0.0006
	Std Error	0.404	0.124	1.155	0.028
	T-Stat	-0.723	-1.135	0.090	0.024

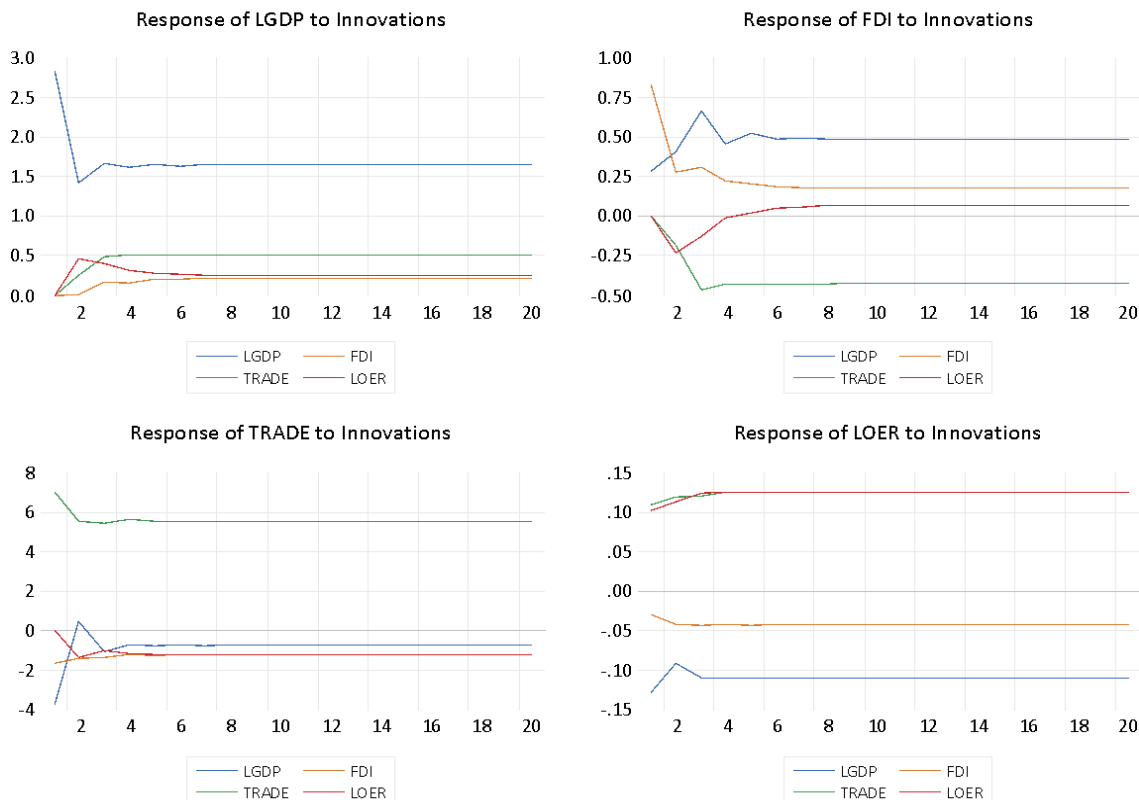
d(Trade(-1))	Coefficient	-0.067	0.057	0.018	0.0005
	Std Error	0.069	0.021	0.198	0.004
	T-Stat	-0.973	2.707*	0.094	0.112
d(LOER(-1))	Coefficient	4.209	-1.907	-13.239	0.115
	Std Error	3.575	1.098	10.219	0.250
	T-Stat	1.177	-1.736	-1.295	0.461
C	Coefficient	0.076	0.127	0.967	0.057
	Std Error	0.482	0.148	1.378	0.033
	T-Stat	0.159	0.859	0.702	1.703
R-squared				0.2337	
Adj. R-Squared				0.1486	
F-statistic				2.7457	

The results in Table 7 show that only Trade at lag 1 significantly affects FDI, with a T-statistics of 2.707 (above the T-table value of 2.009). Other variables have no significant effect. The model's F-statistic confirms that the sequence of variables does not strongly impact Indonesia's economic growth. With a R-squared of 0.1486, only 14.86% of GDP variation is explained by the model leaving 85.14% influenced by external factors.

Impulse Response Function (IRF)

The Impulse Response Function (IRF) allows us to look at the ways in which dependent variables in the VECM respond to disturbances in independent variables over time. This study utilizes IRF to verify the co-integration findings, demonstrating that a one-standard deviation perturbation in any variable has an impact on the current or prospective values of others. Figure 3 illustrates the manner in which these variables respond to such modifications.

Figure 3: Results of Impulse Response Analysis (IRA)



Based on Figure 3, it can be concluded that:

1. A shock to GDP will influence not only GDP itself but also FDI, Trade, and the Exchange Rate (OER) for the next 7 years.
2. A shock to FDI will impact FDI itself, GDP, Trade, and the Exchange Rate (OER) over the next 9 years.
3. A shock to Trade will influence GDP, FDI, Trade itself, and the Exchange rate (OER) over the next 8 years.
4. The shock to the official exchange rate (OER) will impact GDP, FDI, Trade, and OER itself for the next 6 years.

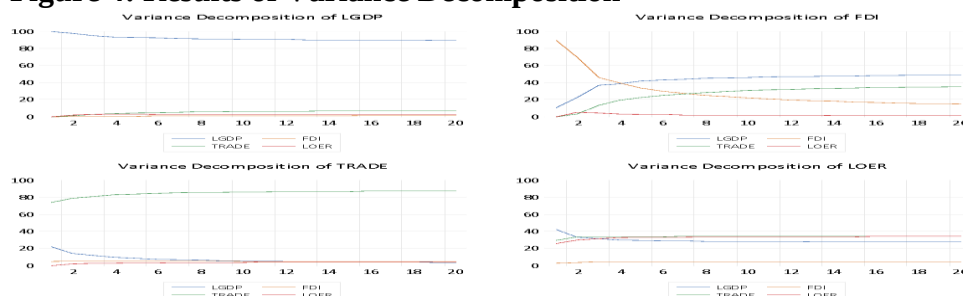
Forecast Error Variance Decomposition (FEVD)

The Forecast Error Variance Decomposition (FEVD) Analysis reveals the significance of certain independent variables in a VECM model in relation to shocks and the extent to which one variable influences other variables. Figure 4 illustrates the outcome of the variance decomposition analysis conducted in this investigation.

Based on the result, it is concluded that;

1. As time goes on, GDP has a stronger impact on FDI and Trade, but its effects on OER becomes weaker.
2. Over time, FDI increasingly influences GDP and Trade, but its impact on OER and on itself becomes weaker.
3. The higher the period, Trade has a stronger effect on FDI, OER, and itself, but its influence on GDP gradually decreases.
4. The higher the period, OER has a growing impact on FDI, Trade, and itself, but its effect on GDP becomes weaker.

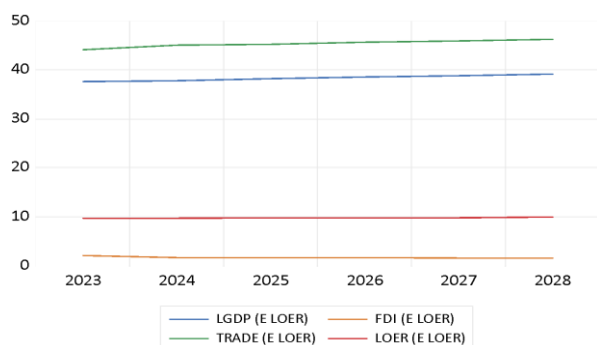
Figure 4: Results of Variance Decomposition



Indonesian Economic Growth Forecast 2023-2028 Years

The VECM-based forecast for 2023 to 2028 suggests that Indonesia's GDP will remain fairly steady, with no further increase or decline. Although the model includes variables like FDI, trade, and the official exchange rate, it explains only 14.86% of the variation in GDP. This shows that most of the changes in GDP are likely shaped by other external factors not gathered in the current model. These could include political shifts, global economic conditions, or domestic policy reforms. Additionally, the forecast signals that external factors might contribute up to 5 additional units in GDP in the next year, indicating the need for broader analysis to fully understand future trends.

Figure 5: GDP, FDI, Trade, and OER Forecast 2023-2028



Conclusion and Policy Recommendations

This study uses long-term data and advanced time series methods to explore how Indonesia's exchange rate, trade, foreign investment (FDI), and GDP have interacted from 1970 to 2022. The findings show that all four factors exchange rate, trade, FDI, and GDP have meaningful long-term effects on the country's economic growth. In the short run, trade strongly influences FDI, while the other variables do interact with each other, but those connections are not statistically significant. The significance of external sector dynamics in the formation of Indonesia's macroeconomic performance is confirmed by these findings.

The research supports economic policy reforms aimed at removing internal barriers to growth and strengthening Indonesia's global competitiveness. To improve national well-being, structural adjustments are necessary for modernizing the country's economic framework. The study proposes targeted policy measures to support GDP growth through increased foreign direct investment, improved trade facilitation, and more effective exchange rate management.

To strengthen Indonesia's export-driven growth and attract foreign direct investment (FDI), it is very important to implement policies that increase trade competitiveness. Given the short-term impact of trade on FDI, targeted measures such as increased export incentives, reduced trade barriers, and strategic trade agreements should be prioritized. The government and relevant stakeholders must introduce tax incentives, lower regulatory constraints, and develop special economic zones (SEZs) with robust infrastructure and efficient administration. Additionally, proactive monetary policies and central bank interventions are essential to keep a competitive and stable official exchange rate while minimizing volatility, thereby promoting a conducive environment for trade and investment.

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