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The Influence of Domestic and Global Factors on Inflation in Indonesia: Augmented Vitaliano Model with ECM Approach

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Abstract

This study aims to analyze the influence of domestic and global factors on inflation in Indonesia using the Augmented Vitaliano Model. The variables analyzed include domestic factors represented by the money supply (M2), real Gross Domestic Product (GDP), government spending, and global variables represented by world oil prices, and exchange rates. This study uses a quantitative approach with time series data and the Error Correction Model (ECM) method. The results of the study show that all variables become stationary at the first differentiation and have a long-term equilibrium relationship. The regression results show that world oil prices have a positive and significant effect on inflation, while the money supply, real GDP, government spending, and exchange rates have no significant effect partially. However, simultaneously all variables affect inflation. A negative and significant Error Correction Term (ECT) value indicates the existence of an adjustment mechanism from short-term imbalance to long-term equilibrium, with an adjustment rate of 137.69% per quarter, which means that the adjustment process takes place very quickly, which is less than 1 quarter or in 65 days to return to long-term equilibrium. These findings show that inflation dynamics in Indonesia are influenced by domestic economic conditions as well as fluctuations in global energy prices. Therefore, the formulation of inflation control policies needs to consider global economic developments. Further research is suggested to add other macroeconomic variables as well as use longer data periods.

INTRODUCTION

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In the period before the implementation Inflation Targeting Framework (ITF), inflation tends to fluctuate high and is relatively difficult to control. However, since Bank Indonesia officially implemented the ITF in the mid-2000s by setting an explicit inflation target as a policy anchor, relative inflation volatility has decreased and price stability has been better maintained(Indonesia, 2005; Mishkin & Schmidt-Hebbel, 2007). Inflation Targeting Framework It is a policy framework that places inflation stability as the main objective, where monetary authorities use policy instruments in an anticipatory and transparent manner to control future inflation expectations. This framework strengthens the credibility of monetary authorities while helping to direct the inflation expectations of economic actors.

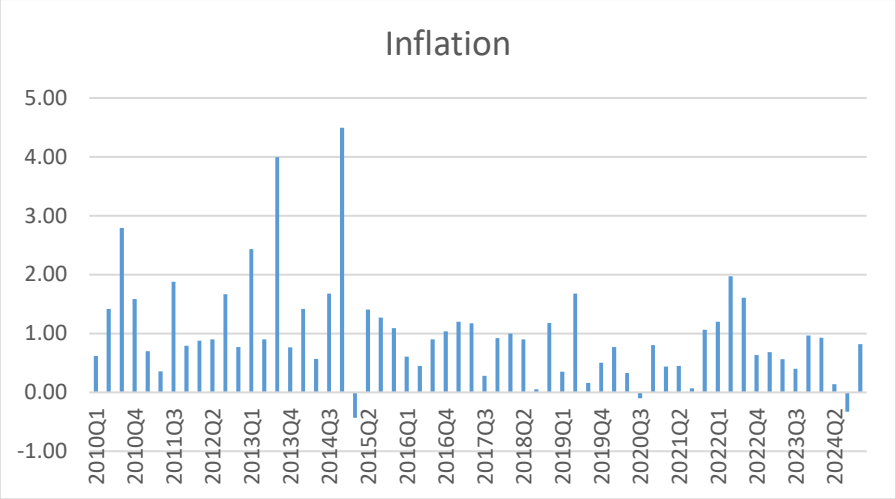


Figure 1. Inflation in Indonesia in 2010Q1-2024Q4
Source: *Worldbank*, data processed (2026)

The development of inflation in Indonesia during the period 2010Q1-2024Q4 shows a fairly dynamic pattern of fluctuations. In the 2010-2012 period, inflation was at a moderate level with some increases in 2010Q3 and 2011Q3. Inflation then increased significantly in 2013-2014, even reaching more than 4 percent, which was one of the highest levels during the observation period. After that, in the 2015-2018 period inflation tended to decline and was at a more stable level.

In the 2019-2021 period, inflation was relatively low and stable, reflecting more controlled price pressures in the economy. However, in 2022 there was another increase in inflation before again showing a downward and stable trend in 2023-2024. In general, these dynamics show that inflation in Indonesia is influenced by various economic factors, both domestic and global, so that its movement fluctuates but remains in a relatively controlled range in the 2015-2024 period.

In this context, the volatility of world oil prices is one of the important external factors that affect the dynamics of domestic inflation. The increase in world oil prices increases production and distribution costs, especially in the energy and transportation sectors. This increase in costs is then passed on to the prices of goods and services, thus triggering cost-push inflation. Global oil price uncertainty also increases the risk of macroeconomic instability, especially for oil-importing countries such as Indonesia(Fund, 2022)

In addition to oil prices, exchange rate fluctuations and economic policy uncertainty in trading partner countries have also strengthened domestic inflationary pressures. Exchange rate depreciation has the potential to encourage imported inflation through an increase in the price of goods and production inputs from abroad. This condition confirms that inflation stability in Indonesia is greatly influenced by the interaction between global and domestic factors, thus demanding adaptive, credible, and coordinated economic policies (Aizenman et al., 2016).

In addition to domestic factors, global conditions contribute significantly to inflationary behavior in Indonesia. World oil prices (Brent oil price) is an important indicator of the cost structure of production and transportation, especially for energy-importing countries. Rising world oil prices often create cost pressures (cost-push inflation) which has a direct impact on increasing the price of goods and services in the country (Fund, 2022; Hamilton, 2009).

Within the framework of domestic factors, the Vitaliano Model emphasizes three main variables that affect inflation, namely the money supply (M2), the real Gross Domestic Product (GDP), and government expenditure (government expenditure). These three variables represent aggregate demand capacity, national production capacity, and the role of fiscal stimulus in the economy (Mankiw, 2019; Vitaliano, 1973). The money supply (M2) reflects the level of liquidity in the financial system and has the potential to increase aggregate demand through the mechanism of monetary policy transmission, which is the process of channeling changes in liquidity to the real sector of the economy through various channels, such as interest rate reductions, increased bank credit, changes in asset prices, and expectations of economic actors. Through these channels, increased liquidity can encourage consumption and investment, which ultimately increases aggregate demand. Indonesia's M2 growth, which tends to increase from year to year, indicates economic expansion, but at the same time contains the potential for inflationary pressures if not offset by an increase in real output (Indonesia, 2023; Mishkin, 2016b).

Similarly, the rupiah exchange rate against the US dollar is one of the main transmission channels imported inflation. Exchange rate depreciation can increase the price of imported goods, especially raw materials, energy, and capital goods, which are ultimately passed on to consumers through increases in domestic prices (Goldfajn & Werlang, 2000; Mishkin, 2016a).

In the context of an open economy, these two global variables are very strategic to analyze due to Indonesia's high dependence on imports of raw materials, energy, and capital goods, so external shocks have the potential to increase domestic inflationary pressures (Aizenman et al., 2016; Indonesia, 2023).

Research on the determinants of inflation has developed rapidly, both in domestic and international contexts. (Damayanthi, 2024) found that monetary variables such as M2, interest rates, and production capacity play an important role in inflationary behavior in developing countries. Purnami and Budiningsih (2023) show that exchange rate depreciation has a significant impact on inflation through a strong pass-through exchange rate mechanism.(Rita et al., 2020) highlights that government spending has a positive relationship with inflation, especially when spending is directed at government consumption and subsidies. Research (Putra & Sari, 2022) emphasized that fluctuations in world oil prices are putting pressure on cost inflation in Indonesia. In addition, (Mahmudi et al., 2021) Found that monetary and real sector variables have a long-term relationship with inflation through a cointegration mechanism.

According to (Akhtar et al., 2020) Liquidity expansion has a strong correlation with inflation in the long term in South Asian countries. (Sharma, 2021) empirically proving that rising oil prices and weakening exchange rates increase inflation in ASEAN countries through two main pathways: rising energy prices and import inflation. (Li & Wong, 2019) emphasizing the importance of the interaction between domestic policy and global shocks in understanding the inflation dynamics of developing countries, especially in the context of high global volatility.

Although many studies have examined the influence of monetary and global variables on inflation, there are several gaps in research (gap analysis) that need attention. First, most previous studies have only tested one group of variables, such as domestic or global variables, but have not integrated the two into a comprehensive model framework. Second, the full use of the Vitaliano Model (M2, real GDP, GE) in Indonesia's inflation analysis is still limited, even though this model provides a strong theoretical foundation to understand the influence of domestic factors. Third, previous research has not used much of the Error Correction Model (ECM) approach that is able to capture short-term dynamics as well as long-term relationships simultaneously.

The novelty of this study lies in the integration of domestic and global factors within a single framework of the Augmented Vitaliano Model, which is then analyzed using the ECM approach. This approach allows for a deeper understanding of how domestic and global shocks affect inflation in the short and long term.

METHODS

This study uses a quantitative approach by utilizing secondary data from the time series 2010Q1–2024Q4 to analyze the influence of domestic and global factors on inflation in Indonesia. The data collection technique is carried out through a documentation method, namely collecting data from official institutions such as the Central Statistics Agency (BPS), Bank Indonesia (BI), the Ministry of Finance of the Republic of Indonesia, the U.S. World Bank and Fred. The use of official and institutional data sources aims to ensure the validity, reliability, and methodological consistency of the data used in empirical analysis(Indonesia, 2024; Statistics, 2024).

The definition of variables in this study is adjusted to macroeconomic measurement standards. Inflation (Y) is measured using year-on-year (YoY) CPI inflation published by BPS. The money supply M2 (X1) component of economic liquidity which includes currency, money bill (M1), plus time deposits, savings, and foreign exchange owned by the public. Real GDP (X2) is the value of output of goods and services based on constant prices (ADHK), which reflects national production capacity. Government expenditure (X3) is all expenditure made by the government to finance government administration, the provision of public goods and services, and the implementation of economic and social development programs. World oil prices (X4) are measured using Brent crude oil prices (USD per barrel) because Brent is the most widely used international benchmark in global oil trade and reflects the sensitivity of domestic inflation to global energy price shocks. The exchange rate of the rupiah against the US dollar (X5) uses exchange rate data from Bank Indonesia. All quantitative variables are measured using units according to the official publication of each institution.

The main analytical tool in this study is multiple linear regression based on econometric models with the *Error Correction Model* (ECM), which allows simultaneous long-term and short-term relationship testing (Enders, 2015; Engle & Granger, 1987). The analysis begins with unit root testing to ensure data stationaryness, aiming to avoid pseudo-estimation (spurious regression) on time series data (Dickey & Fuller, 1979; Gujarati & Porter, 2009). Next, a cointegration test was carried out to assess the existence of a long-term relationship between all variables in the model (Johansen, 1988). Once cointegration is proven, the ECM model is used to capture the rate of inflation adjustment towards long-term equilibrium when external as well as internal disruptions occur, represented by the coefficient *error correction term* (Enders, 2015; Engle & Granger, 1987). The estimation of model parameters was carried out using statistical software, namely EViews, which is commonly used in time series econometric analysis. The basic equation of the regression model in this study is formulated as follows:

$$INF_t = \alpha_0 + \alpha_1 GDP_t + \alpha_2 M2_t + \alpha_3 GOV_t + \alpha_4 OIL_t + \alpha_5 KURS_t + \varepsilon_t$$

Where:

INF_t = Inflation in the second period$t$

GDP_t	=	Real Gross Domestic Product in the second period$t$
$M2_t$	=	Money supply (M2) in the second period.t
GOV_t	=	Government expenditure in the second period$t$
OIL_t	=	World oil prices (Brent) in the second period$t$
$KURS_t$	=	The rupiah exchange rate against the US dollar in the second period t
α_0	=	Konstanta
$\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5$	=	Coefficient of elasticity
ε_t	=	error term

The equation illustrates that inflation is influenced by the money supply, real GDP, government spending, world oil prices, and exchange rates. The analysis was carried out to see the partial and simultaneous significance between variables, causal relationships, and consistency of the direction of influence according to macroeconomic theory.

RESULTS AND DISCUSSION

Result

The stationarity test is carried out to find out whether the data used in the study has a constant average and variance over time. This test is important in the analysis of time series data to avoid the occurrence of spurious regression or pseudo-regression. In this study, the stationarity test was carried out using the Augmented Dickey-Fuller (ADF test) at the level and first difference level.

Table 1. Root Test of Level Level and First Difference Variable Units

Variable	Level			First		
	T-sat	prob	Verdict	T-stat	prob	Verdict
Inf	-7.615324	0.0000	Tdk.stationary	-7.579018	0.0000	Stasions
M2	2.388907	1.0000	Tdk.stationary	-2.478012	0.1264	Stasions
Pdb	0.260824	0.9741	Tdk.stationary	-3.150901	0.0286	Stasions
Ge	-1.367074	0.5920	Tdk.stationary	-10.17349	0.0000	Stasions
Course	-0.931950	0.7712	Tdk.stationary	-5.908849	0.0000	Stasions
Oilprice	-1.920792	0.3208	Tdk.stationary	-7.431905	0.0000	Stasions

Source : Secondary Data, processed

Based on the results of the test at the level level, all variables used in the study, namely inflation (INF), money supply (M2), gross domestic product (GDP), government expenditure (GE), exchange rate (SWAP), and world oil price (OILPRICE) showed a probability value greater than the significance level of 5 percent (0.05). This shows that all of these variables are not stationary at the level level, so the data still contains certain trends or patterns that can affect the stability of the model. Furthermore, the test was carried out again at the first difference level to eliminate the root unit problem contained in the data. The test results showed that all variables had a probability value of less than 0.05, so it can be concluded that all variables were stationary at the first difference level. Thus, the first differentiation process was able to eliminate the data unsteadiness that previously occurred at the level level. Based on these results, it can be concluded that all variables in this study are integrated on order one or I(1). This condition shows that

although the variable is not stationary at the level level, it becomes stationary after the first differentiation is carried out.

Table 2. Trace Cointegration Test

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Self-esteem	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.608683	125.2197	95.75366	0.0001
At most 1 *	0.432564	70.80203	69.81889	0.0417
At most 2	0.258954	37.93762	47.85613	0.3047
At most 3	0.218752	20.55547	29.79707	0.3859
At most 4	0.065214	6.237436	15.49471	0.6675
At most 5	0.039311	2.326040	3.841465	0.1272

Source : Secondary Data, processed

Based on the results of the Johansen Trace Test, in the None hypothesis, *the* Trace Statistic value (125.2197) is greater than the Critical Value (95.75366) with a probability of 0.0001 < 0.05, so the null hypothesis is rejected. This shows that there is a cointegration relationship between variables.

In the *At most 1 hypothesis*, the Trace Statistic value (70.80203) is also greater than the Critical Value (69.81889) with a probability of 0.0417 < 0.05, which indicates the existence of more than one cointegration relationship. However, in the *At most 2 hypothesis*, the Trace Statistic value (37.93762) is smaller than the Critical Value (47.85613) with a probability of 0.3047 > 0.05, so the null hypothesis cannot be rejected.

Thus, it can be concluded that there are two cointegration relationships at a significance level of 5 percent. This shows that the variables in the study have a long-term equilibrium relationship, so that the next analysis can use the Error Correction Model (ECM).

Uji ols residual

Table 3. Long-term equations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.902212	2.282867	0.395210	0.6942
M2	-2.09E-07	3.08E-07	-0.677188	0.5012
PDB	-5.71E-07	1.58E-06	-0.360311	0.7200
GE	2.92E-09	1.45E-08	0.201277	0.8412
COURSE	7.00E-05	0.000157	0.444692	0.6583
OILPRICE	1.13E-06	5.15E-07	2.192535	0.0327

R-squared	0.194061	Mean dependent var	0.995500
Adjusted R-squared	0.119437	S.D. dependent var	0.861865
S.E. of regression	0.808760	Akaike info criterion	2.508010
Sum squared resid	35.32099	Schwarz criterion	2.717444
Log likelihood	-69.24030	Hannan-Quinn criter.	2.589931
F-statistic	2.600518	Durbin-Watson stat	2.476267
Prob(F-statistic)	0.035274		

Source : Secondary Data, processed

Based on the results of regression estimation, the world oil price variable (OILPRICE) has a positive and significant influence on inflation with a probability value of 0.0327 (<0.05). This shows that the increase in world oil prices can increase inflationary pressure. Meanwhile, the

variables of money supply (M2), gross domestic product (GDP), government expenditure (GE), and exchange rate (KURS) have a probability value greater than 0.05, so they do not have a significant effect on inflation partially.

However, simultaneously, all independent variables had an effect on inflation as indicated by the Prob(F-statistic) value of 0.035274 (<0.05). The R-squared value of 0.194061 indicated that about 19.4% of the inflation variation could be explained by the variables in the model, while the rest was influenced by other factors outside the study.

Table 4. Short-Term Equations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.030494	0.135781	-0.224579	0.8232
D(M2)	-2.76E-07	7.64E-07	-0.360962	0.7196
D(PDB)	-1.92E-06	1.81E-06	-1.061728	0.2933
D(GE)	1.48E-08	1.09E-08	1.356567	0.1808
D(COURSE)	0.000725	0.000318	2.280036	0.0267
D(OILPRICE)	6.36E-07	6.97E-07	0.913285	0.3653
ECT(-1)	-1.376934	0.135465	-10.16452	0.0000

R-squared	0.674285	Mean dependent var	0.003390
Adjusted R-squared	0.636703	S.D. dependent var	1.232612
S.E. of regression	0.742947	Akaike info criterion	2.354609
Sum squared resid	28.70242	Schwarz criterion	2.601097
Log likelihood	-62.46098	Hannan-Quinn criter.	2.450828
F-statistic	17.94147	Durbin-Watson stat	1.942674
Prob(F-statistic)	0.000000		

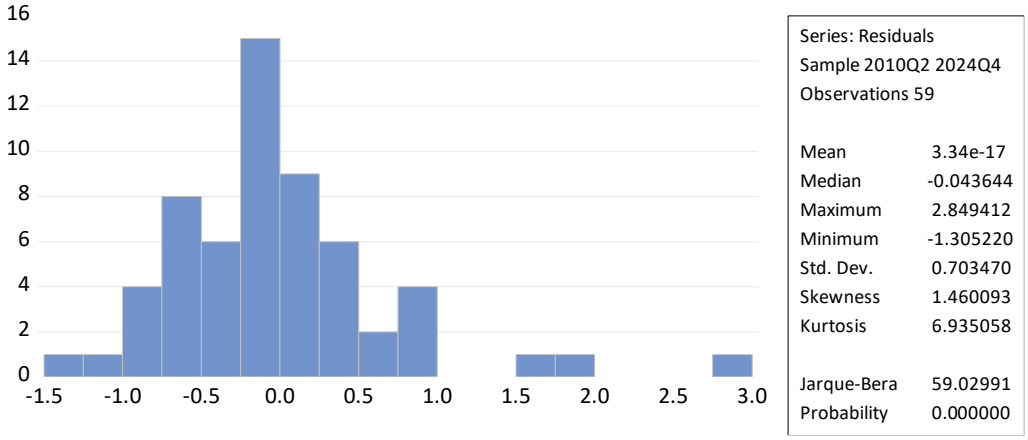
Source : Secondary Data, processed

Based on the results of the Error Correction Model (ECM) estimate, it was obtained that in the short term the exchange rate variable (D(KURS)) has a positive and significant influence on inflation with a probability value of 0.0267 (<0.05). This shows that changes in the exchange rate in the short term can affect the inflation rate. Exchange rate depreciation tends to increase the price of imported goods, thus driving up inflation.
Meanwhile, the variables of changes in the money supply (D(M2)), changes in gross domestic product (D(GDP)), changes in government expenditure (D(GE)), and changes in world oil prices (D(OILPRICE)) have a probability value greater than 0.05, so that they do not have a significant effect on inflation in the short term.

The Error Correction Term (ECT) coefficient of -1.376934 indicates that approximately 137.69% of short-term imbalances will be corrected towards long-term equilibrium in one observation period. Because the study period used quarterly data, the adjustment process occurred in less than a quarter or about 65 days. A coefficient value greater than one indicates that the adjustment process is relatively fast and can pass the equilibrium point before returning to stability in the next period.

Simultaneously, all independent variables in the model had an effect on inflation as indicated by a Prob(F-statistic) value of 0.0000 (<0.05). In addition, the R-squared value of 0.674285 showed that about 67.4% of the variation in inflation in the short term could be explained by the variables in the model, while the rest was influenced by other factors outside the study.
Classic assumption test

Table 5. Normality Test



Source : Secondary Data, processed

Based on the results of the Jarque-Bera test, a Jarque-Bera value of 59.02991 with a probability of 0.0000 was obtained. The probability value was smaller than the significance level of 0.05, so it can be concluded that the residual in the model is not normally distributed. In addition, the skewness value of 1.460093 indicates that the residual distribution tends to be skewed to the right, while the kurtosis value of 6.935058 indicates that the residual distribution is more pointed than the normal distribution. However, in the analysis of time series data residual abnormalities are still tolerable as long as other classical assumptions are met and the model still provides an unbiased estimate (Gujarati & Porter, 2009b; Wooldridge, 2016).

Tabel 6. Uji Heteroskedasticity

Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

F-statistic	0.867769	Prob. F(6,52)	0.5248
Obs*R-squared	5.369836	Prob. Chi-Square(6)	0.4973
Scaled explained SS	12.37823	Prob. Chi-Square(6)	0.0540

Source : Secondary Data, processed

Based on the results of the Breusch–Pagan–Godfrey test, the Prob. F-statistic value is 0.5248 and the Prob. Chi-Square is 0.4973 which is greater than the significance level of 0.05. This shows that the model does not experience heteroscedasticity problems, so the residual variance is constant (homoskedasticity) and the regression model has met the classical assumptions.

Table 7. Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	0.686793	Prob. F(2,50)	0.5079
Obs*R-squared	1.577494	Prob. Chi-Square(2)	0.4544

Source : Secondary Data, processed

Based on the results of the Breusch-Godfrey Serial Correlation LM Test, the value of Prob. F is 0.5079 and Prob. Chi-Square is 0.4544 which is greater than the significance level of 0.05. This

shows that there is no autocorrelation problem in the regression model, so the model used meets the classical assumption regarding the absence of serial correlation in residuals.

DISCUSSION

It is based on the Augmented Vitaliano Model framework which views inflation as the result of the interaction between domestic demand factors, and external pressures in a long-term equilibrium system. The relationship is formulated as follows:

$$INF_t = \alpha_0 + \alpha_1 GDP_t + \alpha_2 M2_t + \alpha_3 GOV_t + \alpha_4 OIL_t + \alpha_5 KURS_t + \varepsilon_t$$

To capture short-term dynamics and the process of adjustment towards long-term equilibrium, the model is transformed into an Error Correction Model (ECM):

$$\Delta INF_t = \beta_0 + \beta_1 \Delta GDP_t + \beta_2 \Delta \ln M2_t + \beta_3 \Delta \ln GOV_t + \beta_4 \Delta OIL_t + \beta_5 \Delta KURS_t + \lambda ECT_{t-1} + u_t$$

The results of the Error Correction Model (ECM) estimate produce the following equation:

$$\Delta INF_t = -0.030494 - 2.76 \times 10^{-7} \Delta M2_t - 1.92 \times 10^{-6} \Delta PDB_t + 1.48 \times 10^{-8} \Delta GE_t + 0.000725 \Delta KURS_t + 6.36 \times 10\text{^}\{-7\}\Delta \text{OILPRICE\_t} - 1.376934\, \text{ECT\_}\{t-1\}$$

The equation shows the short-term relationship between changes in inflation and changes in macroeconomic variables, namely the money supply, gross domestic product, government spending, exchange rates, and world oil prices. The symbol Δ (delta) on each variable indicates that the variable has experienced the *first difference* so that it reflects changes in the short term.

Based on the estimated results, the coefficient in the Δ exchange rate variable is positive, which indicates that the exchange rate change has a direct relationship with the change in inflation in the short term. This means that when there is a depreciation of the exchange rate, the price of imported goods tends to increase so that it can encourage an increase in inflation. Meanwhile, the variables ΔM2, ΔPDB, ΔGE, and ΔOILPRICE show a relationship with inflation, although the effect is relatively small in the short term.

The empirical results show that inflation in Indonesia has a long-term equilibrium relationship with domestic and global factors, which is confirmed through cointegration tests. These findings are in line with the view (Vitaliano, 1978) which states that inflation is not solely determined by monetary factors, but also by the interaction of aggregate demand, fiscal policy, and external pressures. In the context of the Indonesian economy, these results indicate that inflation is a structural phenomenon that reflects the fundamental conditions of the national economy.

The influence of GDP on inflation can be explained through the theory *demand-pull inflation*, which states that inflation occurs when aggregate demand increases faster than the economy's ability to provide goods and services. An increase in GDP reflects an expansion of economic activity and an increase in people's purchasing power, which drives demand for goods and services as a whole. If the increase in demand is not offset by adequate production and distribution capacity, price pressures will increase and be reflected in a higher inflation rate(Keynes, 1936; Mankiw, 2019).

The money supply (M2) also plays a role in the formation of inflation, which is in line with the theory of money quantity (Friedman, 1968) which states that inflation in the long term is a monetary phenomenon. In the Indonesian context, liquidity expansion that occurs due to monetary policy easing or increased credit can drive aggregate demand in the short term. If the growth of the money supply is not in line with the growth of real output, then inflationary pressures become inevitable.

Government spending affects inflation through a fiscal mechanism that works through an increase in aggregate demand. An increase in government spending, especially consumptive spending, has the potential to push inflationary pressures if it is not balanced with an increase in production capacity. In the Indonesian context, fiscal policy is often used as an instrument for economic stabilization, but its effect on price stability is highly dependent on the effectiveness, quality, and efficiency of government spending allocation (Blanchard, 2021). Effectiveness is related to the ability of government spending to achieve economic goals, the quality of allocation refers to the placement of budgets in productive sectors, while efficiency is related to the optimal use of the budget to generate maximum economic benefits. Thus, the impact of government spending on inflation is not only determined by the size of the budget, but also by how the budget is allocated and utilized.

From a global perspective, the influence of world oil prices on Indonesia's inflation reflects the cost-push inflation mechanism, as explained by Phelps and Blinder, where the increase in production costs due to rising energy prices drives the increase in the prices of goods and services. Although Indonesia has domestic energy resources, its dependence on energy imports and the role of energy prices in the cost structure of production make domestic inflation vulnerable to fluctuations in world oil prices. Indonesia's experience in energy price adjustments and subsidies further strengthens this relationship.

The rupiah exchange rate has also been shown to affect inflation through the mechanism of imported inflation, as described in the theory of open economy by Dornbusch (1976). The depreciation of the exchange rate increases the price of imported goods and production inputs, which is then passed on to consumer prices. In Indonesia's economy that is open and dependent on imports of raw materials and capital goods, exchange rate stability is a crucial factor in maintaining domestic price stability.

The significance of the Error Correction Term (ECT) in the ECM model indicates the existence of an inflation-adjusted mechanism from a short-term imbalance to a long-term equilibrium, as stated by Engle and Granger (1987). The significant value of the ECT coefficient indicates that the inflation deviation from the long-term equilibrium will be fully corrected within one observation period. This result implies that the process of adjusting inflation in Indonesia from short-term shocks to long-term equilibrium is relatively fast, i.e. within 65 days.

Overall, the results of this study confirm that inflation in Indonesia is a multidimensional phenomenon influenced by a combination of domestic and global factors. The use of the Augmented Vitaliano Model with the ECM approach makes an empirical contribution to understanding Indonesia's inflation dynamics more comprehensively, as well as providing an analytical basis for the formulation of more coordinated monetary and fiscal policies to maintain price stability.

CONCLUSION

This study aims to analyze the influence of domestic and global factors on inflation in Indonesia using the Augmented Vitaliano Model with the Error Correction Model (ECM) approach. The results of the analysis show that all research variables are not stationary at the level level, but are stationary at the first differentiation. The cointegration test confirms the existence of

a long-term equilibrium relationship between inflation and the variables of money supply (M2), real GDP, government spending, world oil prices, and exchange rates.

The results of the regression estimate show that only partially world oil prices have a positive and significant effect on inflation, while the M2 variables, real GDP, government spending, and exchange rate do not show a significant influence. However, simultaneously all independent variables are proven to affect inflation. In addition, the negative and significant Error Correction Term (ECT) coefficient indicates the existence of an adjustment mechanism from short-term imbalance to long-term equilibrium.

These findings confirm that the dynamics of inflation in Indonesia are not only influenced by domestic factors, but also by external pressures, especially fluctuations in global energy prices. Thus, this study contributes to the development of the literature on inflation determinants by integrating domestic and global factors in a single ECM-based econometric analysis framework. However, this study has several limitations. First, the value of the determination coefficient shows that the variables in the model are only able to explain some of the variations in inflation, so there are still other factors outside the model that have the potential to affect inflation. Second, this study only uses five macroeconomic variables so that it does not fully represent the complexity of the determinants of inflation. Third, the limited observation period can affect the generalization of the research results.

Based on these limitations, further research is recommended to add other relevant variables, such as interest rates, inflation expectations, or other international commodity prices. In addition, the use of longer data periods can provide a deeper understanding of inflation dynamics in Indonesia.

REFERENCE

Aizenman, J., Chinn, M. D., & Ito, H. (2016). Monetary Policy Spillovers and the Trilemma in the New Normal. *Journal of International Money and Finance*, *68*, 1–24. https://doi.org/10.1016/j.jimonfin.2016.02.008

Akhtar, M. A., Khan, M. A., & Ahmed, S. (2020). Monetary policy, exchange rate and inflation dynamics in emerging economies. *Journal of Asian Economics*, *69*, 101223. https://doi.org/10.1016/j.asieco.2020.101223

Blanchard, O. (2021). Macroeconomics (8th Edition). Pearson.

Damayanthi, I. G. A. A. (2024). Determinants of inflation in developing countries: Monetary and real sector approaches. *Journal of Economics and Policy*, *17*(1), 45–60. https://journal.unnes.ac.id/sju/index.php/jejak

Dickey, D. A., & Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. *Journal of the American Statistical Association*, *74*(366), 427–431. https://doi.org/10.1080/01621459.1979.10482531

Enders, W. (2015). *Applied Econometric Time Series* (4 (ed.)). Wiley. https://www.wiley.com/en-us/Applied+Econometric+Time+Series%2C+4th+Edition-p-9781118808566

Engle, R. F., & Granger, C. W. J. (1987). Co-integration and error correction: Representation, estimation, and testing. *Econometrica*, *55*(2), 251–276. https://doi.org/10.2307/1913236

Friedman, M. (1968). The role of monetary policy. *American Economic Review*, *58*(1), 1–17. https://www.aeaweb.org/articles?id=10.1257/aer.58.1.1

Fund, I. M. (2022). *World Economic Outlook: Countering the Cost-of-Living Crisis*. International

Monetary Fund. https://www.imf.org/en/Publications/WEO/Issues/2022/10/11/world-economic-outlook-october-2022

Goldfajn, I., & Werlang, S. R. C. (2000). The Pass-Through from Depreciation to Inflation: A Panel Study. *IMF Working Paper*, *00*(170). https://doi.org/10.5089/9781451857174.001

Gujarati, D. N., & Porter, D. C. (2009). *Basic Econometrics* (5 (ed.)). McGraw-Hill Education. https://www.mheducation.com/highered/product/basic-econometrics-gujarati/M9780073375779.html

Hamilton, J. D. (2009). Causes and Consequences of the Oil Shock of 2007–2008. *Brookings Papers on Economic Activity*, *40*(1), 215–261. https://doi.org/10.1353/eca.0.0044

Indonesia, B. (2005). *Inflation targeting framework in Indonesia*. Bank Indonesia.

Indonesia, B. (2023). *Indonesia's Economic Report 2023*. Bank Indonesia. https://www.bi.go.id/id/publikasi/laporan/Pages/LPI_2023.aspx

Indonesia, B. (2024). *Indonesian Economic and Financial Statistics (SEKI)*. https://www.bi.go.id/id/statistik/ekonomi-keuangan/seki

Johansen, S. (1988). Statistical analysis of cointegration vectors. *Journal of Economic Dynamics and Control*, *12*(2–3), 231–254. https://doi.org/10.1016/0165-1889(88)90041-3

Keynes, J. M. (1936). *The General Theory of Employment, Interest and Money*. Macmillan.

Li, Y., & Wong, W. K. (2019). Inflation dynamics, output growth, and monetary policy in emerging markets. *Economic Modelling*, *81*, 219–232. https://doi.org/10.1016/j.econmod.2018.12.015

Mahmudi, R., Hidayat, A., & Nugroho, S. (2021). Long-term relationship between inflation, output, and money supply in Indonesia. *Bulletin of Monetary and Banking Economics*, *24*(2), 179–198. https://doi.org/10.21098/bemp.v24i2.1671

Mankiw, N. G. (2019). *Macroeconomics* (10th ed.). Worth Publishers. https://scholar.harvard.edu/mankiw/macroeconomics

Mishkin, F. S. (2016a). *The Economics of Money, Bankin*.

Mishkin, F. S. (2016b). *The Economics of Money, Banking and Financial Markets* (11th ed.). Pearson Education.

Mishkin, F. S., & Schmidt-Hebbel, K. (2007). *Does inflation targeting make a difference? BT - Monetary policy under inflation targeting* (F. S. Mishkin & K. Schmidt-Hebbel (eds.); pp. 291–372). Central Bank of Chile.

Purnami, L. P., & Budiningsih, S. (2023). Exchange rate and inflation in Indonesia: Empirical evidence of exchange rate pass-through. *Journal of Development Economics*, *24*(3), 311–325. https://doi.org/10.23917/jep.v24i3.21014

Putra, R. A., & Sari, M. (2022). The impact of world oil prices on inflation in Indonesia. *Journal of Economics and Development Studies*, *23*(1), 55–68. https://doi.org/10.18196/jesp.v23i1.13456

Rita, M. R., Hadiwidjojo, D., & Manurung, A. H. (2020). Government expenditure and inflation nexus in developing countries. *International Journal of Economics and Financial Issues*, *10*(2), 40–47. https://www.econjournals.com/index.php/ijefi/article/view/8936

Sharma, R. (2021). Oil price shocks and inflation dynamics in ASEAN countries. *Energy Economics*, *99*, 105303. https://doi.org/10.1016/j.eneco.2021.105303

Statistics, B. P. (2024). *Indonesia's Inflation (Consumer Price Index)*. https://www.bps.go.id/indicator/3/1/1/inflasi.html

Statistics, B. P. (2025). *Year-on-Year (y-on-y) inflation in December 2024 of 1.57 percent*. Central Statistics Agency. https://www.bps.go.id/id/pressrelease/2025/01/02/2397/inflasi-year-

on-year--y-on-y--desember-2024-sebesar-1-57-persen--inflasi-provinsi-y-on-y-tertinggi-terjadi-di-provinsi-papua-pegunungan-sebesar-5-36-persen-dan-dan-terendah-terjadi-di-provinsi-sulawesi-utara-sebesar-0-44-persen-.html

Vitaliano, D. F. (1973). An Econometric Model of Inflation for Developing Countries. *Journal of Development Economics*, *1*(1), 1–17. https://doi.org/10.1016/0304-3878(73)90002-4

Vitaliano, D. F. (1978). *Inflation and Stabilization in Developing Countries*. Praeger Publishers.

Wooldridge, J. M. (2016). Introductory Econometrics: A Modern Approach (6th Edition). Cengage Learning.