

A VECTOR ERROR CORRECTION MODEL APPROACH IN EXPLAINING THE RELATIONSHIP BETWEEN FOREIGN DEBT ON ECONOMIC GROWTH IN INDONESIA

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Abstract : *This article examines the relationship between trade opening and government spending on economic growth. The method used vector error correction model (VECM). While the integration test uses the Johansen method. The data used in this study date are from 1985-2018. Empirical results indicate an insignificant long-term relationship between economic growth and foreign debt, trade opens and government spending. This causes a significant negative relationship between foreign debt and government spending and short-term economic growth. While the trade opens and consumer spending variables did not significantly influence economic growth. The policy implications of this research are very important, in the formulation of macroeconomic policies to achieve macroeconomic stability and thus contribute to the development of trade opening, government spending and foreign debt.*

Keywords: *Foreign Debt, Trade Opens, Government Expenditures, Growth, VECM*

JEL Classification Code : C32, G20, H54, L74, O4

A. INTRODUCTION

Foreign debt will bring advantages and disadvantages to the country's economic development. One of the benefits of foreign debt is that it allows the country to finance national development projects. Because the source of domestic loans is limited, the number of available loans may be sufficient for the purpose of financing the government deficit budget or national development projects. In addition, foreign debt also causes capital inflows from abroad and thus increases the balance of payments in a long-term capital account. Deficits in a country's balance of payments can be financed by external debt. Moreover, foreign debt does not affect the development of the private sector. Even private sector development can be encouraged through external loans.

However, foreign debt can also be detrimental to a country. Foreign debt has caused a flow of money abroad through interest payments and repayment of foreign loans. This will cause the central bank's foreign currency reserves to flow overseas and further reduce state revenues through a multiplier process. Because foreign debt is affected by changes in foreign exchange rates when foreign loans are obtained, the amount of foreign debt will increase as a result of an increase/decrease in foreign currencies. In turn, this will add further burden to the country due to the interest rate on foreign debt. This situation also indirectly increases the burden on society in the future.

Many developing countries often face a high level of dependence in their efforts for economic growth due to the increasing burden of foreign debt and the inability to repay debt because the balance of payments is damaged and the country's currency is declining. However, the advantages or disadvantages of foreign debt on economic growth depend on how they are used. For developing countries, especially in the face of inadequate capital, foreign debt plays an important role in increasing the country's economic growth. Therefore, a reasonable level of foreign debt is said to help finance productive investment activities and to achieve the desired growth. Meanwhile, economic growth will be affected when the level of foreign debt reaches a certain level.

The figure below shows fluctuations in Indonesia's foreign debt and tends to increase every year. The highest foreign debt in 2016 was US \$ 316.407 million with a growth rate of 1.83%. While the lowest was in 1995 at US \$ 124.389 million. There is an increase in debt, because of the spread of the financial crisis into a multidimensional crisis. This crisis was caused by the collapse of the Thai currency in Thailand which had caused a rupee decline. In addition to an increase in foreign debt from 2006 to 2007 due to the development of technology needed by humans, trade has expanded to

various countries. The increase in the amount of foreign debt in Indonesia from 2009 to 2010 was due to the participation quota of Indonesian capital in the form of currencies, especially the IMF (International Monetary Fund) which led to rapid economic growth. The highest amount of Indonesia's foreign debt in 2016 was US \$ 316.407 million, this is because the government is in a hurry to carry out infrastructure development and early adopters are still low.

On the other hand, the value of Indonesia's exports tends to increase with a growth of 28.98%. From 1995 to 2016 there was always an increase. But in 2001 it weakened because Indonesia's exports fell by US \$ 56,320.9 million. This is as a result of the weakening influence of the world economy. The value of exports again experienced a sharp increase in 2004. This increase was due to an increase in commodity prices, however, the increase in volume is likely to be uneven and still concentrated in natural resource commodities (SDA). During the global financial crisis, Indonesia's exports experienced a significant decline during the financial crisis of US \$ 116,510 million, but since the end of 2009 the export market began to improve and re-entering 2010 grew to reach US \$ 157,779.1 million and in 2011 increased to US \$ 203,496.6 million.

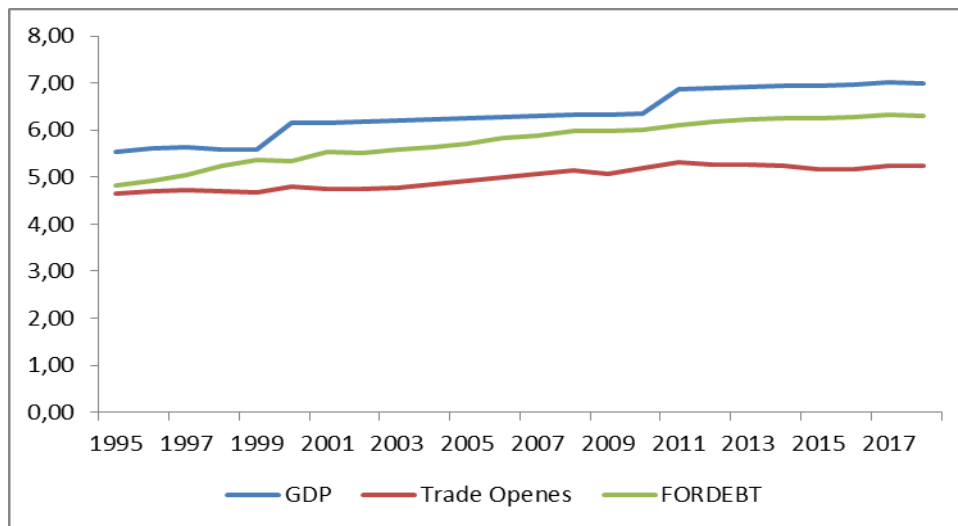


Figure 1. Development of Foreign Debt, Trade Openness and Economic Growth

Passed on the significant office of foreign debt, economic experts have focused on the subject of foreign debt in developing nations since the 1970s. When the balance of payments is in deficit, income recovery through tax collection is a common fiscal policy. But for developing countries, it is a government fund to finance the country's economic growth. Therefore, an alternative that is often taken by the government is to obtain inadequate foreign loans. Foreign debt created by the government must be balanced, not too much because too much debt will affect economic growth. However, the tax imposed will burden the community and cause savings and investment in the economy to decline.

Foreign loans are an important source of financing the budget deficit. The government will sell state bonds on foreign money markets to get loans. But the interest rate on foreign loans is higher than domestic loans. This is because developing country governments must offer the same high interest rates as other government bonds available on foreign markets. In addition, the government must pay interest and debt to foreigners resulting in an outflow of money in the form of interest payments. The situation will worsen if the loan and interest rates are paid in US dollars. This will have an impact on the country's balance of payments and affect the country's long-term economic growth.

Trade deficits, government budget deficits indicate excessive domestic spending and a reduction in savings will result in an imbalance between international investment and international savings. If the current account deficit faces developing countries, the decline in international

savings will have an impact on the decline in international investment. The gap between investment and savings is widening. Therefore, assistance, which is an investment donated by foreign loans, also known as foreign debt, must be provided. In addition, the government spending deficit will also have an impact on economic growth, especially for developing countries.

However, countries that rely heavily on foreign debt in the form of development project loans that strengthen economic growth will face repayment if unexpected problems occur. Unforeseen problems include oil price shocks, floods, droughts, earthquakes and more. This incident will result in the state making new loans to maintain the level of domestic spending even though the old loans cannot be explained. This will cause the country to rely heavily on foreign debt in resolving the country's financial problems. The higher the foreign debt, the greater the impact of interest rate fluctuations and foreign capital market fluctuations that affect developing countries.

The relationship between foreign debt and economic growth is not a one-way relationship. However, economic growth is also closely related to other variables such as trade opening and government spending. Thus, developing countries must not only overcome the problem of dependence on foreign debt, but also consider the role of other macroeconomic variables in achieving balanced economic growth, which is comparable to developed countries. This study aims to determine the nature of the relationship between foreign debt and economic growth in Indonesia using the Vector Error Correction Model Approach.

B. LITERATURE REVIEW

Elbadawi, et al. (1996), confirmed the impact of debt dependence on economic growth using cross-regression from 99 developing countries consisting of sub-Saharan Africa, Latin America, Asia and the Middle East. They identified three direct channels where debt in sub-Saharan Africa is moving against growth: current debt flows as a ratio of GDP (also encouraging growth), increasing past debt (debt control), and debt service ratios. Four indirect channels through the impact of the upper channel on public sector spending. They found that debt growth stunted growth, while debt stock stimulated growth. The results also show that the debt burden is driving a fiscal slowdown as illustrated through some tight budgets.

Were, M (2001), conducted a study of the size and structure of Kenya's foreign debt and its impact on economic growth and private investment. The research findings show that Kenya's foreign debt especially for each large ratio comes from various sources. The increase in foreign debt has increased every year with an indication of the continued debt burden in the early 1990s. Using time series data for the period 1970-1995, empirical results show that the increase in foreign debt has a negative impact on economic growth and private investment. This confirms the problem of debt burden in Kenya. However, this study also found that temporary inward debt encouraged private investment. Debt generated does not have a negative impact on growth but will have an external impact on private investment.

Patillo et.al (2002), took an empirical study of the relationship between total external debt and GDP growth using data from 93 developing countries. The period of study was 1969-1998. Their study only looked at the amount of foreign debt, but did not distinguish between public and private debt. They reasoned that there was a non-linear relationship in the contour of a U-shaped reciprocal relationship between total foreign debt and economic growth in developing nations. At a lower layer, the bulk of foreign debt has a positive impact on growth, but this relationship is negative at a higher grade. The survey also offers a brief recap of the theoretical and empirical relationship between debt and development. Thus, Patillo et.al suggested that foreign debt channel to influence the impact of economic growth was through productivity factors and capital increase.

Patillo et.al (2004), have studied the debt channel to influence growth, especially whether debt influences growth through addition of factors or through overall factor productivity growth. Tests are also being carried out to see the non-linear effects of debt on various sources of growth. This study uses data from 61 developing countries including Sub-Saharan African countries, Asia, Latin America and the Middle East from 1969 - 1998. Data is obtained from various sources such

as the IMF and World Bank. The results show that high debt has a negative impact on economic growth either in physical capital growth or in growth in overall productivity factors. On average for countries with high debt, debt consolidation will reduce output growth by around one percent and reduce per capita physical capital and overall factor productivity growth. With regard to growth, it is estimated that one third of the effect of debt on growth occurs through physical capital growth and two thirds through overall factor productivity growth. In particular, the right conclusion is that the relationship between economic variables and the debt ratio is significant.

Schclarek (2004), has studied the linear and non-linear relationship between debt and economic growth for developing nations and industrialized nations. He used data from 59 developing countries and 24 industrialized countries, data for 5 years each from 1970 to 2002. The main source of data was obtained from World Bank World Development 2004. His research methodology uses the GMM estimation method developed by Arellano and Bover (1995) and Blundell and Bond (1998) are known as GMM panel estimator systems. The results of studies for developing countries show that external debt is associated with negative and significant economic growth, namely that low levels of overall external debt are associated with high growth rates and that this negative relationship is driven by public debt rather than private foreign debt. In channels where debt growth affects growth, it is driven by capital growth. For the level of personal savings there are mixed results. He also found no support for the U-shaped inverse relationship between foreign debt and growth. As for industrial countries, he did not find a significant relationship between government debt and economic growth.

This study was further expanded by Schclarek and Ramon (2005), for 20 Latin American and Caribbean countries, with data on average for 5 years between 1970 and 2002. The methodology used is also the GMM panel estimation method. In this study, they found that a low overall level of external debt was associated with a high rate of growth and this negative relationship was driven by the level of external debt but not by the level of private external debt. In channels where debt growth affects growth, it is also driven by capital growth. In addition, the overall factor of productivity growth and the level of private savings do not affect the level of external debt. They found no evidence of a nonlinear effect in this relationship.

Easterly (2001), found that between 1980 and 1998, the average per capita income growth in developing countries was 0.0 percent, while in the 1960-1979 growth period it was 2.5 percent. Compared to the two periods, there was a decline in growth. The results of his study prove that changes are in accordance with the standards in regression growth. Economic growth in developing countries should increase, but instead decrease in accordance with the determinants of regression growth. Therefore, he concluded that global factors such as rising interest rates, rising debt burdens for developing countries, slowing industrial growth in the world and lack of skills in technical skills that should contribute to developing countries were contributing factors. to the economic downturn. not grow. In addition, the results of his study also prove that much economic growth is not specific.

Hansen (2001), argues that the involvement of external finance in developing countries is an important topic in economic development. Three important variables, namely foreign aid, foreign direct investment, foreign loans (foreign debt) have been developed in his research. He uses cross-country Regression analysis to conduct research. Foreign aid has begun to be analyzed since the 1950s. It is generally found that foreign financial assistance will have an impact on economic growth in developing countries. The important relationship between these three variables has been debated. An interesting relationship has been suggested by the results, namely that the reaction between growth, debt and aid is not only based on a realistic theoretical model. In addition, this study also concludes that there is strong evidence that there is a positive impact on GDP per capita growth and investment levels. In the empirical analysis, there is support for the negative impact of debt and debt services. So debt will affect economic growth.

While research Antoni, et. al (2019), examined The relationship between the level of corruption and economic growth in Indonesia. He variables used are the level of corruption, government spending, consumer price index, foreign direct investment and inflation. The findings yield that government spending has positive and significant relationship with the economy growth.

This means that if there is an increase in government spending to pay debt, it will have an impact on economic growth.

Sachs (1989) and Krugman (1988), in theory state that foreign debt will lead to poor policy implementation in borrowing countries (some HIPC countries) by changing the shape of their state incentives. While Burnside, Dollar (2000) and the World Bank (1998) argue that financial assistance will not have an impact on economic growth, especially in countries with weak economic policies. However, they also demand that if a country adopts a good policy, financial assistance will encourage economic growth. Cohen (1993, 1995) on the other hand said that service debt can cause debt problems in investment. He said aid would have a positive impact on growth because it could be used when the country was facing an economic crisis. In addition, empirical evidence also shows that HIPC external funds continue to have a positive net exchange rate.

Sachs (1990), states that most developing countries bear the burden of excessive debt which impedes economic growth in the country. This survey tries to distinguish how the progress of the debt management operation can accelerate and support development in growing nations. The conclusion of his research is that the foreign debt crisis can be understood as a crisis of bankruptcy and the fiscal burden on debt services is negatively associated with economic growth in the HIPC country. Therefore, the current debt reduction approach in HIPC countries has strengthened economic growth.

Karagol (1998), examines the responses between economic development, foreign debt services and capital flows using Turkish state time series data and multi-equation models. The outcomes indicate that there is a relationship between debt and economic growth. This is because there are two relationships between service debt and economic growth. An increment in the debt ratio will lead to economic development, a reduction in the growth rate and a reduction in the ability to manage debt. When Turkey manages its debts, service debt can undermine economic growth. Dealing with large debts can worsen debt problems. In the operation of managing its debt, the Turkish state must make big loans. Other outcomes are in line with Turkey's experience in seeing that there is a relationship between debt stock and debt. The higher the debt stock, the higher the debt service.

Maghyereh and Kalaji (2004) studied the shock of foreign debt on economic development. They use new econometric techniques that provide expected procedures and deductions from facts to assure optimal levels of foreign debt. The endogenous growth model developed by Romer (1986), Lucas (1988) and Pagano (1993) have been used by them to study the relationship between foreign debt and economic growth. Empirical results demonstrate that the positive relationship between economic development and foreign debt is below a certain level (optimal foreign debt). The optimal degree of debt involvement is 53% of GDP. This implies that economic growth is negative and substantial.

C. METHODOLOGY

This research uses time series data from 1985-2018. The econometric methods adopted in this study began with the Augmented Dickey-Fuller (ADF). Dickey and Fuller (1979) test and the Said and Dickey (1984) Augmented Dickey-Fuller (ADF) data endurance test. Next, using the Vector Autoregressions (VAR) test uses the Johansen correlation method to see the long-term relationship between variables. If it is not stationary but integrated, then the error correction vector (VECM) model will be used. The variables used in this study are Gross Domestic Product (GDP), Foreign Debt (FORDEBT), Trade Openes (TOP) and Government Expenditure (GOVEXP). Data is obtained from the International Financial Statistics yearbook published by the International Monetary Fund (IMF) and the Balance of Payments Statistics yearbook.

Unit Root Test

For time sequence data, a tightness test is needed. A data is said to be not stationary if the mean, variance and covariance depend on time. Conversely, it is stationary if mean, variance and

covariance are not time dependent. However, most financial data are not static (Nelson and Plosser, 1982). If the data is not stationary and will only reach the first difference. (Gordon, 1995).

Variants and covariates that test firmness by assuming that Y_t is a stochastic time series and μ , are as follows:

$$\text{Min} \quad : E(Y_t) = \mu \quad (1)$$

$$\text{Varian} \quad : \text{var}(Y_t) = E(Y_t - \mu)^2 = \sigma^2 \quad (2)$$

$$\text{Kovarian} \quad : \gamma_k = E[(Y_t - \mu)(Y_{t+k} - \mu)] \quad (3)$$

Which γ_k is the covariance between Y and Y at the latitude k . If Y_t is stationary, the mean, variance and covariance are the same even at different latitudes and vice versa if Y_t is stationary, the mean values of variance and covariance change over time.

Vector Autoregrasif (VAR) Test

After conducting the endurance test and identifying all the variables in the regression equation as endogenous, we will continue to test the VAR model. One important feature of the VAR model is that it has no specific dependent variable. Analysis of this dependent variable will be biased because it results in a higher R^2 value and a greater t value in the lower Durbin-Watson statistics. While the Akaike Information Criteria (AIC) method is used to determine the optimal number of lags in the VAR equation.

Johansen Cointegration Test

The next step after the same level of rigidity for each set of variables is to do a cointegration test that looks at the relationships between variables. To do the integration test, Johansen's coordination test method is used. Estimated cointegration equation model is as follows:

$$LY = \alpha_0 + \alpha_{1t} + \alpha_2 + LY_{1t} + \varepsilon_t \quad (4)$$

Where LY and LY_{1t} each represent variables that have been converted into logarithmic form. If ε_t is found $I(0)$, then the two variables are said to have a long-term relationship. If the variables do not interact, a granger causality test needs to be performed to determine whether the variable is significant. In general, the F test is used to determine significant variables in the system. Otherwise it is invalid if the variables in the system are integrated.

Johansen's method procedure uses eigenvalues (Johansen, 1998). This method proves that the hypothesis of the existence of more cohesive vectors can be tested using the Trace Statistics test (Johansen and Juselius, 1990) as follows: Statistic Trace Test;

$$\lambda \text{ trace}(r) = -T \sum_{i=1}^n \ln(1 - \lambda_i^n) \quad (5)$$

where λ^n is the expected value of the eigenvalue / eigenvalue obtained from the matrix Π , T is the number of observations (absorption amounts) that can be used and n is the number of variables. Trace statistical tests are performed to test the null hypothesis and alternative hypotheses. In correlation analysis, if there is a cointegration between two variables or if two variables have a common stochastic trend, then there is at least one Granger causal relationship, either one-way or two-way. The direction of the Granger causal relationship can only be detected by an error correction vector (VECM) model derived from a cointegration vector.

Vector Error Correction Model (VECM)

After conducting the cointegration test, it was then carried out using the VECM approach introduced by Sargan & Bhargava. (1983) and later popularized by Engel and Granger (1987). The use of VECM is intended to determine the possibility of structural changes, because the long-term balance between the independent variable and the dependent variable by the cointegration test will not occur at any time, but VECM may also have a short-term relationship. Corrected latency errors

are adjustment parameters that measure short-term dispersion of long-term equilibrium relationships. If a variable has at least one coordinate vector then the error correction condition (ECT) must be specified first. Information about the variables used to form the ECT equation comes from the cointegration equation in the error correction model (ECM). ECT contains information on long-term causes. The optimal latitude will be determined first through the ECM model based on the optimal AIC (Akaike Information Criteria) value. On the other hand, if there is no coordination in the VAR equation model, then the standard error variable will be eliminated in the VECM model as follows:

$$\Delta L\{GDP_{per}\}_t = \alpha_{10} + \lambda_{L\{GDP_{per}\}} \epsilon t - 1 + \sum_{i=1}^n \delta_{1i} \Delta L\{GDP_{per}\}_{t-i} + \sum_{i=1}^n \phi_{1i} \Delta LFORDEBT_{t-i} + \sum_{i=1}^n \varphi_{1i} \Delta LTOP_{t-i} + \sum_{i=1}^n \theta_{1i} \Delta LGOVEXP_{t-i} \tag{6}$$

$$\Delta LFORDEBT_t = \alpha_{20} + \lambda_{LFORDEBT} \epsilon t - 1 + \sum_{i=1}^n \delta_{2i} \Delta L\{GDP_{per}\}_{t-i} + \sum_{i=1}^n \phi_{2i} \Delta LFORDEBT_{t-i} + \sum_{i=1}^n \varphi_{2i} \Delta LTOP_{t-i} + \sum_{i=1}^n \theta_{2i} \Delta LGOVEXP_{t-i} \tag{7}$$

$$\Delta LTOP_t = \alpha_{30} + \lambda_{LTOP} \epsilon t - 1 + \sum_{i=1}^n \delta_{3i} \Delta L\{GDP_{per}\}_{t-i} + \sum_{i=1}^n \phi_{3i} \Delta LFORDEBT_{t-i} + \sum_{i=1}^n \varphi_{3i} \Delta LTOP_{t-i} + \sum_{i=1}^n \theta_{3i} \Delta LGOVEXP_{t-i} \tag{8}$$

$$\Delta LGOVEXP_t = \alpha_{40} + \lambda_{LGOVEXP} \epsilon t - 1 + \sum_{i=1}^n \delta_{4i} \Delta L\{GDP_{per}\}_{t-i} + \sum_{i=1}^n \phi_{4i} \Delta LFORDEBT_{t-i} + \sum_{i=1}^n \varphi_{4i} \Delta LTOP_{t-i} + \sum_{i=1}^n \theta_{4i} \Delta LGOVEXP_{t-i} \tag{9}$$

Where Δ is the first variable for each variable involved and $\epsilon t - 1$ is the pending variable. When done, the correlation test proves that there is no co-integration between LGDPper and the determining variables. The optimal latitude period used is the same as when running the Johansen correlation test.

The hypothesis to measure the causes of short-term miners between economic growth and government spending (LGOVEXP) is as follows.

$$H_0 : \theta_{11} = \theta_{12} = \dots = \theta_{1n} = 0 \text{ vs } H_1 : \theta_{11} = \theta_{12} = \dots = \theta_{1n} \neq 0 \tag{10}$$

$$H_0 : \delta_{31} = \delta_{32} = \dots = \delta_{3n} = 0 \text{ vs } H_1 : \delta_{31} = \delta_{32} = \dots = \delta_{3n} \neq 0 \tag{11}$$

If the p value is greater than the average level, then the null hypothesis value will fail. Rejection of $H_0 : \theta_{11} = \theta_{12} = \dots = \theta_{1n} = 0$ (LGOVEXP) is not the cause of granger for LGDPper) which means LGOVEXP is the short-term cause of Granger of LGDPper while H_0 rejection is: $\delta_{31} = \delta_{32} = \dots = \delta_{3n} = 0$ (meaning LGDPper) is not a cause of granger for LGOVEXP) but LKDNKper means short-term cause of LGOVEXP.

Diagnostic tests are performed to see if there is an ARCH effect on the variables used. Then the normalization test will use the 'Jarque Bera' test to see if the selected data is normal. Stability tests can be done using the CUSUM test.

D. RESULT AND DISCUSSION

Unit Root Test

The unit root test is used to see the robustness of all time series variables. Table 1 using the results of the ADF method shows that all stationary variables at the level of using regression are

not correlated constant. While the first difference. it was found that all variables achieved stochasticity and the variables were consistent over time at the 1% significance level.

However, tests use regression with trends for stationary FORDEBT, TOP and GOVEXP variables in the first stage of differentiation. This shows that the ADF test uses constant regression without trend and trne is the best model because all variables in the series are silent in the first phase.

TABLE 1. Stationer Test Results Using the Dickey Augmented Fuller (ADF) Test

	τ_{μ}	τ_{τ}
A. Level I(0)		
KDNK	-2.3678	-2.9431
FORDEBT	-1.0195	-2.4391
TOP	-1.8352	-2.7569
GOVEXP	-2.3731	-2.8381
B. First Difference I(1)		
KDNK	-3.9344***	-4.6911***
FORDEBT	-6.2302***	-6.2786***
TOP	-5.9618***	-6.3630***
GOVEXP	-4.3887***	-4.8458***

Note: ADF Test; τ_{μ} without trends; τ_{τ} by trend. The (***), (**) and (*) marks respectively indicate 1%, 5% and 10% significance levels respectively. All variables are log-transformed. The value in parentheses is the optimal latitude value determined using the AIC criteria.

Johansen Cointegration Test

Cointegration test results based on the results of the study in Table 2, were found using Eigen trace or a maximum test of the existence of four integrated vector equations. These results explain that there is a long-term relationship between variables from time series. While the results of research based on trace tests have a long-term relationship with the chosen variable. The existence of cointegration means that the error correction conditions (ECT) must be taken into account in the causal test to avoid model specification errors (Granger, 1988).

TABLE 2. The Johansen-Juselius Co-integration Variable Test

H_0 : No Cointegration	Trace test	Critical value 0.05	maksimum Eigen Max	Critical value 0.05
$r=0$	126.361**	69.849	44.462**	33.887
$r \leq 1$	81.996**	47.876	35.456**	27.684
$r \leq 2$	46.862**	29.798	30.887**	21.532
$r \leq 3$	15.986*	15.497	14.889*	14.365
$r \leq 4$	1.217	3.856	1.217	3.887

* (**) Trace testing showed significant 5% (1%) significance.

Vector Error Correction Model (VECM)

As a result of the overall study, the independent variables have insignificant error correction provisions (ECT) so there is no long-term balance adjustment for the variable set. While in the short run use the Granger causality test using two optimal lags, the Wald test is used as the Granger causality test. It was found that there is a short-term causal relationship between Granger between GDP and foreign debt at the level of 1 percent. Another determinant of Granger's short-term causal relationship with GDP is government spending at the 5% level. For the export variable there is no Granger causal relationship with GDP.

TABLE 3. Test The Causality in The VECM Model

Dependent Variable Δ KDNK	F-Statistic
Δ FORDEBT(-2)	-0.375*** (16.574)
Δ LTOP(-2)	0.143 (1.237)
Δ LGOVEXP(-2)	-0.292** (3.776)
ECT_{t-1}	-0.729 (-1.737)

The values in parentheses are F. The optimum Lag is determined by the Schwarz criterion. The (***) , (**) and (*) marks show significant levels of 1% , 5% and 10% , respectively.

Diagnostic Test

Tests in the VECM model include the Autoregressive (AR) test, the ARCH test and the normalization test. The results of diagnostic tests are shown in Table 4.

TABLE 4. Diagnostic Testing of Residuals in the VECM Model

AR-Test (Breusch-Godfrey Serial Correlation LM Test)	ARCH-Test (ARCH Test')	Normality Test (Jarque Bera Test')
Ho: No serial correlation in the residual	Ho: No effect ARCH	Ho: Data is scattered normally
F statistic = 1.0994 Probability = 0.3871	F statistic = 1.0789 Probability = 0.3953	t statistic= 1.0873 Probability = 0.6988
Failure to reject Ho means no serial correlation in residuals	Failure to reject Ho means no ARCH effect	Failure to reject Ho means that data is normally distributed

Stability Test

The CUSUM test shows that the data used are stable because the CUSUM statistical plot is around zero and does not exceed the 5 percent confidence interval. The results using the CUSUM test as shown in Figure 1,

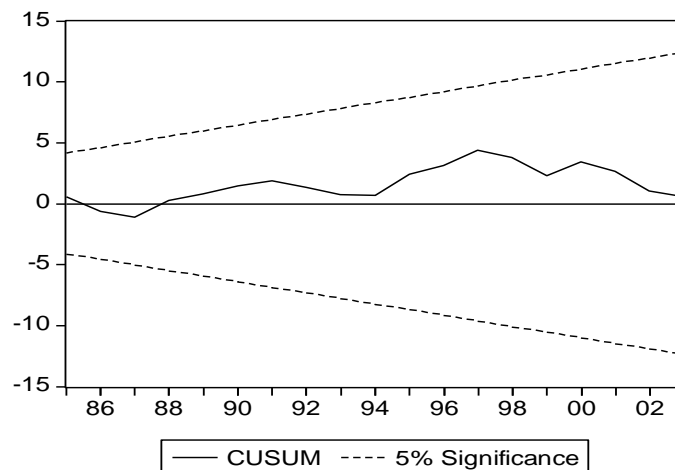


Figure 2. CUSUM Stability Test

E. CONCLUSION AND RESEARCH IMPLICATION

Based on the results of empirical research, the results can be concluded. First, all variables such as foreign debt, open trade, and government spending are not significant in the long run. The second concludes that there is a significant negative relationship between foreign debt and economic growth. This means that foreign debt is increasing, and economic growth is slowing down in the short term. Third, this study found that significant government expenditure variables negatively affect short-term economic growth. The trade opening and consumer spending variables do not significantly affect economic growth.

The significance of the results indicates that foreign debt variables significantly influence economic development in the short term. In that location is an opposite relationship between external debt and economic growth because of the increasing debt burden that will bear on economic development. So foreign debt has no role in driving the country's economic growth. However, to achieve better economic growth, it is necessary to manage foreign debt effectively so that the burden of debt is reduced. In addition, the government must plan a schedule for repaying foreign debt so that it can be repaid within the specified period while avoiding additional interest. These studies are consistent with the findings of Easterly (2001) and Hansen (2001) which show that the burden of foreign debt will have an adverse effect on economic growth.

The results also show that government expenditure variables significantly influence economic growth in the short term. But the relationship is negative. Therefore the government needs to ensure that the right spending trends can benefit the country's economic growth. However, this research has several limitations that need to be overcome in the future such as not taking into account the factors that will supply which also affect economic growth such as human, technological, social and political factors. Therefore, further research needs to be considered in future studies by considering aspects of demand and supply.

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