

# Analysis of Foreign Debt Determinants of Developing ASEAN Countries

Muhammad Randi, \*Vivi Silvia, Ernawati

Department of Economics, Faculty of Economics and Business, Syiah Kuala University, Darussalam, Banda Aceh, Indonesia

\*Corresponding author

DOI: https://dx.doi.org/10.47772/IJRISS.2023.70872

Received: 10 July 2023; Revised: 25 July 2023; Accepted: 28 July 2023; Published: 26 August 2023

### ABSTRACT

The foreign debt of the 6 countries in ASEAN has increased for several years, but uniquely the increase in foreign debt is in line with the increase in foreign direct investment. This study examines and analyzes the effect of Gross Domestic Product, inflation, exchange rates, investment and capital flight on external debt in 6 ASEAN countries during the 1997-2021 period. The study uses panel data regression, after carrying out the Chow test and Hausman test, the estimation used is the Fixed Effect Model (FEM). The results of testing the model show that Gross Domestic Product, inflation and the exchange rate have a significant negative effect on external debt, while investment and withdrawal of capital have a significant positive effect on external debt. The government must concentrate on profitable sectors with a view to increasing the production and income base to minimize foreign debt, create relatively stable macroeconomic and financial conditions and maintain political stability, national defense and social security so that economic actors can feel safe in carrying out economic activities.

Keywords: External debt, Gross Domestic Product, Inflation, Exchange rate, Investment, Capital flight

## INTRODUCTION

In facing an unstable economy every year, a country must have a strategy to fulfill development financing, so that the economy becomes more stable. Funding for development is basically obtained through domestic and foreign revenues. Domestic revenue is mostly sourced from the tax sector, foreign revenue can be in the form of foreign direct investment or foreign debt. In the case of developing countries, the availability of national savings is usually very minimal and with an immature economy, the tax base which is the main source of government revenue is also inadequate, the option of increasing revenue by increasing tax rates is feared to have a counterproductive effect on the economy (Prihandoko, 2017).

Development is a multidimensional process that includes various fundamental changes to social structures, values ??and norms of society, and national institutions, in addition to continuing to pursue accelerated economic growth, development is also to address income inequality (Todaro & Smith, 2014). In general, many developing countries depend on foreign debt as capital in their development, which of course this debt will affect the country's balance of payments. In the short term, foreign debt affects economic growth, because the existence of foreign debt can improve development conditions and can increase economic growth and help the government's efforts to overcome budget deficits (Cahyani & Priyono, 2022).

In the long term, the accumulation of foreign debt and the interest will be paid through the state budget in installments every fiscal year. This resulted in the national development budget being low (Fadillah & Sutjipto, 2018). Although financing through foreign debt is very important for development, poor debt management can harm economic growth. (Sheng & Sukaj, 2021). Indonesia has the largest foreign debt among Southeast Asia's lower-middle-income countries. Based on this data, in 2021 Indonesia will have a



total foreign debt of US\$416.47 billion, far exceeding the debt of neighboring countries. The cause of Indonesia's foreign debt continues to increase, which is caused by two-thirds due to a balance of payments deficit, while one third is due to exchange rate fluctuations (Nugraha et al., 2021). ASEAN countries as developing countries often have a big dependence on foreign debt. If there is an increase in foreign debt every year, it can have an impact on increasing the domestic money supply. If it is not controlled, it will cause inflation (Abidin et al., 2022).

When the inflation rate is higher, the cost of living will also increase. High inflation can cause an increase in nominal interest rates thereby disrupting the investment climate and disrupting achievement of economic growth rates (Di & Asean, 2021). Apart from economic growth and inflation, the exchange rate is also one of the factors that affect a country's foreign debt. When the exchange rate falls, it becomes more expensive for a country to service its foreign debt, and this can lead to more debt to be paid. If this situation is not corrected, it could lead to higher inflation and a weaker exchange rate. Because the foreign debt is in the form of money from other countries. If the value of a currency against a foreign currency increases or decreases, this affects foreign debt. To increase economic growth in the ASEAN region, various methods are carried out, namely by making it easier for foreign investors to enter the country. Throughout 2021 ASEAN member countries received Foreign Direct Investment (FDI) or foreign direct investment with a total value of US\$174 billion. The flow of foreign direct investment to ASEAN in 2021 will increase by 42 percent from the previous year. This shows the strength of the region's resilience, even though it has been hit by waves of pandemics many times. In 2021 the ASEAN country that has received the most inflows of foreign investment is Indonesia, which has received 21.16 billion foreign investments. Then there are Vietnam, Thailand, Philippines, Cambodia, Laos with details as shown in the chart. Throughout 2021 the most foreign investment flows to ASEAN will come from the United States, China and Japan.

Improper use of developing country debt indicates Capital Flee, which means part of the debt is repatriated abroad. Capital flight according to Kuncoro (2016), is generally interpreted as the flow of capital abroad in the short term, and is usually used for speculative purposes. The negative impacts of capital flight according to Kuncoro (2010) are growth costs (limiting the potential for national economic growth), causing erosion in the tax base, and causing negative consequences on income distribution as a result of capital flights financed by increasing foreign debt. Foreign debt can provide benefits in strengthening investment and economic growth in ASEAN countries. The amount of investment received by ASEAN in 2021 is worth 174 billion US dollars, continuing to increase from the previous year. Even though the amount of investment received by ASEAN has increased, the foreign debt of ASEAN countries has not shown a decrease every year. The greater the investment received by a country, the more it can boost the economy. This shows that investment management is unable to reduce the amount of ASEAN's foreign debt.

As in the case example where GDP has a positive influence on ASEAN's foreign debt (Abidin et al., 2022). GDP can also have a negative impact on Somalia's foreign debt (Omar & Ibrahim, 2021). In addition, the effect of inflation varies in each country and period of year, such as inflation which has a positive and significant effect on Nigeria's foreign debt (Olaoye, 2019), but inflation can have a negative and significant effect on Indonesia's foreign debt (Saputra et al., 2019). The exchange rate variable also affects the differences in the results of the study. Research by Silvia & Tyas, (2014) found that the exchange rate had a positive and significant effect on foreign debt, in contrast to the results of research by Fadillah & Sutjipto, (2018), which obtained negative and significant results on foreign debt.

In the investment variable, research by Dawood et al., (2021) and Abubakar & Mamman, (2021), obtained negative and significant investment returns on foreign debt, while Omar & Isse Ibrahim's research, (2021) obtained positive and significant investment returns on foreign debt. In addition, the results of the marginal effect show that a low rate of capital flight has no effect on foreign debt and economic growth. Conversely, the high incidence of capital flight exacerbates the impact of foreign debt and economic growth (Agyeman et al., 2022).



### LITERATURE REVIEW

The basic factors that encourage developing countries to need foreign loans are the existence of a condition faced by almost every developing country, namely the problem of limited funds to finance the development process both from within the country and from abroad. This condition is called the Dual Gap Analysis or known as the two gap models, namely the gap between investment and savings (I – S gap) and the gap between exports and imports or the foreign exchange gap (M – X gap). ). This model was introduced by (Chenery, 1967). The rationale is that the savings gap and foreign exchange gap are two separate and independent constraints on achieving the target growth rate in developing countries. Chenery sees foreign aid or debt as a way to close the two gaps in order to achieve the targeted rate of economic growth.

The two gap model broadly supports the use of external financing sources as the best choice to achieve sustainable development. However, implicitly there is a note that must be remembered in the use of external sources, especially debt to finance development, namely that the use of debt should be used for productive activities which in turn will generate new income that can cover the debt burden that must be borne in the future (income generating investment).

This theory explains the saving gap which reflects the amount of funds needed to complete the shortage of domestic savings, and the exchange gap which reflects the amount of additional capital (foreign exchange) required beyond the country's ability to obtain from its exports. The reduced fiscal capacity limits the government's ability to carry out development so that at this point debt is no longer a driver, but has become a barrier to growth. One theory that explains the turning point in the role of debt is the debt overhang theory. This theory is adapted from the logic in the Laffer Curve. The laffer curve for debt describes the non-linear relationship between the amount of debt and the expected ability to pay.

Krugman, (1988) states that the debt overhang theory explains that if there is a tendency in the future for debt burdens, the expectation of debt repayment costs reduces future investment, both domestic and foreign because investment returns that can be used to further grow the economy will shrink because some of the results from the economy will not be enjoyed by the country, but must be given to the lender country.

The Debt Laffer Curve theory shows that countries that have larger amounts of debt both externally and internally have a higher chance of default (Pattilo et al., 2002). The debt laffer curve provides an explanation of the debt overhang hypothesis in which this theory explains that debt has an optimal level for a country, especially at the Gross Domestic Product (GDP) level, so that debt can have a positive impact on economic growth for that country until it reaches a certain limit, but if debt has exceeded the limit, then it will actually be detrimental to the country. Large accumulations of debt stocks can discourage investment and reduce growth due to the imposition of high marginal taxes by external creditors (Krugman, 1988).

## METHODOLOGY

This study discusses the analysis of foreign debt determinants of 6 ASEAN countries, there are 4 countries that do not have foreign debt data, namely; Myanmar, Singapore, Brunei Darussalam and Malaysia. So that this research only focuses on Indonesia, Thailand, the Philippines, Laos, Cambodia and Vietnam. The variables used are foreign debt, Gross Domestic Product, inflation, exchange rates, investment and capital flight. The research period is 25 years from 1997-2021. The scope of this research is the field of international economics. using quantitative data, the data source used is secondary data, obtained from the World Bank and IMF in the form of publications. The collection time uses Panel Data, combining both types of data, both cross section data and time series data (Silvia, 2020)

Data analysis used in this research is descriptive and inferential statistics. Descriptive statistics aim to



provide an overview of the data through graphs, tables and images. The method of explaining data descriptively is the use of tables and graphs appropriately so that the information conveyed can be channeled perfectly according to statistical rules. Furthermore, inferential statistics to find out how much influence each independent variable has on the dependent variable uses panel data regression (Fijay et al., 2021).

Panel data regression analysis is used to determine the magnitude of the influence of the independent variables on the dependent variable. In general, the independent variable is a function of all dependent variables. This relationship can be denoted in the form:

Y=f(X1,X2,X3,...,Xn)... (3.1)

or in the form of a regression equation, namely:

 $Yit=\alpha 0+\beta 1X1it+\beta 2X2it+...+\beta nXnit+\epsilon it (Gujarati, 2022)....(3.2)$ 

By including Gross Domestic Product, inflation, exchange rates, investment and capital flight as independent variables and foreign debt as the dependent variable, the model formed in this study is:

 $LOGULNit = \alpha 0 + \beta 1PDBit + \beta 2INFit + \beta 3LOGNTit + \beta 4IVTit + \beta 5PMit + \varepsilon it....(3.3)$ 

Information:

ULNit = foreign debt in 6 ASEAN countries i, in year t

PDBit = Gross Domestic Product in 6 ASEAN countries i, in year t

INFit = inflation in 6 ASEAN countries i, in year t

NTit = exchange rate in 6 ASEAN countries i, in year t

IVTit = investment in 6 ASEAN countries i, in year t

PMit = capital flight in 6 ASEAN countries i, in year t

 $\varepsilon it = residual$ 

 $\alpha 0 = constant$ 

 $\beta$ 1,  $\beta$ 2,  $\beta$ 3, $\beta$ 4, $\beta$ 5 = regression coefficient

i = 1, 2, 3, ..., 6 (number of cross sections of 6 countries in ASEAN)

t = 1, 2, 3, ..., 25 (number of time series during 1997-2021)

Foreign debt and exchange rate data are subject to logarithmic transformation which is interpreted as the growth of the foreign debt and exchange rate variables.

### **RESULT AND INTERPRETATION**

#### **Results of Selection of the Best Model for Panel Data Regression**

This study uses the panel data equation. In panel data regression, parameter coefficient estimation can be done through 3 approaches namely CEM, FEM, and REM. To determine the best estimation model, Chow



test, Hausman test, and Langrange Multiplier test can be carried out.

Table 4.1 shows the test results regarding the selection of the best model in the two research models. In the first stage, the Chow test was carried out to determine whether the CEM or FEM model was the best. The Chow test results show that the p-value is 0.0000 so that the p-value < ? = 1 percent or 0.0000 < 0.01. That is, with a significance level of 1 percent, a decision is made to reject H0 or accept Ha so that FEM is better than CEM.

 Tabel 4.1 Selection of the Best Panel Data Regression Model

Model	Probability	Conclusion		
	Chow test	Hausman test	Langrange Multiplier Test	Conclusion
	210,112326***	425,095054***		
Model	(0,0000)	(0,0000)	_	FEM

Source: Data processed by Eviews (2023).

Note: \*\*\* 1 percent significance, \*\* 5 percent significance.

Then in the second stage, the Hausman test was carried out to determine whether the REM or FEM model was the best. The Hausman test has a p-value of 0.0000 so that the p-value  $< \alpha = 1$  percent or 0.0000 < 0.01. That is, with a significance level of 1 percent, a decision is made to reject H0 or accept Ha so that FEM is better than REM.

#### **Classical Assumption Test Results**

Testing the classical assumptions on panel data regression is necessary to ensure that the estimated parameter coefficients will be BLUE (Best, Linear, Unbiased, and estimator). In this study, classical assumption tests were carried out including normality, heteroscedasticity, multicollinearity, and autocorrelation. The results of testing the classical assumptions can be seen in Table 4.2.

Tabel 4.2 Classical Assumption Test Results

Uji	Model
Normalitas	1,1749
(Jarque Bera)	(0,5557)
Heteroskedastisitas	
(Breusch-Pagan-Godfrey)	0,4429
Multikolilinieritas	
(VIF)	VIF<10

Source: Data processed by Eviews (2023).

In the model, the normality assumption test was carried out by the Jarque Bera test and the Jarque Bera



statistic was 1.1749 with a p-value of 0.5557. Based on this, a decision can be taken to accept H0, which means that with a significance level of 5 percent, the residuals in the model are normally distributed or meet the assumptions of normality. Furthermore, the heteroscedastic assumption test using Test: Breusch-Pagan-Godfrey shows a p-value of 0.4429, greater than alpha 5 percent or 0.4429 > 0.05 which indicates accept H0. That is, with a significance level of 5 percent it can be stated that there is no heteroscedasticity in the model. Then the multicollinearity test shows that there are no multicollinearity problems, where the VIF value < 10 (Appendix).

Basuki (2017), The classic assumption test used in linear regression with the Ordinary Least Squared (OLS) approach includes Linearity, Autocorrelation, Heteroscedasticity, Multicollinearity and Normality tests. However, not all classical assumption tests must be performed on every linear regression model with the OLS approach. Autocorrelation only occurs in time series data. Testing autocorrelation on data that is not time series (cross section or panel) will be useless or meaningless.

Variabel	Koefisien	t-Statistik	Prob.
PDB	-0,001	-22,905	0,0235
INF	-0,0085	-28,240	0,0054
NT	-0,4927	-29,326	0,0039
IVT	0,0537	40,548	0,0001
PM	0,0073	50,453	0,0000
С	203,311	166,999	0,0000
R-squared	0,9175	F-statistic	1,545,949
Adjusted R-squared	0,9115	Prob(F-statistic)	0,0000

Tabel 4.3 Estimation Results of Panel Data Linear Regression Using Fixed Effect Model Approach

The Gross Domestic Product variable has a p-value of 0.0235 with a decision to reject H0. This means that Gross Domestic Product has a significant negative effect on foreign debt with a significance level of 5 percent. If GDP increases by 1 billion dollars, it will reduce foreign debt by 0.0012 percent, ceteris paribus. When GDP increases, it means that national income on the output of goods and services increases and the country has an increase in capital to carry out its economic activities in the next period, which means that the government will be able to reduce the amount of foreign debt, it is possible not to increase the debt burden, because there is an increase in that income. GDP leads to increase living standards, national income and savings, and will lead to a decrease in foreign debt (Mohamed Omar & Isse Ibrahim, 2021).

The inflation variable has a p-value of 0.0054. This means that significant inflation has a negative effect on foreign debt with a significance level of 1 percent. If inflation rises by 1 percent, the foreign debt will decrease by 0.0085 percent, ceteris paribus. When domestic inflation is high, the lender will reconsider its decision to lend. This is due to the high risk of the recipient country (debt) not being able to repay the debt, including interest and the principal loan. So that when the domestic inflation rate increases, the volume of foreign debt absorption will decrease (Saputra et al., 2019).

The exchange rate variable has a p-value of 0.0039. This means that the exchange rate has a significant negative effect on foreign debt with a significance level of 1 percent. If the exchange rate increases by 1 percent, the foreign debt will decrease by 0.4927 percent, ceteris paribus. Yang et al., 2018 foreign debt exchange rates have a considerable risk, because foreign debt is in the form of foreign currency. If there is an appreciation or depreciation of the exchange rate against foreign currencies, it will have an impact on foreign debt. Appreciation will cause the foreign debt to decrease because a country pays its foreign debt in foreign currency, and vice versa.



The investment variable has a p-value of 0.0001. This means that with a significance level of 1 percent, investment has a significant positive effect on foreign debt. If investment increases by 1 billion, it will increase foreign debt by 0.0537 percent, ceteris paribus. If foreign investment increases, the accumulation of foreign debt will increase, and vice versa. This is because the level of private sector savings continues to increase, but in reality the increase in domestic savings has not been able to meet private needs. Theoretically the gap between savings and investment is then covered with foreign aid. Dependence on foreign investment and foreign debt in the short term will increase a country's economic growth, but in the long term foreign investment and foreign debt will hinder economic growth (Dewi & Dewi, 2019).

The modal escape variable has a p-value of 0.0000 or the decision to reject H0. That is, with a significance level of 1 percent, capital flight has a significant positive effect on foreign debt. If capital flight increases by 1 billion dollars, it will increase the foreign debt by 0.0073 percent, ceteris paribus. Flight driven external borrowing in the case of flight driven external debt, capital flight causes foreign debt. The existence of capital flight causes the depletion of foreign exchange sources needed by the government. To cover it, the government then made loans abroad (Yuniarti, 2009).

# CONCLUSION AND POLICY IMPLICATIONS

Based on the presentation of the results of the study using panel data regression analysis, gross domestic product, inflation, exchange rates, investment and capital flight simultaneously have a significant effect on foreign debt. Meanwhile, partially Gross Domestic Product, inflation, exchange rates have a significant negative effect on foreign debt. This means that if the Gross Domestic Product, inflation, exchange rate increases partially, it will reduce the foreign debt. Meanwhile, investment and capital flight have a significant positive effect on foreign debt. This means that if investment and capital flight partially increase, it will increase the foreign debt. The implications of this research are based on the government must concentrate on profitable sectors with a view to increasing production base and revenue to minimize foreign debt, government spending and imports. In reducing dependence on foreign debt, it is necessary to make serious efforts, for example prioritizing the use of foreign debt so that it can be used effectively and efficiently to really boost economic growth. The government is expected to create relatively stable macroeconomic and financial conditions to reduce uncertainty by implementing macroeconomic policies regarding interest rates and real exchange rates. The government maintains political stability, national defense and social security so that economic actors can feel safe in carrying out economic activities.

## REFERENCE

- 1. Abidin, R. N., Syahnur, S., & Suriani, S. (2022). Pengaruh variabel makroekonomi terhadap utang luar negeri di negara ASEAN-7. Jurnal Samudra Ekonomi Dan Bisnis, 13(2), 136–150. https://doi.org/10.33059/jseb.v13i2.3984
- 2. Abubakar, A. B., & Mamman, S. O. (2021). Effect of public debt on private investment in Nigeria: Evidence from an asymmetric dynamic model. Economic and Financial Review, 59(3), 59–86.
- 3. Agyeman, G., Sakyi, D., & Oteng-Abayie, E. F. (2022). External debt and economic growth in selected sub-Saharan African countries: The role of capital flight. Research in Globalization, 5, 100091.
- 4. Basuki, A. T. (2017). Analisis regresi dalam penelitian ekonomi dan bisnis.
- Cahyani, A. R. N., & Priyono, N. (2022). Analysis of degrees of regional original income decentralization and independence and the relationship with regional expenditure productivity in Magelang regency 2016-2020. Journal of Management, Accounting, General Finance and Internasional Economic Issues(Marginal), 1(2), 1–10.
- 6. Chenery, H. B. (1967). Foreign assistance and economic development. Springer.
- 7. Dawood, M., Baidoo, S. T., & Shah, S. M. R. (2021). An empirical investigation into the determinants



of external debt in Asian developing and transitioning economies. Development Studies Research, 8(1), 253–263. https://doi.org/10.1080/21665095.2021.1976658

- Dewi, P. K., & Dewi, M. H. U. (2019). Pengaruh penanaman modal asing , cadangan devisa , dan apbn terhadap utang luar negeri indonesia melalui impor tahun 1996-2015. E-Jurnal EP Unud, 15(1), 121–151. https://ojs.unud.ac.id/index.php/piramida/article/view/55763
- 9. Di, S. T., & Asean, N. E. (2021). Pengaruh utang luar negeri, inflasi, dan pendapatan negara terhadap pertumbuhan ekonomi: Studi di 6 negara Asean. 1.
- Fijay, A. H., Silvia, V., & Seftarita, C. (2021). The effects of monetary variables on the growth of small and medium industry in Aceh province. International Journal of Quantitative Research and Modeling, 2(3), 125–131. https://doi.org/10.46336/ijqrm.v2i3.175
- 11. Gujarati, D. N. (2022). Basic econometrics. Prentice Hall.
- 12. Krugman, P. (1988). Financing vs. forgiving a debt overhang. Journal of Development Economics, 29(3), 253–268.
- 13. Kuncoro, M. (2010). Dasar-dasar ekonomika pembangunan. Yogyakarta: UPP STIM YKPN.
- 14. Kuncoro, M. (2016). Manajemen keuangan internasional: Pengantar ekonomi dan bisnis global.
- 15. Mohamed Omar, Z., & Isse Ibrahim, M. (2021). Determinants of external debt: The case of somalia. Asian Development Policy Review, 9(1), 33–43. https://doi.org/10.18488/journal.107.2021.91.33.43
- 16. Neng Dilah Nur Fadillah, A., & Sutjipto, H. (2018). Analisis faktor-faktor yang mempengaruhi utang luar negeri Indonesia. Jurnal Ekonomi-Qu, 8(2), 21–34. https://doi.org/10.35448/jequ.v8i2.4449
- 17. Nugraha, N., Kamio, K., & Gunawan, D. S. (2021). Faktor-faktor penyebab utang luar negeri dan dampaknya terhadap pertumbuhan ekonomi Indonesia. Jurnal Ilmiah Universitas Batanghari Jambi, 21(1), 21. https://doi.org/10.33087/jiubj.v21i1.1160
- 18. Olaoye, O. O. (2019). External debt and private investment in Nigeria. BVIMSR's Journal of Management Research, 11(1), 19–28.
- 19. Pattillo, C., Poirson, H., & Ricci, L. (2002). External debt and growth. Finance and Development, 39(2), 32–35. https://doi.org/10.5089/9781451849073.001
- 20. Prihandoko, H. (2017). Percepatan Pembangunan Infrastruktur dan Penambahan Utang Luar Negeri Pemerintah: Potensi Manfaat vs Potensi Risiko. Indonesian Treasury Review Jurnal Perbendaharaan Keuangan Negara Dan Kebijakan Publik, 2(4), 1–14. https://doi.org/10.33105/itrev.v2i4.41
- 21. Saputra, D., Aimon, H., & Adry, M. R. (2019). Analisis faktor-faktor yang mempengaruhi utang luar negeri di Indonesia. Jurnal Ecogen, 1(3), 482–493.
- Sheng, X. S., & Sukaj, R. (2021). Identifying external debt shocks in low- and middle-income countries. Journal of International Money and Finance, 110, 102283. https://doi.org/10.1016/j.jimonfin.2020.102283
- 23. Silvia, V. (2020). Statistika deskriptif. Penerbit Andi.
- 24. Silvia, V., & Tyas, S. (2014). Analisis utang luar negeri indonesia. SI-MEN (Akuntansi Dan Manajemen) STIES, 4(2), 104–122.
- 25. Todaro, M.-S., & Smith, C. (2014). s./2012: Economic Development-. Ke-11. Boston (US): Pearson.
- 26. Yang, A. N. F., Utang, M., & Indonesia, L. N. (2018). Analisis faktor-faktor yang mempengaruhi utang luar negeri Indonesia. 8(2), 212–226.
- 27. Yuniarti, D. (2009). Uji Kausalitas : Utang luar negeri dan capital flight di Indonesia, 1974-2002. Economic Journal of Emerging Markets, 10(3 SE-Articles). https://doi.org/10.20885/ejem.v10i3.614

## TEST REPORT

#### **Chouw Test**

Redundant Fixed Effects Tests	
Equation: Untitled	
Test cross-section fixed effects	



Effects Test		Statistic	d.f.	Prob.
Cross-section F	Cross-section F			0.0000
Cross-section Chi-square		210.112326	5	0.0000
Cross-section fixed effects test equation	n:		-	
Dependent Variable: LOGULN				
Method: Panel Least Squares				
Date: 06/24/23 Time: 13:51				
Sample: 1997 2021				
Periods included: 25				
Cross-sections included: 6				
Total panel (balanced) observations: 15	50			
Variable	Coefficient	Std. Error	t-Statistic	Prob.
PDB	0.003329	0.000598	5.564801	0.0000
INFLASI	-0.006476	0.005580	-1.160643	0.2477
LOGNILAI_TUKAR_PER1DOLLAR	0.132349	0.036534	3.622620	0.0004
INVESTASI	0.023448	0.021012	1.115896	0.2663
CAPITAL_FLIGHT	0.002813	0.002145	1.311598	0.1917
С	24.27851	0.304088	79.84046	0.0000
R-squared	0.665215	Mean dep	ean dependent var	
Adjusted R-squared	0.653591	S.D. depe	ndent var	1.534093
S.E. of regression 0.902914 Akaike inf		fo criterion	2.672800	
Sum squared resid 117.3966 Schwa		Schwarz o	Schwarz criterion	
Log likelihood -194.4600		Hannan-Quinn criter.		$2.72\overline{172}5$
F-statistic	57.22544	Durbin-W	atson stat	0.061801
Prob(F-statistic)	0.000000			

#### Hausman test

Correlated Random Effects – Hausman Test					
Equation: Untitled					
Test cross-section random effects					
Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.	
Cross-section random		425.095054	5	0.0000	
** WARNING: estimated cross-section	n random effe	cts variance is zero.			
Cross-section random effects test comparisons:					
Variable	Fixed	Random	Var(Diff.)	Prob.	
PDB	-0.001214	0.003329	0.000000	0.0000	
INFLASI	-0.008560	-0.006476	0.000001	0.0614	
LOGNILAI_TUKAR_PER1DOLLAR	-0.492777	0.132349	0.027893	0.0002	
INVESTASI 0.053722 0.023448 0				0.0001	
CAPITAL_FLIGHT 0.007344 0.002813 0.000001					
Cross-section random effects test equation:					
Dependent Variable: LOGULN					



Method: Panel Least Squares						
Date: 06/24/23 Time: 13:53						
Sample: 1997 2021						
Periods included: 25						
Cross-sections included: 6						
Total panel (balanced) observations: 15	50					
Variable	Coefficient	Std. Error	t-Statistic	Prob.		
С	20.33113	1.217440	16.69991	0.0000		
PDB	-0.001214	0.000530	-2.290535	0.0235		
INFLASI	-0.008560	0.003031	-2.824025	0.0054		
LOGNILAI_TUKAR_PER1DOLLAR	-0.492777	0.168029	-2.932685	0.0039		
INVESTASI	0.053722	0.013249	4.054864	0.0001		
CAPITAL_FLIGHT	0.007344	0.001456	5.045337	0.0000		
	Effects Speci	fication				
Cross-section fixed (dummy variables)						
R-squared	0.917505	Mean dependent	var	24.25198		
Adjusted R-squared	0.911570	S.D. dependent v	var	1.534093		
S.E. of regression	0.456196	96 Akaike info criterion		1.338717		
Sum squared resid	28.92797	Schwarz criterion		1.559497		
Log likelihood -89.40380 Hannan-Quinn criter.			riter.	1.428413		
F-statistic	154.5949	Durbin-Watson	Durbin-Watson stat			
Prob(F-statistic)	0.000000					

# Fixed Effect Model (FEM)

Dependent Variable: LOGULN					
Method: Panel Least Squares					
Date: 06/24/23 Time: 13:47					
Sample: 1997 2021					
Periods included: 25					
Cross-sections included: 6					
Total panel (balanced) observations: 15	50				
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
PDB	-0.001214	0.000530	-2.290535	0.0235	
INFLASI	-0.008560	0.003031	-2.824025	0.0054	
LOGNILAI_TUKAR_PER1DOLLAR	-0.492777	0.168029	-2.932685	0.0039	
INVESTASI	0.053722	0.013249	4.054864	0.0001	
CAPITAL_FLIGHT	0.007344	0.001456	5.045337	0.0000	
С	20.33113	1.217440	16.69991	0.0000	
	Effects Spec	rification			
Cross-section fixed (dummy variables)					
R-squared 0.917505 Mean dependent var				24.25198	
Adjusted R-squared	0.911570 S.D. dependent var			1.534093	
S.E. of regression	0.456196	Akaike inf	fo criterion	1.338717	



Sum squared resid	28.92797	Schwarz criterion	1.559497
Log likelihood	-89.40380	Hannan-Quinn criter	. 1.428413
F-statistic	154.5949	Durbin-Watson stat	0.241842
Prob(F-statistic)	0.000000		

#### Normalitas test



# Multikolilinieritas test

Variance Inflation Factors				
Date: 06/24/23 Time: 13:59				
Sample: 1 150				
Included observations: 150				
	Coefficient	Uncentered	Centered	
Variable	Variance	VIF	VIF	
PDB	3.58E-07	7.759081	4.719752	
LOGNILAI_TUKAR_PER1DOLLAR	0.001335	14.63517	1.633150	
INFLASI	3.11E-05	1.326592	1.060043	
INVESTASI	0.000442	5.294275	3.148739	
CAPITAL_FLIGHT	4.60E-06	5.520542	3.273813	
С	0.092469	17.01360	NA	

#### Heteroskedastisitas test

Heteroskedasticity Test: Breusch-Pagan-Godfrey							
F-statistic	0.948612	Prob. F(5	Prob. F(5,143)				
Obs*R-squared	4.783413	Prob. Ch	i-Square(5)	0.4429			
Scaled explained SS	182.7527	Prob. Chi-Square(5)		0.0000			
Test Equation:							
Dependent Variable: RESID^2							
Method: Least Squares							
Date: 06/24/23 Time: 14:46							
Sample: 2 150							
Included observations: 149							



ISSN No. 2454-6186 | DOI: 10.47772/IJRISS |Volume VII Issue VII July 2023

Variable	Coefficient	Std. Error	t-Statistic	Prob.
С	0.640176	0.311044	2.058153	0.0414
PDB	2.55E-05	0.001478	0.017257	0.9863
NLOGNILAI_TUKAR_PER1DOLLAR	0.500577	0.271638	1.842810	0.0674
INFLASI	0.005370	0.014369	0.373704	0.7092
INVESTASI	-0.011136	0.053553	-0.207947	0.8356
CAPITAL_FLIGHT	-0.003014	0.004434	-0.679659	0.4978
R-squared	0.032103	Mean dependent var		0.252654
Adjusted R-squared	-0.001739	S.D. dependent var		2.308960
S.E. of regression	2.310967	Akaike info criterion		4.552644
Sum squared resid	763.7013	Schwarz criterion		4.673609
Log likelihood	-333.1720	Hannan-Quinn criter.		4.601790
F-statistic	0.948612	Durbin-V	Vatson stat	1.970088
Prob(F-statistic)	0.451679			