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Analysis of Factors Affecting Indonesian Government Debt

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Abstract
This study aims to determine the effect of Gross Domestic Product, New Debt Withdrawal, Exchange Rate, Inflation and Foreign Exchage Reserves on Indonesian Government Debt in 1988-2022. The analysis technique used time series data regression analysis with the Error Correction Model (ECM) method processed using Eviews 10. The result of the study partially show that GDP has a negative and significant effect on government debt in the long term and has no significant effect in the short term, New debt withdrawal has a positive and significant effect in the long term and short term, Exchange rate has a positive and significant effect in the long term and short term, inflation has a negative and significant effect in the long term and short term, and Foreign Exchange Reserves have a positive and significant effect in the long term and short term. Simultaneously, the variables GDP, New debt withdrawal, Exchange rate, Inflation and Foreign Exchage Reserves affect Indonesian Government Debt in 1988-2022.

Keywords: Indonesian Government Debt, Factor Affecting Government Debt, Error Correction Model (ECM).

Abstrak

Penelitian ini bertujuan untuk mengetahui pengaruh Produk Domestik Bruto, Penarikan Utang Baru, Kurs, Inflasi dan Cadangan Devisa terhadap Utang Pemerintah Indonesia tahun 1988-2022. Teknik analisis yang digunakan adalah analisis regresi data time series dengan metode Error Correction Model (ECM) yang diolah menggunakan Eviews 10. Hasil penelitian secara parsial menunjukkan bahwa PDB berpengaruh negatif dan signifikan terhadap utang pemerintah dalam jangka panjang dan tidak berpengaruh signifikan dalam jangka pendek, Penarikan utang baru berpengaruh positif dan signifikan dalam jangka panjang dan jangka pendek, Kurs berpengaruh positif dan signifikan dalam jangka panjang dan jangka pendek, Inflasi berpengaruh negatif dan signifikan dalam jangka panjang dan jangka pendek, dan Cadangan Devisa berpengaruh positif signifikan dalam jangka panjang dan jangka pendek. Secara simultan, variabel PDB, Penarikan Utang Baru, Kurs, Inflasi dan Cadangan Devisa berpengaruh terhadap Utang pemerintah Indonesia tahun 1988-2022.

***Kata Kunci**: Utang Pemerintah Indonesia, Faktor-Faktor yang Mempengaruhi Utang Pemerintah, Erorr Correction Model (ECM).*

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INTRODUCTION

Indonesia's government debt is increasing from year to year. During the two periods of President Joko Widodo's administration, there was a significant increase in the amount of government debt. Quoting from the Ministry of Finance's report on the March 2024 edition of the State Budget, the total government debt as of the end of February 2024 was recorded at IDR 8,319.22 trillion with a proportion of 71.92% of domestic debt and most of the instruments were in the form of SBN which reached 88.19% (Ministry of Finance, 2024).

In 2020, there was a significant increase in debt of IDR 1,295.28 trillion, then increased again by IDR 834.31 trillion in 2021. The percentage increase in debt in 2020 was the highest because at that time there was a Covid-19 pandemic which required huge handling costs, but on the other hand state revenue was hampered because there was no economic activity from the community so that government debt continued to increase to cover the state budget deficit which was growing during the pandemic.

Debt transactions in Indonesia have existed since the beginning of independence, even the government of the Soekarno era inherited a debt from the colonial government of the Dutch East Indies of 4 billion US dollars which had to be repaid by the Indonesian government at that time. At the beginning of 1970 the position of External Debt was only US$2.52 billion, then increased to US$20.9 billion at the end of 1980 and reached the highest position of US$150.89 billion at the end of 1998. After that, there was a change in conditions due to the economic crisis of 1997/1998 where the important role of foreign debt began to decrease and was replaced by domestic debt. The government, which originally did not have domestic debt, became a very large amount of domestic debt and the number continues to increase to this day. Domestic debt is in the form of Government Securities or SBN issued by the government to mitigate the crisis, especially to overcome the banking crisis at that time (Rizky & Majidi, 2008).

Figure 1 showing the development of the domestic and foreign debt of the Indonesian government. In 1988 domestic debt amounted to Rp16,323 billion and foreign debt amounted to Rp52,457 billion. In 1988-1998 government debt was still dominated by foreign debt, then after that from 2003-2022 there was a shift in debt composition, in that year the government took more domestic debt than foreign debt. Domestic debt is dominated by SBN instruments which continue to increase significantly, therefore SBN is one of the causes of the current swelling of government debt. In 2022, the total government debt of IDR 7,733.99 trillion consists of Government Securities of IDR 6,846.89 trillion with a proportion of 88.53%, DN and LN Loans of IDR 887.10 trillion with a proportion of 11.47% (Ministry of Finance, 2023).

The increasing government debt is expected to have a positive impact on the Indonesian economy both on the demand side and the supply side. However, several previous studies have shown that debt

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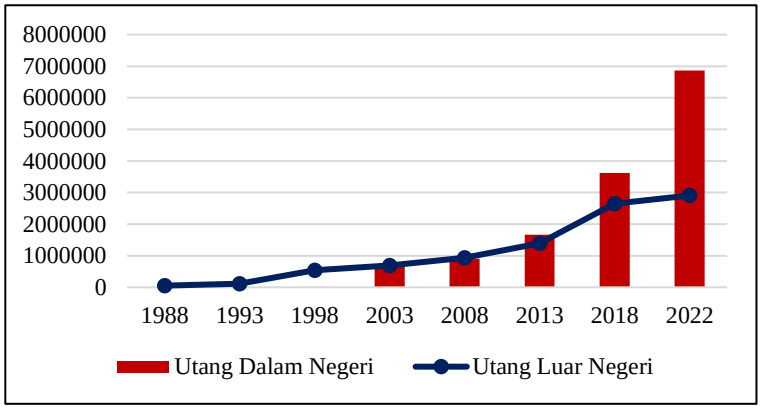

Figure 1. Composition of Indonesia's Domestic and Foreign Government Debt in the Year 1988-2022

Source: Ministry of Finance (processed)

has the potential to have a negative impact on economic growth, such as research conducted by Suhendra et al (2024) that domestic debt has a significant negative influence on economic growth both in the short and long term, then according to Islamic research (2014) the debt component in the form of loans also has a negative and significant influence on growth economics. In addition to Indonesia, several studies in developing countries also show the same thing, such as the research of Yusuf & Mohd (2021) and Saxena & Shanker (2018) that there is a negative and significant relationship between external debt and economic growth in Nigeria and India.

Indonesia, as one of the middle-income countries, needs a very large budget to finance domestic development needs. However, state revenues often cannot meet the planned budget needs, so deficit policies are implemented, and the government must be able to find sources of financing to cover the deficit budget. Debt is one of the easy and fast alternatives to close the budget deficit compared to other methods such as printing money or privatization. In addition to the ease and speed in the process, debt is chosen as a financing instrument because the available sources of non-debt financing are very limited. Given the significant financing needs, the government finally decided to use debt as a solution to meet the budget. This makes government debt have an important role in the economy and can have various impacts, both positive and negative.

The government uses debt as a source of development financing and to close the budget deficit. During a recession, government debt also functions as an automatic stabilizer to keep spending levels high even though tax revenues are declining. However, on the other hand, the risks and challenges of government debt must also be a concern. A high debt service burden can reduce fiscal space for productive spending in other sectors, dependence on foreign parties can affect domestic economic policies and economic sovereignty. An excessively high debt-to-GDP ratio would raise concerns about fiscal sustainability and the government's ability to meet its debt obligations in the future.

Debt will also affect investor confidence, if a country has poor debt management, then investor confidence to invest in the country will decrease, it will also affect the credit rating given by the credit rating agency. If the credit rating provided is poor, borrowing costs will increase and access to international financial markets will be limited. Given the importance of the role of government debt in economic sustainability in Indonesia, researchers argue that knowing the factors that affect government debt is very important for several reasons related to economic stability, fiscal sustainability and public welfare.

Efficient use of debt can increase economic growth and a better standard of living for the community. However, if the resources from debt have not been managed effectively and carefully, it is feared that it will affect the resilience of the state budget in financing development in Indonesia. Based on the phenomenon and background that occurred, the author proposed the title of the research, namely "Analysis of Factors Affecting Indonesian Government Debt".

THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

Based on the provisions of Law Number 1 of 2004 concerning the State Treasury, state debt is defined as an amount of money that must be paid by the central government and/or central government obligations that can be assessed in the form of money, based on applicable laws and regulations, agreements, or other legitimate reasons. Government debt is divided into two main categories, namely loans and Government Securities (SBN).

Loan is financing through debt obtained by the Government from Domestic or Foreign Lenders that is bound by a loan agreement and is not in the form of government securities, which must be repaid with certain conditions. Domestic loans are obtained by the government from Domestic Lenders, namely SOEs or Regional Governments, while Foreign Loans are obtained by the Government from Foreign Lenders such as bilateral, multirateral and Foreign Private Creditors (KSA).

Keynesians argue that debt used to cover government budget deficits will lower the current tax burden and increase disposable revenues, thereby benefiting the economy in the short term. Then a budget deficit that is closed with debt will have a multiplier effect on the economy, assuming that debt is used to finance productive needs. So that there will be an increase in income and along with the increase in national income, the level of consumption, savings and capital accumulation will also increase. This theory also makes the assumption that economic activity is short-term-oriented, has no generational ties, and not all markets are in balance, such as the labor market which often experiences imbalances because there is always a problem of unemployment in the economy. According to Makiw (2014) Gross Domestic Product (GDP) is the market value of all finished goods and services produced in a country in a certain period. In addition, according to Case&Fair (2007:21), GDP is the market

value of a country's total output. GDP is the market value of all final goods and services produced in a certain period of time by the factors of production located in a country.

GDP sums up different types of products into one measure of the value of economic activity. To do this, GDP uses market prices. Because it measures the amount people are willing to pay to buy various goods, market prices reflect the value of those goods (Mankiw, 2013). According to Solow-Swan's growth theory, there is an interaction between various factors, including population growth, capital accumulation, technological advances that come from outside the system, and the level of output produced. The Solow-Swan growth model is one of the most influential economic models in understanding the long-term economic growth mechanism. Sustainable economic growth both through capital accumulation and technological advances can increase output (GDP). The increase in GDP increases tax revenues that can be used to pay government debts. In the Solow-Swan theory, if investment financed by debt can increase GDP then this can increase the government's capacity to pay off its debt.

Withdrawal of new debt or budget financing is all revenue that must be repaid and/or expenditure that will be received back, both in the relevant fiscal year and in the next fiscal year. In accordance with the provisions contained in Law Number 17 of 2003 concerning State Finance, budget financing refers to the implementation of financing listed in the State Revenue and Expenditure Budget (APBN) realization report and in the Central Government Financial Statements (LKPP). The view of the neoclassical economist group indicates that government spending financed by government debt only increases economic growth in the short term, however, in the long term it will not have a significant impact due to crowding-out, namely a decrease in money in the market due to rising interest rates, which causes private investment to decrease and has an impact on GDP decline (Personal, 2020). Government debt is seen from the perspective of how it affects the market, the efficiency of resource allocation, and the balance of the economy.

According to Sadono Sukirno (2011:397), the exchange rate or currency exchange rate is a measure of the price of a currency relative to another currency. In the context of an open economy, the exchange rate is one of the most crucial indicators, because of its great influence on the current account balance and various other macroeconomic variables. According to Mankiw, there are two approaches to the calculation of the exchange rate. The first approach is the real exchange rate, which means the value that can be leveraged by individuals to exchange goods or services from one country for goods or services from another country. The second approach is the nominal exchange rate, which means the value used to exchange a country's currency for another country's currency. These two exchange rates have a positive relationship with each other (Cahyaningrum et al., 2022).

The low of one price law in the Purchasing Power Parity theory explains that if a commodity is valued in the same currency in two countries, then the price will be the same. For example, if the

price of one kilogram of wheat in Indonesia is Rp. 1,000, then the US Dollar exchange rate = Rp. 1,000. This theory is a more appropriate model for analyzing exchange rate fluctuations in the long term compared to the short term. The essence of this theory is to explain the exchange rate dynamics between two currencies that are affected by the price level in each country (Krugman, 2005 in Fatahillah et al 2016).

Inflation is a situation in which the prices of goods and services in general experience a continuous increase, which in turn can reduce the value of a country's currency. An increase in the price of goods and services can be categorized as inflation if the increase is widespread and has an impact on the increase in the price of other goods and services (Purnomo et al, 2013:107).

This price increase is measured using the price index. Some price indices that are often used to measure inflation include:

1. Consumer price index
2. Wholesale price index
3. GDP deflator

Inflation can show different rates from one country to another, as well as within one country at different times. Based on the magnitude of the inflation rate, inflation can be divided into three categories, namely creeping inflation, medium inflation, and high inflation. This division does not have a clear benchmark. Creeping inflation is usually characterized by a low inflation rate, less than 10% per year, where price increases occur gradually by a small percentage and last over a long period of time.

Foreign exchange reserves are payment instruments that can be used by a country or individual to make payment transactions to other countries or their citizens. Every country has legal tender and is protected by its national laws. Such as, the US dollar, British pound sterling and Indonesian rupiah. The phrase "foreign exchange" comes from the Dutch term devisen, which comes from the German word "die devisel" (Togatorop & Setiawina, 2017).

According to mercantilist theory, a country's wealth is measured by the amount of gold and silver reserves it has, which serve as the initial form of foreign exchange reserves. This wealth is obtained through trade surpluses, where the value of exports exceeds the value of imports. To achieve this wealth, the country needs to engage in international trade activities in order to obtain a trade surplus in the form of gold and silver, which in turn can be a source of prosperity for the country. Therefore, this theory emphasizes the importance of the accumulation of national wealth through international trade and surplus in the trade balance (Basuki & Prawoto, 2014).

The hypotheses developed based on the theory are as follows:

1. The influence of GDP variables on government debt
    - $H_0 : \beta_1 \geq 0$, There is no negative influence from GDP variables on Indonesian government

debt year 1988-2022 in the long and short term

- $H_1 : \beta_1 < 0$, There is a negative influence from GDP variables on Indonesian government debt year 1988-2022 in the long and short term.

2. The effect of the variable of New Debt Withdrawal on Government debt
   - $H_0 : \beta_2 \leq 0$, There is no positive influence from variables of new debt withdrawals on Indonesian government debt year 1988-2022 in the long and short term.
   - $H_1 : \beta_2 > 0$, There is a positive influence from variables of new debt withdrawals on Indonesian government debt year 1988-2022 period in the long and short term.
3. The influence of the Exchange Rate variable on Government debt
   - $H_0 : \beta_3 \leq 0$, There is no positive influence from variables Exchange Rate on Indonesian government debt year 1988-2022 in the long and short term.
   - $H_1 : \beta_3 > 0$, There is a positive influence from variables Exchange Rate on Indonesian government debt year 1988-2022 period in the long and short term.
4. The effect of the Inflation variable on Government debt
   - $H_0 : \beta_4 \geq 0$, There is no negative influence from inflation variables on Indonesian government debt year 1988-2022 in the long and short term.
   - $H_1 : \beta_4 < 0$, There is negative influence from inflation variables on Indonesian government debt year 1988-2022 in the long and short term.
5. The effect of the Foreign Exchange Reserve variable on Government debt
   - $H_0 : \beta_5 \geq 0$, There is no negative influence from Foreign Exchange Reserve variables on Indonesian government debt year 1988-2022 in the long and short term
   - $H_1 : \beta_5 < 0$, There is negative influence from Foreign Exchange Reserve variables on Indonesian government debt year 1988-2022 in the long and short term.

RESEARCH METHODS

This research raises the main topic, namely Indonesian Government Debt for the period 1988-2022. Government debt is used as a dependent variable, or a bound variable and the independent variable is GDP, New Debt Withdrawal, Exchange Rate, Inflation and Foreign Exchange Reserves. This study uses secondary and quantitative data. The secondary data used is sourced from the Central Statistics Agency (BPS), the Directorate General of Risk Management and Financing (DJPPR) of the Ministry of Finance, Bank Indonesia and previous research journals that have been trusted. The data used is time series data or a series of time for 35 years (1988-2022). The following is an operational table 1 of each variable.

Table 1. Research Variables Operasionalization

Variable	Concept	Indicator	Symbol	Unit	Scale
Government Debt	Government debt is a sum of money that must be paid by the central government and/or the central government's obligations that can be valued in money based on applicable laws and regulations, agreements, or based on other legitimate reasons. State debt is divided into domestic loans, foreign loans and Government Securities (SBN).	Total Government Debt	ln (GD)	Percentage	Ratio
GDP	Gross Domestic Product (GDP) is the market value of all final goods and services produced in a country in a given period. GDP sums up different types of products into one measure of the value of economic activity.	GDP on a constant price basis	GDP	Billion Rupiah	Ratio
Withdrawal of New Debt	New debt withdrawal or budget financing is any revenue that needs to be repaid and/or expenditure that will be received back, either in the relevant fiscal year or in subsequent fiscal years.	Amount of budget financing realization	NDW	Billion Rupiah	Ratio
Exchange Rate	The exchange rate is the price of a domestic currency against a foreign currency, or in other words, the cost of one unit of a foreign currency in a domestic currency.	Rupiah Exchange Rate Against the US Dollar	ER	Rp/US$	Ratio
Inflation	Inflation is a phenomenon of general price increases that apply in an economy from one period to another. The inflation rate is the percentage increase in prices in a given year compared to the previous year.	Headline inflation value	INF	Percentage	Ratio
Foreign Exchange Reserves	Foreign exchange reserves are all foreign assets held by monetary authorities, which can be used at any time. Foreign exchange reserves are needed to support imbalances in the balance of payments, maintain monetary stability, and to achieve other objectives.	Data on the Amount of Foreign Exchange Reserves in Indonesia	ln (CADEV)	Percentage	Ratio

This study uses the Erorr Correction Model or ECM method approach. The Error Correction Model (ECM) is a time series data analysis used for variables that have dependencies that are often referred to as cointegration. This ECM model explains the long-term and short-term relationship of the research variables caused by the imbalance of relationships in the model and abnormalities and data disstations. Analysis using the ECM method requires the fulfillment of several important conditions. One is that all variables must be stationary at the same difference, where the first difference (1st difference) is more recommended. In addition, cointegration between research

variables must also exist. Residual (ECT) must show stationarity at the level, and the ECT coefficient obtained in short-term estimates must be negative as well as significant.

The equation model used in this study is as follows:

$$ln(GD) = \beta_0 + \beta_1 GDP_t + \beta_2 NDW_t + \beta_3 ER_t + \beta_4 INF_t + \beta_5 ln(CADEV)_t + \varepsilon_t$$

Description:

β_0 : *Intercept*
$\beta_1, \beta_2, \ldots \beta_5$: Independent variable regression coefficient
ln(GD) : Logarithm Natural Government Debt
GDP : Gross Domestic Product
NDW : New Debt Withdrawal
ER : Exchange Rate
INF : Inflation
ln(CADEV) : Logarithm of Natural Foreign Exchange Reserves
ε_t : *error term*
t : time period

RESULT AND DISCUSSION

Regression analysis based on time sequence data implicitly assumes that the principal time series is stationary (Gujarati, 2012:464). The stationery test was carried out so that the regression model obtained had reliable prediction ability and avoided the emergence of spurious regression. The results of the stationery test at the level level are presented in table 2.

The results in table 2 show that the five variables, namely government debt, GDP, PUB, Exchange Rate, and Foreign Exchange Reserves, are not stationary at the level level, with probability values greater than 0.05 each. Meanwhile, one variable, namely inflation, was identified stationary with a probability value of (0.0000) < 0.05. To apply the ECM method, all variables must be stationary at the same degree, so that the unit root test is carried out at the first degree (1st difference). The results of the unit root test at degree 1 (1st difference) are presented in table 3.

After re-testing at degree 1, it can be stated that all variables are stationary at the 1st difference because the probability value of all variables is less than α = 5% (0.05), therefore the condition for using ECM must be stationary at the same degree has been met. After the partial stationery test, the stationarity test is carried out simultaneously with the results shown in table 4.

From Table 4, it can be concluded that the overall research data has shown a stationary nature at the level of 1st difference, with a probability value of ADF Chi-Square of (0.0000) < α = 5% (0.05). The cointegration test is used to evaluate the initial indication that the applied model has a long-term relationship (cointegration relation). The results of the cointegration test in table 5.

It can be concluded that there is cointegration in this study, as evidenced by the trace statistical value (154.7535) > 0.05 critical value (95.75366) at none, (76.43070) > (69.81889) at most 1 and (48.85686) > (47.85613) at most 2. This means that there is a long-term relationship between independent variables (GDP, PUB, exchange rate, inflation and foreign exchange reserves) to the dependent variable (government debt).

Table 2. Results of the Level Level Stationary Test

No	Variable	Level		Conclusion
		Probability	α = 5%	
1	ln (GD)	0,7569	0,05	No Stasioner
2	GDP	0,9860	0,05	No Stasioner
3	NDW	0,3899	0,05	No Stasioner
4	EX	0,8404	0,05	No Stasioner
5	INF	0,0000	0,05	Stasioner
6	ln (CADEV)	0,2088	0,05	No Stasioner

Source: Output Eviews 10 (processed)

Table 3. Results of the 1st Difference Level Stationary Test

No	Variable	1st *difference*		Conclusion
		Probability	α = 5%	
1	ln (GD)	0,0198	0,05	Stasioner
2	GDP	0,0001	0,05	Stasioner
3	NDW	0,0000	0,05	Stasioner
4	EX	0,0000	0,05	Stasioner
5	INF	0,0000	0,05	Stasioner
6	ln (CADEV)	0,0000	0,05	Stasioner

Source: Output Eviews 10 (processed)

Table 4. Simultaneous Stationary Test Results

Differentiation Level	Prob ADF Chi-Square	α = 5%	Conclusion
Level	0,0606	0.05	No Stasioner
1st difference	0,0000	0.05	Stasioner

Source: Output Eviews 10 (processed)

Table 5. Results of the Cointegration Test (Johansen Cointegration Test)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	Critical Value (0,05)	Prob.
None*	0,906838	154,7535	95,75366	0,0000
At most 1*	0,566373	76,43070	69,81889	0,0135
At most 2*	0,464238	48,85686	47,85613	0,0401
At most 3	0,396291	28,26269	29,79707	0,0743
At most 4	0,219723	11,60879	15,49471	0,1767
At most 5	9,85E-02	3,421293	3,841466	0,0644
Trace test indicates 3 cointegrating eqn(s) at the 0.05 level				
*Denotes rejection og the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Source: Output Eviews 10 (processed)

Table 6. ECT Residual Stationary Test Results

t-Statistic			Prob.*
Augmented Dickey-Fuller test statistic		-4,542441	0,0009
Test critical values:	1% level	-3,639407	
	5% level	-2,951125	
	10% level	-2,614300	
*MacKinnon (1996) one-sided p-values.			

Source: Output Eviews 10 (processed)

Table 7. Long-Term Estimation Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6,782053	0,590033	11,49435	0,0000
GDP	-8,71E-08	1,35E-08	-6,449521	0,0000
NDW	5,38E-07	1,44E-07	3,739103	0,0008
ER	0,000267	1,61E-05	16,60420	0,0000
INF	-0,005623	0,002077	-2,707272	0,0113
ln(CADEV)	0,464907	0,066190	7,023841	0,0000

Source: Output Eviews 10 (processed)

After it is known that there is a cointegration, the next step is to conduct a residual stationery test formed from the regression results between the dependent variable and the independent variable to see the consistency of the balance in the short term. If the residual is stationary at the Level, it means that there is a short-term relationship, on the other hand, if the residual is not stationary, then there is no short-term relationship in the ECM analysis carried out.

The residual that will be tested for stationarity is called ECT (Error Correction Term). The remaining stationery test results are in table 6. Table 6 shows the ADF Probability value (0.0009) < α = 5 % (0.05), meaning that the residual is stationary at the level level and the ECM model can be continued at the stage of analyzing its short-term estimates. After carrying out the cointegration test and residual stationary test, the long-term equation estimation results were obtained in table 7.

Based on the regression results, the following long-term equation can be created:

$$\ln(GD) = 6,782053 - 0,0000000871\text{GDP} + 0,000000538\text{NDW} + 0,000267\text{ER} - 0,005623\text{INF} + 0,464907\ln(\text{CADEV})$$

Description:

ln(GD) : Logaritma Natural Government Debt
GDP : Gross Domestic Product
NDW : New Debt Withdrawal
ER : Exchange Rate
INF : Inflation
ln(CADEV) : Logaritma Natural Foreign Exchange Reserves

Interpretation:

1. The constant value of 6.782053 shows that if the variables of GDP, NDW, ER, INF and ln CADEV are valued at 0 (zero), then the government debt variable is 6.78 percent in the long term
2. GDP = -0.000000871 means that when the GDP variable rises by one billion rupiah, the value of government debt will decrease by 0.0000871 percent in the long term, assuming other variables are constant (ceteris paribus)
3. NDW = 0.000000538 means that when the NDW variable increases by one billion rupiah, the value of government debt will increase by 0.0000538 percent in the long term, assuming another variable (ceteris paribus).
4. ER = 0.000267 means that when the exchange rate variable rises by one rupiah/US$, the value of government debt will increase by 0.0267 percent in the long term, assuming other variables are constant (ceteris paribus).
5. INF = -0.005623 means that when the inflation variable rises by one percent, the value of government debt will fall by 0.005623 percent, assuming the other variable is constant (ceteris paribus).
6. ln (CADEV) = 0.464907 means that when the foreign exchange reserve variable rises by one percent, the value of government debt will increase by 0.464907 percent, assuming the other variable is constant (ceteris paribus).

The short-term equation also uses the same variables as the variables in the long-term equation, only these variables are placed, resulting in estimates of the short-term equation in table 8. In table 8, it shows the probability value of ECT (0.0009) < the significance level of α = 5 % (0.05) and the

Table 8. Results of Short-Term Equation Estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0,002698	0,029561	-0,091273	0,9279
D(GDP)	-1,81E-08	2,03E-08	-0,893569	0,3794
D(NDW)	3,45E-07	1,02E-07	3,386176	0,0022
D(ER)	0,000205	2,49E-05	8,235532	0,0000
D(INF)	-0,004710	0,001342	-3,511113	0,0016
D(LNCADEV)	0,545599	0,156896	3,477458	0,0017
ECT (-1)	-0,575475	0,154909	-3,714928	0,0009

Source: Output Eviews 10 (processed)

coefficient is negative (-0.574475), then it can be said that the short-term equation is valid, and the short-term equation model is obtained as follows.

$$\boldsymbol{D(ln(GD)) = -0,002698 - 0,0000000181D(GDP) + 0,000000345D(NDW) + 0,000205D(ER) - 0,004710D(INF) + 0,545599D(ln(CADEV)) - 0,575475ECT(-1)}$$

Description:

D(ln(GD)) : Difference Logaritma Natural Government Debt

D(GDP) : Difference Gross Domestic Product

D(NDW) : Difference New Debt Withdrawal

D(ER) : Difference Exchange Rate

D(INF) : Difference Inflation

D(ln(CADEV)) : Difference Logaritma Natural Foreign Exchange Reserves

ECT (-1) = *Error Correction Term*

Interpretation:

1. The constant value of -0.002696 indicates that if the variables of GDP, NDW, ER, INF and CADEV are valued at 0 (zero), then the government debt variable is -0.026 percent in the short term.
2. GDP = -0.0000000181 means that when the GDP variable rises by one billion rupiah, the value of government debt will decrease by 0.00000181 percent in the short term, assuming that other variables are constant (ceteris paribus).
3. NDW = 0.000000345 means that when the NDW variable increases by one billion rupiah, the value of government debt will increase by 0.0000345 percent in the short term, assuming another variable (ceteris paribus).

4. ER = 0.000205 means that when the exchange rate variable rises by one rupiah/US$, the value of government debt will increase by 0.0205 percent in the short term, assuming other variables are constant (ceteris paribus).
5. INF = -0.004710 means that when the inflation variable rises by one percent, the value of government debt will fall by 0.004710 percent, assuming the other variable is constant (ceteris paribus).
6. ln (CADEV) = 0.545599 means that when the foreign exchange reserve variable increases by one percent, the value of government debt will increase by 0.545599 percent, assuming the other variable is constant (ceteris paribus)
7. ECT (-1) = 0.575475 means that the imbalance in the previous year will be corrected by 57.5 percent in the following year due to the short-term influence of the dependent variable. Meanwhile, 42.5 percent will be corrected in the following years.

Based on table 9, it shows that in the long term the value of F number (777.5706) > F table (2.54538), and in the short term the value of F number (13.31561) > F table (2.54538), the decision rejects H0 and accepts H1. This means that the variables of GDP, NDW, ER, INF and CADEV have a simultaneous effect on the Indonesian government debt both in the long and short term. From the regression results, the long-term determination coefficient (R2) value is 0.992596, meaning that the variables of GDP, NDW, ER, INF and CADEV can explain government debt by 99 percent and the rest is explained by other independent variables that are not used in this study. Meanwhile, in the short term, the value of the determination coefficient is 0.747413, meaning that the variables of GDP, NDW, ER, Inflation and CADEV can explain government debt by 74 percent and the rest is explained by other independent variables that are not used in this study.

The results of the classical assumption test in this study showed that the normally distributed data with the value of Jarque-Bera (0.270306) < the Chi-Square table (43.77297) and the probability value (P-Value) of the J-B Test (0.873582) > α = 5 % (0.05), free from autocorrelation with the Prob Chi Square value of (0.4813) > 0.05, there was no heterokedasticity with the value of Obs*R-Squared (24.00997) < Chi-Square table (43.77297) and Prob Chi Square (0.2420) > α (0.05), and was free from multicollinearity with The VIF value of each independent variable is less than 10.

Table 9. Statistical F Test Results

F number	F table	Result	Conclusion	Information
777.5706	2.54538	Reject H0	Significance	Long-term
13.31561	2.54538	Reject H0	Significance	Short-term

Source: Output Eviews 10 (processed)

The GDP variable shows a negative sign and has a significant effect on Indonesia's government debt in the long term from 1988 to 2022. A negative sign indicates that there is a negative relationship between GDP variables and Government Debt, if there is an increase in GDP by one billion, then government debt will decrease by 0.0000871 percent in the long term assuming other variables are constant.

GDP does not have a significant effect on government debt in the short term because changes in GDP occur gradually. The effect of GDP changes on government debt management is not immediately visible in a short period of time because economic growth, investment, and consumption take time to have an impact on government revenue. Higher GDP growth can indeed increase government revenue through taxes, but the impact is usually only seen in the medium to long term, not in a matter of months. In the short term, government debt is more affected by urgent fiscal financing needs, such as to finance budget deficits, pay due debt obligations, or cover other urgent expenses.

According to the assumptions of the solow-swan growth theory, economic growth is driven by the accumulation of physical capital such as investment in infrastructure, factories and equipment. Governments often finance infrastructure investments and large projects with debt to increase production capacity and economic growth. The debt used to finance government investment can increase capital stocks (K) in the production function, thereby encouraging economic growth. Sustainable economic growth both through capital accumulation and technological advances can increase output (GDP). The increase in GDP increases tax revenues that can be used to pay government debts. Thus, an increase in GDP can reduce government debt in the long term according to the Solow-Swan growth theory.

The findings of this study are consistent with the results obtained in the previous study, namely the research by Sri Rosliana Lubis (2020) which showed that GDP has a negative and significant effect on Indonesian government debt in the long term. According to the study, reducing dependence on foreign debt can be achieved through increasing national income sourced from taxes and optimizing Indonesia's natural and human resources. Then, according to the results of research conducted by Nguyen Van Bon (2015), it also shows that GDP has a negative and significant effect on public debt. This study confirms that economic growth is one of the effective strategies to reduce public debt. High growth allowed the government to increase budget revenues and reduce fiscal deficits, which in turn contributed to a decrease in public debt.

The NDW variable shows positive and significant signs of Indonesia's government debt in 1988-2022 both in the long and short term. A positive sign indicates that there is a positive relationship between the NDW variable and Government Debt. If there is an increase in PUB by one billion, the

government debt will increase by 0.000538 percent in the long term and by 0.000345 percent in the short term assuming other variables are constant.

According to the neoclassical theory view, the use of government debt to cover the budget deficit will only drive economic growth in the short term. However, in the long term, the impact will not be significant due to crowding-out, namely the reduction of money in the market due to rising interest rates, which causes private investment to decrease and has an impact on GDP decline. Although the use of debt to cover budget deficits may lead to a surge in individual consumption in the short term, however, future debt servicing obligations will create a higher tax burden for future generations.

The results of this study are in line with the research of Budi Santoso (2017) which shows that budget financing has a positive impact on the growth of central government debt. This is due to the high need for budget financing which encourages a significant increase in central government debt. The new debt withdrawal policy will directly increase the total government debt, both in the form of foreign debt and domestic debt. The increase in total debt will be followed by an increase in the burden of principal and interest payments that the government must bear in the future. If not managed properly, the interest expense can erode the budget that should be used for other public spending. In addition, the debt-to-GDP ratio will also increase and can affect the perception of Indonesia's economic credibility in the eyes of investors and international institutions. The increasing burden of debt repayment borne by the government shows that the budget needs are increasing, so state revenue must be more and come from various sources other than taxes, such as from the best use of natural and human resources.

The exchange rate variable shows positive and significant signs of Indonesia's government debt in 1988-2022 both in the long and short term. A positive sign indicates a positive relationship between the exchange rate variable and Government Debt. If there is an increase in the exchange rate by one rupiah/US$, the government debt will increase by 0.0267 percent in the long term and by 0.0205 percent in the short term assuming other variables are constant.

Although the current government debt is mostly derived from domestic debt, foreign debt and foreign exchange-denominated government securities still exist. So, based on the Purchasing Power Parity theory when there is an exchange rate depreciation, foreign debt will increase. The exchange rate adjustment between the two currencies reflects the change in the price level in each country. Therefore, if the Indonesian rupiah depreciates, then external debt will increase, showing a positive relationship between the exchange rate and foreign debt.

The results of this study are in line with the research of Retno Wulandari et al (2022) that the exchange rate has a positive and significant influence on Indonesia's external debt. According to the study, supported by Musgrave's theory, when public debt is owned by foreign parties, there is an obligation to pay principal and interest in the form of foreign exchange. If there is a weakening of the

rupiah exchange rate, the burden on repayment of principal and interest on foreign debt will continue to increase. The same results are also found in the research of Aniyati (2019), Boer (2021), Afandi (2022) and Octavianti (2023).

In the short term, the exchange rate affects the yield of government bonds issued in foreign currencies. Investors who lend money to the Indonesian government in the form of bonds often expect a stable or favorable exchange rate. If the exchange rate weakens, foreign investors will ask for higher yields to offset the risk of a decline in the exchange rate against their currency. This increases the cost of borrowing for the government because the government has to offer higher interest rates to attract investors to buy bonds.

The inflation variable shows negative and significant signs of Indonesia's government debt in 1988-2022 both in the long and short term. A negative sign indicates a negative relationship between inflation variables and Government Debt. If there is an increase in inflation by one percent, the government debt will fall by 0.5623 percent in the long term and by 0.4710 percent in the short term, assuming other variables are constant.

Based on the theory of money quantity, if the amount of money in circulation increases faster than economic growth (real output), then inflation will increase. This can reduce the burden of real government debt in domestic currency. In addition, if the amount of money in circulation increases excessively, the inflation that occurs can trigger an interest rate hike as an effort to control the inflation. This interest rate hike will have implications for an increase in borrowing costs for the government and the public.

The results of this study are in line with the research of Nguyen Van Bon (2015) who conducted a study in 60 developing countries (22 in Asia, 11 in Latin America and 27 in Africa) which showed that there is a significant relationship between public debt and inflation. In particular, public debt has a positive and significant impact on inflation, whereas inflation has a significant negative influence on public debt in the developing countries studied, high public debt contributes to increased inflation, while high inflation can reduce the real value of debt.

Inflation means that repayments to bondholders require a smaller percentage of the government's total tax revenue, making it easier for the government to repay the initial debt they borrowed. Although inflation can serve to reduce the real value of government debt, the implementation of inflation policies by governments for this purpose can create new economic problems for society. High inflation can cause a surge in the price of goods and services, which has a direct impact on the decline in people's purchasing power, especially for fixed-income groups such as employees, laborers, and retirees, because the income of these groups is not always in line with the increase in inflation.

The variable of foreign exchange reserves shows positive and significant signs of Indonesia's government debt in the 1988-2022 period both in the long and short term. A positive sign indicates that there is a positive relationship between the foreign exchange reserve variable and Government Debt. If there is an increase in foreign exchange reserves by one percent, government debt will increase by 0.464907 percent in the long term and by 0.545599 percent in the short term assuming other variables are constant.

The effect of foreign exchange reserves on government debt with positive results is not in accordance with the initial hypothesis that foreign exchange reserves have a negative effect on government debt, and based on the theory of mercantilism that the larger a country's foreign exchange reserves, the greater its power and wealth, which in turn can be used as an effort to reduce dependence on foreign debt.

The results of this study are in line with the research of Octavianti & Budyanra (2023) which shows that foreign exchange reserves have a positive and significant effect on Indonesia's external debt both in the short and long term. The same results are also shown by research conducted by Aji et al (2019) and Saputro et al (2017) that foreign exchange reserves have a negative and significant effect on Indonesia's external debt.

An increase in foreign exchange reserves is often followed by an increase in government debt, because one of the ways the government increases foreign exchange reserves is by issuing foreign exchange-denominated government bonds such as global bonds in the international market. The bond issuance process adds to the government's debt because the loan must be repaid in the future. In addition, to maintain rupiah exchange rate stability, Bank Indonesia sometimes has to intervene in the market by buying foreign currencies (such as the US dollar).

Bank Indonesia or the government issues short-term securities in the domestic market to obtain rupiah, which is then used to buy foreign currency, this can lead to an increase in domestic debt. Although foreign exchange reserves provide economic stability and the ability to pay off international obligations, ways to increase foreign exchange reserves often require governments to add new debt. So that when foreign exchange reserves increase, government debt also increases.

CONCLUSION

The findings of this study have proven and strengthened the findings of previous research that the GDP variable has a negative and significant relationship with Indonesia's government debt in the long term from 1988 to 2022. Meanwhile, in the short term, the GDP variable does not have a significant effect on Indonesia's government debt in 1988-2022. The variables of NDW, Exchange Rate and Foreign Exchange Reserves have a positive and significant relationship with Indonesian government debt both in the long and short term. The Inflation variable has a negative and significant relationship

with Indonesia's government debt both in the long and short term. Simultaneously, in the long and short term, the variables of GDP, NDW, Exchange Rate, Inflation and Foreign Exchange Reserves affect the Indonesian government debt in 1988-2022.

Then there are several suggestions obtained from this study such as improving the efficiency of the allocation of state financial resources by reducing waste and budget abuse, as well as focusing on increasing development investment in the education, health and infrastructure sectors or other development programs that can have a multiplier effect, so that the development is expected to increase economic productivity and encourage GDP growth. The government is expected to use debt as a leverage instrument to increase the value of state assets by allocating it to investment projects that are able to provide higher returns than the cost of debt incurred.

Before adding new debt, it is suggested that the government can further optimize Non-Tax State Revenue to increase state treasury. Such as increasing income from natural resources, tourism and the marine and fisheries sectors. Indonesia is rich in natural resources, such as mining, oil, gas and forests, therefore the government is advised to ensure that the government gets its fair share of the exploitation of natural resources contracted by foreign and local companies.

Increasing foreign exchange reserves through increasing exports and attracting more foreign direct investment, so that the government can create a strong and sustainable economic base to increase foreign exchange reserves and maintain economic stability, as well as the development of the tourism sector with tourism promotion campaigns to the international market to attract more foreign tourists which will increase the country's revenue through foreign exchange, so that foreign exchange income does not only come from foreign debt only.

REFERENCE

Aji, B. B., Indrawati, R. L., & Juliprijanto, W. (2019). Analisis Pengaruh Fluktuasi Neraca Transaksi Berjalan (Current Account), Kontribusi Dividen Bumn Dan Besaran Cadangan Devisa Negara Terhadap Posisi Utang Luar Negeri Indonesia (Pemerintah & Bank Sentral) Tahun.

Aniyati, N. (2019). Pengaruh Defisit Anggaran, Cadangan Devisa, Nilai Tukar Rupiah Dan Suku Bunga Libor Terhadap Utang Luar Negeri Pemerintah Indonesia.

AS Neng Dilah Nur Fadillah, Hady Sutjipto. (2018). Analisis Faktor-Faktor yang Mempengaruhi Utang Luar Negeri Indonesia. Jurnal Ekonomi-Qu. Vol.8 No.2 https://dx.doi.org/10.35448/jequ.v8i2.4449

Boer, I. M. (2021). Pengaruh Inflasi, Nilai Tukar, Dan Suku Bunga Terhadap Utang Luar Negeri Pemerintah Indonesia.

Cahyaningrum, H., Nadzeva, G., Ramadhani, N. T., & Nurdiansyah, D. H. (2022). Analisis Faktor – Faktor yang Mempengaruhi Utang Luar Negeri di Indonesia Tahun 2015-2019. Wacana Ekonomi (Jurnal Ekonomi, Bisnis Dan Akuntansi), 21(1), 39–54.

https://doi.org/10.22225/we.21.1.2022.39-54

Case, K. E., & Fair, R. C. (2006). Prinsip-prinsip ekonomi, edisi 8, jilid 2. Erlangga.

Farid Afandi, M. (2022). Pengaruh Nilai Tukar, Suku Bunga Dan Inflasi Terhadap Utang Luar Negeri Indonesia Tahun 2001-2020. Jurnal Ilmu Ekonomi (JIE), 6(3), 513–524.

Fatahillah Bau, A., Kumaat, R. J., & Niode, A. O. (2016). Faktor-Faktor Yang Mempengaruhi Fluktuasi Nilai Tukar Rupiah Terhadap Dolar Amerika Serikat. In Jurnal Berkala Ilmiah Efisiensi (Vol. 16, Issue 03).

Gujarati, Damodar N dan Dawn C. Porter, 2015. Dasar-Dasar Ekonometrika Edisi 5 buku 2. Jakarta: Salemba Empat.

Islam, M. (2014). Pengaruh Utang Pemerintah Terhadap Pertumbuhan Ekonomi Indonesia.

Kementrian Keuangan. (2023). APBN Kita Kinerja dan Fakta Kaleidoskop 2022.

Kementrian Keuangan. (2024). APBN 2024 Tetap Solid Menjaga Optimisme di Tengah Dinamika Ekonomi Global.

Mankiw, N. G. (2013). Macroeconomics (8th Edition). Worth Publisher.

Octavianti, R. D., & Budyanra, B. (2023). Determinan Utang Luar Negeri Indonesia Tahun 1981-2020. Inferensi, 6(1), 57. https://doi.org/10.12962/j27213862.v6i1.14336

Pribadi, Y. (2020). Studi Utang Pemerintah Republik Indonesia Sebagai Pembiayaan Anggaran Pendapatan Dan Belanja Negara (Apbn) Tahun 2000-2016.

Rizky, A., & Majidi, N. (2008). Utang pemerintah mencekik rakyat. E Pub.

Rosliana Lubis, S. (2020). Determinant Analysis of Indonesian Foreign Debt (Error Correction Model Approach). International Journal of Scientific & Technology Research, 9, 2. www.ijstr.org

Santoso, B. (2017). Pengaruh Penerimaan Pajak, Belanja Negara dan Pembiayaan Anggaran Terhadap Peningkatan Utang Pemerintah Pusat Periode Tahun 1981-2016.

Saputro, Y. D., & Soelistyo, A. (2017). Analisis Faktor-Faktor Yang Mempengaruhi Utang Luar Negeri Di Indonesia. Jurnal Ilmu Ekonomi, Vol X Jilid X/2017, 45–59.

Saxena, S. P., & Shanker, I. (2018). External Debt and Economic Growth in India. In Official Journal of National Research Council of Thailand in conjunction with ABAC Journal (Vol. 4, Issue 1).

Suhendra, N., Andhita Hatmawan, A., Ningsih, L., Shifa, M., & Ariani, D. (2024). Utang Dalam Negeri dan Pertumbuhan Ekonomi Sebuah Analisis Kausalitas: Bukti Empiris Indonesia. Jurnal Ilmiah Ekonomi Terpadu, 4(1), 20–30. http://jurnal.utu.ac.id/jimetera

Togatorop, M. S., & Setiawina, D. N. (2017). Pengaruh Utang Luar Negeri, Net Ekspor, Dan Belanja Wisatawan Mancanegara Terhadap Cadangan Devisa Di Negara Indonesia Tahun 1994-2013.

Van Bon, N. (2015). The Relationship Between Public Debt and Inflation In Developing Countries: Empirical Evidence Based On Difference Panel Gmm. 5(9), 128–142. http://aessweb.com/journal-detail.php?id=5004

ISSN: 2089-4309 (print)
2579-4841 (online)

Wulandari, R., Sugianto, S., & Shinta Aminda, R. (2022). Analisis Faktor-Faktor Yang Mempengaruhi Utang Luar Negeri di Indonesia. Jurnal Indonesia Sosial Sains, 3(1), 57–68. https://doi.org/10.36418/jiss.v3i1.512

Yusuf, A., & Mohd, S. (2021). The impact of government debt on economic growth in Nigeria. Cogent Economics & Finance, 9(1). https://doi.org/10.1080/23322039.2021.1946249