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INDONESIA'S EXTERNAL DEBT ODYSSEY: IMPACT OF FISCAL AND POLITICAL CHANGES FROM 1999 TO 2023

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ABSTRACT

This study aims to identify the factors influencing Indonesia's dependence on external debt. The data utilized in this research consist of a time series covering the period from 1999 to 2023 on a quarterly basis. The endogenous variable in this study is Indonesia's external debt, while the exogenous variables encompass fiscal deficit, tax income, inflation rates, and the volatility index. The instrumental variables employed include lags of both endogenous and exogenous variables. Additionally, dummy variables are incorporated for the four government regimes. Two estimation models consistently present a coherent picture. The dynamic fixed-effect model utilized in this research indicates that dependence on external debt is a legacy of previous governments in both models. Historical factors from prior external debt play a pivotal role in determining Indonesia's external debt level, and the impact of current and past tax revenue periods contributes positively to Indonesia's ability to increase debt, even though only current tax revenue has a significant impact. Theoretically, fiscal deficits and global economic instability are considered important indicators, but this study found that neither has a consistent and significant influence on Indonesia's external debt. Controlling inflation rates is also crucial in curbing borrowing behavior from foreign entities. Government regime transitions do not appear to contribute significantly to the management of external debt. Based on the R-squared adjustment test and the Wald test, it is revealed that the exogenous variables, instrumental variables, and dummy variables in this study effectively explain the variation of the endogenous variable.

Keywords: *External Debt, Fiscal Policy, Political Economy, Fixed-Effect Model*
JEL: F34; H63; P16; C33

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Introduction

External debt is a source of funding that can be used to patch up fiscal deficits. Fiscal deficits occur due to insufficient government revenues to finance increased spending (Mankiw, 2018). The increase in government spending can be based on the country's development plan. External debt transformation can accumulate capital in the form of physical capital, human capital and technological innovation needed to boost economic growth in the short term (Rahman et al., 2019). When capital accumulation occurs then individual consumption

will increase. Individual consumption drives increased economic activity. Massive utilization of capital resources carried out will in turn increase state revenue from taxes (Todaro & Smith, 2015).

The Maastricht benchmark of 1992, which enforced a policy restricting fiscal deficits to 3% and capping public debt at 60% of GDP, aimed to establish and uphold sound public finances. This policy, initially introduced in the European Union, saw global adoption by 1997 through the restructuring of the Stability and Growth Pact (Bank of England, 1992). Indonesia embraced these principles, incorporating them into Law Number 17 of 2003, which mandates a maximum fiscal deficit of 3% of Gross Domestic Product (GDP) and limits the debt-to-GDP ratio to 60% (Article 12 Point 3).

While this policy aims to maintain long-term financial sustainability and prevent default risks, the global financial crisis in 2008 triggered extensive responses worldwide. Despite preventing a deeper recession, these efforts led to a significant surge in government debt. Slow economic growth post-crisis posed challenges for countries to comply with the fiscal deficit and debt-to-GDP limitations outlined in the Maastricht Treaty. Social, political pressures, global uncertainty, and financial market fluctuations further complicated efforts to maintain fiscal balance according to the agreement, forcing some countries to adjust their fiscal rules.

Excess spending over revenue prompts a country to seek additional funding, often achieved through increased borrowing. Consequently, an increase in fiscal deficit tends to be accompanied by a rise in debt, as reflected in the debt-to-GDP ratio. However, there is a possibility of other factors influencing the decision to continue accumulating external debts (Maitra, 2019).

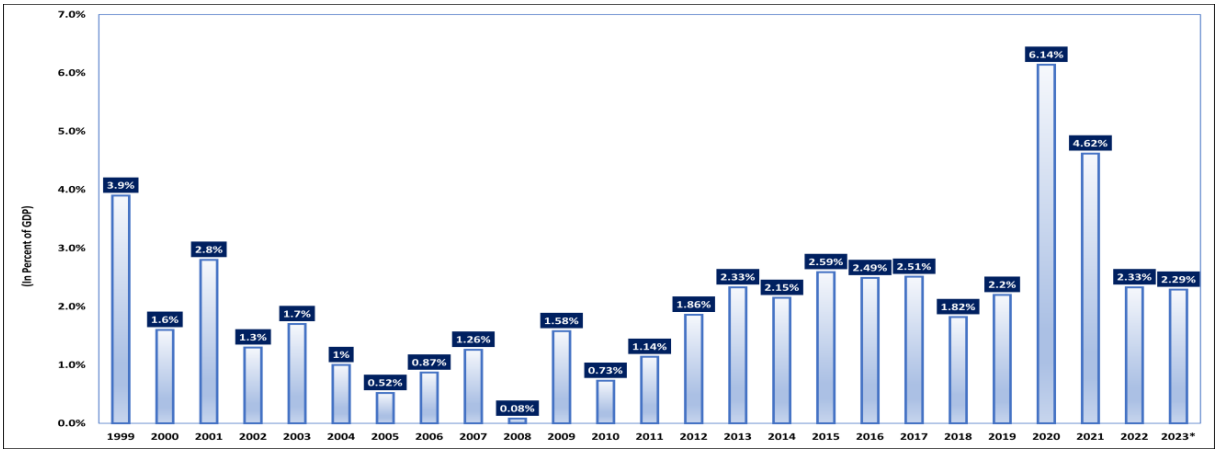


Figure 1: Indonesia's Fiscal Deficit Ratio Period 1999-2023

Source: Central Bank of Indonesia & Ministry of Finance Republic of Indonesia (2024)

Figure 1 illustrates Indonesia's Fiscal Deficit Ratio from 1999 to 2023, showcasing fluctuations during this period. While Indonesia successfully maintained a deficit below 3% in 2023, demonstrating financial stability, global counterparts faced varying fiscal challenges. The United States grappled with a 5.5% deficit, indicating higher government expenditure compared to Indonesia. India's 9.6% deficit highlighted significant fiscal challenges, suggesting potential imbalances in the national budget. Japan and China, each with a 7.8% and 7.5% deficit, respectively, demonstrated financial imbalances despite robust economies. Malaysia, on the other hand, sustained a lower deficit of around 5.3%.

Analyzing Indonesia's external loan profile data, Figure 2 depicts Indonesia's Debt-to-GDP Ratio from 1998 to 2023. Indonesia's government debt-to-GDP ratio touched 39.6% in

2022, remaining lower than G20 countries such as Germany (71.1%), China (76.9%), and the United States (122.1%). Within ASEAN, Indonesia ranked lower compared to countries like the Philippines (59.3%), Thailand (61.5%), and Malaysia (61.6%), while Singapore exhibited the highest debt-to-GDP ratio in ASEAN at 141.1%. Risks associated with higher debt ratios include potential difficulties in meeting debt repayment obligations and vulnerability to global financial market fluctuations. Conversely, lower debt ratios offer financial flexibility and better economic sustainability.

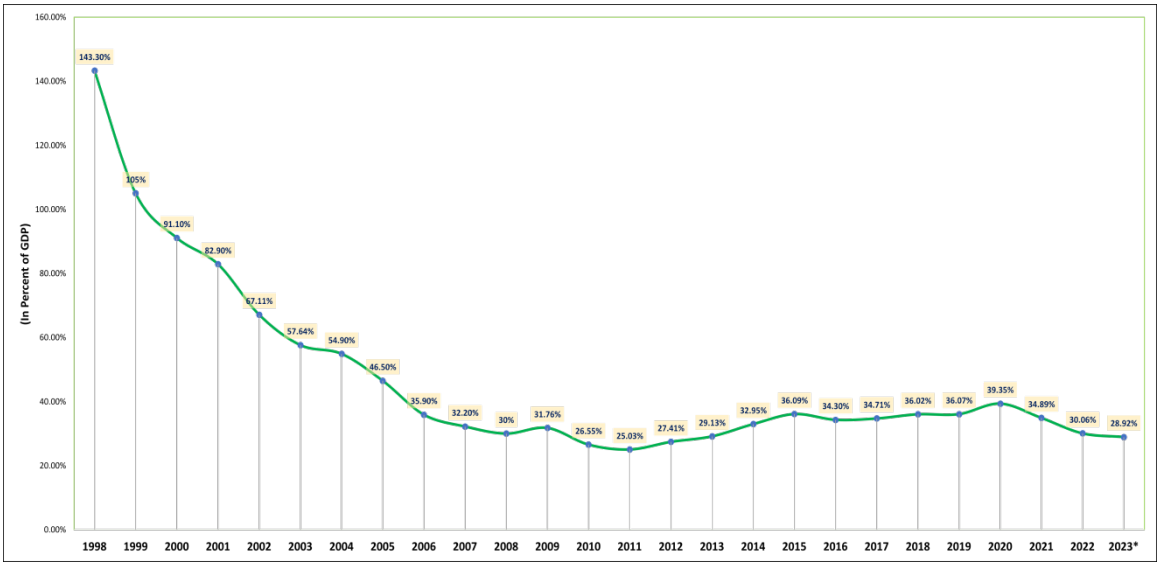


Figure 2: Indonesia's Debt to GDP Ratio Period 1998-2023

Source: Central Bank of Indonesia (2024)

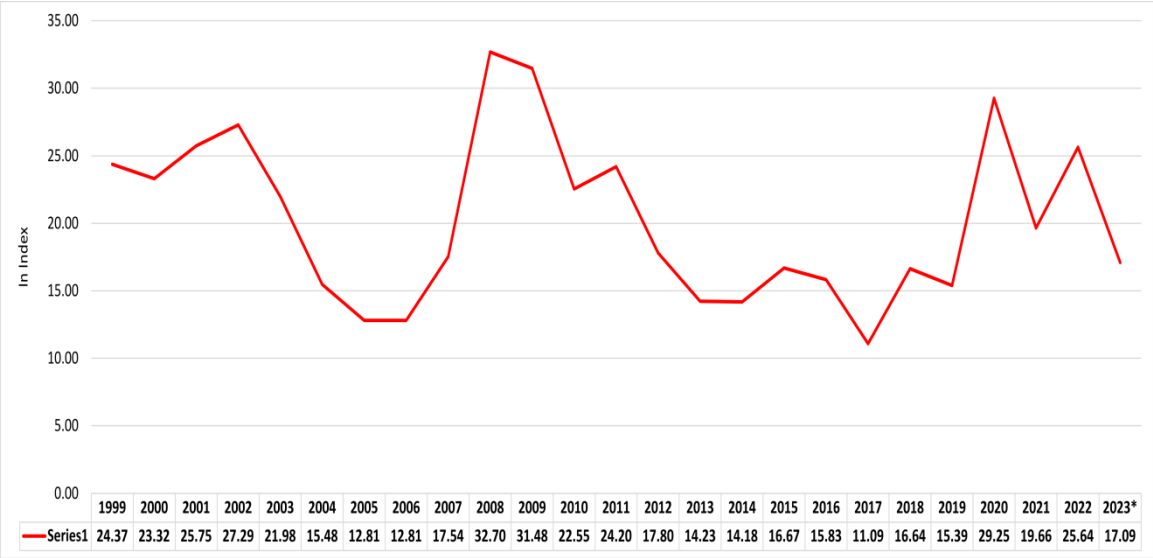
External debt is one of the key indicators of a country's economic health. High debt carries potential risks for investors (Chung, 2010; Nguyen et al., 2003). Short-term debt increases the likelihood of a financial crisis due to the difficulty of paying debt before maturity (Gomez & Gonzalez, 2019). Economic crises will usually increase public debt issuance which is often related to inflation and depreciation of local currencies in developing countries (Agyapong & Bedjabeng, 2020; Koh et al., 2020).

Based on Indonesia's external loan profile data published by the Center for Education and Analytical Studies of Bank Indonesia, in the period 1981-1990 Indonesia's external debt sources were still dominated by soft conditional debt sources containing grant elements, where 50-67% of the share of external debt comes from soft debt in the Official Development Assistant (ODA) agenda. In this phase, Indonesia's external debt faced relatively no problems. Indonesia had even experienced a "fiscal surplus" in the period 1994-1997 so that it could "prepay" its external debt (Yumanita et al., 2001).

However, along with Indonesia's economic development, soft conditional debt is increasingly limited. The 1997-1998 monetary crisis had an impact on the rupiah currency, which depreciated slowly. Although in July 1999 it was at its strongest level of Rp6,550/US$, the rupiah exchange rate against the dollar moderately continued to depreciate to a level of Rp14,910/US$ in the same month in 2022. This exchange rate crisis further prompted the Indonesian government to switch from soft conditional debt to commercial debt.

The global economic uncertainty and crises are also challenges. Global economic uncertainty can lead to an increase in global interest rates, reduced capital inflows during crises, depreciation of the local currency, declining export revenues, and a decrease in the value of national assets during crises. The likely consequences include an increased burden of

interest payments on foreign debt, limited access to external financing, and an elevated risk of debt default.



	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023*
Series1	24.37	23.32	25.75	27.29	21.98	15.48	12.81	12.81	17.54	32.70	31.48	22.55	24.20	17.80	14.23	14.18	16.67	15.83	11.09	16.64	15.39	29.25	19.66	25.64	17.09

Figure 3: Volatility Index Period 1999-2023

Source: Chicago Board Options Exchange (CBOE) (2024)

The Global Financial Market Volatility Index, commonly known as VIX (Volatility Index), is one of the indicators frequently used to measure the level of global economic uncertainty. This index reflects the expected volatility or fluctuations in the financial markets over a specific period. The higher the VIX value, the greater the level of uncertainty in the global financial markets, while a lower value indicates lower uncertainty. VIX is generally considered a market sentiment indicator and can provide insights into the level of risk and anxiety in the global markets. Based on volatility index data during the period 1999-2023, the peak of global economic instability occurred in 2008-2009, attributed to the subprime mortgage crisis, followed by the year 2020, marked by the Covid-19 pandemic crisis.

However, the size of external debt does not always reflect the strengths and weaknesses of a country's economy. Other factors such as the country's repayment capacity, external debt composition, and indicators of overall economic health are also important factors to consider (Nazamuddin et al., 2022). This study was conducted to determine why external debt is inevitable and the extent to which regime change affects Indonesia's external debt management through fiscal deficit, tax income, inflation rates and volatility index during the period 1999-2023.

Literature Review

This section reviews the theoretical and empirical literature relevant to the present study: it begins with the theoretical framework of the study, followed by a review of past studies.

According to Barro (1974, 1976, 1979), the government can finance its spending by using tax receipts and debt, both public debt and private debt. The equation used for the government budget is:

$$G_t + rb_{t-1} = \tau_t + (b_t - b_{t-1}) \quad (1)$$

G_t is a government rill withdrawal without entering the volume of public debt interest payments and is assumed to be exogenous. Government income from taxes is marked by τ_t,

and aggregate real income Y_t treated as exogenous. Public debt b_t assumed to be in the form of bonds issued by the government at a price (P) as a constant price and the rate of return (r) in the (t) period is also treated constant over time.

Then the equation of the budget limit with the addition of the term perpetual debt financing for each government budget equation in (t) year is:

$$\frac{\sum_1^\infty [G_t]}{(1+r)^t} + b_0 = \frac{\sum_1^\infty [\tau_t]}{(1+r)^t} \quad (2)$$

Based on this government budget equation, the real rate of return that public debt must offer does not depend on how much government debt it is. However, if government debt is close to the value of future tax revenues, then the risk of default becomes important to take into account (Barro, 1974).

The assumptions used can also apply to private debt. If the private sector sees government debt as part of its net worth, then the amount of debt can affect the real rate of return in the economy (Barro, 1976).

Barro (1979) emphasized that external debt policy does not affect economic growth when it is used to finance government budget deficits. This is because the government will have to raise taxes in the future to pay down the public debt. People will anticipate by reducing current consumption to save more for future taxes.

A different view was put forward by Evans (1988), who argued that when the government uses external debt to overcome budget deficits, then external debt can increase economic growth in the short term. In endogenous growth theory, countries can go into debt to finance investments in physical capital, human capital, or technological innovations needed to drive economic growth.

Properly transformed, external debt will accumulate capital which in turn has an impact on increasing public consumption. The increase in consumption occurs because of an increase in income and the assumption that people who have enough information to plan their consumption throughout life will try to continue to improve their quality of life (Bernheim, 1989).

Increased consumption means less savings and higher interest rates. Higher interest rates are, in turn, hampering private demand. If all resources are fully utilized, then permanent government budget deficits and external debt will displace private investment. The tax burden for the next generation will increase to pay off debts and interest accumulates over time (Eisner, 1989).

External debt has been the subject of many complex studies and discussions regarding how it relates to and affects a country's economic performance. Some previous studies have led to conclusions supporting the hypothesis that external debt has a significant impact on a country's economic growth, while other studies emphasize that under certain conditions no statistically significant relationship was found (Chenery & Carter, 1966).

The literature that achieves the hypothesis of the positive contribution of external debt argues that the transformation of external debt has accumulated public capital that encourages increased economic activity, individual income, and public consumption which, in turn, increases economic growth. On the other hand, there is a lot of literature that present opposite results, where external debt actually causes a serious problem called "Debt Overhang" (Guei, 2019; Servén, 1997).

A country can be said to experience debt-overhang problems if estimates of potential future resource transfers show less repayment capacity than its debt. When the inherited debt is too large, the credit score will be so low that creditors are not sure that the debt can be paid in full. It is then unlikely that the country can increase debt to finance its spending (Deshpande, 1997; Jacobs et al., 2020).

Debt-overhang implies uncertainty over the portion of debt to be paid by the state. As a result, investors will lower expectations of returns and withdraw their investments in anticipation of increased taxes and other distortions. On the other hand, domestic and foreign novice investors will refrain so that, in complex terms, this unstable environment will slow down capital accumulation, which in turn hinders the rate of economic growth. Conditions of excessive debt burden hinder economic growth and private investment in a country. This occurs when the country is over-indebted and must pay high interest and principal, thus reducing resources that can be used for investment and economic development. The negative impact of a debt-overhang can affect fiscal and monetary policy, as well as reduce investor and creditor confidence in the country's ability to repay its debts (Yusuf & Mohd, 2021).

The findings of Elbadawi et al., (1997) explain that excessive debt burdens in Sub-Saharan Africa have a negative impact on economic growth and private investment. Some efforts such as fiscal discipline, debt reduction, and increased public investment can help achieve sustainable levels of public debt and deficit.

The practical relevance of the influence of external debt on economic growth in developing countries was previously explained by Pattillo et al. (2004) who noted that developing countries often use external debt to invest and finance their economic growth, but too much debt can lead to financial crises and other problems. Foreign borrowing can help economic growth in the short term, but if debt exceeds its ability to repay it can be detrimental in the long run (Aimola & Odhiambo, 2021).

It has been affirmed by Krugman (1988) that the effect of external debt on economic growth depends on how much it owes, how it is borrowed, and how it is invested. Developing countries need to be careful in making foreign loans. Changes in interest rates and global trade conditions can affect the relationship between debt and economic growth. It is necessary to improve the quality of domestic institutions and policies for economic growth in the long run.

Analyzing the relationship between exports, GDP growth, and external debt service in 35 African countries, Amoateng & Amoako-Adu (1996) found that high economic growth in a country is closely related to the level of exports and external debt service. The increase in external debt is closely related to low export receipts in poor and middle-income countries in Africa. Economic growth is driven by export receipts. Good external debt management can boost economic growth and exports in African countries.

It was also found that external debt borrowed before the 1982 debt crisis was still able to stimulate economic growth, while external debt after 1982 tended to reduce economic growth. However, structural adjustments of the IMF-led foreign loan program eliminated some economic distortions and encouraged regular repayment of African countries' external debt during the 1983-90 period.

Studies on external debt were also conducted by Cholifihani (2008) in Indonesia during the 1980-2005 period. He found that Indonesia's external debt policy was able to increase economic growth in the short term, although not significantly. However, if debt continues to be carried out in the long run, Indonesia will face a floating debt problem (debt-overhang). Higher debt can increase interest bills, budget deficits and reduce public savings. Interest

rates will increase and the credit available to private investment decreases. This can happen because the private sector will withdraw their investment and the government will need to restructure the public spending budget due to increased spending to service debt. In turn, the situations that occur will slow down economic growth. To overcome these problems, it is emphasized that Indonesia's labor and physical capital are the main factors that can encourage economic growth in the long run.

The results of Azam et al.'s (2013) studies in Indonesia during the 1980-2012 period, confirm the conclusions of Cholifihani's (2008) study that external debt and inflation rates are negatively correlated with Indonesia's economic growth. On the other hand, the variables of exports, infrastructure, and gross savings have a positive influence on economic growth in Indonesia during the observation period. Instead of being profitable, debt payments and interest that are getting higher all the time can be a burden for future generations.

Studies conducted by Malik et al. (2010) in Pakistan concluded that external debt has a significant negative impact on economic growth. The study used time series data from 1972 to 2005 and showed that the external debt and debt service performed by the Pakistani government negatively impacted its economic growth.

Likewise, Bashir Jama (2021) in his study on the influence of external debt in East African countries concluded that external debt from 2011 to 2019 negatively impacted economic growth, although not significantly. This study suspected that these findings were due to excess debt that occurs in almost every country in the East African region. In addition, the formation of gross capital and labor force is not accompanied by political stability in the region. Therefore, external debt management failed to attract investors to invest in countries in East Africa. The study suggested that debt reduction and debt management strategies should be implemented, and policies should be set up to stimulate gross capital and labor formation.

In ASEAN countries, there is a trend of joint movement between unemployment, currency exchange rates, and external debt. In Indonesia, Malaysia, and Thailand, external debt and domestic currency exchange rates have a unidirectional relationship. On the other hand, external debt and unemployment have a unidirectional relationship in the Philippines and Thailand. Meanwhile, in Indonesia, unemployment and external debt have a strong correlation. This research emphasizes the importance of macroeconomic policies such as exchange rate stability, external debt risk management, and policies that are skewed toward the poor (Cahyadin & Ratwianingsih, 2020).

Theoretical models based on the Ramsey-Cass-Koopmans framework have been used to study the relationship between external debt and economic growth. The theoretical framework explains why the pattern of the relationship between external debt and economic growth varies or uncertain. According to Changyong et al. (2012), the pattern of the relationship depends on the degree of debt transformation itself. For example, debt transformation in the United States is relatively low because more than half of U.S. external debt supports personal consumption. In addition, most consumer goods in the U.S. are imported from developing countries, rather than domestically produced. Therefore, US external debt contributes little to their economic growth.

Another study by Fadillah & Sutjipto (2018) examined factors affecting Indonesia's external debt from 2008 to 2017. The study used multiple linear regression with t-test and F-test and found that currency exchange rates have a positive and significant effect on Indonesia's external debt, exports have a negative and significant effect on Indonesia's external debt, inflation has a positive and significant effect on Indonesia's external debt, and the budget

deficit has a positive and insignificant effect on Indonesia's external debt.

Optimizing external debt management is a challenge for debt recipient countries. Export targets increase due to increasing debt repayment obligations by a country. Repayment of external debt requires foreign exchange, which means revenues from exports must increase to keep external debt growth within the limits of repayment ability. This obligation increases the potential for cuts in government spending in the social sector. This hypothesis is confirmed by a study conducted by Shabbir & Yasin (2015) in which debt service obligations hurt government spending in the development of social sectors such as education and health due to the transformation of low external debt in seven developing Asian countries, namely Pakistan, India, Bangladesh, Sri Lanka, Nepal, Philippines, and Indonesia, from 1980 to 2010.

Descriptive analysis by Mahmud (2018) shows that external debt cannot be avoided because of its role as one of the main sources of funding for a country's development. The study compared Nigeria's external debt management with Indonesia's when the two countries began borrowing from outside after achieving independence due to limited domestic funding sources in the 1950s and 1960s. The study concluded that there are three main problems in debt management. First, the limited ability of capital markets in both countries to accumulate domestic savings affects the low value of capital formation that cannot support economic development. Second, the spread of responsibility due to too many institutions intervening in the management of state debt results in difficulties in making important decisions in crisis situations. Third, the lack of political will from the government in solving the fundamental issue of external debt while the value of debt continues to increase. Previous studies have shown the importance of the study of Indonesia's external debt. Review of the results of previous studies aims to build information about related objects of observation.

Data and Research Methods

The data used in this study is secondary data from various sources such as Bank Indonesia, the Ministry of Finance of the Republic of Indonesia, the Ministry of Home Affairs, and the Chicago Board Options Exchange (CBOE). This study uses time series data spanning 24 years (1999–2023) on a quarterly basis. Annual data was interpolated into quarterly data using EViews software Subsequently, after the adjustment, the sample size for this study is n=99. In this study external debt is observed as an endogenous variable. Exogenous variables used to observe include fiscal deficits, tax income, inflation rate and volatility index. The lag of the endogenous and exogenous variables is used as an instrument variable. Furthermore, this study also uses 4 dummy variables during the period of government after the 1998 monetary crisis. Abdurrahman Wahid regime is the reference variable for the reigns of Megawati Soekarno Putri, Susilo Bambang Yudhoyono, and Joko Widodo.

In order to observe dynamic social and economic variables, a method of proving that there is no correlation between the lags of endogenous variables and their residuals is needed. This considers that its dynamic nature allows current socioeconomic conditions to be conditions that were created as a result of the influence of various conditions that occurred in previous periods. Therefore, to be able to meet the needs of the analysis of this study, which also wants to see the dynamic impact of socioeconomic variables, the appropriate regression model to be used in this study is a dynamic regression model. Dynamic models can consider and identify dynamic processes between endogenous and exogenous variables (Ekananda, 2016).

The dynamic regression model is basically the development of multiple regression by including the instrument variable in the model. The basic assumption used is that there is a correlation between the endogenous variables and their residuals. Meanwhile, the

regressor has no relationship with the residual. Because the feasible general least squares (FGLS) estimator is inconsistent, this study uses the instrument variable (IV) to overcome the correlation between the lag of the endogenous variables and their residuals (Baltagi, 2005).

This study aims to identify the effects of the budget deficit, tax income, inflation rate and volatility index on Indonesia's external debt. Endogenous and exogenous lag variables are used to observe whether there is a momentum effect from Indonesia's external debt. In addition, this study also adds 4 dummy variables which aim to describe how external debt management varies in different government leadership regimes. The dynamic model is used if the t-1 period, namely the previous year, affects external debt in the t-1 period. Here are the general equations used (Blundell & Bond, 1998):

$$y_t = \delta y_{t-1} + \beta' x_t + \sum_{k=1}^{K} \gamma_k D_k \ldots + \varepsilon_t \quad (3)$$

Where i is worth 1, 2, 3, ... n, and t is worth 1, 2, 3, ... t.

Index i describes the latitude component and t describes the time series component.

Where:

y_t : Endogenous variable
α : Intercept
y_{t-1} : Instrumental variable
X_t : Exogenous variable
D_k : Dummy variable
β : Beta coefficient
γ : Dummy coefficient
ε_t : Error

The first analysis model in this study is derived from the general equation used with the following study variables:

$$ED_t = \alpha + \beta_1^* ED_{t-1} + \beta_2^* FD_t + \beta_3^* TI_t + \beta_4^* IF_t + \beta_5^* VI_t + \gamma 1^* Reg1_t + \gamma 2^* Reg2_t + \gamma 3^* Reg3_t + \gamma 4^* Reg4_t + \varepsilon_t \quad (4)$$

Where:

ED_t : Indonesia's external debt at t period
ED_{t-1} : Previous Indonesia's external debt at t -1 period
FD_t : Indonesia's fiscal deficit at t period
TI_t : Indonesia's tax income at t period
IF_t : Indonesia's inflation rate at t period
VI_t : Volatility index at t period
$Reg1_t$: 1st dummy variable for the term of President Abdurrahman at t period
$Reg2_t$: 2nd dummy variable for the term of President Megawati Soekarnoputri at t period
$Reg3_t$: 3rd dummy variable for the term of President Susilo Bambang Yudhoyono at t period
$Reg4_t$: 4th dummy variable for the term of President Jokowi Dodo at t period
ε_t : Error

To examine how the values of variables in the previous year influence their momentum in the

current year, then the second dynamic model used by this study is:

$$ED_t = \alpha + \beta_1^* ED_{t-1} + \beta_2^* FD_{t-1} + \beta_3^* TI_{t-1} + \beta_4^* IF_{t-1} + \beta_5^* VI_{t-1} + \varepsilon_t \quad (5)$$

Where:

ED_t : Indonesia's external debt at t period

ED_{t-1} : Previous Indonesia's external debt at t-1 period

FD_{t-1} : Previous Indonesia's fiscal deficits at t-1 period

TI_{t-1} : Previous Indonesia's tax income at t-1 period

IF_{t-1} : Previous Indonesia's inflation rate at t-1 period

VI_{t-1} : Previous volatility index at t-1 period

ε_t : Error

To evaluate how well the exogenous variables account for the variation in the endogenous variables, this dynamic model applies two tests. The adjusted R^2 test and the Wald test. The adjusted R^2 test is a modified version of the R^2 test, which measures the proportion of variance explained by the regression model.

The R^2 test has a limitation. It increases with the number of exogenous variables in the model, even if they are not relevant to the endogenous variables. The adjusted R^2 test corrects this problem by penalizing the addition of insignificant variables. Therefore, it provides a more accurate measure of the quality of the model.

The Wald test is another way to assess the significance of the exogenous variables in the model. The Wald test is a way to test the significance of the exogenous variables in the dynamic model. It examines whether the exogenous variables have a joint effect on the endogenous variables, as proposed by Arellano & Bond (1991). The formula for the Wald test statistic is:

$$W_j = \left[\frac{\hat{\beta}_1}{SE(\hat{\beta}_j)} \right]^2 \quad (6)$$

Where:

β_j : Estimator for β_j

$SE(\beta_j)$: Standard error for β_j

In the Wald test, the basic hypothesis used for decision making is as follows:

1. If the p-value < 0.05, then H0 is accepted and H1 is rejected.

2. If the p-value is > 0.05, then H0 is rejected and H1 is accepted.

On this basis, the Wald test in this study is used to identify the overall effect of fiscal deficit, tax income, inflation rate and volatility index on Indonesia's external debt during four different government periods.

In data processing, this study uses two types of statistical testing methods, namely (1) Descriptive Statistics, which aims to describe and summarize the observed data; and (2) Inference Statistics, which aims to see and explain the effect of instrument variables, exogenous variables and dummy variables that are observed using dynamic least squares analysis. Before carrying out the analysis, several classic assumption tests were carried out.

Finding and Discussion

Descriptive statistics are used for summarizing the data from the 13 variables in this study. Table 1 shows the mean, median, maximum, minimum, and standard deviation of each variable.

The external debt variable has a mean of 246,989 million USD and a median of 225,374 million USD. The maximum value of external debt is 416,935 million USD, and the minimum value is 128,736 million USD. The standard deviation for external debt (ED) variable is 108,798. The fiscal deficit (FD) variable has a mean of -216,345 trillion rupiah and a median of -88,619 trillion rupiah, with the maximum value is -4,121 trillion rupiah and the minimum value is 947,698 trillion rupiah. The standard deviation for fiscal deficit is 249,277. The income from taxes variable has a mean of 873,957 trillion rupiah and a median of 873,874 trillion rupiah, with the maximum value is 2,034,500 trillion rupiah and the minimum value is 102,394 trillion rupiah. The standard deviation for tax income (TI) variable is 554,202. The inflation rate variable has a mean of 5.97 percent and a median of 5.16%, with the maximum value is 17.11% and the minimum value is 1.7%. The standard deviation for inflation (IF) variable is 3.78. The volatility index variable has a mean of 20.23 and a median of 17.80, with the maximum value 32.70 and the minimum value 11.09. The standard deviation for volatility (VI) variable is 6.04.

Table 1: Descriptive Statistics of External Debt, Fiscal Deficit, Tax Income. Inflation Rate, Volatility Index, Regime 1, Regime 2, Regime 3 and Regime 4 Period 1999-2023

No	Variable	Mean	Median	Maximum	Minimum	Std. Dev	Denomination
1	External Debt	246989	225374	416935	128736	108798	Million USD
2	Fiscal Deficit	-216345	-88619	-4121	-947698	249277	Trillion Rupiah
3	Tax Income	873957	873874	2034500	102394	554202	Trillion Rupiah
4	Inflation Rate	5.97	5.16	17.11	1.7	3.78202	Percent
5	Volatility Index	20.23	17.8	32.7	11.09	6.04491	Index
6	Regime1	0.08	0	1	0	0.272660	Nominal
7	Regime2	0.12	0	1	0	0.326599	Nominal
8	Regime3	0.4	0	1	0	0.492366	Nominal
9	Regime4	0.36	0	1	0	0.482418	Nominal

Following the same procedure as Okelo et al. (2013), this study performed the Durbin Watson (DW) test to check for heteroscedasticity and autocorrelation. With a Durbin-Watson (DW) value of 2.068451, which exceeds the critical range, we can conclude that there is no evidence of autocorrelation at the 5% significance level. The Run test showed a p-value is 0.124035 > α (0.05), indicating that the variables in this study are free from heteroscedasticity and autocorrelation issues.

This study also conducted the multicollinearity test as part of the classical assumption test. The analysis of multicollinearity in this model shows the results of VIF<10. It can be concluded that there is no multicollinearity among the variables analyzed in this study. The regression results are sufficiently stable, and the information provided is reliable for meaningful insights.

The statistical results of the first model estimation are reported in Table 2. Furthermore, the statistical results of the second model estimate are reported in Table 3.

The statistical tests show that the fiscal deficit has a negative but not significant effect on Indonesia's external debt, with a coefficient of -0.010775 and a probability of 0.2397. This

is not consistent with the balanced budget theory, which suggests that one of the easiest ways to deal with a budget deficit is to borrow from abroad (Fischer & Easterly, 1990). These findings suggest that understanding the reasons behind the rising trend of Indonesia's external debt is crucial. It's essential to explore whether other factors, such as economic indicators, government policies, or external market conditions, contribute to this trend.

Table 2: First Model Estimation

Variable	Coef.	Std. Error	t-statistic	Prob.	Sig.
C	21051.51	8429.840	2.497260	0.0143	
External Debt(-1)	0.884764	0.050157	17.63985	0.0000	***
Fiscal Deficit	-0.010775	0.009104	-1.18356	0.2397	
Tax Income	0.016313	0.007334	2.224181	0.0286	**
Inflation Rate	-631.8847	304.0498	-2.078227	0.0405	**
Volatility Index	-161.4344	156.2892	-1.032921	0.3044	
REGIME2_REF	-1537.089	2439.294	-0.630137	0.5302	
REGIME3_REF	120.2264	1766.695	0.068052	0.9459	
REGIME4_REF	222.8628	3616.629	0.061622	0.9510	
Adj. R^2	**0.994551**				

Public finance theory posits that governments can finance their expenditures through various sources, including state revenue (Musgrave & Musgrave, 1989). This theory emphasizes the importance of taxation as a primary means of raising revenue, as it promotes accountability and transparency in government spending (Besley & Persson, 2011). The state revenue theory posits that higher tax revenues enable the state to fund its expenditure activities, such as infrastructure development, without resorting to external debt. However, this is not the case. Many countries, both developing and developed, have accumulated more external debt over time, including Indonesia (Swasono & Martawardaya, 2016).

Indonesia's external debt has only declined eight times on an annual basis in the past 24 years, during regime transitions from President B.J Habibie to Abdurrahman Wahid, and twice in 2001-2002 (under President Abdurrahman Wahid), and 2005-2006 (under President Susilo Bambang Yudhoyono's first term). The two periods of President Joko Widodo's administration recorded the highest growth of external debt compared to the previous periods. Reduction in external debt during Joko Widodo's second term started in 2020, partly due to the "Debt Swaps" from four creditor countries, namely Germany, Italy, Australia, and the United States. The debt swap agreements were for education health global fund projects from Germany, housing settlement projects from Italy, health projects from Australia, and tropical forest projects from the United States. This reduction trend was followed consistently to 2023.

This study shows that tax revenue has a positive and significant impact on external debt, with a coefficient of 0.016313 and a probability of 0.0286. This implies that higher tax revenues are linked to higher external debt. This may indicate Indonesia's need for massive development with a budget deficit as a developing country.

Public finance theory suggests that external debt can be used to fund development projects (Dombi & Dedák, 2019; Fischer & Easterly, 1990), as seen in Indonesia with examples like the 1,167km ADB and World Bank-funded Trans-Java toll road, the Java Steam Power Plant (PLTU) co-financed by the ADB, the National Tourism Strategic Area (KSPN) project in Labuan Bajo co-financed by the ADB, the Kertajati International Airport project and Jakarta-Bandung and Jakarta-Surabaya high-speed rail projects co-financed by the China Development Bank, and the Kendal Industrial Estate financed by the Japan International Cooperation Agency

(JICA). This highlights the diverse range of development projects in Indonesia utilizing external debt as a funding source.

It is important to note that loans are not free gifts but have terms and conditions that can pose long-term risks. For instance, some loans may entail the use of foreign currency, which can cause inflation, the employment of foreign workers, which may limit skills development opportunities for local workers, and the obligation to pay higher interest rates, which can add to the people's burden. These risks persist regardless of the outcome of the debt transformation (de Mendonça & Brito, 2021; Fleegler, 2006; Hattori & Takáts, 2016).

Inflation weakens the domestic currency (rupiah) against foreign currencies (e.g., the US Dollar), which raises the cost of servicing external debt denominated in foreign currency. Most debt agreements stipulate the interest rate to be paid based on the nominal inflation rate at the time of the debt agreement. Therefore, if the inflation rate increases in the future, the debtor will receive a higher rate of return, meaning that the creditor country must pay a larger nominal debt than the initial calculation of the debt amount.

However, this study shows that the impact of inflation on external debt is negative and significant, with a coefficient of -631.8847 and a probability value of 0.0405. This implies that higher inflation lowers the government's tendency to borrow externally. Inflation reduces people's purchasing power, and demand for goods and services, especially imports. This results in lower foreign currency inflows and a weaker domestic currency, which negatively affects economic performance and growth. Therefore, the government avoids taking external loans to minimize additional costs.

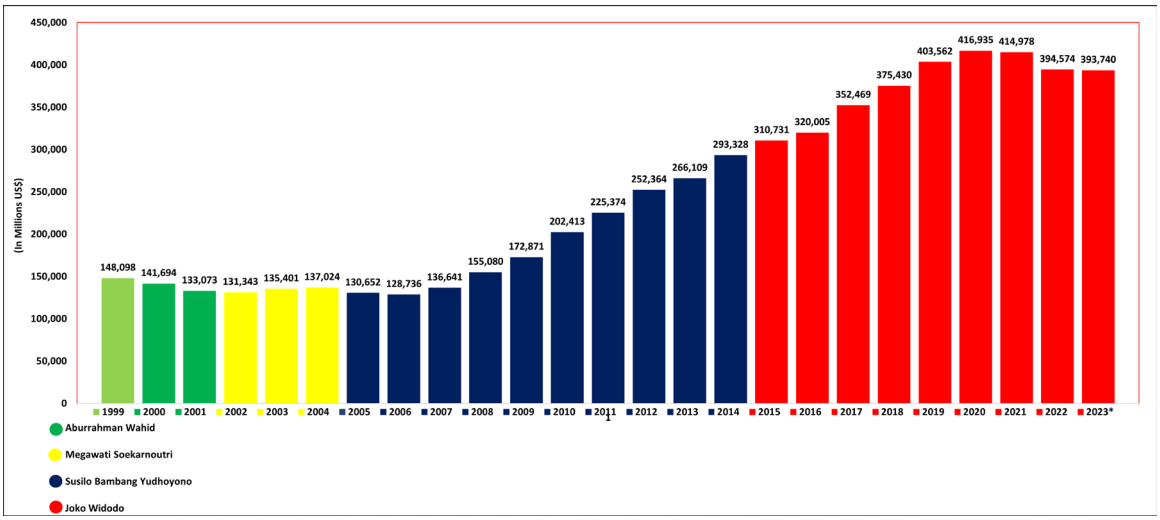


Figure 4: Indonesia's External Debt Period 1999-2023

Source: Central Bank of Indonesia (2024)

Considering global challenges, the condition of global economic uncertainty is a consequence of globalization and a country's position in the global order. However, based on this research, the volatility index as an indicator of global economic uncertainty, both the previous periods p-value of 0.8889 and the current year's p-value of 0.3044, shows an insignificantly significant influence on the decision to borrow from foreign parties. The coefficient value of -161.4344, which changed to a 20.88388 from the volatility index value in the previous period, which indicates that global economic uncertainty is not always a deterrent for Indonesia to borrow. This is supported by the recent global uncertainty phenomenon, namely the global crisis due to the Covid-19 pandemic. When the global economic uncertainty index sharply increased from 15.39 in 2019 to 29.25 in 2020, this global risk increase was responded to with

an increase in Indonesia's foreign debt from 403,562 billion USD to 416,935 billion USD. The fiscal deficit increased from 2.2% to 6.14%, the worst in the last 24 years. This response clearly indicates that the response to global economic changes can vary depending on the country's own priorities.

During the Indonesian presidential administrations, external debt experienced a fluctuating trend. In 1999, the debt reached 148,098 million US dollars and hit its lowest point in 2002 under President Megawati's leadership at 131,343 million US dollars. Subsequently, there was a significant increase, reaching its peak in 2020 under President Joko Widodo's tenure, with a value of 416,935 million US dollars. The most substantial increase occurred during President Susilo Bambang Yudhoyono's term (2004-2014), witnessing a surge of approximately 150,000 million US dollars. This analysis indicates that changes in leadership and economic policies directly impact Indonesia's external debt trends, with a consistent increase since the mid-2000s.

This study investigates the impact of four dummy variables, which represents the post 1997-1998 monetary crisis government period, on Indonesia's external debt. The dummy variable has four regimes, corresponding to the four presidents who served after the crisis while the Abdurrahman Wahid regime becomes the reference period. The results indicate that none of the regimes had more significant effect on external debt management than the Abdurrahman Wahid regime period; the p-value shows 0.5302, 0.9459, 0.9510 for each regime, 2nd, 3rd, and 4th respectively. Having a negative coefficient of -1537.089 can explain that the management of foreign debt during the administration of Megawati Soekarnoputri is not better than the reference regime, namely the administration of Abdurrahman Wahid. Meanwhile, the positive coefficients of 120.2264 during the Susilo Bambang Yudhoyono administration and 222.8628 during the Joko Widodo administration can be explained as more insignificant positive impacts than Abdurrahman Wahid regime.

Indonesia experienced economic and political instability during Abdurrahman Wahid's relatively short tenure in Indonesia (Tambunan, 2014). Several issues such as amendments to Law on Bank Indonesia No. 23 of 1999, granting rights to regional autonomy to borrow externally, debt restructuring to the unfinished divestiture of Bank Central Asia and Bank Niaga led to the IMF's rejection of Indonesia's debt application. Indonesia's debt-to-GDP ratio dropped to 82.9% in 2001 (Astriyani & Rinardi, 2021).

The next president, Megawati Soekarnoputri, sold some state assets to foreign parties to repay Indonesia's debts using the "private placement" method (Ma'arif, 2019). She sold natural gas to China, telecommunications companies Indosat and Telkomsel, privatized Bank BCA and Bank International Indonesia and sold Pertamina's tankers to cover the budget deficit. At the end of her tenure, Indonesia's debt-to-GDP ratio fell again to 54.9% (Pratiwi, 2015). After the daughter of the first president's regime, the Indonesian economy faced serious shocks due to rising fuel prices on the international market and the rupiah exchange rate which weakened again to crisis levels, namely a weakening of more than 25%. Despite paying off Indonesia's debt to the IMF in 2006, budget expenditures continued to increase due to macroeconomic stabilization policies with energy subsidies and the Direct Cash Assistance (DCA) program, which incurred large costs afterwards (Hakim, 2012).

The highest of external debt occurred during two administrations of President Joko Widodo. The debt-to-GDP ratio exhibited a fluctuating trend that tends to increase, reaching over 40% of Indonesia's GDP in 2020. Most of the budget was allocated for the continuation of large-scale infrastructure development projects such as airports, seaports, mass rapid transit systems, toll roads, as well as thermal and hydroelectric power plants. In addition to addressing the widening budget deficit resulting from the lingering impacts of the Covid-19 pandemic,

the accumulated debt was also utilized for debt repayments, including both principal and interest (Junaedi, 2020).

Table 3: Second Model Estimation

Variable	Coef.	Std. Error	t-statistic	Prob.	Sig.
C	2016.418	7368.646	0.273648	0.7850	
External Debt(-1)	0.997327	0.041849	23.83138	0.0000	***
Fiscal Deficit(-1)	0.013607	0.008537	1.593898	0.1144	
Tax Income(-1)	0.005724	0.005675	1.008734	0.3157	
Inflation Rate(-1)	-228.7231	280.4357	-0.815599	0.4168	
Volatility Index(-1)	20.88388	149.0746	0.140090	0.8889	
Adj. R^2	**0.994437**				

This study employs Indonesia's external debt lag as an instrumental variable to capture the momentum and long-term effects of social and economic problems. The current social and economic conditions of a country are a result of situations that have occurred and policies that have been implemented in the past. Therefore, the level and method of managing Indonesia's external debt during the current administration could be a legacy from previous administrations (Arellano & Bond, 1991; Baltagi, 2005; Blundell & Bond, 1998).

Statistically, by employing the lag variable as an instrumental variable, one can assess the correlation between the variable value and the residual. The coefficient and probability values obtained from this statistical test indicate the degree to which past conditions have influenced current conditions. Based on the statistical test results, a positive coefficient value of 0.997327 with a probability of 0.0000 is observed. This implies that the current value of Indonesia's external debt is significantly influenced by the situation and policies of Indonesia's external debt in previous years. If external debt increased in the previous year, it tends to increase in the current year as well. Additionally, the fiscal deficit, tax revenue, and volatility index in the previous year positively impacted the increase of external debt in the current period, with coefficients for each variable being 0.013607, 0.005724, and 20.88388, respectively. Unfortunately, the p-values for each variable are 0.1144, 0.3157, and 0.8889, indicating that they are not statistically significant. Despite the lack of statistical significance with a p-value of 0.4168, the inflation rate consistently has negative influence on external debt escalation, with a coefficient of -228.7231.

Table 4: Wald Test Results

Test Statistic	Value	df	Prob.	Sig.
F-statistics	7493.608	(9, 89)	0.0000	***
Chi-square	67442.47	9	0.0000	***
Null Hypothesis:	C(1)=C(2)=C(3)=C(4)=C(5)=C(6)=C(7)=C(8)=C(9)=0			

The regression results in the model unveiled an adjusted R-squared (R^2) value of 0.994551 for the first model and 0.994437 for the second model. This signifies that both models can elucidate 99% of the variation in the endogenous variable, which is external debt.

The Wald test yielded a Prob F-Stat value of 0.0000, which implies that the fiscal deficit, tax revenues, and volatility index in the last four government periods after the 1997-1998 monetary crisis had a significant impact on Indonesia's external debt. This finding can be a crucial indicator of how Indonesia manages its debt in terms of credit ratings and repayment capacity.

Conclusion

This study shows that Indonesia's current external debt is strongly influenced by external debt in previous periods. The positive and significant coefficient of the lagged external debt variable indicates that the government's decision to increase the current external debt is the result of dependence on external debt that is formed over time. The fiscal deficit negatively, though insignificantly, impacts Indonesia's external debt, emphasizing the need to comprehend the reasons for the increasing trend. This study also shows that an increase in tax revenue, which reflects an increase in domestic capital to finance the country's development, is not a decisive factor for reducing dependence on external debt. The coefficient of the tax revenue variable is positive and significant, which implies that higher tax revenue leads to higher external debt. The role of currency values is examined in this study by examining the impact of the inflation rate on Indonesia's external debt. The results indicate that the inflation rate has a consistent negative impact, which means that higher inflation lowers the government's propensity to take outside loans.

Global economic uncertainty is explored in this study by analyzing the impact of the volatility index on Indonesia's external debt. The results suggest that the volatility index has a negative but insignificant coefficient, indicating that higher volatility reduces the government's inclination to borrow from external sources. However, the shift in the coefficient value from positive in the previous period to negative in the current period suggests that further examination is needed to understand the impact of global economic conditions on external debt.

The transition of the president after the 1997-1998 crisis had no real impact on managing Indonesia's external debt. Although every president has a record of reducing the external debt during his term, these were incidental and not periodic planned reductions.

This study recommends that the government carry out debt management and design strategies to reduce dependence on external debt. In addition, the management of state tax revenues should be monitored more closely because it has the potential to create independence in financing state development and prevent fraud and corruption. Three aspects must be considered in managing external debt, namely the source, type, and terms of debt. Sources of debt affect Indonesia's bilateral and multilateral relations in the international arena. The type of debt is related to the purpose of the debt, which should be productive and profitable. Debt terms must not harm national interests and burden future generations.

It is important for the government to adopt policies that aim to reduce dependence on external debt. Debt management efforts should follow the principle of prudence and strategies to reduce dependence on external debt need to be designed. Moreover, the policies that aim to maintain fiscal stability can also be a crucial factor in protecting the country's financial portfolio and avoiding the risk of default. Taxes have the potential to create independence in financing the country's development. Therefore, the management of state tax revenues must also be monitored more closely by preventing fraud and various types of corrupt practices.

Considering the results of this study, which reveal inconsistent effects of fiscal deficit and global economic instability on foreign debt over time, the government should start considering the option of revising Law No. 17/2003, Article 12, paragraph 3, which regulates the limit of the ratio of fiscal deficit and debt to GDP. The government could establish a more flexible limit. This could be based on a more holistic approach by expanding the main objectives of the policy, considering the aspect of the goal of welfare equality and sustainable development, rather than solely maintaining fiscal stability and state finances. Instead of resorting to borrowing, the government should opt to invest in strategic and profitable

sectors, such as digital assets and technology. This way, even though spending increases, it will be offset by equal or better returns**.**

Declaration

In adherence to ethical standards, the authors declare that there are no conflicts of interest pertaining to the research titled "Indonesia' s External Debt Odyssey: Impact of Fiscal and Political Changesfrom 1999 to 2023" The data and materials utilized in this study are made available for transparency and reproducibility. The study received financial support from Baitul Enza. The authors extend their sincere acknowledgments for any contributions or assistance received during this research.

Conflict of Interest

The authors declare that there are no significant competing financial, professional, or personal interests that might have affected the performance.

Availability of Data and Materials

Mendeley open data repositories: https://bit.ly/40ToUaO

Additional material related to this article can be found online at: https://bit.ly/40T37QC

Authors' Contribution

1. M. Munip Utama: ERN created the methodology; IAR, NKP, and ERN wrote, and edited the manuscript; NKP and IAR wrote the original draft.
2. Pheni Chalid: NKP and IAR conceptualized the study; reviewed and fundings.

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