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DOMESTIC PUBLIC DEBT, GROSS DOMESTIC PRODUCT, AND THE CROWDING-OUT EFFECT: A CASE STUDY IN INDONESIA

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ABSTRACT

Research Originality — Several studies have examined the impact of government debt on Indonesia's GDP, but few have specifically analyzed the effect of domestic debt. This study addresses that gap by focusing on general government domestic debt securities and loans, measured by creditor's residency, which is rarely explored in previous research.

Research Objective — This study aims to assess how domestic debt from both central and local governments (general government) affects Indonesia's GDP and whether it leads to a crowding-out effect on private investment.

Research Methods — The study adopts the error correction model (ECM) to analyze short-term and long-term relationships between variables. The analysis uses quarterly data from Q1 2014 to Q4 2019.

Empirical Results — The results show that the growth of general government domestic debt has a positive and significant impact on Indonesia's economic growth. Moreover, it does not lead to a crowding-out effect on private investment.

Implications — The general government's shift toward domestic debt as the primary financing source is appropriate and contributes to reducing insolvency risks. Nevertheless, prudent debt management is crucial, and domestic debt should be optimized for strategic expenditures such as infrastructure, health, and education. Indonesia's economy is currently operating below its full capacity, thereby providing the general government with room to implement effective long-term economic stimulus measures.

Keywords: Crowding Out; Deficit; Domestic Debt; General Government; Government Finance Statistics; Gross Domestic Product

JEL Classification: E21, E62, H54, H63, O11

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INTRODUCTION

Government spending is a crucial instrument in government administration. The government's national development plans, efforts to improve public welfare, and attempts to maintain security and order are implemented through budget allocations. To finance all expenditures, the government requires adequate revenue sources. However, in certain circumstances, government revenues are not always sufficient to meet total expenditures. If revenues are lower than expenditures, the government experiences a budget deficit. Such deficits can disrupt government programs and hinder the achievement of development targets. Therefore, the government is required to seek financing sources to cover the deficit, which in turn increases public debt.

PRACTICAL APPLICATION

- Domestic government debt in the form of spending can stimulate economic growth.
- The government should optimize the use of domestic debt to finance strategic spending, such as infrastructure, health, and education.
- Government spending supported by domestic debt does not crowd out private investment.
- The government's move to shift financing sources dominated by domestic debt remains effective.

Figure 1 illustrates the trend in the consolidated deficit of the central government and all regional governments in Indonesia (hereinafter referred to as the general government) from 2008 to 2022. Since 2009, the general government deficit has gradually increased. Meanwhile, the general government has also consistently generated a budget surplus (SiLPA). SiLPA refers to the difference between the realization of

revenue and expenditure, as well as financing receipts and expenditures in the state budget (APBN) or regional budget (APBD) during a given reporting period (Ministry of Finance, 2010).

Figure 1 General Government Deficit and SiLPA Trend

Source: Ministry of Finance

SiLPA shows a clear indication when general government financing exceeds its deficit, which further highlights that the general government owes more than its spending needs. Figure 1 illustrates a significant increase in the 2020 deficit, primarily due to the COVID-19 pandemic. Since the COVID-19 pandemic first hit Indonesia on March 2, 2020, the general government has been forced to spend heavily on social assistance and unforeseen expenses, contributing to an increase in general government deficit.

The growing trend in the general government deficit has affected its debt growth. This is evident in Figure 2, which displays the growth trend in general government debt. Total general government debt started to rise in 2012 and increased significantly in 2020. This increase occurred in both internal debt (domestic debt) and external debt (foreign debt). However, domestic debt has grown faster than foreign debt since 2009.

Figure 2 Growth in General Government Debt
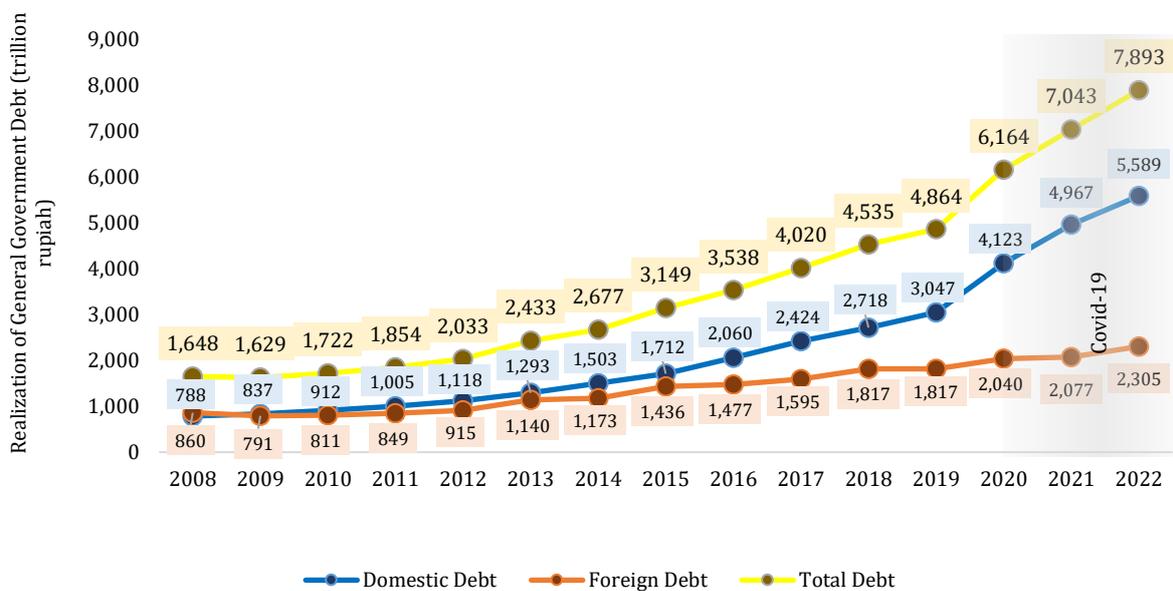
Source: Ministry of Finance

When viewed as a portion of debt, domestic debt accounts for a larger portion than foreign debt. This is evident in Figure 3, where domestic debt has become a source of general government financing since 2009. The steady increase in general government domestic debt further increases the responsibility of the general government to optimize this financing source. This debt should have a positive impact on the economy, thereby mitigating the debt burden.

Figure 3 Portion of General Government Debt

Source: Ministry of Finance

In 2009, the general government shifted its debt composition from foreign-dominated borrowing to predominantly domestic debt. By reducing the portion of foreign debt, the general government reduced the risk of insolvency. Insolvency risk occurs when a debtor is unable to repay a debt when it falls due. Concerns about the country's fundamental risks and high interest rates could lead to insolvency (Ayres et al., 2018; Diarra et al., 2025; Johri et al., 2022; Lindgren, 2021; Lorenzoni & Werning, 2019; Peia et al., 2024). The risk resulting from transaction rates is also reported in research by Mulyono (2017), who stated that fluctuations in the rupiah exchange rate against the US dollar have a positive effect on the volatility of foreign debt payments. In his research, Widjanarko (2020) also highlighted real debt interest as one of the variables that increases the debt ratio. Several findings also reinforce the use of domestic debt to reverse capital outflows, mitigate currency risk, and reduce the accumulation of foreign currency debt (Sunder-Plassmann, 2020; Viziniuc, 2021). While domestic debt can mitigate the risk of insolvency, it also poses other risks. The need for a large amount of general government funds to cover the budget deficit can suppress investment spending from the private sector, thereby risking a crowding-out effect (Ministry of Finance, 2017). Therefore, this paper seeks to address two questions about the impact of domestic debt in Indonesia: How does general government domestic debt affect gross domestic product (GDP)? Does it crowd out private investment?

Several researchers have conducted research on the impact of government debt on GDP in Indonesia. However, due to some technical limitations, a number of studies measuring the impact of domestic debt on GDP are not accessible (Bukit & Anggraeni, 2017; Suryandaru, 2023). Several studies use foreign debt to measure the impact of debt on GDP (Kurniasih, 2021; Munthe, 2024; Sudarma & Yasa, 2021; Sukma & Anwar, 2021; Triatmanto et al., 2023). Other studies use total government debt data (public debt), which includes both domestic and foreign debt, to measure the effect of debt on GDP (Fakhruddin, 2023; Shaari et al., 2023; Suryandaru, 2023; Viphindrartin et al., 2023). Likewise, regarding the impact of government debt on crowding out, only a few studies were found to address relevant topics in Indonesia (Sekarani et al., 2024; Suryandaru, 2023). The limited number of studies using domestic debt data has underscored the need for this study. This study utilizes general government domestic debt data, particularly the consolidated domestic debt of the central government and all regional governments based on the creditor's residence. The use of general government data is intended to provide relevant measurement results in order to comprehensively inform government activities and assist in the formulation of macroeconomic policies.

Sekarani et al.'s (2024) study used debt securities data from 33 provinces in Indonesia from Q1 2010 to Q3 2020. However, Sekarani et al.'s study covered only data from Q1 to Q3; there was no Q4 data.

Suryandaru's (2023) study used debt securities data from Q1 2010 to Q4 2019. Suryandaru's study did not specify the data subjects, whether the central government or the regional governments. Both studies limited debt data to debt securities. In fact, government debt comprises not only debt securities but also loans. Moreover, neither study analyzed central and regional government data simultaneously. This research gap is the basis for this study. This study will analyze general government debt in the form of debt and loans from Q1 2014 to Q4 2019. Furthermore, this study is novel in that it uses a debt data approach by resident. This approach has never been used in previous research. This approach analyzes domestic debt data more relevant because the data used accurately reflect domestic debt withdrawals. This research gap and novelty will enable this study to provide more precise information on the effect of general government domestic debt on GDP and whether it causes the crowding out of private investment.

LITERATURE REVIEW

Several researchers have measured the effect of domestic debt on GDP and its effect on crowding out in Indonesia. Research carried out by Bukit & Anggraeni (2017) found a positive and significant effect of domestic government debt on GDP. However, their analysis only measured the long-term effect of domestic debt on GDP because it relied on the ordinary least squares (OLS) method. In addition, the study did not specify whether the domestic debt data referred to general government debt or only central government debt. Suryandaru (2023) revealed that government domestic debt is positively correlated with GDP in both the short and long term, although the effect is insignificant. Furthermore, the study concluded that government domestic debt results in crowding out due to high interest rates, but it did not clearly describe the scope of the domestic debt data used. Research on the impact of domestic debt conducted by Sekarani et al. (2024) concluded that increasing domestic public debt has a positive and significant impact on financial development in Indonesia, but has a negative and significant impact on financial efficiency. The increase in domestic public debt will negatively affect financial efficiency through crowding out (Mun & Ismail, 2015). A limitation of Sekarani et al.'s (2024) research is that the debt data used is limited to debt securities. Furthermore, Sekarani et al.'s research does not include data from Q4 (only Q1-Q3).

Research on the effect of government domestic debt on GDP in other countries has also been conducted by Asravor et al. (2023) and Saungweme & Odhiambo (2021). Asravor et al. (2023) revealed that government domestic debt is positively and significantly correlated with GDP, and they also demonstrated the crowding-in effect of government domestic debt on private investment. Saungweme & Odhiambo (2021) concluded that government domestic debt only has a significant and positive effect on GDP in the short term. Increased government spending that is not accompanied by increased revenues leads to a budget deficit. The government needs to secure financing sources for government spending and national development goals. This financing is provided by the government through debt, which is expected to increase the country's GDP.

Keynesian theory posits that government spending financed by debt produces a fiscal multiplier effect (Elmendorf & Mankiw, 1999). This theory is also reinforced by the law of increasing state activity hypothesis, which stipulates that increased government spending increases domestic economic activity and attracts private investment (Ncanywa & Masoga, 2018). Therefore, general government domestic debt needs to be optimized through government spending to positively impact GDP. Huynh et al. (2025) highlight that public debt overhang can reduce company investment. This trend tends to slow economic growth by crowding out private investment (Alshammary et al., 2020). The Solow Growth Model determines the economy based on capital, with a saving rate being an important factor shaping capital. A high saving rate leads to a large capital stock, and a high level of output in the economy leads to a large capital stock and a high level of output. Conversely, a low saving rate will make the economy generates a small capital stock and a low level of output in a stable state. A high saving rate accelerates GDP growth until the country reaches a steady-state point. Conversely, government deficits can reduce national savings and cause a crowding-out effect on investment (Mankiw, 2010).

This research defines the general government as an institutional unit with the primary function of carrying out government activities. General government data is obtained by consolidating central government financial statistics and consolidated regional government financial statistics. Consolidation is the process of combining the accounts of one reporting entity with those of another entity, with or without eliminating reciprocal accounts (International Monetary Fund, 2014). Thus, general government financial statistics provide a comprehensive picture of the government's economic condition and activities. General government financial statistics are compiled based on the government finance statistics manual 2014 (GFSM 2014) published by the International Monetary Fund (IMF). These statistics are generated to ensure transparency and accountability in state financial management. Furthermore, general government financial statistics are also crucial for analyzing government fiscal policies and conditions (International Monetary Fund, 2014). The analysis was conducted by comparing general government financial statistics with various

economic indicators. This is possible because the conceptual framework for compiling government financial statistics is aligned with the framework for economic statistics. The 2014 GFSM is associated with the statistical data compilation guidelines of the Statistics Indonesia (BPS), namely the system of national accounts 2008 (SNA 2008). Thus, general government activities and economic activities are presented within the same reporting period. To support analysis and decision-making, general government financial statistics are published on a quarterly basis. This practice is in line with several economic indicators published quarterly by BPS. On this basis, this study uses general government data along with quarterly economic indicator data.

One aspect mentioned in GFSM 2014 is the classification of economic territory. The 2014 GFSM classifies economic territories into two categories: by residence and by currency. Economic territories based on residence regulate the relationships of institutional units within an economic area that falls under the jurisdiction of the government in that territory. In contrast, economic territories based on currency permit institutional units outside the government's jurisdiction to engage in economic interactions. For example, a currency-based economic territory allows the Indonesian government to classify rupiah-denominated debt from creditors domiciled outside Indonesia, whereas a residence-based economic territory classifies only domestically sourced debt. This classification is essential for determining the scope of institutional units and the categorization of transactions (International Monetary Fund, 2014). In the analysis, the selection of data based on these territorial classifications is adjusted to the needs and scope of the study.

To strengthen the analysis, this study uses the General government domestic debt classification based on creditor domicile (by resident). General government domestic debt by domicile refers to data on general government domestic debt obtained from creditors located in Indonesia. The selection of domestic debt by domicile is used to determine whether debt obtained from creditors domiciled in Indonesia (domestic creditors/DN creditors) affects GDP and whether the withdrawal of domestic debt causes a crowding-out effect on the domestic private sector (DN private sector). Crowding out occurs when the current use of domestic debt reduces domestic private-sector investment. Conversely, crowding-in occurs when an increase in domestic debt leads to higher domestic private investment (Asravor et al., 2023). Government spending can lead to crowding out under conditions of limited economic capacity or debt. However, it can result in crowding-in when government spending is productive (Park & Meng, 2024). Research in China also indicates that local government debt crowds out credit and private activities through loan financing (Wen et al., 2024).

Previous studies have not clearly outlined whether the government domestic debt data used covers the general government or only the central government, which is important in formulating recommendations. If the domestic debt data reflect general government data, the research results could provide recommendations for debt management at the national and regional levels. Conversely, if domestic debt data only covers the central government, the recommendations are directed solely to the central government. Moreover, among the studies previously discussed, only Suryandaru's (2023) study used quarterly government debt data. The use of quarterly data aligns with the needs of analysis and decision-making, which are presented quarterly (International Monetary Fund, 2014). Therefore, this study also uses quarterly data. However, unlike Suryandaru (2023), who used interest rates to determine the presence or absence of a crowding-out effect on domestic government debt, this study applies a different approach. Rather than using interest rate data, this study adopts gross fixed capital formation (GFCF) data as a proxy for investment, which is in line with the approach applied by Asravor et al. (2023). The use of the investment proxy is also based on the results of the study by Alshammary et al. (2020), which concluded that government debt tends to slow GDP growth by creating a crowding-out effect for private sector investment.

On this basis, this study aims to measure the effect of general government domestic debt on GDP and the effect of general government domestic debt on PMTB using quarterly data. The hypotheses proposed in this study are General government domestic debt has a significant effect on GDP (H1) and General government domestic debt does not crowd out private investment (H2). The proposed H1 examines the use of domestic debt by the general government to finance its expenditures. If the government is able to use its debt to finance government expenditures that significantly increase GDP, such domestic debt has a significant effect on the economy. Conversely, if general government domestic debt only increases the debt burden and is not realized in the form of expenditures that drive economic growth, domestic debt has no effect on GDP. H2 examines whether general government domestic debt is used to finance expenditures that support a conducive private investment climate. When domestic government debt does not crowd out private investment, the private sector continues to invest. Conversely, when general government domestic debt crowds out private investment, the private sector becomes reluctant to invest, often due to higher interest rates.

METHODS

This study uses secondary time-series data from the BPS. The analysis covers quarterly data from the first quarter of 2014 to the fourth quarter of 2019 (Q1 2014–Q4 2019). Data from the pre–Covid-19 period were selected because the pandemic led to a significant rise in government spending, particularly social assistance expenditures, which in turn caused a significant increase in the budget deficit and government borrowing. As a result, government debt rose sharply during the pandemic (Ministry of Finance, 2021). To avoid distortions in the modeling process caused by these extraordinary conditions, this study uses only pre-pandemic data.

The main variable, general government domestic debt, was obtained from the Indonesian public sector debt statistics (SUSPI) published by the Ministry of Finance. The government sector debt data presented in SUSPI includes debt securities and loans based on the creditor's residence. Meanwhile, other variables, such as GDP, gross savings, real interest rates, GFCF, exports, and imports, were obtained from BPS publications. For GFCF, an adjustment was made to meet the research needs by subtracting general government capital expenditure from the total GFCF value to obtain GFCF attributable to the non-government sector. General government capital expenditure data were taken from the general government financial statistics report (LSKPU) published by the Ministry of Finance. A description of the variables and their data sources is presented in Table 1.

This study adopts a quantitative approach with an error correction model (ECM). This model is deemed appropriate for measuring the influence of variables in both the short and long term. In addition, the ECM contains a regression coefficient for the error correction term (ECT), which denotes the equilibrium relationship within the model. The significance of the ECT coefficient is needed to prove the long-term relationship between the tested variables (Marisha, 2024). The models used in this study apply two approaches: the first approach examines the effect of general government domestic debt on GDP, and the other examines the impact of general government domestic debt on GFCF to identify the presence or absence of a crowding-out effect.

The first approach examines how the general government utilizes domestic debt to stimulate the economy through its expenditures. The model used in this approach is as follows:

$$LnGDP_i = \alpha + \beta 1\, LnGGDEBT_i + \beta 2\, LnDSAVING_i + \beta 3\, INT_i + \beta 4\, LnTOP_i + \varepsilon_i \dots\dots (1)$$

where: α is the constant term, β_1–β_4 are regression coefficients, and ε is the error term. Variable descriptions and data sources are summarized in Table 1.

Table 1 Variables Used

Notation	Variable Description	Unit	Data Source
GDP	Gross Domestic Product (GDP)	Billion Rupiah	BPS (Statistics Indonesia)
GGDEBT	Domestic debt balance of the general government	Billion Rupiah	SUSPI, Ministry of Finance
DSAVING	Gross savings of the domestic sector, excluding government and foreign sector	Billion Rupiah	BPS
INT	Interest rate	Persen	BPS
TOP	Total exports and imports (as a proxy for trade openness)	Billion Rupiah	BPS
GFCFP	Gross Fixed Capital Formation (GFCF) minus general government capital expenditure (as a proxy for private investment)	Billion Rupiah	BPS and LSKPU, Ministry of Finance

Source: Processed by the authors

The second approach aims to examine whether general government debt has a crowding-out effect on private investment. This approach used an extended version of the model used by Asravor et al. (2023), as specified in the following equation:

$$LnGFCFP_i = \alpha + \beta 1\, LnGGDEBT_i + \varepsilon_i \dots. (2)$$

where: α is the constant term, β_1 is the regression coefficient, and ε is the error term. Descriptions of the dependent and independent variables are presented in Table 1.

The development of this approach involves the use of a more specific dependent variable to describe private investment. The dependent variable in Asravor et al. (2023) used GFCF data for all sectors as the dependent variable. In contrast, this study excluded the government sector from GFCF. The GFCF data was obtained from a publication by the BPS and covers all sectors, including the government. Using GFCF data for all sectors will result in bias because one of the objectives of this study is to examine whether domestic

government debt crowds out private investment. Therefore, the government's contribution to GFCF needs to be excluded to ensure that the resulting GFCF data represent the private sector investment.

The exclusion of government contribution to GFCF is carried out by subtracting general government capital expenditure from the total GFCF figure. This was conducted by following the direct GFCF calculation approach, which measures the value of capital goods using purchase prices (Statistics Indonesia Salatiga Municipality, 2024).

RESULTS AND DISCUSSION

Table 2 presents the descriptive analysis of the variables used in this study. The descriptive analysis is grouped according to the models utilized. In Model 1, the average GDP value is higher than the other variables, as are the maximum and minimum values. This indicates that each independent variable contributes to the formation of GDP. In Model 2, the average GFCF value is lower than that of the independent variables. The amount of general government domestic debt does not stimulate investment at the same rate. However, the average value of private investment is relatively close to the average value of general government domestic debt. Based on the descriptive analysis, all variables indicate asymmetric skewness. In addition, the GGDEBT variable has a kurtosis value greater than three.

Table 2 Descriptive Analysis

Variable	Mean	Median	Max	Min	Std. Dev.	Skew-ness	Kurto-sis	Jarque-Bera	Prob.
Model 1									
GDP	3,281.625	3,216.596	4,067.358	2,506.300	480.347	0.110	1.768	1.567	0.457
GGDEBT	1,492.436	1,437.976	2,651.382	990.312	410.395	0.926	3.704	3.926	0.140
DSAVING	1,025.791	1,036.750	1,218.910	753.740	129.827	-0.419	2.364	1.107	0.575
INT	1,218.661	1,227.400	1,370.600	1,077.867	0.932	-0.033	1.625	1.894	0.388
TOP	1,343.925	1,272.830	1,717.431	1,103.665	173.836	0.653	2.519	1.938	0.380
Model 2									
GFCFP	925.749	910.290	1,199.033	649.697	161.651	0.014	1.910	1.188	0.552
GGDEBT	1,492.436	1,437.976	2,651.382	990.312	410.395	0.926	3.704	3.926	0.140

Source: Processed by the authors

Sheskin (2004) revealed that distributional characteristics can be identified based on skewness values: symmetrical distributions (skewness = 0), left-skewed distributions (skewness > 0), and right-skewed distributions (skewness < 0). Furthermore, Sheskin (2004) also categorizes distributions according to their degree of peakedness: highly peaked (leptokurtic) distributions (kurtosis > 3), low-peaked (platykurtic) distributions (kurtosis < 3), and moderately peaked (mesokurtic) distributions (kurtosis = 3). A distribution is considered normal if it has a skewness of zero and a kurtosis of three. The descriptive analysis indicates that the variables are not normally distributed. Considering these results and the characteristics of the data, several variables were transformed into natural logarithmic (Ln) form. Before further analysis, a stationarity test was conducted on all variables using the Augmented Dickey-Fuller (ADF) test. The results are presented in Table 3.

Table 3 Stationarity Test

	Level	1st Diff.	Integration Order
Model 1			
LnGDP	0.824	0.000*	I(1)
LnGGDEBT	0.706	0.000*	I(1)
LnDSAVING	0.613	0.001*	I(1)
INT	0.815	0.000*	I(1)
LnTOP	0.675	0.000*	I(1)
ECT	0.001*		I(0)
Model 2			
LnGFCFP	0.955	0.000*	I(1)
LnGGDEBT	0.706	0.000*	I(1)
ECT2	0.000*		I(0)

Note: Sig 5%*

Source: Processed by the authors

All variables are stationary at the same order (first difference), and the ECT value is significant at the level. Therefore, the use of the ECM approach in this study is appropriate. The long-term modeling results for the effect of general government domestic debt on GDP are presented as follows:

$$LnGDP_i = 6.448 + 0.308LnGGDEBT_i + 0.324LnDSAVING_i - 0.038INT_i + 0.012LnTOP_i + \varepsilon_i \dots. (3)$$

The coefficient for general government domestic debt shows a t-$_{value}$ of 4.045, which exceeds the t-$_{table}$ value of 2.074, with a significance value of 0.001 (< 0.050). Thus, H1 is accepted. The long-term estimation results in Table 4 indicate that a 1% increase in general government domestic debt results in a 0.308% increase in GDP. This positive and significant relationship is consistent with the findings of Bukit & Anggraeni (2017). In contrast, the short-term estimation results (Table 5) indicate that growth in general government domestic debt does not significantly affect GDP growth. A 1% increase in domestic debt results in only a 0.051% increase in GDP. However, the short-term estimates still indicate a positive correlation between general government domestic debt and GDP. This result is in line with Suryandaru's (2023) results.

Table 4 ECM Model 1 Test Results (Long Term)

Variabel	Coefficient	Std. Error	t-Statistic	Prob.
LnGGDEBT	0.308	0.076	4.045	0.001*
LnDSAVING	0.324	0.104	3.099	0.006*
INT	-0.038	0.017	-2.194	0.041*
LnTOP	0.012	0.119	0.097	0.924
C	6.448	1.726	3.736	0.001*
R-Square		0.935		
F-statistic		68.120		
Prob (F-statistic)		0.000		

Note: Sig 5% *

Source: Processed by the authors

Table 5 ECM Model 1 Test Results (Short Term)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LnGGDEBT)	0.051	0.051	1.017	0.324
D(LnDSAVING)	0.086	0.050	1.706	0.106
D(INT)	-0.002	0.008	-0.229	0.822
D(LnTOP)	0.200	0.075	2.683	0.016*
ECT(-1)	-0.507	0.169	-2.992	0.008*
C	0.016	0.005	2.972	0.009
R-Square		0.448		

Note: Sig 5% *

Source: Processed by the authors

The short-term estimation results for Model 1 passed all classical assumption tests. As shown in Table 6, the model is free from problems of normality, autocorrelation, heteroscedasticity, and multicollinearity. In the normality, autocorrelation, and heteroscedasticity tests, all variables have probability values above the 5% significance level, indicating that these issues are not present in the model. In the multicollinearity test, all variables have variance inflation factor (VIF) values below ten. According to Gujarati & Porter (2013), VIF values below ten indicate the absence of multicollinearity. Furthermore, the significance of the ECT component in Table 5 confirms that the variables selected for the model are appropriate (Marisha, 2024).

Table 6 Results of the Classical Assumption Test for Model 1 (Short-Term)

Normality Test	0.620 (Independent)
Autocorrelation Test	0.204 (Independent)
Heteroscedasticity Test	0.451 (Independent)
Multicollinearity Test for	Centered VIF (Independent)
D(LnGGDEBT)	1.469
D(LnDSAVING)	2.866
D(INT)	2.675
D(LnTOP)	1.331
ECT(-1)	2.001

Source: Processed by the authors

Meanwhile, the long-term estimation results for the effect of domestic debt on private investment are as follows:

$$LnGFCFP_i = 5.405 + 0.587 LnGGDEBT_i + \varepsilon_i \quad \text{.................. (4)}$$

The coefficient for general government domestic debt shows a t-$_{value}$ of 7.928, which is greater than the t$_{table}$ value of 2.074, with a significance level of 0.000 (< 0.050). Thus, H2 is accepted. The long-term test results in Model 2 (Table 7) show a positive and significant relationship between the growth of general government domestic debt and the growth of private investment (GFCF). A 1% increase in domestic government debt leads to a 0.587% increase in GFCF. This indicates that, in the long run, an increase in general government domestic debt does not crowd out private investment. Instead, the results suggest a crowding-in effect, meaning that domestic debt encourages private investment.

Table 7 Results of the ECM Test for Model 2 (Long-Term)

Variabel	Coefficient	Std. Error	t-Statistic	Prob.
LnGGDEBT	0.587	0.074	7.928	0.000*
C	5.405	1.049	5.150	0.000*
R-Square		0.741		
F-statistic		62.846		
Prob (F-statistic)		0.000		

Note: Sig 5% *

Source: Processed by the authors

This finding differs from the results of Sekarani et al. (2024). This difference can occur because the scope of debt used is limited to debt securities. During the period observed in this study, the general government appears to have been able to utilize domestic debt in a manner that attracted private investment. In contrast to Sekarani et al. (2024), the finding of this study is in line with the findings of Asravor et al. (2023), who also concluded that domestic debt does not crowd out private investment in the long run.

Table 8 Results of ECM Model 2 Test (Short Term)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LnGGDEBT	0.285	0.177	1.613	0.123
ECT2(-1)	-0.987	0.210	-4.702	0.000*
C	0.006	0.020	0.332	0.743
R-Square		0.530		

Note: Sig 5% *

Source: Processed by the authors

In the short term (Table 8), growth in general government domestic debt does not significantly stimulate private investment. A one percent increase in domestic government debt leads to only a 0.285% increase in GFCF. Therefore, in the short term, an increase in general government domestic debt may crowd out private investment.

The short-term results for Model 2 also passed all classical assumption tests. As shown in Table 9, the probability values for the normality, autocorrelation, and heteroscedasticity tests exceed the 5% significance level, indicating that these problems are not present. In addition, the multicollinearity test shows VIF values below ten, suggesting the absence of multicollinearity. Thus, the variables used in Model 2 are appropriate.

Table 9 Results of the Classical Assumption Test for Model 2 (Short-Term)

|	
Normality Test	0.488 (Independent)
Autocorrelation Test	0.112 (Independent)
Heteroscedasticity Test	0.107 (Independent)
Multicollinearity Test	Centered VIF (Independent)
D(GGDEBT)	1.042
ECT2(-1)	1.042

Source: Processed by the authors

The results of the analysis indicate that, in the long run, the general government is able to use domestic debt to support the economy by financing government spending. This supports Keynesian theory, which posits that debt-financed government spending generates a fiscal multiplier effect (Elmendorf & Mankiw, 1999). Moreover, the estimated long-term effect of domestic debt on GDP in this study is only 0.308%. This finding emphasizes that general government domestic debt may not have been fully optimized for expenditures that effectively stimulate economic activity. To improve the positive impact of debt on economic performance, government spending needs to be focused more on strategic and productive sectors

such as infrastructure, health, and education (Kose et al., 2021). This finding is in agreement with Zend (2022) finding, which showed that government debt should be used to increase spending quality in these sectors. This finding was also reported by Prihandoko (2017), who underlines the urgency of directing debt toward infrastructure development.

Although debt is likely to function as a lever for the economy, there remain concerns about whether government debt could turn into an economic burden in the future. Therefore, understanding the optimal debt threshold is important. Cao et al. (2025) stated that the average maximum sustainable debt across countries in 2024 is around 124 percent of GDP for developed countries, 76 percent of GDP for developing countries, and 57 percent of GDP for low-income countries. In European Union (EU) countries, once public debt exceeds an estimated threshold of 84–90% of GDP, the marginal impact becomes very negative, especially in countries with weak governance (Mitsi, 2025). In Central and Eastern European countries, exceeding the public debt-to-GDP ratio threshold of 42.5% by 2019 and 33.69% by 2022 will hamper economic growth (Jusaj et al., 2025). Ostry et al. (2015) estimate that a safe debt ratio for developed countries lies between 150 and 250% of GDP.

Figure 4 illustrates that Indonesia's total general government debt ratio has increased since 2012. However, the ratio remained at 31% in 2019 and 40% in 2022. Based on the various debt threshold studies, Indonesia's general government debt ratio, including total debt, domestic debt, and foreign debt, remains within safe and optimal limits for the economy. Therefore, the findings of this study suggest that general government domestic debt still exerts a significant influence on supporting economic growth.

Figure 4 General Government Debt Ratio Trend
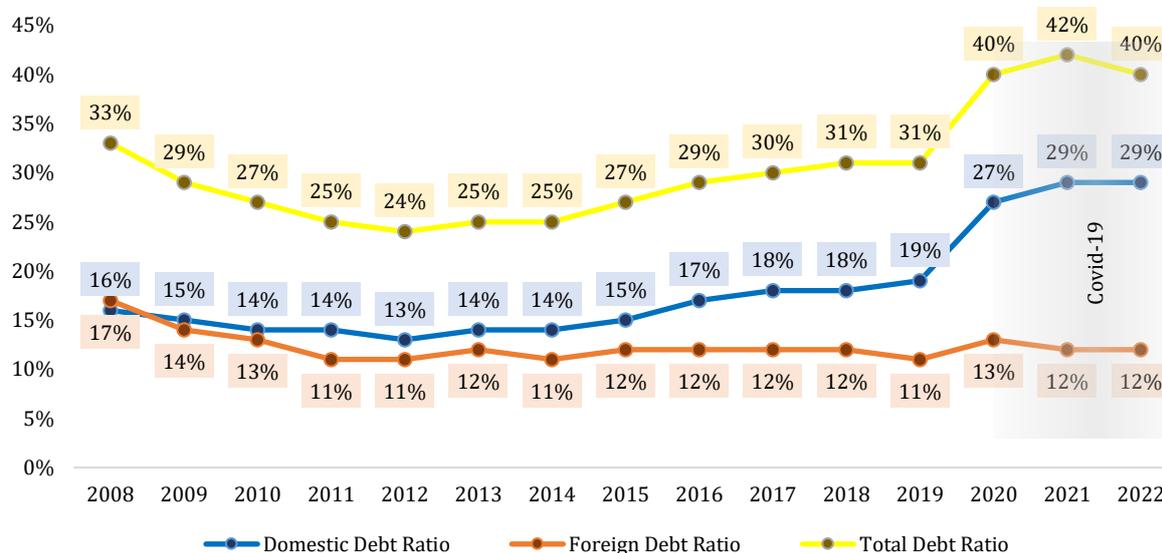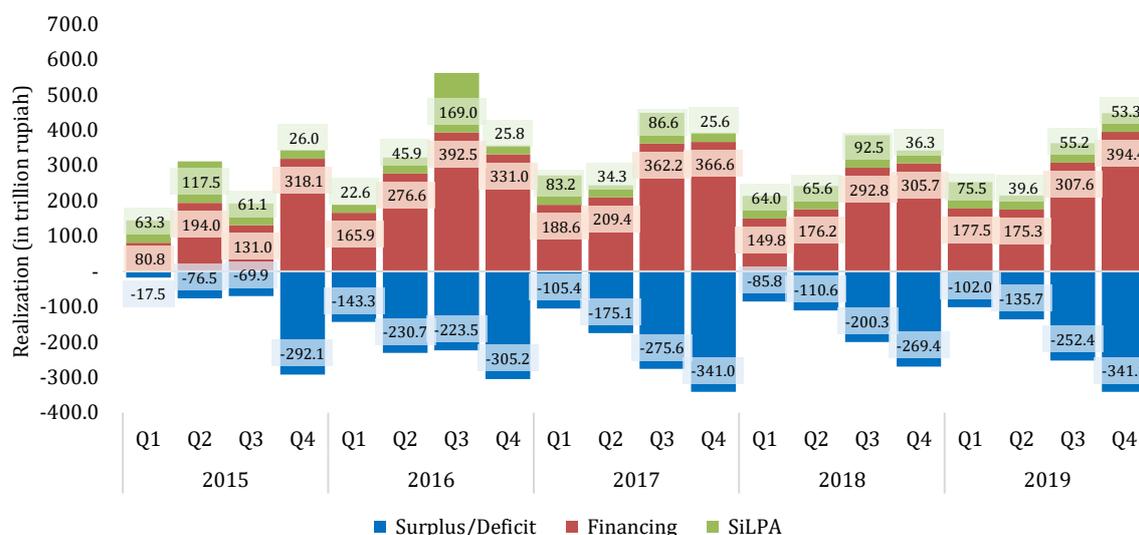

Source: Ministry of Finance

In their research, Kose et al. (2021) revealed that there is no universally applicable optimal debt level, since this limit depends on many factors. Regardless of the debt level limit, prudence in debt management is crucial. The government needs to implement policy strategies to manage debt sustainably and increase the effectiveness of tax revenue (Narayan et al., 2025). Furthermore, the government can establish debt management risk indicators in accordance with Indonesia's macroeconomic conditions and other global factors (Dhoni, 2018).

In the short term, the growth of general government domestic debt positively correlates with GDP growth, but the effect is not significant. This is probably caused by the time lag between the receipt of domestic debt and the realization of the majority of domestic debt as government spending. For example, in Figure 5, the central government has not fully realized its financing to cover the deficit, resulting in a SiLPA in each period. However, the SiLPA tends to decrease in Q4, denoting a time lag in the use of financing to cover the budget deficit.

In addition to general government domestic debt, domestic private-sector gross savings (DSAVING) also has a positive and significant effect on GDP. The results in Table 4 show that 1% increase in domestic private sector gross savings increases GDP by 0.324%. This indicates that higher gross savings provide the domestic private sector with more capital for consumption and investment. In the long term, this enhances economic growth until the economy reaches a steady-state equilibrium, consistent with the Solow growth

model. The model used in this estimation has a long-term R-square value of 0.935, meaning that the independent variables explain 93.5% of the variation in GDP.

Figure 5 Realization of Central Government Financing

The results of Model 2 suggest that domestic debt growth has a positive and significant long-term effect on private investment growth (GFCF). Thus, general government domestic debt does not crowd out private investors. This is primarily caused by two conditions, namely the Indonesian economy being below capacity, and the availability of a surplus of funds for investment.

First, the Indonesian economy's undercapacity provides an opportunity for the government to effectively stimulate the economy. A deficit can stimulate the economy through government spending. Conversely, if the economy is at full capacity or full employment, government spending financed through borrowing will reduce the resources available to the private sector and thus discourage private investment (Keho, 2025; Nguyen, 2022; Samwel, 2016). Second, there is a surplus of capital available for domestic private investors to invest. This aligns with the Solow growth model, which suggests that a high saving rate will drive economic growth to a steady-state equilibrium.

Short-term estimates also suggest that the growth of general government domestic debt is positively correlated with growth in GDP, but the effect is not significant. This positive correlation indicates that additional domestic debt by the general government does not deter private investors from investing. Therefore, the crowding-out effect is unlikely to occur even in the short term. This insignificant effect is likely due to the time lag between the realization of domestic debt by the general government, which also influences private investors' decisions regarding business expansion (investment). The utilization of government spending requires time, which can delay private investors' willingness to release capital in the short term. The model used in this estimation has a long-term R-square value of 0.741, indicating that the independent variables explain 74% of the variation in private investment.

CONCLUSION

The data analysis and discussion in this study have shown that the growth of general government domestic debt has a positive and significant impact on long-term economic growth. The general government uses domestic debt to finance expenditures that drive GDP. In the short term, general government domestic debt does not have a significant impact, which may be due to the time lag between the receipt of domestic debt and the realization of the majority of it as government spending. Therefore, the general government's move to shift financing sources to predominantly domestic debt is considered appropriate. The general government can use domestic debt as a primary source of financing to reduce the risk of insolvency. However, the general government must remain prudent in debt management, and it should optimize the use of domestic debt to finance strategic spending, such as infrastructure, health, and education.

Furthermore, general government spending supported by domestic debt does not crowd out private investment, either in the long or short term. However, short-term measurements indicate an insignificant impact. Indonesia's economy, which is below capacity, provides room for the general government to effectively stimulate the economy in the long term. Deficits can stimulate the economy through government

spending. Conversely, in the short term, the time lag between the realization of domestic debt by the general government also influences private investors' decisions about business expansion (investment). Therefore, the short-term measurement results do not generate a significant impact.

Based on these findings, central and regional governments are encouraged to optimize the use of domestic debt. First, governments can maximize the utilization of SiLPA to strengthen state expenditure. This ensures that domestic debt does not accumulate into a fiscal burden and instead generates a fiscal multiplier effect for the economy. Second, the government should allocate domestic debt toward strategic sectors, such as infrastructure, health, and education, to enhance long-term economic performance.

This study has limitations, particularly in terms of data coverage. The research period is relatively short due to limited availability of domestic debt data and general government capital expenditure data. A longer time series would strengthen the modeling results. Future research is recommended to use longer data periods, as well as to examine the impact of domestic debt on economic growth and crowding-out effects before and after the Covid-19 pandemic.

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