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# Cash buffer and government securities issuance policy: An ARDL analysis of Indonesia's fiscal coordination

Kukuh Sukma Pramana*, Sugiharso Safuan

Faculty of Economics and Business, Universitas Indonesia, West Java, Indonesia

**ABSTRACT**

Indonesia's fiscal policy is characterized by a persistent budget deficit, whereby government spending structurally exceeds revenues. To finance this gap, the government issues short-term government securities (GS). However, GS issuance generates interest expenses and may lead to idle cash accumulation in subsequent periods, raising concerns for GS management. Accordingly, this study investigated the extent to which government cash balances influence short-term GS issuance in Indonesia. Using quarterly data from 2015 to 2023, the autoregressive distributed lag (ARDL) model was employed, supported by descriptive analysis, unit root testing, and robustness checks. Results indicate a linear relationship between GS issuance and cash balance. In particular, an increase in cash balances will also increase GS issuance. Therefore, debt and cash managers must coordinate to increase the effectiveness of budget deficit financing through GS issuance and state cash management. The study contributes to the literature by highlighting the role of cash stability in shaping debt issuance behavior. Policy implications emphasize the need for stronger coordination between debt and cash managers to improve financing efficiency, minimize idle balances, and ensure sustainable fiscal discipline in government securities management.

**KEYWORDS:**
ARDL; cash buffer; fiscal policy; Government securities

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*Corresponding author's
Email: kukuh.spramana@gmail.com

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# INTRODUCTION

Fiscal management plays a pivotal role in sustaining economic growth and ensuring macroeconomic stability. One of the key elements is managing the budget deficit, which occurs when state expenditures exceed state revenues, requiring financing to bridge the gap. The effectiveness of budget deficit implementation depends on the quality of government expenditure, the sources, and the efficiency of financing (Adefeso, 2016). In Indonesia, fiscal policy is regulated by Law Number 17 of 2003 concerning State Finance. The law sets the maximum limits for the budget deficit and the debt ratio at 3% and 60% of Gross Domestic Product (GDP), respectively. These limits are intended to preserve fiscal discipline, maintain financial stability, and ensure sustainable debt management. In addition to deficit financing, fiscal policy aims to strengthen fiscal buffers that enable the government to respond effectively to liquidity shocks and maintain economic resilience (Ministry of Finance, 2023).

Despite this regulatory framework, Indonesia has frequently experienced excess financing—that is, borrowing that exceeds the budget deficit's actual financing needs. In 2020, for instance, the government recorded excess financing of approximately IDR 270.55 billion (Ministry of Finance, 2023). This persistent overfinancing raises an important policy question: Why does the government continue to issue bonds even though it runs a cash surplus? Prior research predominantly attributes bond issuance to the existence of fiscal deficits or macroeconomic imbalances (Peppel-Srebrny, 2021; Eichacker, 2023), but limited attention has been given to cash management motives and liquidity optimization as determinants of government securities (GS) issuance.

Classical fiscal theory views public debt primarily as a mechanism to finance deficits and smooth intertemporal government consumption (Barro, 1979). Yet, empirical evidence suggests that debt issuance decisions are more complex and influenced by multiple factors, including expenditure commitments, investor demand, market dynamics, and interest rate conditions (Eichacker, 2023). Governments often issue bonds to take advantage of favourable market conditions, manage liquidity risks, and refinance maturing debt (Togo, 2007). Moreover, short-term cash management strategies also affect borrowing decisions as governments seek to optimize interest costs and maintain adequate liquidity buffers (Pessoa & Williams, 2013).

Overfinancing and cash stock in bank accounts lead to lower remuneration than the benchmark interest rate. Moreover, bond yield is often higher than the benchmark interest rate. This condition will incur opportunity costs and budgetary burdens. Debt issuance should be aligned with deficit financing needs and cash management objectives; however, in practice, differences persist. Intuitively, debt issuance should consider cash conditions to mitigate debt issuance risks and minimize cash storage costs. However, financing in Indonesia continues to be performed despite the increasing cash balance (Gardner & Olden, 2013; Pessoa et al., 2016). This condition will likely lead to public speculation about Indonesia's solvency. Additionally, the role of cash as a buffer and payment mode will also be debated.

This study aims to investigate how government cash balances influence short-term GS issuance in Indonesia. Specifically, it examines whether cash stock significantly influences short-term borrowing decisions, in addition to fiscal deficit considerations. Building on Peppel-Srebrny (2024), who links asset positions to GS yields, this study focuses on issuance volume rather than yield. We analyzed quarterly data from 2015 to 2023 on Indonesia's short-term GS issuance and government cash balances using the autoregressive distributed lag (ARDL) model. The empirical analysis includes optimal lag selection, descriptive statistical analysis, unit root tests, and robustness examination through alternative model specifications, including long-term GS issuance,

the debt-to-GDP ratio, and the Indonesia-US Treasury yield spread.

This study contributes to the literature on public debt management and fiscal policy by emphasizing the underexplored role of cash balances in shaping government borrowing behavior. While prior studies (e.g., Peppel-Srebrny, 2024) focus on the relationship between asset positions and bond yields from the demand perspective, this study provides a supply-side explanation, demonstrating how liquidity conditions affect the volume of GS issuance. The findings are expected to enrich theoretical and policy discussions on debt–cash coordination and inform strategies for achieving an optimal balance between liquidity management and debt sustainability.

**Financing and Government Securities in Indonesia**

Financing policies are established in many developed and developing countries, but they differ in the type of financing instrument that is used as the primary source (Presbitero et al., 2016). Government financing in Indonesia comprises debt and investment financing. Debt financing, particularly through GS issuance, remains the dominant instrument for funding budget deficits and managing fiscal liquidity (Hariyanto, 2017). The issuance and management of GS are regulated by Law Number 24 of 2002 on Government Bonds, as amended by Law Number 4 of 2023, which authorizes two key instruments: Surat Utang Negara (SUN) and Surat Berharga Syariah Negara (SBSN). These instruments serve multiple policy objectives, including financing the budget deficit, covering temporary cash shortfalls, refinancing maturing debt, and funding strategic development projects.

Beyond their role as financing tools, GS also function as policy instruments to stimulate development and sustain economic growth momentum. The Indonesian government generally employs a front-loading strategy, issuing a substantial portion of GS early in the fiscal year, as the issuance target is predetermined in the State Budget Law. This ensures funding certainty for implementing priority programs.

The extant literature provides comprehensive insights into public debt policy and its macroeconomic implications. Barro (1979), through the Ricardian equivalence framework, examines how governments optimize the balance between taxation and borrowing to finance public expenditure. His findings indicate that debt issuance cannot be predetermined but depends on variations in realized revenues and external fiscal shocks. Subsequent research has shown that debt-financed spending can influence investor sentiment and risk premiums, particularly when fiscal expansion coincides with weak growth expectations (Combes et al., 2021).

Debt issuance decisions are also shaped by institutional and legal frameworks. In countries such as Japan and Indonesia, the debt amount, or the GS issuance amount, is a policy product that must be approved by parliament. Parliament has the authority not only to pass state taxes and spending bills but also to determine the amount of debt or GS to be issued (Takhesi, 2022). Although state taxes and expenditures can be passed through parliament, parliament should not determine the amount of debt that GS issues. Rather than determining the targeted amount, parliament should only determine the upper and lower limits by focusing on the flexibility of debt managers, fiscal sustainability, and the condition of cash needs in a particular fiscal year (Roy & Williams, 2010; Takhesi, 2022).

**Government Cash Management**

Apart from meeting the budget deficit, GS also serves as an instrument for government cash management due to the discrepancy between the cash flows of receipts and expenditures. Traditionally, the mismatch between cash inflows and cash outflows has consequences, namely,

excess or inadequate government liquidity. Volatile liquidity affects money-market stability, banking liquidity, and may even affect Bank Indonesia's independence in determining monetary policy. Within the scope of fiscal management, short-term cash management seeks to allocate the right amount of money at the right time to meet the government's needs at the most effective cost possible (Storkey, 2003). These goals can be achieved with accurate cash planning, efficient and responsive cash management and service provision, risk management, and the integration of cash and debt management.

Government cash liquidity must be monitored continuously—not only annually or monthly but also daily—to maintain fiscal stability. When cash outflows exceed inflows, the government faces a negative liquidity position; conversely, higher inflows generate surpluses. Both conditions influence fiscal balance and the need for financing adjustments. In recent years, Indonesia's aggregate cash balance has stabilized and gradually increased, yet it has not returned to pre–COVID-19 levels, indicating structural shifts in fiscal liquidity dynamics.

Cash balances warrant close examination because they represent financial assets disclosed in the government's financial statements. Their interaction with other elements—particularly assets and liabilities—influences GS yields and investor behavior. Government assets and liabilities determine the perceived sovereign credit risk and the capacity to service maturing debt (Peppel-Srebrny, 2024). Evidence from ten OECD countries shows that an increase in liabilities raises bond yields, whereas stronger asset positions reduce them. These yield changes directly shape investor risk expectations: when yields decline, investors perceive lower issuance risk, thereby increasing demand for GS (Mishkin, 2019).

Comparative studies reveal diverse approaches to cash buffer management across countries. France, the United States, and the Philippines maintain minimal cash reserves, relying on short-term liquidity forecasts to meet expenditure obligations. In contrast, Indonesia, Vietnam, Australia, and South Africa adopt larger cash buffers supported by long-term liquidity planning (Harjowiryono & Sigit, 2022). This approach reflects a precautionary stance amid revenue volatility and policy uncertainty.

Under Indonesian financial reporting standards, unspent cash at year-end is recorded as a cash balance, categorized into several accounts: Government Accounts at Bank Indonesia and commercial banks, as well as balances held by expenditure and revenue treasurers. These balances appear in the Government Balance Sheet and are reconciled with the Budget Realization Report. Any excess financing is recognized as the Remaining Budget Financing (Sisa Lebih Pembiayaan Anggaran, SiLPA), which, when accumulated over fiscal years, contributes to the Surplus Budget Balance (Saldo Anggaran Lebih, SAL). While maintaining a surplus is preferable to liquidity shortages, excess cash entails opportunity costs. Idle balances deposited with Bank Indonesia or commercial banks typically earn below-market remuneration, or none at all, reducing fiscal efficiency (Pessoa & Williams, 2013). Hence, balancing liquidity adequacy and cost efficiency remains a central challenge in optimizing Indonesia's GS issuance and cash management strategy.

## Theoretical Foundations of Government Debt and Securities

The budget deficit theory posits that governments finance expenditures through taxation, borrowing, or money creation, each with distinct macroeconomic implications (Brennan & Buchanan, 1980). Among these, bond financing plays a pivotal role in sustaining fiscal operations and smoothing intertemporal public spending. Following Barro's (1979) intertemporal model, a government issues debt when tax revenues are insufficient to cover expenditures. Debt is thus positively correlated with spending and inversely related to revenue, influencing inflation

expectations and long-term fiscal balance. Moreover, debt issuance functions as a stabilization mechanism, allowing governments to smooth tax burdens and prevent sudden fiscal shocks (Barro, 1979). This theoretical logic underpins the issuance of GS as a strategic response to fiscal imbalances.

Keynes (1936) identified four fundamental functions of money—medium of exchange, unit of account, store of value, and standard of deferred payment—and developed the liquidity preference theory, explaining that economic actors hold liquid assets for three primary motives: transaction, precautionary, and speculative motives. Government securities share similar characteristics with money. They act as a store of value because they preserve purchasing power and provide a predictable return through coupon payments, and as a medium of exchange in financial markets. In open-market operations, central banks use GS to manage liquidity by buying them when injecting liquidity and selling them to absorb excess liquidity (Mishkin, 2019). Consequently, GS issuance is influenced not only by fiscal pressures but also by liquidity conditions and monetary expectations.

## Determinants of Government Securities Supply

The government's decision to issue GS depends on fiscal, monetary, and macroeconomic conditions. In addition to the budget deficit, factors such as government investment and inflation expectations influence GS supply. These relationships are illustrated in Figure 1, which depicts how fiscal and macroeconomic factors jointly determine GS supply behavior.

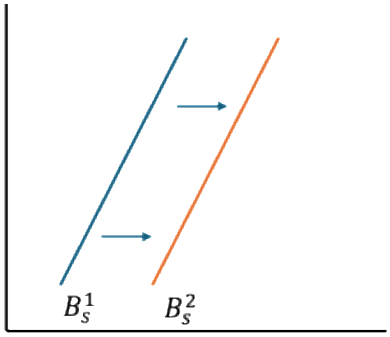


**Figure 1.** GS Supply Curve
***Source:*** Mishkin (2019)

An increase in government spending that exceeds available revenues deepens the budget deficit, thereby requiring additional financing through GS issuance. In addition, government spending impacts the community the moment it is expended. The government will not postpone spending if it positively impacts the community. Thus, a budget deficit can occur because the government takes advantage of the moment to perform the spending. For example, to build a hospital in a disadvantaged area, the government will not delay the construction, as many people need the hospital.

Moreover, the effectiveness of government investment also influences GS supply. In a growing economy and an expansive government, increased government spending will encourage investment, thereby increasing the government's financing needs. Capital expenditure will primarily be used for infrastructure development, benefiting the community. Increased capital expenditure thus reflects an expanding fiscal stance and raises GS issuance to support long-term development objectives.

Inflation expectations represent another determinant of GS supply. Rising inflation elevates government spending through higher procurement and subsidy costs, leading to greater financing needs. As inflation expectations intensify, the nominal value of government expenditures increases, prompting further GS issuance to maintain fiscal balance. As illustrated in Figure 1, these combined

effects—deficit expansion, investment success, and inflationary pressure—shift the GS supply curve from $B_S^1$ to $B_S^2$ representing an increase in the quantity of GS available in the market.

Finally, coordination between debt and cash management is crucial to maintaining fiscal efficiency. Effective coordination enables debt managers to access timely information from cash managers, including daily cash flow projections and liquidity positions, ensuring that GS issuance aligns with actual financing needs. This integrated approach prevents excessive short-term borrowing, minimizes idle balances, and supports overall fiscal sustainability, consistent with international best practices recommended by the IMF and the World Bank (Pessoa & Williams, 2013).

# RESEARCH METHOD

### Research Design

This study analyzes Indonesia's policy of short-term GS issuance in response to government cash stability and budget deficit financing. It utilizes secondary quarterly data on short-term GS issuance and government cash balances from the first quarter of 2015 to the fourth quarter of 2023. A time-series econometric approach was employed to examine the dynamic relationships between GS issuance and cash balance behavior. The data indicate a consistent upward trend in government cash balances, while short-term GS issuance exhibits fluctuations following financing needs. Accordingly, this study examines whether government cash balances influence the GS issuance policy. Thus, this study will provide an overview of the coordination between cash managers and debt managers and determine whether such coordination can sufficiently support the effectiveness of financing, as expressed by Togo (2007).

Based on theoretical foundations and Indonesia's fiscal and treasury management context, the study specifies the following empirical model:

$$stb_t = \theta_0 + \theta_1 cash_t + \theta_2 \left(\frac{spending}{revenue}\right)_t + \theta_3 investment_t + \theta_4 \pi_t^e + \omega_t \quad \text{..... (1)}$$

where $stb_t$ represents the volume of short-term GS issued in period $t$; $cash_t$ is the cash stock in the period $t$; $spending_t$ and $revenue_t$ are expenditures and revenues (non-financing), respectively, in the period $t$; $investment_t$ represents the government's investment; and $\pi^e_t$ indicates the expected inflation in the period $t$, and $\omega_t$ captures random disturbances. If spending is greater than revenue, then $\left(\frac{spending}{revenue}\right)_t > 0$.

Based on the money function theory, bond supply theory, and the literature on debt and cash management in developing countries, the coefficients 1, 2, 3, and 4 are expected to be positive in the short term. GS issuance is likely to increase when the state treasury balance rises, as a higher cash buffer provides the government with greater capacity to finance expenditures. Furthermore, when government spending exceeds revenue collections, the resulting fiscal gap, along with higher levels of government investment and inflation expectations, is expected to drive up GS issuance. In summary, higher cash balances, larger fiscal deficits, increased investment, and stronger inflation expectations are all hypothesized to positively influence the level of GS issuance.

## Analytical Method

The ARDL model approach was employed to assess the relationship between GS issuance and government cash conditions simultaneously. ARDL can illustrate the dynamic relationship between independent and dependent variables as well as distinguish between them. Unlike the vector autoregression (VAR) model, which assumes all variables are endogenous, ARDL distinguishes between dependent and explanatory variables, allowing for clearer interpretation of causal directions (Pesaran et al., 2001; Nkoro & Uko, 2016). However, the ARDL model has weaknesses, such as its sensitivity to lag, because it allows regression using several levels of stationarity. Thus, the lag was selected and used in the research model.

Previous studies have demonstrated ARDL's robustness in macroeconomic analysis. For example, Ekananda (2022) applied ARDL to examine how exports, human capital, GDP growth, and foreign direct investment affect Indonesia's commodity price volatility. Similarly, Akram and Al-Helal Uddin's (2024) employ ARDL to analyze Mexican government bond (MGB) dynamics, finding that short-term interest rates, inflation, and economic activity have significant long-term effects on bond yields.

Following this framework, the present study employed several econometric procedures. First, a descriptive statistical analysis was conducted to summarize the characteristics and trends of the variables. Second, stationarity testing using the Phillips–Perron test was performed to determine the order of integration of each series. Next, the ARDL model was estimated to capture both short- and long-term effects. Bound F-tests for cointegration were applied to confirm the existence of long-run equilibrium relationships among the variables. Finally, an error correction model (ECM) was developed to estimate the short-run adjustments toward equilibrium. Within the ECM framework, the coefficient of the error correction term (ECT) is expected to be negative and statistically significant, reflecting the speed at which deviations from the short-term equilibrium are corrected toward the long-term equilibrium. Consistent with Pessoa et al. (2016), a significant and negative ECT indicates effective coordination between debt and cash management, thereby enhancing fiscal efficiency.

Ordinary Least Squares (OLS) estimation was conducted as a robustness check to confirm the consistency of the ARDL results. If the short-run coefficient of $cash_t$ is positive and significant, then in the short term, the government will use cash conditions as a substitute instrument of GS. Furthermore, if a negative and significant ECT coefficient occurs, then with the shock that occurs in the fiscal year, the relationship between cash and GS issuance will return to its equilibrium after deviations due to shocks.

## Data

This study utilizes quarterly data from 2015 to 2023 on Indonesia's GS issuance and government cash positions. The GS data encompass both SUN and SBSN, which were obtained from the Directorate General of Budget, Financing, and Risk Management (DJPPR) of the Ministry of Finance. Cash balance data are drawn from the central government's quarterly financial statements based on the Government Finance Statistics (GFS) framework, which aggregates fiscal data for macroeconomic analysis (Dasi et al., 2017).

Fiscal indicators, including expenditure and revenue, are sourced from the Bank Indonesia Special Data Dissemination Standard (SDDS). Government investment data are from DJPPR, and expected inflation rates are provided by Bank Indonesia. Table 1 summarizes the variables used in this study.

**Table 1**. Details of Research Variables

| Variable name | Data description | Variable symbol | Unit | Data source |
|---|---|---|---|---|
| Short-term GS | Short-term GS amount (maturity ≤ 5 years) | $ln\_stb_t$ | IDR Trillion | DJPPR, Ministry of Finance |
| Government cash | Government-owned cash and deposits held in commercial banks or Bank Indonesia | $ln\_cash_t$ | IDR Trillion | DJPb, Ministry of Finance |
| Expenditure/state revenue ratio | Comparison of expenditure with state revenue | $(spending/revenue)_t$ | Ratio | SDDS, Bank of Indonesia |
| Government investment | Total government investment | $ln\_investment_t$ | IDR Trillion | DJPPR, Ministry of Finance |
| Expected inflation | Expected inflation | $\pi^e_t$ | Percent | Bank of Indonesia |

# RESULT AND DISCUSSION

Before examining the relationship between government cash balances and GS issuance, descriptive statistical tests were performed for all variables. The main independent variable is the logarithm of the government cash balance ($ln\_cash_t$), while the ratio of spending to revenue [$(spending/revenue)_t$], logarithm of investment ($ln\_investment_t$), and inflation expectations ($\pi^e_t$) are used as the control variables for robustness testing. Table 2 summarizes the descriptive results.

**Table 2.** Descriptive Statistic Analysis

| Variable | Units | Mean | Max | Min | Std. Dev. | Obs |
|---|---|---|---|---|---|---|
| $ln\_stb_t$ | IDR Trillion | 10.750 | 11624 | 9.213 | 0.547 | 36 |
| $ln\_cash_t$ | IDR Trillion | 1.754 | 2.498 | 0.968 | 0.423 | 36 |
| $(spending/revenue)_t$ | % | 1.22 | 2.22 | 0.13 | 0.33 | 36 |
| $ln\_investment_t$ | IDR Trillion | 13.076 | 13.896 | 12.091 | 0.594 | 36 |
| $\pi^e_t$ | % | 0.035 | 0,071 | 0.014 | 0.015 | 36 |

The mean of $(spending/revenue)_t$ is 1.22, indicating that during the observation period, the average government expenditure consistently exceeded revenue. This suggests that the government operated under a persistent budget deficit. The maximum value of 2.22 further indicates periods of substantial overspending. Meanwhile, $ln\_investment_t$ shows a relatively narrow range between its minimum and maximum values, suggesting that government investment levels remained consistent throughout the period.

To ensure data stationarity, the Phillips–Perron test was employed. Although the ARDL model does not require all variables to be stationary, this test ensures that no variable is integrated at the second difference. Table 3 presents the results of the stationary test. According to the result, $ln\_stb_t$ and $(spending/revenue)_t$ are stationary at the level, whereas $ln\_cash_t$, $ln\_investment_t$, and $\pi^e_t$ become stationary after first differencing.

After conducting statistical and stationary tests, we performed the first regression using the ARDL model to determine the relationship between government cash conditions and other variables from the supply side, specifically those influencing GS issuance policies. The result is presented in the Appendix. The empirical results from the long-term relationships (Panel B) indicate that the government's cash balance positively influences GS issuance. Specifically, a 1% increase in cash balance in the previous period (t–1) leads to a 0.923% rise in GS issuance in the current period (t).

**Table 3.** Unit Root Test

| Phillips–Perron test | Level | | | First-differencing | | |
|---|---|---|---|---|---|---|
| | t-test | t-stat | Conclusion | t-test | t-stat | Conclusion |
| $ln\_stb_t$ | −4.446 | −2.972 | Stationer | - | - | - |
| $ln\_cash_t$ | −1.500 | −2.972 | non-stationer | −10.792 | −2.975 | Stationary |
| $(spending/revenue)_t$ | −8.028 | −2.972 | Stationer | - | - | - |
| $ln\_investment_t$ | −0.950 | −2.972 | non-stationer | −11.898 | −2.975 | Stationary |
| $\pi^e_t$ | −2.322 | −2.975 | non-stationer | −3.928 | −2.975 | Stationary |

***Notes:*** The stationary test used a significance level of 5%.

Two important findings emerge from these results. First, the government cash balance acts as a fiscal buffer that supports the issuance of GS. From the supply side, the government issues GS with a specific yield after evaluating its fiscal capacity to pay interest and principal in the future. A higher cash balance signals stronger fiscal credibility and confidence in debt issuance. Second, government cash held in accounts receives remuneration, similar to interest on public savings. Thus, the remuneration value will be an opportunity cost if the money from the account is withdrawn. Alternatively, such interest will be a cost for the government in terms of issuing GS. Therefore, with the high cost, issuing GS would be more advantageous for the government than withdrawing money from the government account. Figure 2 explains the difference between opportunity cost and GS issuance cost (or cost of holding cash). As illustrated in Figure 2, the opportunity cost of holding idle cash may exceed the cost of issuing GS, prompting the government to favor bond issuance as a financing instrument. This finding is consistent with Harjowiryono and Sigit (2022), who observe similar dynamics in Indonesia's fiscal management practices.

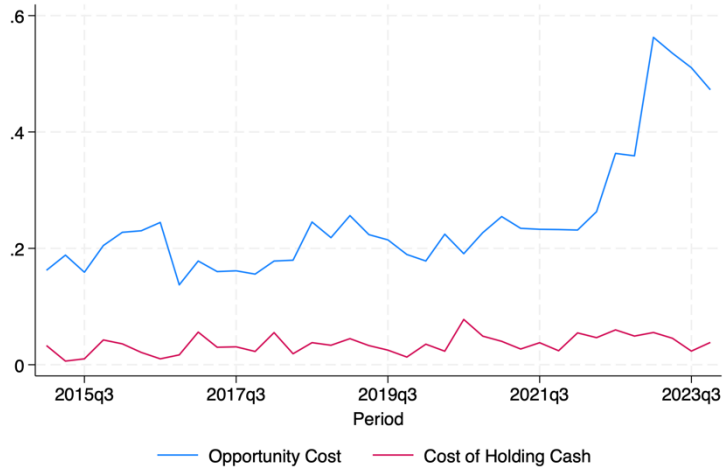


**Figure 2.** Opportunity Cost and GS Issuance Cost (in Million Rupiahs)
***Source:*** Ministry of Finance (2024; calculated by the authors)

In the short-term adjustment model (Panel C), the ECM indicates that deviations in GS issuance are corrected over time to maintain market equilibrium. The government's adjustment mechanism ensures that GS issuance remains within fiscal limits and aligns with macroeconomic targets, including the statutory debt threshold of 60% of GDP. From the demand side, the cash balance also affects investors' perception of the risk of government default. Cash balances are reported in financial statements, which are publicly accessible. With high cash balance conditions, investors would expect the risk of government default for issued GS to decrease. Therefore, if the yield follows the balance, the quantity of GS demand will increase. Peppel-Srebrny (2024) found

similar evidence in 10 OECD countries, where an increase in reported assets was associated with a decrease in GS yields and a corresponding decrease in default risk.

Furthermore, the positive relationship between government cash balance and GS issuance aligns with the theoretical and policy frameworks of the World Bank and IMF. Both institutions emphasize the need for strong coordination between cash and debt managers, particularly in developing economies such as Indonesia, to enable debt managers to consider balance liquidity needs and financing costs in GS issuance (Pessoa & Williams, 2013). Another significant determinant of GS supply is the spending/revenue ratio. A higher ratio indicates a greater fiscal gap, prompting the government to increase GS issuance to finance the deficit. This finding supports Barro's (1979) classical theory of tax smoothing and aligns with Peppel-Srebrny's (2021) empirical results, confirming that governments tend to issue more debt when expenditures exceed revenues.

To validate the robustness of the ARDL results, we conducted an Ordinary Least Squares (OLS) estimation as a complementary test. Table 4 presents the results from the OLS model. The OLS estimates are consistent with the ARDL results, confirming the positive impact of cash balance on the quantity of GS issuance. A 1% increase in cash balance will also result in a 0.98% increase in GS issuance. Thus, the government will utilize the buffer created in the previous period to reduce the GS issuance in the next period.

**Table 4.** Estimation Results Using the OLS Model

| Independent variable | Model 1 | Model 2 |
|---|---|---|
| $R^2$ | 0,202 | 0.164 |
| ***Constant*** | −0.784*** | −0.820*** |
| | (0.089) | (0.093) |
| $\Delta ln\_cash_t$ | 0.529 | 0.985* |
| | (0.514) | (0.509) |
| $\Delta\left(spending/_{revenue}\right)_t$ | | 0.364** |
| | | (0.134) |
| $\Delta ln\_investment_t$ | | 0.511 |
| | | (0.388) |
| $\Delta\pi^e{}_t$ | | 0.008 |
| | | (0.012) |

***Note:*** *, **, and *** denote significance levels at p < 0.1, p < 0.05, and p < 0.01, respectively.

However, the quality of the increase in cash balance warrants further scrutiny. If the increase in cash balance stems from sound cash management or investment returns, this indicates effective coordination between cash and debt managers. Conversely, if it arises from unspent budget allocations or delayed disbursements, it may signal inefficiencies in spending execution, and strategic steps are necessary to improve spending performance.

Overall, the estimation results from 2015 to 2023 confirm that an increase in Indonesia's government cash balance will also increase the GS volume. The ARDL and OLS estimates further show that the government's cash condition will affect its short-term GS issuance. Additionally, the ratio of expenditure to state revenue also affects the issuance of GS. Dynamically, the government issues GS in response to the business cycle of government activities, as part of the implementation of government spending. Financing will be continuously performed, in this case, through the issuance of GS. Additionally, with the increase in government spending, the cash balance in

government accounts also increases due to the possibility of inefficient government spending and poor cash management, as mentioned in modern money theory.

The government must examine the role of cash balances as a tool for urgent spending rather than issuing new debt securities. The government must also utilize a stable cash balance as a form of self-determination in issuing GS. Policymakers must ensure that cash accumulation does not result from underutilized budget allocations. Strengthening the synchronization between cash management and debt management functions is essential to enhance fiscal discipline, optimize financing strategies, and improve market confidence in Indonesia's sovereign debt instruments.

Although this study provides strong empirical evidence of the influence of government cash balances on GS issuance, it has several limitations. The analysis focuses primarily on the supply side of GS, without directly accounting for demand-side dynamics that may also shape market equilibrium. In addition, the study relies on aggregate macro-fiscal data, which may not fully capture short-term liquidity fluctuations across different levels of government accounts. Future research could therefore extend this study by examining how cash and debt can simultaneously function as instruments of payment and liquidity management. Considering that Indonesia's GS market often exhibits disequilibrium between demand and supply, subsequent studies could employ a disequilibrium or structural modeling approach using both sides of market data to better capture these interactions.

# CONCLUSION

The study provides empirical evidence that government cash balances significantly influence short-term GS issuance in Indonesia. Higher cash balances are associated with greater issuance volumes, suggesting that liquidity conditions play a decisive role in short-term borrowing decisions. This relationship remains significant even after controlling for fiscal deficit effects, confirming that cash management functions as an independent yet complementary determinant of debt issuance policy.

The positive link between cash stock and GS issuance reflects the government's strategy to use cash buffers as stabilizers for financing needs and market confidence. Coordinated management of cash and debt enables the government to sustain issuance activities without compromising fiscal stability. Meanwhile, the continuing influence of the budget deficit underscores its role as a structural driver of GS issuance, consistent with fiscal financing requirements.

Overall, the results underscore the importance of strengthening coordination between cash and debt management units—particularly within the Ministry of Finance to ensure that GS issuance reflects real-time liquidity availability and minimizes financing costs. Accurate cash forecasting and active liquidity management are also necessary to avoid excessive idle balances, which may indicate delays in budget disbursement or inefficiencies in spending execution. Integrating cash balance indicators into debt target formulation would further enhance fiscal transparency and sustainability. Establishing a formal liquidity buffer policy, consistent with IMF and World Bank recommendations, could help maintain adequate reserves while preventing inefficiencies from excess cash holdings. Together, these measures would reinforce fiscal discipline, optimize government financing, and strengthen the overall effectiveness of public financial management in Indonesia.

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# APPENDIX

Estimation Results Using the ARDL Model

| Independent variable | Model 1 | Model 2 |
|---|---|---|
| **Panel A: ARDL** | | |
| **Lag structure** | 1.0 | 1,0,0,1,4 |
| **$R^2$** | 0.444 | 0.754 |
| **Panel B: long-term estimation** | | |
| ***Constant*** | −3.907 | 8.248** |
| | (3.204) | (3.060) |
| ***ln_cash$_{t-1}$*** | 0.277 | 0.923* |
| | (0.294) | (0.452) |
| ***(spending/revenue)$_{t-1}$*** | | 0.675*** |
| | | (0.215) |
| ***ln_investment$_t$*** | | −0.747 |
| | | (0.357) |
| ***$\pi^e_t$*** | | −0.015 |
| | | (0.008) |
| **F-bound test** | 11.572*** | 11.647*** |
| **Panel C: short-term estimation** | | |
| ***Δln_cash$_{t-1}$*** | 0.246*** | 0.952*** |
| | (0.237) | (0.483) |
| ***Δ (spending/revenue)$_{t-1}$*** | | 0.696*** |
| | | (0.204) |
| ***Δln_investment$_{t-1}$*** | | −0.002 |
| | | (−0.491) |
| ***Δ$\pi^e_{t-1}$*** | | 0.017 |
| | | (0.014) |
| ***Δ$\pi^e_{t-2}$*** | | 0.011 |
| | | (0.012) |
| ***Δ$\pi^e_{t-3}$*** | | 0.004 |
| | | (0.125) |
| ***Δ$\pi^e_{t-4}$*** | | 0.040*** |
| | | (0.012) |
| **ECM$_{t-1}$** | −0.888*** | −1.030*** |
| | (0.184) | (0.153) |

***Note:*** *, **, and *** denote significance levels at $p < 0.1$, $p < 0.05$, and $p < 0.01$, respectively. The number in parentheses is the t-value. Bound tests are performed by evaluating t-values (Pesaran et al., 2001) and comparing them to critical values (Kripfganz & Schneider, 2020).