African Journal of Business and Economic Research (AJBER)
(Online) ISSN 1750-4562 (Print) ISSN 1750-4554

Indexed by SCOPUS, UGC CARE List, IBSS, EBSCO, ProQuest, ABDC, SAJE, COPERNICUS, ERIH PLUS, CABELL, Sabinet and J-Gate

Vol. 20, (Issue 1), June 2025

pp 31 - 52

Public Debt and Budget Implementation in Sub-Saharan African Nations: The Moderating Effect of Accountability

DOI: https://doi.org/10.31920/1750-4562/2025/v20n2a2

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Abstract

Despite government efforts to address corruption, political instability, and revenue challenges, budget implementation remains largely ineffective. To address this concern, this study examined the impact of public debt on budget execution in sub-Saharan African nations, using accountability as a moderating variable. The study employed an ex post facto research design. The study population comprises 48 countries located in the southern region of the Sahara Desert in Africa, with, fifteen (15) countries selected based on economic expediency and data availability as sample size, spanning 2000-2022. Data was sourced through secondary information from the World Bank, the IMF and the AfDB. Purposive sampling was used in this study. The study conducted an ordinary least squares regression technique. Results indicate that only foreign debt significantly influences budget implementation, with a t-value of 2.5988 and p-value <0.05, while domestic debt lacks a significant impact. This underscores the vital role of foreign borrowing in budget execution. From the findings, the moderating effect of accountability on the main variables also revealed a positive and significant relationship on the relationship between foreign debt and budget implementation, and a non-significant interaction on the association between domestic debt and the controlled variable. However, prudent debt management is essential to mitigate repayment risks. Thus, while external borrowing offers benefits, effective debt oversight is imperative to avert default risks. This study recommends the need for policymakers to adopt more effective debt management practices through a thorough assessment of borrowing needs, ensuring the promotion of more transparency through accountability, in ensuring strengthened integrity during budget implementation.

***Keywords*:** *Accountability, Budgetary deficit, Budget implementation, Debt management, Public debt*

Introduction

The implementation of national budgets in Sub-Saharan Africa (SSA) has been difficult due to several challenges, including the lack of adequate revenue, an excessive level of government debt and weak institutions, among others (Anaman, 2023; Ikilidih et al., 2024; Masu-Gombe & Alkali, 2024). Dabla-Norris et al. (2019) opined that pubic debt levels have been a prioritised major impediment to effective budget execution in sub-Saharan African countries. Citing UNCTAD (2023), Sumba et al. (2024) opined that the public debt of African countries has skyrocketed to $1.8 trillion since 2020 to date, which represents an alarming growth of about 183% that could adversely affect macroeconomic stability. It is then believed that a high level of public debt could also increase the cost of borrowing, making it more expensive for countries to finance their public spending needs (Ali & Vargas-Silver, 2017). This, therefore, hinders effective budget implementation.

Many countries in the SSA region have high public debt levels. Additionally, scholars argued that many countries in the region have a high level of public debt, which limits their fiscal space and increases the risk of debt distress (Igbodika et al., 2016; Were, 2024). In the past decades, the debt burden faced by most countries in Africa has hindered growth and development and deepened their poverty level with low standard which led to several African countries been classified as heavily indebted poor countries in Africa (UNCTAD, 2023, cited by Sumba et al., 2024; World Bank, 2020). Public debt is a significant fiscal challenge in SSA countries, where governments depend on external borrowing to fund developmental projects and budget deficits. Over the past decade, the region has witnessed a rapid public debt increase, which evident in the median debt-to-GDP ratio rising from 23.6% in 2010 to 58.7% in 2020 and 2021 to 61.8% (IMF, 2021).

The issue of public debt is inevitable. However, it should be done with prudence as this could result in inadequate budget implementation leading to economic inefficiencies, resource misallocation and reduced productivity. The expected economic benefits and growth potential are thereby jeopardised when projects and programmes are not implemented efficiently. Several studies have been carried out, which shed light on the challenges and possible solutions, about related aspects of budget implementation and public finance in the region (Musila & Sigué, 2019;

Ojong & Tanyi, 2018), while some other studies examined public debt and budget implementation in individual countries (Nampewo & Ntayi, 2021; Ofoegbu & Onwumere, 2021). Nevertheless, comprehensive studies in Sub-Saharan Africa on the specific impact of public debt and budget implementation, especially regarding accountability in the controller-controlled relationship, remain limited. In the context of budget implementation in sub-Saharan Africa, oversight mechanisms are crucial in accountability (Makanga et al., 2024) with the latter in this study expected to play a crucial role in shaping the relationship between utilisation of public debt and effective budget execution. Thus, the aim of this study in includes accountability as a moderating factor between the main variables. More general topics, such as fiscal policy, sustainability of public debt and budgetary implementation, which indirectly relate to budget implementation costs, are examined in the current literature.

Given the above, there is a need to assess the impact of public debt on budget implementation, and at the same time, investigate the effect of accountability as a moderating variable. By shifting resources to debt servicing and reducing the available funds for additional expenditure, general government debt levels may put pressure on budgetary implementation (IMF, 2005). Similarly, increased borrowing costs and instability of the economy could have an impact on public debt levels, which can hinder effective budget implementation. Therefore, this study examines the effect of public debt on budget implementation in Sub-Saharan Africa with the moderating impact of accountability in the relationship between the explanatory variable and the regressand.

Literature Review and Hypotheses Development

Public Debt

Public debt refers to the amount of money that a government owes to its creditors, which may be foreign, domestic entities and institutions, as well as International Financial Organisations (Were, 2024). The accumulation of this is believed to negatively impact macroeconomic stability among sub-Saharan African countries (Sumba et al., 2024). Explaining more explicitly, Anyanwu et al. (2017) identified public debt as a total of the government's outstanding debts at any given time, due to an accumulation of previous budgetary deficits. Furthermore, public debt can be used to address external shocks, such as natural disasters or

changes in global commodity prices that can disrupt a country's economy and budget (Claessens & Diwan, 2013). However, it is important to note that the benefits of public debt are contingent on sound debt management practices, including borrowing only for productive investments, maintaining debt sustainability, and minimising borrowing costs (International Monetary Fund, 2019).

Foreign Debt and Budget Implementation

According to Adepoju et al. (2017), foreign debt, also referred to as external debt, is owed to foreign lenders and is seen as major constraint to capital formation in developing economies as the burden and dynamics of foreign debt reveal that they do not significantly contribute to developing countries in terms of financing economic development. Foreign debt, through international institutions, bilateral loans, or bonds, can influence budget implementation in several ways. In addition, Manasseh et al. (2022) suggest that the burden of external debt can hinder budgeted implementation and economic development in the Sub-Sahara region. This position is majorly aligned with the study of Ekuma et al. (2024), which argued that external debt could create a distortion in the economy, thus should be considered as the last option. In addition, Ehikioya et al. (2020) submitted that beyond specific capacity, foreign debt could adversely affect macroeconomic parameters if not effectively applied. Major international currencies such as the US dollar or euro are used to account for a large proportion of foreign debt. The cost of servicing debt may increase as a result of exchange rate fluctuations, further straining the budget (Kim et al., 2020). In line with the submission of these authors, this study hypothesised thus:

> *H_{01}: Foreign debt has a positive and significant effect on budget implementation in Sub-Saharan Africa.*

Domestic Debt and Budget Implementation

Domestic borrowing involves a government raising funds from its own market through treasury bills, bonds, or loans from national institutions. According to Audu and Jacob (2022), domestic debt allows a developing country to increase its rate of real investment since it represents a country's engine of growth. It is also seen as a way of filling the gap in domestic savings particularly in the face of a government's dwindling

revenue arising from domestic sources. In addition, Alonge et al. (2022) emphasised the need for responsible debt management and monitoring state governments access to domestic loans. This suggests that domestic debt on budget implementation in sub-Sahara Africa is complex and can vary across different regions. Sumba et al. (2024), meanwhile, submitted that domestic debt has a relatively larger impact on macroeconomic variables in contrast to foreign debt. Meanwhile, Alonge et al. (2023) argued that domestic debt had significant positive effect on the real spending. In contrast, Ajah and Jacob (2022) submitted an insignificant relationship between public debt, including domestic debt, with recurrent expenditure. Thus, this suffixes a statistical correlation between internal debt and budget implementation. High debt servicing costs can limit the government's fiscal space, constrain public investments, and hinder budget execution. In line with the above arguments, this study, therefore, has this hypothesis:

> *H_{o2}: Domestic debt has a significant effect on budget implementation in Sub-Saharan Africa.*

Budget Implementation

The budget implementation is an essential part of public finance management and several factors, such as the actual costs incurred in the implementation of a budget, effectiveness of procurement procedures, the quality of financial management systems, availability of funds and their efficiency in carrying out budgets are affected (Ijaiya & Ibrahim, 2015; Matovu & Twimukye, 2013). Additionally, it is the expenditure which the government incurs in implementing its budget plan, including costs relating to infrastructure projects, social services and various items of state property (Gruber & Saez, 2020). Budget implementation is a critical process in which government plans and policies are translated into concrete actions and results. The International Monetary Fund (IMF) in 2021 reported that various factors, such as corruption, ineffective procurement systems, and inadequate institutional capacity, affect budget implementation and contribute to the high implementation costs of budget appropriations. As well, the instability of the budgetary situation and impact on implementation costs could be exacerbated if the government relied too heavily on that revenue source (Akpokhio & Ekperiware, 2022).

Moderating Effect of Accountability in the Relationship Between Public Debt and Budget Implementation

To this study, strong accountability measures can have a significant impact on the relationship between public debt and budget execution. This position agrees with the argument of Eneje et al. (2024) that accountability and budget implementation are crucial for effective governance. In their study, these authors revealed a positive association between accountability and budget implementation. Contrastingly, Eleuwarin and Muslim (2024) submitted a non-significant effect of accountability on supervision of school revenue and expenditure budgets in public high schools. Arguing in agreement with Eleuwarin and Muslim (2024), Olurankise and Oloruntoba (2017) opined a non-significant relationship between accountability and budget implementation. Divergently, Adetayo et al. (2022) asserted a significant positive relationship between the moderating variable and budget implementation. In agreement with the study, Adetayo et al. (2022) argued for a positive relationship between accountability and budget effectiveness. Meanwhile, the papers reviewed did not consider accountability as a moderator, which is an identified gap in this study. About the submissions of the scholars, however, this study hypothesised thus:

> *H_{03}: There is a positive and significant moderating effect of accountability on the association between public debt and budget implementation in Sub-Saharan Africa.*

Theoretical Review

Theoretical Review and Framework

This study is underpinned by Keynesian theory and Debt overhang theory. The *Keynesian theory* was propounded by John Maynard Keynes in 1936. The theory assumes that, during a recession, the government will have to increase its expenditure to stimulate demand and boost economic activity, which can be through borrowing or an increase in tax revenue. The theory is relevant because it stresses the importance of government intervention to support economic growth and stability, particularly during a recession (Rodríguez-Pose & Garcilazo, 2015). In Sub-Saharan African countries, the theory is relevant in the context of budget implementation cost, as it suggests that governments should increase

their expenditure and tax revenue to support budget implementation. On the other hand, the debt hang theory was developed in 1990 by Robert Barro, which posited that high levels of public debt can negatively affect economic growth by reducing investment and productivity. Furthermore, it oversimplifies the complex factors that contribute to economic growth and debt sustainability. It may not account for the impact of other factors, such as political stability or institutional quality, on economic growth. The theory of debt overhang suggests that, to implement the budget, resources available for implementation may be reduced by a large amount of public debt and leading to an increase in implementation costs (Musiita et al., 2023).

The reviewed studies collectively highlight that effective governance, prudent borrowing, and strategic allocation of resources are pivotal in ensuring that public debt contributes positively to economic growth and budget implementation. Whilst these studies emphasised public debt, the presence of accountability to moderate the relationship includes the gap in the literature. Furthermore, the current study primarily seeks to address the effect of public debt, on budget implementation in Sub-Saharan Africa. This is based on the fact that there are limited studies that investigated the direct effect of public debt, particularly foreign debt and domestic debt on budget implementation, and the different methodology adopted by the scholars. This also became necessary due to the mixed results of the respective studies. Hence, the aims of this study are to fill the identified research gap.

Data and Methods

This study adopted an ex-post facto and longitudinal research design. The population of the study consisted of the 48 countries in Sub-Saharan Africa, particularly the countries situated in the South of the African Sahara Desert. Data for these variables were collected for 22 years from 2000 to 2022. A purposive sampling technique was used to select a sample of fifteen (15) countries from the population. The 15 Sub-Saharan African countries were selected to represent the sample size, and the selection was based on their economic significance, diversity, and availability of data. Data were sourced from the World Bank, International Monetary Fund (IMF), and African Development Bank (AFDB). For analysis, the study used an ordinary least square regression technique (OLS) with descriptive and inferential statistics generated. Also, diagnostic tests such as multicollinearity test, panel unit root, serial

correlation test, Breusch-pagan Lagrange multiplier test, and Hausman test were conducted in this study.

Model Specification

The economic model for this study has been developed, and it is stated thus:

$BUI_{it} = \beta_0 + \beta_1 FD_{it} + \beta_2 DD_{it} + \varepsilon_{it}$ ……3.1

$BUI_{it} = \beta_0 + \beta_1 FD_{it} + \beta_2 DD_{it} + \beta_3 ACCT*FD_{it} + \beta_4 ACCT*DD_{it} + \varepsilon_{it}$ …….Eq 3.2

Where: BUI = Budget Implementation

FD = Foreign debt

DD = Domestic Debt

ACCT = Accountability

β_0 = Constant

β_1 -β_2 = Coefficient of independent variables

β_3– β_4 = Coefficient of the combined effect of the moderating variable and the independent variable

ε = Error term

Where T = The number of time.

Table 1:

Measurement of Variables

S/N	Variable	Type	Measurement	Source
1.	Budget implementation (BUI)	Dependent	This measures the difference between planned revenue and planned expenditure. A positive budget balance indicates that revenue has exceeded expenditure, while a negative balance indicates that expenditure has exceeded revenue.	Abbas and Hassan (2021)
2	Public/external Debt (Debt-to-GDP ratio)	Independent	This measures the total amount of public/external debt as a percentage of a country's GDP, which is used to assess the sustainability of a country's debt levels.	Oathman et al. (2018)
2a	Foreign debt (FD)	Independent	The ratio of foreign debt to a country's GDP	Oathman et al. (2018).
2b	Domestic debt (DD)	Independent	The ratio of domestic debt to the country's GDP	Oathman et al. (2018)

3	Accountability (ACCT)	Moderating	measured using corruption control index of the Worldwide Governance Indicators (WGI) of the World Bank Group	World Bank Index

Source: Authors' Compilation (2024)

Results and Discussion

The results from the analysis conducted for this study are explained under the descriptive, correlation and inferential statistics.

Descriptive Statistics

From Table 2, the mean of budget implementation (BUI) is 51646.81, while the median is 53773.00. This indicates that the average budget implementation is slightly lower when compared to the median, implying a slightly left-skewed distribution. In addition, a leptokurtic distribution with a slightly heavier tail than a normal distribution is indicated by the kurtosis value of 1.818922. Likewise, foreign debt (FD) reflects a mean of 47334.14 and a median of 42919.50. A distribution with a slightly heavier tail on the right-hand side is indicated by an approximate positive slope of 0.141089. The kurtosis value of 1.760257 indicates a leptokurtic distribution with slightly heavier tails than a normal distribution. The Jarque-Bera test is statistically significant, $p < 0.001$, indicating non-normality.

Domestic debt (DD) has a mean of 52200.65 and a median of 53687.00. The slight negative skew of -0.081217 suggests a slightly left-skewed distribution. There is a significant variability in the mean, as shown by an average deviation of 28810.09. A leptokurtic distribution with slightly heavier tails than the normal distribution is indicated by the Kurtosis value of 1.787285. The Jarque-Bera test is statistically significant p, < 0.001, indicating non-normality. For accountability (ACCT), it has a mean of -0.754279 and a median of -0.846923. The slight positive skew of 0.043262 suggests a slightly heavier tail on the right-hand skewed distribution. There is a significant variability in the mean, as shown by an average deviation of 1.040551. A leptokurtic distribution with slightly heavier tails than the normal distribution is indicated by the Kurtosis value of 1.754388. The Jarque-Bera test is statistically significant, $p < 0.001$, indicating non-normality.

Table 2:

Descriptive Statistics

	BUI	ACCT	DD	FD
Mean	51646.81	-0.754279	52200.65	47334.14
Median	53773.00	-0.846923	53687.00	42919.50
Maximum	99949.00	0.997559	99243.00	99947.00
Minimum	475.0000	-2.497018	363.0000	506.0000
Std. Dev.	28430.24	1.040551	28810.09	29630.85
Skewness	-0.117865	0.043262	-0.081217	0.141089
Kurtosis	1.818922	1.754388	1.787285	1.760257
Jarque-Bera	31.91132	34.29878	32.93539	35.56493
Probability	0.000000	0.000000	0.000000	0.000000
Observations	528	528	528	528

Source: Authors' Compilation (2024)

Correlation Analysis

In Table 3, BUI and other variables revealed a very weak positive correlation with ACCT (0.022133), FD (0.018457) and a weak negative association with DD (-0.028102). DD exhibits a very weak negative correlation with FD -0.014786. These correlations suggest that domestic debt has minimal linear associations with the other variables. For the moderating variable, ACCT and other variables: ACCT exhibits very weak negative correlations with DD (0.018313) and FD (0.003152). These correlations suggest that accountability has minimal linear associations with the other variables.

Table 3:

Correlation Analysis

Probability	BUI	ACCT	DD	FD
BUI	1.0000			

ACCT	0.022133	1.000000		
	0.6119	-----		
DD	-0.028102	0.018313	1.000000	
	0.5194	0.6746	-----	
FD	0.018457	0.003152	-0.014786	1.000000
	0.6722	0.9424	0.7346	-----

Source: Authors' Compilation (2024)

Multicollinearity Test

Table 4 depicts the VIF for the independent variables used in the study. Variance inflation factors range from 1 upwards. Generally, a VIF value greater than 10 indicates a high correlation, which causes concern. The values of DD, FD, and ACCT being close to 1 indicate a minimal level of multicollinearity. Therefore, all the values of VIF show values more than 1 but less than 10. This means there is no multicollinearity problem among the explanatory variables.

Table 4:

Result of Multicollinearity Test

	Coefficient	Uncentred	Centred
Variables	Variance	VIF	VIF
DD	0.001862	4.300546	1.002653
FD	0.001766	3.575982	1.005414
ACCT	1443947.	1.547868	1.014029
C	30516428	19.83031	NA

Source: Authors' Compilation (2024)

Unit Root Test

Table 5 shows the results of two stationarity tests: the Levin, Lin & Chu LLC t* test and the Im, Pesaran, and Shin IPS W-stat test conducted on different variables used in achieving the objectives of the study. Foreign debt (FD), domestic debt (DD), accountability (ACCT), and budget implementation are stationary. These stationarity tests reveal low and significant p-values < 0.001, indicating rejection of the null hypothesis of the unit root. Thus, the variables remain stable over time and are suitable for time series analysis.

Table 5:

Panel Unit Root test

Variable	Levin, Lin & Chu t*		Im, Pesaran and Shin W-stat		Remarks
	Test statistics	P-value	Test statistics	P-value	
FD	-14.0674	0.0000	-13.2332	0.0000	Stationary
DD	-16.0045	0.0000	-13.0973	0.0000	Stationary
ACCT	-10.4303	0.0000	-10.2506	0.0000	Stationary
BUI	-15.3667	0.0000	-13.8722	0.0000	Stationary

Source: Authors' Computation (2024)

Model Specification Test Results for Model 1

In Table 6, Breusch-Pagan LM test (p=0.3084) indicates no significant heteroskedasticity, supporting the assumption of constant variance. In

addition, Hausman Test indicates no significant difference between the fixed effects and random effects estimators, so either can be used for the model at a p-value of 0.6831.

The Serial Correlation test was used to assess the presence of autocorrelation in the model's residuals in Table 6. A p-value of 0.5071 suggests no significant evidence of serial correlation, satisfying the assumption of no autocorrelation in the model's residuals.

Table 6:

Estimation Test for Model 1

Model Specification Test	Test statistics	p-value
Breusch-Pagan Lagrange Multiplier Tests	1.037710	0.3084
Hausman Test	0.76228	0.6831
Serial correlation test	-0.7395	0.5071

Source: Authors' Compilation (2024)

Model Specification Test Results for Model 2

Breusch-Pagan Lagrange Multiplier Tests

The Breusch-Pagan Lagrange Multiplier test assesses for heteroskedasticity in the model in Table 6. With a p-value of 0.1193, there is no significant evidence of heteroskedasticity. This suggests that the assumption of constant variance homoskedasticity is not violated.

Hausman Test

The Hausman Test compares the consistency and efficiency of fixed effects and random effects estimators, with higher values favouring random effects. A p-value of 0.6099 indicates no significant difference between the estimators. Thus, either estimator could be used for the model without a significant difference in results.

Serial Correlation Test

The Serial Correlation test examines the presence of autocorrelation serial correlation, in the model's residuals. With a P-value of 0.3184, there is no significant evidence of serial correlation. Hence, the assumption of no autocorrelation in the residuals is satisfied.

Table 7

Estimation Test

Model Specification Test	Test statistics	p-value
Breusch-Pagan Lagrange Multiplier Tests	1.7501	0.1193
Hausman Test	0.7895	0.6099
Serial correlation test	-0.9655	0.3184

Source: Authors' Compilation (2024)
Regression Results

For Model 1: Relationship between Public Debt and Budget Implementation

The R^2 value was 0.5014, indicating that approximately 50.14% of the variance in budget implementation is explained by the combination of domestic debt and foreign debt in the model. The adjusted R^2 is 0.4623 is slightly lower than the R-squared, reflecting the trade-off between adding more independent variables and model complexity.

Similarly, the F-statistic is 19.8078, and the associated p-value is 0.0000. The extremely low p-value indicates that the overall model is statistically significant. This result suggests that public debt has a substantial influence on budget implementation in Sub-Saharan Africa.

For Model 2: Moderating Effect of Accountability on the Relationship between Public Debt and Budget Implementation

From table 8, the R^2 value was 0.620440, indicating that approximately 62.04% of the variability in budget implementation can be elucidated by the included independent variables and their interactions. The adjusted R^2 is 0.575190, providing a more conservative estimation that considers the complexity of the model.

Similarly, the F-statistic is 31.19768, with an associated p-value of 0.000000, indicating a high level of statistical significance for the overall model at less than a 0.05 significance level. This result suggests that explanatory and moderating variables jointly have a significant effect on the dependent variable (budget implementation) in sub-Saharan Africa. Therefore, the null hypothesis is rejected.

Table 8:

Regression Results on Public Debt on Budget Implementation in Sub-Saharan Africa and the Moderating Effect of Accountability on the Relationship between Public Debt and Budget Implementation

Dependent variable BUI	Coefficient	t-value	p-value	Dependent Variable	Coefficient	t-value	p-value
FD	0.0257	2.5988	0.0095	*DD*	-0.012645	-0.249111	0.8034
DD	-0.0254	-0.5799	0.5622	*FD*	0.024292	2.462091	0.0141
C	51784.17	14.9880	0.0000	DD*ACCT	0.015083	2.497713	0.0128
R-squared	0.5014			FD*ACCT	0.001186	2.036461	0.0422
Adjusted R^2	0.4623			C	51726.62	14.98032	0.0000
F-statistic	19.8078			R-squared	0.620440		
Prob F-statistic	0.0000			Adjusted R-squared	0.575190		
				F-statistic	31.19768		
				Prob F-statistic	0.000000		

Source: Authors' Compilation (2024)

Discussion of Findings

This study examines the effects of public debt on budget implementation and the moderating effect of accountability in Sub-Saharan Africa. Foreign debt (FD) has a positive and significant effect on budget implementation (BUI). This agrees with the study and the conclusions of the IMF (2019) and the World Bank (2018), which, in these cases, highlighted the potential benefits of foreign borrowing to facilitate budget implementation and development projects were highlighted. However, the findings are at variance with a study of Manasseh et al. (2022) and Ekuma et al. (2024), which warned against negative impacts

on budgetary implementation of foreign debt. Based on these findings, a well-managed foreign debt could inject resources that facilitate budgetary execution and enable investments in critical infrastructure and human capital. On the other hand, domestic debt (DD) had a negative and non-significant effect on budget implementation. The study of Ajah and Jacob (2022) supported this claim. However, the findings of Davis and Smith (2017) contradicted the findings of this study.

Accountability (ACCT) moderated FD and DD relationship with BUI, the FD has a positive and significant effect on BUI. The significant effect correlates with the study by Eneje et al. (2024), which discovered significant associations between budget allocation mechanisms and accountability measures. Divergently, DD has a negative influence and is not statistically significant on BUI. The insignificant effect discovered aligns with the findings of Eleuwarin and Muslim (2024) on their study of accountability and revenue and expenditure budgets. The result of this present study also aligns with those of Olurankise and Oloruntoba (2017) on accountability and budget implementation.

Meanwhile, the interaction effect of ACCT on the relationship between DD and BUI signifies statistically positive and significant positive effect. This result is in agreement with the study of Eneje et al. (2024). The non-significant coefficients associated with domestic debt DD and its interaction term DD*ACCT are in line with the study of Eleuwarin and Muslim (2024) which suggests that, theoretically, the relationship between domestic debt and budget implementation outcomes might not be significantly influenced by accountability mechanisms. Similarly, the interaction of ACCT in the relationship between FD and BUI shows a positive and statistically significant effect. This aligned with the findings of Eneje et al. (2024) and Adetayo et al. (2022), among others. In contrast, the significant coefficients and interaction terms related to foreign debt FD underscore the theoretical notion that accountability plays a pivotal role in enhancing the positive impact of external borrowing, which that aligns with Adetayo et al. (2022), who asserted a positive significant effect of accountability on budget discipline. Theoretically, foreign borrowing is often subject to international scrutiny, making accountability crucial in optimising the benefits of such debt for budget implementation. The findings support this theoretical pres mise by highlighting that foreign debt's impact is more pronounced when combined with robust accountability mechanisms.

In addition, the findings concerning domestic debt align with the pecking order theory, suggesting that organisations prioritise internal funds over external borrowing. This theory might explain why accountability has a less significant moderating effect on the domestic debt's relationship with budget implementation.

Conclusion and Recommendations

This study investigated the effects of public debt on budget implementation in Sub-Saharan African countries. This study examined fifteen (15) countries out of the total of forty-eight (48) Sub-Saharan countries for 22 years from 2000 to 2022. From the findings on the influence of public debt (foreign debt and domestic debt) on budget implementation, it was concluded that foreign debt plays a significant role in successful budget implementation, suggesting that borrowing from external sources can positively affect the outcomes of budget implementation, while the result for domestic debt was insignificant. Similarly, the influence of domestic debt on budget implementation was insignificant. In addition, the moderating effect of accountability on public debt and budget implementation was ascertained, and a significant effect was revealed. Specifically, foreign debt had a significant and positive effect on budget implementation when moderated by accountability, while the outcome for domestic debt was insignificant.

This study recommends that adequate debt management practices should be adopted by policymakers, which includes a thorough assessment of borrowing needs, costs and repayment capacity to ensure long-term fiscal health. In the same vein, during the debt management process, transparency and responsibility must be maintained. Additionally, there is a need for countries in Sub-Saharan Africa to strengthen their accountability measures to promote issues relating to transparency and integrity during budget implementation. It further provides insights into the significance of accountability in ensuring the proper implementation of budgets in a nation.

Suggestions for further studies

For future studies, the comparison of the relationships observed between Sub-Saharan African countries and other regions or economies could be

explored in a comparative analysis. The unique challenges and strengths of the region can be analysed in an analysis of similarities and differences, while also providing a more detailed picture of the findings. In addition, the underlying mechanisms of the observed relationships and the moderating effect of accountability could be identified by complementing quantitative analyses with qualitative research, such as interviews or case studies.

This is to affirm that there is neither self-interest nor competing interest that should be declared in this paper.

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