IMPACT OF PUBLIC DEBT ON MACROECONOMIC PERFORMANCE IN WEST AFRICA: THE ROLE OF GOVERNANCE

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Abstract
This study investigates the impact of public debt on macroeconomic performance in West Africa, with a particular focus on the moderating role of governance. Using panel data from 15 ECOWAS countries spanning 2000 to 2022 and employing the System Generalized Method of Moments (SGMM) estimator, the analysisexplores the direct and interaction effectsof various types of debton macroeconomic outcomes. The findings reveal that multilateral debt exerts a significant negative effect on macroeconomic performance, reflecting the rigidities and fiscal constraints often associated with such financing. In contrast, long-term debt has positive impact, especially when accompanied by strong institutional frameworks. Governance is shown to play a crucial moderating role-amplifying the benefits of development-oriented borrowing and cushioning the adverse effects of burdensome debt. Additionally, labour force participation and capital formation are identified as key drivers of macroeconomic performance, while trade opennessappears to have limited influence. The results underscore the importance of debt composition, institutional quality, and structural factors in shaping macroeconomic trajectories in the region. Policy recommendations emphasise governance-centered debt strategies, enhanced debt management capacity, and the integration of fiscal, labour, and investment policies for sustainable economic development in West Africa.

Key words:*Public debt, Governance, Macroeconomic performance, System GMM, West Africa.*

JEL Classification: E69, H63,O43

1. Introduction

Governments rely on external assistance, including domestic debt and external debt to function effectively. This assistance is particularly crucial for developing countries that lack sufficient domestic financial resources. Thus, external debt provides government with significant revenue to meet this shortfall and finance its developmental programmes in order to enhance its growth trajectory. However, excessive debt accumulation does not necessarily indicate slow economic growth. Instead, it may reflect a country's inability to meet its debts obligations, compounded by a lack of comprehensive debt information (Were, 2001). The motive for borrowing can be categorised into two namely; macroeconomic reasons (financing increased investment or consumption), and overcoming hard budget constraints (Soludo, 2003). This implies that borrowing can be used to stimulate economic growth and reduce poverty. However, excessive debt can have detrimental effects, as debt servicing becomes burdensome and countries may find themselves on the wrong side of the debt-Laffer curve, where debt displaces investment and growth (Soludo, 2003).

Borrowing is done mostly by nations to close the "foreign exchange gap" and the "savings-investment gap". Chenery and Strout's (1966) dual-gap model suggested that external finance or foreign aid be obtained to fillthese two gaps in order to promote growth.Through external finance, domestic investment is expected to increase, leading to increased production, exports, employment, and consequently result in economic growth. Therefore, most emergingnations reliesheavily on external debts to augment their cash streams for development. Borrowing was seen as a "desirable choice for funding infrastructure development projects when tax revenues are limited and the government is unwilling to jeopardise macroeconomic stability by printing more money"(Ogunmuyiwa, 2011). Public borrowing happens in both domestic and international markets (Panizza, Federico, &Jeromin 2010). However, when borrowed funds are misused in the local market, this can lead to financial instability and push out the private sector (crowding out effect) hence, nations mostly use foreign borrowing for capital investments.

West Africa's countries debt has significantly increased during the last few decades. Concerns over the sustainability of debts have been raised by the continually rising debt-to-GDP ratios (Eregha&Mesagan, 2019). The need to fund the construction of infrastructure, respond to external shocks such as the COVID-19 pandemic or the global financial crisis, and attend to social welfare demands, are some of thereasons for borrowing (International Monetary Fund, 2020; Ogbonna & Ali, 2021). Since 2009, the ECOWAS's total fiscal balance has been in deficit, a situation made worse

by the COVID-19 pandemic. The past 20 years have seen a more than four-fold increase in ECOWAS's public debt. Their debt profile increased from US$58.50 billion in 2005 to US$296.76 billion in 2020(Africa Development Bank (AfDB), 2019).

With a total of US$98.92 billion in external debt as of 2019, ECOWAS owed US$40.86 billion to the IMF, US$19.89 billion to bilateral lenders, US$39.6billion to commercial lenders, US$39.17 billion to multilateral lenders(Debt Management Roundtable (DMR), 2022).Debt ratios in ECOWAS nations are rising in tandem with the region's growing public debts. Following the COVID-19 outbreak, the debt to GDP ratio for the ECOWAS increased regionally from 31.6 percent in 2019 to 36.7 percent in 2020, an increase of 5.1 percentage points. The debt to GDP ratio peak at 68.35 percent in 2022 but decline to 65.5 percent in 2023 and is projected to decrease further to 64.2 percent and 62.5 percent in 2024 and2025 respectively (Africa Development Bank (AfDB), 2024). Eventhough, the region's debt structure is on the decline, majority of ECOWAS nations except Nigeria still havehigh debt burden. The servicing of their debts hinder themhavingenough money left to fund their development and them to maintain an upward trend in growth trajectory from 3.5 percent recorded in 2023 (Africa Development Bank (AfDB), 2024).

Also, excessive debts might seriously jeopardise macroeconomic performance in these countries. The crowding out effect is one of the possible drawbacks of high debt levels (Abbas & Christensen 2007). This phenomenon transpires when exorbitant debt servicing expenses redirect funds from advantageous allocations in domains such as healthcare, education, and infrastructure, hence impede economic expansion and diminishing enduring prosperity. Blanchard andGiavazzi, (2003) highlighted the fact that increased government borrowing can lead to inflationary pressures. This is when government finance spending through significant debt accumulation, in which they may resort to printing more money. This expansion of money supply can outpace economic growth, leading to inflation. While, inflation erodes the purchasing power of consumers and businesses, discouraging investment and creating economic uncertainty (Blanchard & Giavazzi2003).

West Africa is facing governance issues that could exacerbate the negative consequences of debt. The problem of corruption has led to resources being diverted from profitable ventures, resulting in the ineffective use of borrowed money(IMF,2020). Inadequate institutional frameworks impede efficient debt management, heightening the likelihood of default and eroding investor trust (IMF, 2020). Furthermore, it is challenging to hold public officials accountable for prudent debt accumulation and utilisation when there is a lack of openness in government budgeting and expenditures.

Excessive debt loads can exacerbate social discontent and erode political stability. Social unrest and a decline in public confidence in the government might result from citizens believing that borrowed money is not being handled wisely (Rabia & Kamran, 2012). As a result, tackling the debt problem and its effects on the macroeconomic performance of West Africa requires a multifaceted strategy that addresses the underlying reasons.

To the best of the researchers' knowledge, previous studies on the impact of public debts on macroeconomic performance have not adequately addressed endogeneity concerns. This study aims to fill the identified gapin the literature. The study addresses the followingkey questions:

i. What are the impacts of different types of public debts on macroeconomic performance in West Africa?;and
ii. Does governance play any significant role in the impact of debtson macroeconomic performance in West Africa?

Consequently, the studyexamines the impact of public debts on macroeconomic performance; and investigates the role of governance in public debts and macroeconomic performance nexus.

The rest of this paper is organised as follows: Section 2 reviews the literature. Section 3discusses the data, the model and the estimation technique, while Section 4 presents the results and disccusion. Conclusion and policy recommendations are contained in Section 5.

2. Review of Literature

This section clarifies of the concepts used, provides the theoretical foundation, reviews the empirical works of previous scholars on the subject- matter and identifies the research gaps in extant literature.

2.1. Conceptual Issues

The three key concepts in this study are macroeconomic performance, public external debt and governance. These three concepts are reviewed in this sub-section.

2.1.1. Macroeconomic Performance

Macroeconomic performance refers to a nation's overall economic stability and well-being in addition to individual wealth and business success. It demonstrates how efficiently the entire economic system functions (World Bank, 2024). Economists use a variety of crucial indicators, including the GDP, inflation rate, unemployment rate, and balance of payments, to evaluate macroeconomic performance (World Bank, 2024). Macroeconomic performance can be evaluated by looking at how well an

economy achieves low unemployment, low inflation, and sustainable growth (Olivier & Daniel, 2009).Economic growth (increasing GDP), price stability (low and controlled inflation), full employment (low unemployment rate), and a sustainable flow of money into and out of the nation (a sound balance of payments) are indicators of a strong macroeconomic performance. Achieving these objectives create a strong economy that gives people a high standard of living and enhance businesses growth. Thus, macroeconomic performance examines the health of an entire economy, focusing on factors that influence its overall performance, which economistsuse in analysing or assessing a country's economic well-being and stability.

2.1.2. Public External Debt

According to Freytag and Pehnelt (2009), an entity's external debt is the portion of its debt that is derived from foreign entities, including financial institutions, governments, and businesses. Ogbeifun (2007) asserts that the disparity between local savings and investment is the cause of external debt. Furthermore, according to Obadan and Uga (2004), low levels of local savings have made it necessary for less developed nations to borrow money in order to boost capital formation. Borrowing is done mostly by nations to close the "foreign exchange gap" and the "savings-investment" gap(Chenery & Strout, 1966). Thus,.the dual-gap study reaffirmed the necessity of borrowing money from outside sources in order to close a country's savings-investment gap. A country needs to invest a specific amount to develop, and this amount depends on local funds, which may not be sufficient (Oloyede, 2002).

2.1.3. Governance

Governance refers to the customs, institutions and processes that dictate how power is wielded in managing a nation's economic and social resources (World Bank,2017). It incorporates the intricate web of mechanisms, relationships and accountability frameworks through which citizens and groups voice their interests, exercise their rights, meet their obligations, and resolve disputes (UNDP,2017).The hallmarks of good governance include participation, transparency, accountability, effectiveness, equity and adherence to the rule of law. Upholding these tenets is key to fostering sustainable development, ensuring efficient resource allocation, nurturing an environment conducive to economic growth and social advancement, engendering public sconfidence in institutions, and providing a stable and predictable climate for investment and innovation (Barasa et al., 2021; Rjoub et al., 2021).

2.2.Theoretical Review

The growth accounting theory is an important part of modern macroeconomics. The analysis of growth has long been based on the Solow's (1956) "growth accounting" approach, also termed as neoclassical growth theory, which has two important predictions about growth in the long run: first, that the long-run growth rate is driven by population growth; and second, that of the rate of technical progress. Solow (1956) and Swan (1956) viewed the accumulation of physical capital, associated with a permanent low of technical progress, as the driver of economic growth. The basic assumptions of the model are: constant returns to scale, diminishing marginal productivity of capital, exogenously determined technical progress and substitutability between capital and labour. Technological progress, though important in the long-run, is regarded as exogenous to the economic system and therefore it is not adequately examined by this model (Arvanitidis, Petrakos, &Pavleas 2007). In the standard neoclassical growth model, economic growth depends on the increase in the capital and labour and the pace of technological progress. The most basic proposition of growth theory is that in order to sustain a positive growth rate of output per capita in the long run, there must be continual advances in technological knowledge in the form of new goods, new markets, or new processes, which was demonstrated by the neoclassical growth model which shows that if there were no technological progress, then the effects of diminishing returns would eventually cause economic growth to cease (Aghion & Howitt, 1998). Public policies in general and public expenditures specifically, do not affect growth. In the extended Solow model, however, human capital is an important input to growth (Mankiw et. al., 1992).

The Neo-Institutional Theory complements this by emphasising the role of institutions-formal rules, norms, and governance structures- in shaping economic outcomes. Strong institutions, characterised by transparency, accountability, and effective governance, ensure that borrowed funds are allocated efficiently, mitigating the adverse effects of debt (North, 1990; Acemoglu & Robinson, 2012). Weak governance, marked by corruption or inefficiency, can exacerbate debt-related challenges, reducing macroeconomic performance (Nguyen & Luong, 2021).

2.3.Review of Empirical Literature

The study by Reinhart andRogoff (2010), reveals that excessive debt may divert resources to debt servicing or crowd out private investment, thereby hindering long-term growth while the study by Bernardin, Korsi, and Peter (2018), which investigates the link between external debt and economic growth in Sub-Saharan Africa, show that external debts have a negative impact on growthirrespective of the

country's level of income and debtsize. While, they are opposed to countries cutting back on borrowing, they however advocated for the efficient management of borrowed funds to implement projects that will generate enough income to enable them to repay the debt. This suggests that responsible management of external debt is crucial for Sub-Saharan African countries. Moreover, Yasar (2021) finds a negative relationship using data from 1995 to 2018 for commonwealth countries, which suggests that high external debt can hinder economic growth in the long run, whileKaradam (2018)finds that high levels of both short-term and long-term external debts have a more severe negative impacton growth, which conforms with most previous studies.

Also, the study by Ogbonna and Ali (2021) concur with previous studies thatexternal debt have a negative impact on growth. They opine that exorbitant debt payment costs would stifle funding for essential public services, making investments in crucial sectors such as healthcare and education difficult. Thus, long-term economic progress and human capital development may be impeded (Ogbonna & Ali, 2021). Additionally, rising debt levels can lead to economic vulnerabilities, making West African economies more susceptible to external shocks and fluctuations in global interest rates.

Some other studiesreport positive association between external debt and economic growth. They opine that external debts have a positive impact on economic growth. Few of such studies are Chindengwike (2021)and Kim, Ha and Kim (2017). Chindengwike (2021), which examines the impact of foreign debts on economic growth in Tanzania from 1988 to 2020 argue that external debt have a positive impact on economic growth in in the short-run. However, their further analysis show that the long run impact of external debt on economic growth is insignificant.Similarly, the study by Kim,Ha and Kim (2017), which examined the effect of corruption on the relationship public debt and economic growth for 77 countries between 1990 and 2014, which usesdynamic panel GMM reveals that the effect of public debt on economic growth is a function of corruption and that public debt enhances economic growth in countries that are transparent (not corrupt). Thesecontrasting findings highlight the need for further research concerning specific factorsinfluencing different countries, the context and how the borrowed funds were used.

At the mid-point of these controversies are few studies such as Reinhart and Rogoff (2010) and Karadam (2018).Reinhart and Rogoff (2010) studies for 44 developing and developed countries indicates that if the debt-GDP ratio exceed 90 percent threshold, then debt becomes detrimental to economic growth.Similarly, Karadam (2018), which explored how debt affects economic growth in both developed and developing countries corroborates with Reinhart and Rogoff (2010) findings and suggests a tipping point: that debt can actually boost growth up to a certain level, but

after that point, it starts to hinder growth. Incidentally, developing countries seem to reach this tipping point with lower debt levels compared to developed countries.This calls for the need for developing countries, West Africa countries inclusive to be proactive in the way they manage their debts.

Another strand of the literature relates to how governance affectpublic debts and how governance affect economic growth or economic performance? Among the few researches that have discussed the nexusbetween debt, economic growth and governance are those of Omotor, Musa and Elu (2020), Manasseh et al., (2022), Arjun and Bibhuti Mishra (2024) and Mohammed (2025).The finding ofOmotor, Musa, and Elu (2020) on the link between external debt, economic growth, and governance in 32 Sub-Saharan African countries (SSA) between 2005 and 2017 aligns with prior researches that good governance has a positive impact on growth, while high levels of external debt hurt economic growth. Interestingly, their finding shows that strong institutions are key to mitigating the negative effects of external debt on economic growth in SSA. On the contrary, the findings of Mumba and Li (2020) on 9Southern African countries,reveal negative impacts of debt both in the short-term and long-term on economic growth. This highlights a potential difference in how external debt affects growth between regions in Africa, suggesting a need for more nuanced analysis.

A 1997-2020 study by Manasseh et al. (2022), which examines how external debt and government effectiveness affect economic growth in 30 Sub-Saharan African countries, reveals that high levels of external debt and unstable debt levels (volatility) hinders economic growth. Further finding shows that good governance can lessen the negative impact of debt on economic growth. Hence, they posited that SSA countries should avoid excessive borrowing and focus on domestic investment in order to promote economic growth. They also emphasise the importance of good governance, including political stability, reduced corruption, and sound policies that encourage private sector development. Finally, they stress the need for careful management of borrowed funds to ensure that they are effectivelyutilised for economic growth.
On their part, Ayana, Demissie, and Sore (2023)examines how external debt affects economic growth in 39 Sub-Saharan African (SSA) countries for the period 2011 to 2021 and found that external debt hurts economic growth in both the short -term and the long- term. In the short-term, a 1 percent increase in debt leads to a 0.034 percent decrease in GDP. This effect is even stronger in the long -term, with a 1 percent debt increase leading to a 0.65 percent decline in GDP. The study suggests that SSA countries should be careful about how they use external debt and focus on investing in projects that will create opportunities for further economic growth. Furthermore, they are expected to raise more tax revenue domestically through expanding the tax base

to involve more informal businesses and reduce loopholes that allow people and businesses to avoid paying taxes.
The study by Arjun and Bibhuti Mishra (2024), which investigated the impact of external debt on growth in 18 emerging countries reveals that increase in external debt both negatively and positively affected growth through the different governance indicators. While, improvement in institutional qualities proxy for governance such as control of corruption, voice and accountability and the rule of law exerts positive influence on economic growth, the other governance indicaors such as political instability, government effectiveness and regulatory quality exerts negative impact on economic growth in the 18 emerging economies.

Penzin and Akanegbu (2024) examines the linear relationship using the Autoregressive Distributed Lag (ARDL) model for time-series data and for the panel data counterpart between public debt and economic growth. Threshold regression techniques were used to determine the point at which the public debt/GDP ratio becomes unsustainable. The results indicate that all the linear models have a negative connection. Their findings showthata nonlinear relationship existsbetween debt and economic growth and thatthe points of inflection(threshold where debts becomes unsustainable) for theseWAMZ countries'are 71.9 percent for Gambia, 55.8 percent for Ghana, 91.5 percent for Guinea,83.7 percent for Liberia, 34.45percent for Nigeria, and 38.6 percent for Sierra Leone.Their study suggests that these countries should broaden their economic bases by allocating fund for the development of human capital and infrastructure in order to maximise the long-term benefits of debts.

Mohammed (2025), which examines the effect of external debt on economic growth in 10 selected countries show a positive correlation between externaldebt, government effectiveness and economic growth. A 1 percent increase in government effectiveness results in 94.85 percent increase in economic growth while a 1 percent increase in external debts results in 198.42 percent growth rate in sampled countries. This indicates that government effectiveness has a mediating effect on external debts-growth relationship and thateffective governance would lead to the optimal utilisation of external debts, which can help to stimulate economic growth and achieve sustainable development in these countries.

Another dimension of the extant literature relates to the mitigating impact of governance on external debts. Few studies on these are those of Brida, Ghura, and Idriss (2017); Omotor, Musa, and Elu (2020); Hadji (2024), and Arjun and Bibhuti Mishra (2024). The studies by Brida, Ghura, and Idriss (2017); Ogbonna and Ali (2021), find that depending on the amount and management of debt, certain scenarios may occur, which could have good or bad effects. They posits that responsibledebt

management, characterised by transparency, accountability, and efficient allocation of resources, can unlock growth through investments in critical sectors such as education, healthcare, and infrastructure. Thus, the quality of governance plays a crucial role in how debts are effectively managed and utilised. Furthermore, studies by Omotor, Musa, and Elu (2020) and Hadji (2024) suggest that strong governance can help mitigate the negative consequences of debt by promoting efficient debt management. Effective institutions and transparent fiscal policies help to ensure that borrowed funds are used productively and that debtsare managed sustainably. Conversely, weak governance in controlling corruption, inefficient spending, and a lack of transparency can worsen the negative consequences of debts (IMF, 2020; Nguyen & Luong, 2021).

2.4 Gaps in Extant Literature

From the foregoing review of literature, previous studies on the impact of public debts on macroeconomic performance have not adequately addressed endogeneity concerns. This study fills this identified gap by employing the System Generalized Method of Moments (SGMM) to address endogeneity concerns, which helps to control for unobserved heterogeneity, simultaneity, and dynamic relationships in macroeconomic performance thereby providing a more accurate and robust analysis of the nexus between public debts, governance, and macroeconomic performance in the West Africa. Secondly, previous researches often rely on single measures such as GDP per capita or GDP growth to assess macroeconomic performance of a country. However, these metrics provide a limited view and often do not fully capture the complex interplay of factors affecting economic performance in countries. Inflation, unemployment, exchange rates, and interest rate all play crucial roles in a country's economic health, hence, the need for their inclusion. This study addresses this missing gap by utilising a macroeconomic performance index (a weighted average of five key macroeconomic variables), calculated using the variance weighted scheme method (Bussiere &Fratzcher, 2006). This approach provides a more comprehensive and nuanced understanding of how West African economies are performing amidst high debt burden. Thus, the inclusion of such variables provide a better insights into macroeconomic performances of these countires. Thirdly, no previous studies have examined the interaction between public debt, macroeconomic performance and governance with particular reference to West Africa. This study aims to contribute to the body of knowledge by filling these identified gaps in extant literature.

3. Methodology

This section presents the data used, specifies the model and provides the estimation technique of the study.

3.1 Data

Based on a panel data, the study analyses annual secondary data of 15 West African countries: Benin, Burkina Faso, Côte d'Ivoire (Ivory Coast), Cape Verde (Cabo Verde), The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo from 2000 to 2022. The data used include macroeconomic performance index, computed using the 'variance-weighted scheme' (Bussiere &Fratzcher, 2006), a weighted average of economic growth, unemployment rate, inflation rate, interest rate and exchange rate.
Public debt (DBT) was measured by general government debt measured, Labour force participation rate, was measured by total labour force (% of total population ages 15-64),capital stock was measured by Gross Capital Formation (GCF), trade openness (TO) was measured by total trade (% of GDP), and world governance indicators was measured by the estimates of: control of corruption, government effectiveness, rule of law, political stability, voice and accountability, and regulatory quality. Except for general government gross debt which was accessible from World Economic Outlook (WEO) International Monetary Fund (IMF, 2020, 2021), other data for the variables were obtained from the World Bank's World Development Indicators Database's online edition.

3.2 Model Specification

This study adopts the basic Solow growth model (Mankiw, Romer, & Weil, 1992), which is specified as:

$$Y = AK^{\alpha}L^{\beta} \quad (1)$$

The log-linearised form is given as:

$$lnY = lnA + \alpha lnK + \beta lnL \quad (2)$$

lnA is defined to include debt, governance and trade openness. Hence, the model becomes:

$$Y_{it} = a_0 + \beta_1 K_{it} + \beta_2 L_{it} + \beta_3 DBT_{it} + \beta_4 Gov_{it} + \beta_5 TO + \mu_i + \varepsilon_{it} \quad (3)$$

Y_{it} is replaced with MPI (Macroeconomic Performance Index) as in equation (4) :

$$MPI_{it} = a_0 + \beta_1 K_{it} + \beta_2 L_{it} + \beta_3 DBT_{it} + \beta_4 Gov_{it} + \beta_5 TO + \mu_i + \varepsilon_{it} \quad (4)$$

The estimated models are therefore given as:

$$MPI_{it} = a_0 + \beta_1 MPI_{it-1} + \beta_2 lnGCF_{it} + \beta_3 lnLF_{it} + \beta_4 lnTO_{it} + \beta_5 lnGov_{it} + \beta_5 lnDBT_{it} + \mu_i + \varepsilon_{it} \quad (5)$$

$$MPI_{it} = a_0 + \beta_1 MPI_{it-1} + \beta_2 lnGCF_{it} + \beta_3 lnLF_{it} + \beta_4 lnTO_{it} + \beta_5 lnGov_{it} + \beta_5 lnDBT_{it} + \beta_5 lnDBT * GOV_{it} + \mu_i + \varepsilon_{it} \quad (6)$$

Where: MPI represents the Macroeconomic Performance Index, which is computed using weighted average of inflation, growth rates, unemployment rates, long-term interest rates and exchange rates. The variance-weighted scheme developed by Bussiere andFratzcher, (2006) was used.

The various categories of debtswere introduced sequentially.These includes: total debt as percentage of GDP (DBT), Private debt (PDBT), Long-term debt (LDBT), Multilateral debt (MDBT), Bilateral debt (MDBT), Short-term debt (SDBT) debt services as percentage of export (DBTSEX), and debt services as percentage of GNI (DBTGNI).

Gov represents the simple average of the six world governance indicators (control of corruption, government effectiveness, rule of law, political stability, voice and accountability, and regulatory quality).

Debt*Gov in equation (6) captures the interaction between governance and each of the categories of debt. GCFrepresents gross capital formation, LF representslabour force, while TO is Trade openness.

3.3. Estimation Technique

The study employs panel data estimation techniques, specifically the System Generalized Method of Moments (SGMM) to address endogeneity concerns. The choice of SGMM is motivated by its ability to control for unobserved heterogeneity, simultaneity, and dynamic relationships in macroeconomic performance.

Public debt and macroeconomic performance often go hand in hand: high debt can shape economic outcomes, while a struggling economy might push countries to borrow more. Stronger economies tend to have better institutions, which makes governance a potential endogenous variable. The System GMM (SGMM) tackles this two-way relationship by using lagged values and differences of these variables as internal instruments. This gives a reliable and unbiased results.

West African countries vary widely in their economies, institutions, and debt management approaches, and SGMM accounts for these unique, country-specific differences.

4. Results and Discussion

The estimation results from the System GMM techniqueare presented in Table 1, while the estimation results of the interactions between public debts and governance are shown in Table 2.

Table 1: Regression Results System Generalized Method of Moments (SGMM)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLE	DBT	PDBT	LDBT	MDBT	BDBT	SDBT	DBTSEX	DBTSGNI
L.MPI	0.410***	0.405***	0.401***	0.429***	0.422***	0.392***	0.416***	0.417***
	(0.0546)	(0.0551)	(0.0546)	(0.0541)	(0.0548)	(0.0569)	(0.0543)	(0.0543)
lnGCF	0.0315*	0.0421**	0.0257	0.0301	0.0324	0.0331	0.0311	0.0308
	(0.0191)	(0.0214)	(0.0194)	(0.0191)	(0.0200)	(0.0202)	(0.0197)	(0.0195)
LnLF	0.0833***	0.0866***	0.0679***	0.0651***	0.0768***	0.0701***	0.0816***	0.0812***
	(0.0135)	(0.0147)	(0.0166)	(0.0150)	(0.0147)	(0.0137)	(0.0135)	(0.0136)
LnTO	-0.0136	-0.0207	-0.0191	-0.0339	-0.0232	-0.00382	-0.0140	-0.0160
	(0.0307)	(0.0323)	(0.0307)	(0.0312)	(0.0309)	(0.0316)	(0.0327)	(0.0307)
GOV	0.0867***	0.0950***	0.0820***	0.0653**	0.0716**	0.0588*	0.0831***	0.0833***
	(0.0312)	(0.0325)	(0.0313)	(0.0321)	(0.0333)	(0.0314)	(0.0314)	(0.0314)
LnDBT	-0.00286							
	(0.0135)							
LnPDBT		-0.00117						
		(0.0105)						
LnLDBT			0.0156					
			(0.0104)					
LnMDBT				-0.0450**				
				(0.0185)				
LnBDBT					0.00461			
					(0.00525)			
LnSDBT						0.00718		
						(0.00510)		
LnDBTSEX							0.00205	
							(0.00824)	
lnDBTSGNI								0.00330
								(0.00828)
Constant	-1.271***	-1.328***	-1.355***	-0.770**	-1.236***	-1.151***	-1.259***	-1.241***
	(0.257)	(0.268)	(0.249)	(0.309)	(0.245)	(0.242)	(0.241)	(0.243)
Observations	254	251	254	254	249	231	254	254
Number of c_id	13	13	13	13	13	13	13	13
Wald	242.55	246.99	244.30	250.31	232.97	175.14	240.86	240.65
Sargan_p	0.5274	173.057	0.6736	0.7395	0.6882	0.7900	0.6729	0.6747

Note: Standard errors in parentheses*** p<0.01, ** p<0.05, * p<0.1

The estimation results from the System GMM technique, as presented in Table 1, indicate that the lagged macroeconomic performance index is positive and highly significant across all eight model specifications. This finding suggests a strong persistence of macroeconomic performance over time in West Africa. In practical terms, this implies that the economic conditions of previous periods have a substantial bearing on current macroeconomic outcomes. This result not only validates the adoption of a dynamic panel framework but also underscores the importance of

consistency in policy implementation, as short-term gains may build cumulatively into long-run performance gains.

Among the different categories of public debt examined, multilateral debt (lnMDBT) emerges as the only category with a consistently significant impact on macroeconomic performance.Model 4 shows that multilateral debt has a negative and statistically significant effect on macroeconomic performance in West Africa. In other words, as multilateral debt increases, macroeconomic outcomes tend to get worse. This could be due to the strict conditions, inflexible repayment terms, and limited room for fiscal maneuvering that often come with such loans. These constraints hinder economic growth, especially when the borrowed funds are not directed toward investments that boost productivity. This result is inline with findings from Ayana, Demissie, and Sore (2023) and Brida, Ghura andIdriss (2017), who observed that even though multilateral loans are usually offered on concessional terms, they can have a contractionary effect if not properly targeted.

Long-term debt (lnLDBT) shows a positive coefficient, but the result is not statistically significant. While, the result does not allow for definitive conclusions, the positive sign is indicative of the potential macroeconomic benefits of long-term borrowing in the West African context. This aligns with theoretical propositions that long-term debt-when channelled into infrastructure, education, or productive sectors-can contribute to sustainable growth. However, the lack of significance may reflect structural challenges such as poor investment planning, weak project execution, or low absorptive capacity, which limit the developmental returns of long-term borrowing. Thus, the potential benefits of long-term debt may remain unrealised in the absence of supporting institutional and economic conditions.

The results for other debt indicators-namely the debt-to-GDP ratio (lnDBT), private debt (lnPDBT), bilateral debt (lnBDBT), short-term debt (lnSDBT), and debt service obligations (lnDBTSEX and lnDBTSGNI)-reveal statistically insignificant effects across the various models. While some coefficients are negative, suggesting a possible adverse relationship with macroeconomic performance, the lack of significance points to the heterogeneous nature of debt usage across the region. These results may stem from variations in repayment terms, the transparency of how debts were allocated, or differences in how efficiently the borrowed funds were used. The limited impact of bilateral and short-term debt, could suggest that these forms of debts either have a minimal role in shaping macroeconomic outcomes or their effects are undermined by broader structural issues-such as inefficient investment or unstable policy frameworks. As a result, without strong institutional support, the overall macroeconomic impact of these debt types remains unclear.

Labour force participation (lnLF) consistently shows a positive and statistically significant impact on macroeconomic performance across all model specifications. This indicates the crucial role of human capital in driving economic growth in West Africa. A growing and active workforce directly boosts output, income, and overall productivity. This result also reinforces the Solow growth model, which identifies labour as a key input in the production process. It also resonates with the work of Manasseh et al. (2022), who emphasised that in labour-abundant developing economies, macroeconomic stability is strongly reinforced by effective labour market engagement. As such, improving the skills, inclusiveness, and productivity of the labour force is vital for boosting macroeconomic performance in the region.

Gross capital formation (lnGCF) shows a positive relationship with macroeconomic performance across all models, with statistically significant effects in Models 1 and 2. This suggests that investments in infrastructure and productive assets can contribute to economic stability in West Africa. These issues reflect concerns raised in existing literature-for instance, by Ogunmuyiwa (2011)-about the often limited impact of public investment in low-income economies. To fully harness the growth potential of capital formation, investments must be efficiently allocated, transparently managed, and strategically targeted at high-impact sectors.

Trade openness (lnTO) registers a negative but statistically insignificant effect across all model specifications. This indicates that, as currently structured, increased integration into global trade does not translate into tangible macroeconomic benefits for West African economies. Several factors may account for this outcome, including persistent trade imbalances, low levels of export diversification, and high dependence on primary commodities. These structural weaknesses underates the potential benefits of trade openness and leave economies more vulnerable to external shocks. This finding aligns with the view of Penzin and Akanegbu (2024), who warned that without meaningful institutional reforms and a stronger focus on value-added exports, trade liberalisation could have limited-or negative-macroeconomic effects.
Governance, measured by a composite index of the six World Governance Indicators, consistently emerges as a strong and positive influence on macroeconomic performance across all model estimations. The index is statistically significant at standard confidence levels, indicating that countries with higher institutional quality-characterised by effective governance, adherence to the rule of law, sound regulatory frameworks, and strong anti-corruption measures-tend to experience more favourable macroeconomic outcomes. This finding aligns with the core principles of neo-institutional theory, which underscores the pivotal role of institutions in shaping economic development. It also echoes empirical evidence from Omotor, Musa, and Elu (2020) and Mohammed (2025), both of whom emphasised that stronger

governance not only promotes fiscal sustainability but also reduces the macroeconomic vulnerabilities associated with rising debt levels.

The reliability of the System GMM estimates is supported by the diagnostic tests. In particular, the Sargan statistics for all models yield p-values well above conventional significance levels, suggesting that the instruments used are valid and not over-identified. Furthermore, the Wald test statistics are consistently large and highly significant, confirming that the explanatory variables jointly exert a meaningful influence on macroeconomic performance. Taken together, these diagnostics validate the reliability of the model specification and the credibility of the empirical findings. In summary, the analysis reveals that while not all forms of public debt are detrimental, their effects are contingent on structural characteristics and the institutional context. Multilateral debt appears to constrain macroeconomic performance, whereas long-term debt holds potential benefits-particularly when supported by strong governance. Ultimately, the results underscore the critical role of institutions in mediating the effectiveness of public borrowing and shaping sustainable economic trajectories in West Africa.

Table2: Moderating Role of Governance in the Debt and Macroeconomic Performance Nexus

	1	2	3	4	5	6	7	8
VARIABLES	DBT*GOV	PDBT*GOV	LDBT*GOV	MDBT*GOV	BDBT*GOV	SDBT*GOV	DBTSEX*GOV	DBTSGNI*GOV
L.MPI	0.403***	0.398***	0.348***	0.388***	0.417***	0.384***	0.413***	0.404***
	(0.0554)	(0.0551)	(0.0569)	(0.0551)	(0.0557)	(0.0569)	(0.0545)	(0.0548)
GOV_index	0.0134	-0.00306	-0.782**	0.390***	-0.0347	0.0489	0.0514	0.0567
	(0.129)	(0.0631)	(0.351)	(0.126)	(0.206)	(0.0348)	(0.0517)	(0.0363)
lnGCF	0.0311	0.0370*	0.0299	0.0363*	0.0322	0.0335*	0.0318	0.0328*
	(0.0192)	(0.0216)	(0.0190)	(0.0188)	(0.0200)	(0.0202)	(0.0197)	(0.0195)
LnLF	0.0853***	0.0997***	0.0606***	0.0598***	0.0744***	0.0693***	0.0805***	0.0814***
	(0.0138)	(0.0164)	(0.0165)	(0.0149)	(0.0157)	(0.0139)	(0.0136)	(0.0135)
LnTO	-0.0166	-0.0266	-0.00946	-0.0170	-0.0201	-0.00268	-0.0157	-0.0208
	(0.0312)	(0.0324)	(0.0300)	(0.0310)	(0.0309)	(0.0317)	(0.0328)	(0.0308)
lnDBT	0.00629							
	(0.0206)							
lnDBT*Gov	0.0181							
	(0.0306)							
lnPDBT		0.0263						
		(0.0185)						
lnPDBT*Gov		0.0399*						
		(0.0221)						
LnLDBT			0.0367***					
			(0.0133)					
lnLDBT*Gov			0.0391**					
			(0.0158)					
LnMDBT				-0.0767***				
				(0.0216)				
lnMDBT*Gov				0.0857***				
				(0.0322)				
LnBDBT					0.00883			
					(0.0106)			
lnBDBT*Gov					0.00617			
					(0.0117)			
LnSDBT						0.0127		
						(0.00947)		
lnSDBT*Gov						0.0113		
						(0.0162)		
LnDBTSEX							0.0114	
							(0.0146)	
lnDBTSEX*Gov							0.0143	
							(0.0185)	
LnDBTSGNI								0.0194
								(0.0139)
lnDBTSGNI*Gov								0.0280
								(0.0194)
Constant	-1.325***	-1.562***	-1.770***	-0.661**	-1.286***	-1.151***	-1.261***	-1.250***
	(0.270)	(0.298)	(0.290)	(0.306)	(0.259)	(0.243)	(0.241)	(0.242)
Observations	254	251	254	254	249	231	254	254
Number of c_id	13	13	13	13	13	13	13	13
Wald	243.20	250.30	262.68	267.61	232.40	175.29	241.37	244.57
Sargan_ps	0.5258	0.7302	0.5845	0.7354	0.6401	0.7223	0.6874	0.6898

Note: Standard errors in parentheses*** p<0.01, ** p<0.05, * p<0.1

Table 2 extends the baseline analysis by incorporating interaction terms between public debt categories and the governance, thereby exploring how institutional quality moderates the relationship between debt and macroeconomic performance in West Africa. This approach allows for a deeper understanding of whether good governance can amplify the benefits-or cushion the drawbacks-of different types of public debt. As in the previous models, the lagged dependent variable (L.MPI) remains positive and statistically significant across all specifications, reaffirming the persistence of macroeconomic outcomes and validating the earlier results.

A closer look at model 4 reveals that multilateral debt (lnMDBT) continues to exert a negative and statistically significant impact on macroeconomic performance, which reinforces earlier findings from the baseline model. However, when interacted with governance (lnMDBT*Gov), the relationship shifts meaningfully-the interaction term is positive and highly significant. This implies that the negative impact of multilateral borrowing can be significantly reduced in countries with strong institutional frameworks. Where governance is characterised by transparent budgeting, efficient public administration, and effective oversight, multilateral loans are more likely to be managed responsibly and channeled into strategic areas-minimisingtheir potential macroeconomic downsides. This finding aligns with the work of Omotor, Musa, and Elu (2020)and Hadji (2022), both of whom highlighted the critical role of good governance in maintaining debt sustainability and strengthening resilience to fiscal stress.
Model 3 reveals that long-term debt (lnLDBT) has a positive and statistically significant impact on macroeconomic performance. This suggests that, on its own, long-term borrowing can contribute meaningfully to economic growth. Notably, the interaction term between long-term debt and governance (lnLDBT*Gov) is also positive and significant at the 5 percent level. This indicates that strong institutional quality not only amplifies the benefits of long-term debt but also plays a crucial role in converting such borrowing into tangible development outcomes. In countries with sound governance-marked by accountability, transparency, and effective public management-long-term loans are more likely to be invested in productive sectors such as infrastructure, education, and healthcare, which generate widespread economic gains. This result supports the theoretical arguments of Barro (1990) and North (1990), and aligns with empirical findings from Manasseh et al. (2022), all of whom underscore the importance of institutional context in determining the effectiveness of public borrowing.

In Model 2, the interaction between private sector debt and governance (lnPDBT*Gov) is positive and statistically significant, even though private debt on its own (lnPDBT) is not. This indicates that the impact of private borrowing on

macroeconomic performance is closely tied to the quality of governance. In environments with strong institutional oversight-such as effective regulatory systems, reliable judicial enforcement, and sound financial supervision-private credit is more likely to be directed toward productive activities, rather than speculative or inefficient ventures. This finding shows that governance plays a crucial role not only in managing public debt but also in shaping the broader credit landscape. Strong institutions help ensure that private lending contributes to inclusive and sustainable growth by fostering responsible financial intermediation.

The interaction terms for bilateral debt, short-term debt, and debt service ratios(lnDBTSEX*Gov and lnDBTSGNI*Gov) are statistically insignificant across all relevantmodels, although the coefficients are generally positive. This pattern suggests that while strong governance may help cushion the negative effects of these types of debt, the evidence is not strong enough to draw firm conclusions. In particular, the lack of significance in the debt service interactions indicates that governance alone may not be enough to ease the fiscal strain of repayment obligations-especially when those obligations are externally driven or lack flexibility. These findings point to the limited capacity of institutional quality to offset the risks posed by rigid or short-term debt arrangements. These underscore the importance of not only strengthening governance but also adopting careful debt structuring and risk management strategies to ensure long-term fiscal stability.

Governance (Gov) shows mixed direct effects across the models when included alongside interaction terms. The interation of Multilateral debt and governance shows a positive and statistically significant coefficient, supporting the view that strong institutional quality independently contributes to better macroeconomic outcomes. However,the coefficient turns negative and statistically significant forthe interaction between long-term debts and governance.This contrast resultlikely reflects the influence of significant interaction terms in that specification, suggesting that governance may be functioning more as a moderator-enhancing the effectiveness of other variables-rather than acting as a direct driver of performance in that particular model.This complexity underscores a key insight from the analysis: the influence of governance on economic outcomes is often conditional-it strengthens or weakens the impact of other variables rather than acting in isolation.

The control variables in the interaction models exhibit patterns consistent with those observed in the baseline estimations. Labour force participation (lnLF) remains a strong and statistically significant contributor to macroeconomic performance across all models, with coefficients ranging between 0.0598 and 0.0997. This reinforces the central role of human capital and employment in sustaining economic activity in the region. Gross capital formation (lnGCF) also retains its positive influence, showing

statistical significance in several models at the 10 percent level, which highlights the enduring importance of productive investment. Conversely, trade openness (lnTO) continues to yield negative and insignificant coefficients, suggesting that existing trade structures and strategies in West Africa may be insufficient in leveraging external integration for economic gain-likely due to ongoing issues such as weak export diversification and susceptibility to external shocks.

The diagnostic results lend further credibility to the interaction model estimations. Sargan test p-values range between 0.52 and 0.73, confirming that the instruments used in the SGMM framework are valid and not over-identified. Similarly, the Wald statistics are large and highly significant across all models, affirming that the explanatory variables collectively exert a meaningful influence on macroeconomic performance. Taken together, these diagnostics reinforce the robustness of the empirical strategy.

The findings from the interaction models underscore the critical role of governance as a moderating factor in the debt-macroeconomic performance nexus. While certain forms of debt-particularly multilateral and long-term borrowing-carry significant macroeconomic implications, their effects are shaped by the quality of institutions. Strong governance not only cushions against the risks associated with external borrowing but also amplifies the developmental gains from strategic debt use. This highlights the importance of embedding institutional reforms within debt management strategies, particularly in regions like West Africa where structural vulnerabilities persist.

5. Conclusion and Policy Recommendations

This study examined the relationship between public debt and macroeconomic performance in West Africa, with a particular focus on the moderating role of governance. Using panel data from 15 countries over the period 2000 to 2022 and applying the dynamic System GMM estimation technique, the research unravels important insights into how various types of debt interact with institutional quality to shape economic outcomes.The findings suggest that the impact of debts on macroeconomic performance varies by type. Multilateral debt, for instance, consistently has a negative effect- likely due to the strict repayment terms and policy conditions often attached to such loans. On the other hand, long-term debt appears to support economic performance, particularly in contexts where governance is strong and institutions can ensure efficient use and oversight of borrowed funds.Governance stands out as a crucial factor in determining how debt influences the economy. Countries with sound institutional frameworks are better equipped to manage debt responsibly, limit fiscal vulnerabilities, and convert borrowing into productive

investment. In addition, the study underscores the continued importance of labour force participation and capital formation in driving economic resilience.

The following policy recommendations based on the empirical findingsare given:

i. West African governments should strategically restructure their debt portfolios by prioritising concessional and long-term financing over short-term or multilateral loans that often come with restrictive conditions. Borrowing should be purpose-driven, to target infrastructure, human capital, and sectors that boost productivity to enhance long-term fiscal and economic sustainability.

ii. the need to embed governance improvements within debt and fiscal policy frameworks. Strengthening transparency, accountability, and institutional effectiveness is not merely a best practice-it is essential to ensure that public borrowing translates into tangible economic gains and are managed responsibly.

iii. governments should invest in strengthening local capacity for debt planning, risk assessment, and sustainability analysis. Establishing context-specific debt thresholds- grounded in each country's economic realities and absorptive capacity-can help prevent excessive and poorly managed borrowing.

iv. regional bodies such as ECOWAS and international financial institutions should play a more active role in promoting regional and institutional coordination through fostering knowledge sharing, advancing debt transparency initiatives, and designing institutionally grounded fiscal rules. A coordinated regional response can helpcultivate a more resilient and governance-conscious debt landscape across West Africa.

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