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External Debt and Economic Growth Nexus in ECOWAS Countries: Moderating Effect of Governance

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Abstract

The impact of external debt on economic growth remains a pivotal yet unresolved question for developing economies, particularly in the ECOWAS region. This study argues that the quality of governance is the key to unlocking this puzzle. While external debt can be a catalyst for development, its benefits are often contingent on the institutional environment in which it is managed. To investigate this dynamic, we employ the Cross-Sectionally Augmented Autoregressive Distributed Lag (CS-ARDL) model—a method chosen for its robustness in handling the statistical challenges of panel data, such as cross-sectional dependence. Our analysis of ECOWAS nations from 2000 to 2023 yields two central findings. First, we confirm a nonlinear relationship, consistent with the Debt Laffer Curve, where moderate debt supports growth, but excessive debt becomes detrimental. Second, and more significantly, we find that governance quality critically moderates this relationship. Strong institutions not only enhance the positive effects of debt but also act as a buffer, mitigating associated risks like macroeconomic instability and exchange rate volatility. Conversely, weak governance exacerbates the downsides of borrowing. These findings underscore that effective debt management is inextricably linked to institutional reform. ***We therefore contribute to the literature*** *by providing empirical evidence of how governance mechanistically shapes the debt-growth nexus, offering actionable insights for policymakers aiming to harness debt for sustainable development in West Africa.*

Keywords: External Debt, Economic Growth, Governance, ECOWAS, and CS-ARDL

JEL Classifications: H6, C510, and E1

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Introduction

External debt serves as a crucial instrument for financing development, especially in regions where domestic resources fall short of the investment requirements (Mugobera & Mahebe, 2024; Sethi, 2014). In developing economies, external borrowing can provide vital capital for infrastructure, human capital development, and economic

diversification, thereby stimulating long-term growth (Arjun & Mishra, 2024). However, the relationship between external debt and economic growth remains complex. While prudent debt management can catalyze economic expansion, excessive borrowing or fiscal mismanagement may precipitate debt distress, crowding out productive investments and hindering growth (Ogonegbu & Kagwaini, 2025; Edo et al., 2020).

This paradox is particularly pronounced in the Economic Community of West African States (ECOWAS), where member states frequently rely on external debt to address fiscal and current account deficits (Ali et al., 2025). Between 2020 and 2024, the region's average debt-to-GDP ratio surged from 56.1% to 71.2%, reflecting heightened post-pandemic borrowing and persistent revenue shortfall. Notably, in 2024, countries such as Cape Verde (158%), Ghana (95%), and The Gambia (95%) now face acute debt sustainability risks, while larger economies such as Nigeria (53%) and Côte d'Ivoire (60%) grapple with rising servicing costs amid sluggish growth (IMF 2024; AfDB 2023). Despite these fiscal pressures, ECOWAS economies continue to experience subdued growth rates (averaging 3.5% in 2023 against 5.1% pre-pandemic), raising critical questions about the efficiency of debt utilization and the role of governance in mediating its impact.

A key factor explaining this disparity is that governance quality encompasses institutional robustness, transparency, and the rule of law (Gollagari & Perini, 2024). Strong governance frameworks ensure that borrowed funds are allocated productively, corruption is mitigated, and debt-financed investments lead to sustainable growth. Conversely, weak governance exacerbates the risk of fund misappropriation, as seen in Nigeria's opaque debt management practices (Transparency International, 2023) and Ghana's pre-restructuring fiscal imbalances (World Bank, 2023), undermining the growth potential of external debt (Abille & Kiliç, 2023).

The literature on the debt-growth nexus has been divided. Some studies posit that excessive debt stifles economic performance by crowding out private investments, escalating debt servicing costs, and amplifying macroeconomic vulnerabilities (John et al., 2022; Dogan & Bilgili, 2014). For instance, ECOWAS nations spent over 25% of their revenues on debt servicing in 2023 (IMF, 2024), diverting resources from critical sectors such as health and education. Conversely, another perspective highlights the growth-enhancing potential of debt when deployed under stable macroeconomic conditions, such as favorable exchange rates and concessional borrowing terms (Manasseh et al., 2022; Kiss, 2022). The third strand identifies a nonlinear threshold effect, wherein debt initially supports growth but becomes detrimental beyond a critical level, particularly in contexts marked by weak governance and macroeconomic instability (Adekunle et al., 2021; Yusuf & Mohd, 2023). Despite these insights, empirical inconsistencies persist, with some studies rejecting nonlinearity and emphasizing the primacy of institutional and policy frameworks (Asafo et al., 2019; Epaphra & Mesiet, 2021).

Methodologically, existing cross-country studies often overlook cross-sectional dependency (CSD), a critical oversight given ECOWAS's economic integration, policy harmonization, and regional spillover effects (Daud, 2020; Mensah et al., 2018). For example, the Union Économique et Monétaire Ouest Africaine (UEMOA) or West African Economic and Monetary Union, bloc debt ceiling (70% of GDP), and Nigeria's dominance (70% of ECOWAS GDP) create interdependencies that conventional models ignore. To address this gap, this study employs the Cross-

Sectionally Augmented Autoregressive Distributed Lag (CS-ARDL) approach, which accounts for cross-sectional dependence while capturing both short- and long-run relationships among external debt, governance, and growth. By integrating governance as a moderating variable and employing CS-ARDL, this study offers robust empirical insights into how ECOWAS nations can harness external debt for growth while reinforcing governance structures.

The findings contribute to the ongoing debate on sustainable debt management and provide actionable policy recommendations for ECOWAS policymakers, particularly in light of the region's 71.2% average debt-to-GDP ratio in 2024. The remainder of this paper is structured as follows: Section 2 reviews the theoretical and empirical literature, Section 3 outlines the methodology, Section 4 presents the results, and Section 5 concludes with policy implications.

Literature Review

Theoretical Review

The relationship between external debt and economic growth has been explored through various theoretical lenses. This study integrates three key theories to provide a comprehensive understanding of this nexus: debt overhang, debt averse curve, and institutional theories. The selection of these theories is based on their complementary perspectives. The Debt Overhang and Debt Laffer Curve theories explain the direct economic mechanisms linking debt to growth, while Institutional Theory provides a contextual framework that determines how these mechanisms operate under different governance conditions.

Debt Overhang Theory

Originally developed by Krugman (1988) and Sachs (1989), the Debt Overhang theory posits that excessive external debt can hinder economic growth by discouraging both public and private investments. The rationale is that, when a country's debt burden becomes unsustainable, creditors and investors anticipate future tax increases or resource diversion for debt servicing, thereby reducing the incentive for productive capital accumulation. This creates a disincentive for domestic firms to invest, as they expect higher future taxation, whereas foreign investors may perceive the economy as high-risk, leading to capital flight.

This theory is particularly relevant to this study because it explains why high debt levels can stifle economic growth, particularly in countries with weak fiscal discipline and poor governance. In such a context, the expectation of future repayment burdens exacerbates economic stagnation, reinforcing a vicious cycle of low investment and sluggish growth.

Debt Laffer Curve

The Debt Laffer Curve, introduced by Claessens (1990) and later expanded by Cohen (1993), suggests a nonlinear relationship between external debt and economic growth. According to this theory, moderate levels of external debt may support growth by financing critical infrastructure, human capital development, and technological advancement. However, beyond a certain threshold, additional debt becomes

counterproductive, leading to diminishing returns and eventually negative growth effects.

The implication of this theory is twofold. First, there exists a debt level beyond which servicing costs outweigh the benefits, making debt harmful rather than beneficial. Second, identifying this threshold is crucial for debt sustainability, which requires strong institutional mechanisms to monitor and manage borrowing.

This theory is essential to this study because it helps explain why some countries benefit from borrowing, while others experience debt-induced growth collapse. It also underscores the need for prudent debt management policies to avoid crossing the detrimental debt thresholds.

Institutional Theory

Pioneered by Douglass North (1990) and further developed by Acemoglu and Robinson (2012), Institutional Theory argues that long-term economic growth is fundamentally shaped by the quality of a country's formal and informal institutions rather than purely economic factors. Institutions, defined as the "rules of the game, determine the incentives for investment, innovation, and productivity. Key institutional factors include property rights protection (encouraging investment), the rule of law and contract enforcement (reducing uncertainty), political stability and governance quality, and regulatory frameworks (promoting competition and efficiency).

In the context of external debt, Institutional Theory suggests that countries with strong institutions are better positioned to manage debt effectively, avoid over-borrowing, and ensure that borrowed funds are allocated efficiently. Conversely, weak institutions may lead to debt mismanagement, corruption, and rent seeking, exacerbating debt distress.

This study synthesizes the three foundational theories reviewed to construct a theoretical framework for examining the debt-growth nexus, bearing in mind the moderating role of governance.

Debt overhang theory establishes the fundamental premise that excessive debt generates disincentives for productive investment, creating a baseline negative effect on economic growth. This theory explains the pathways through which unsustainable debt levels crowd out critical public and private investment. Furthermore, the debt Laffer curve theory introduces crucial nonlinearity to the analysis, demonstrating that the relationship between debt and growth follows a threshold-dependent pattern. This framework accounts for varying optimal debt levels across economies and explains the point at which debt accumulation transitions from growth-enhancing to growth-constraining. Lastly, institutional theory provides a critical governance dimension, elucidating why debt impacts diverge significantly across countries with similar debt levels but differing institutional quality. This perspective highlights how governance structures, policy frameworks, and institutional capacity mediate the effectiveness of debt utilization.

The integration of these theoretical perspectives provides a better understanding of the debt growth nexus in ECOWAS countries, and by incorporating governance, this framework offers better insights into the paradoxical outcomes observed across highly indebted economies. While some succumb to debt distress, others maintain

growth trajectories through effective institutional quality and prudent debt management practices.

Empirical Review

A robust and evolving body of international research has converged on critical insight into the relationship between external debt and economic growth, which is fundamentally filtered through the prism of governance. The longstanding debate on whether debt is a catalyst for development or a drag on growth is increasingly being resolved by introducing institutional quality as a decisive intervening variable. The emerging consensus suggests that the pivotal question is not *if* a country borrows but *how well it is governed* when it does.

This contingent relationship is evident in diverse groups of countries. Foundational studies by Daud (2020) and Hassan and Meyer (2021) established that while external debt often has a net negative effect on growth in developing and highly indebted poor countries, this outcome is not inevitable. Their work demonstrated that institutional quality acts as a critical threshold; only when governance standards surpass a certain level does external debt begin to positively contribute to growth. This theme has been powerfully echoed and extended in recent studies. Udoh et al. (2023), in a study of 45 SSA countries, reinforced this using a dynamic threshold model, finding that the "debt tolerance" of an economy, the point at which debt becomes harmful, is significantly higher in countries with strong control of corruption and political stability. Similarly, Abdelqader et al. (2024) examined MENA and SSA nations and concluded that the debt-growth relationship is conditional on a "composite institutional quality index," where only countries above the median institutional score experience positive growth effects from borrowing.

The theme of institutional contingency was further refined within the African context. Research by Mensah et al. (2018) and later by Mugobera and Mahebe (2024) and Manasseh et al. (2022) across various sub-Saharan African panels robustly confirms that the efficacy of debt is institution-dependent. Sound governance acts as a necessary condition, transforming potential debt burdens into productive investments, whereas poor governance systematically negates any potential benefits. The specific institutional pillars identified as crucial bureaucratic qualities, government effectiveness, and rule of law (Arjun & Mishra, 2024) highlight that the state's everyday functioning determines debt outcomes. A recent study by Bakari and Tiba (2024) delves deeper into these mechanisms, arguing that good governance enhances "fiscal multipliers" of public investments funded by debt, ensuring that spending translates into productive capital stock rather than being diluted by inefficiency and rent seeking.

The plot thickens when the *nature* of the relationship is considered. While some regional studies, such as Ouedraogo's (2015) work on WAEMU economies, argue for a nonlinear Debt Laffer Curve effect, others, such as Kourtellos et al. (2013), present a different nuance. Their findings suggest that governance does not merely moderate a curve but can also act as a strict gateway; below a certain institutional threshold, debt is harmful, but above it, the negative effects vanish. This indicates that strong institutions may not just optimize the returns of debt but can potentially create a context in which traditional risks are neutralized. Recent findings from South Asia by Farooq et al. (2024) and a broad panel of EMEs and LICs by Gaiya et al. (2024) further

support this view, showing that governance can actively mitigate the adverse effects of debt. A particularly intriguing complexity is added by Amoh et al. (2024), whose finding of asymmetric effects where debt reductions harm growth more than expansions helps introduce a potential "debt trap" dynamic, even in the absence of direct governance variables in their model. This underscores the painful adjustments faced by highly indebted and poorly governed nations.

Beyond growth metrics, the literature also reveals the role of governance in how debt impacts broader development and management efficacy. Dinga et al. (2025) show that external debt can undermine human development outcomes, a finding complemented by Amponsah et al. (2023), who find that high debt levels crowd out social spending on health and education, but that this effect is markedly worse in countries with low governance scores. Furthermore, country-specific analyses such as Daud and Podivinsky (2014) in Malaysia stress that institutional quality must surpass a clear level for debt to be growth-enhancing. Ultimately, the thread connecting macro-level outcomes with policy execution is the role of governance in debt management. Studies by Melecky (2012) and comparative work by Muhanji and Ojah (2011) conclude that accountability, transparency, and robust policy frameworks are not negotiable to ensure that borrowed funds are managed effectively rather than squandered. A recent study by Chen et al. (2024) introduces a novel angle, demonstrating that countries with higher fiscal transparency scores benefit from lower sovereign bond spreads, effectively reducing the cost of borrowing and making debt more sustainable from the outset.

In synthesis, literature leaves little doubt that governance is the linchpin of the debt-growth paradox. Evidence has evolved from establishing a simple correlation to identifying specific transmission channels and threshold effects. However, a significant methodological shortcoming pervades many of these otherwise influential studies: the failure to adequately account for cross-sectional dependence. In regionally integrated areas, such as ECOWAS, economic shocks, policy diffusion, and common global factors create interdependencies that, if ignored in standard GMM or panel threshold models, can lead to biased and inconsistent estimates. Therefore, this study seeks to build upon this solid foundational literature by applying a methodological approach: the Cross-Sectionally Augmented Autoregressive Distributed Lag (CS-ARDL) model explicitly designed to address this limitation. By doing so, we aim to provide more robust, efficient, and regionally specific insights into how governance shapes the debt growth dynamics in West Africa, offering a clearer guide for policymakers to navigate the treacherous waters of external finance.

Methodology

Sources of Data

This study used balanced panel data with 299 observations covering the period 2000–2023 for 13 ECOWAS countries: Burkina Faso, Cote d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo. Table 1 provides an overview of the data sources, their measurements, and the expected sign.

Table 1. Summary of Data Sources and Variable Measurement

Definition	Variable	Measurement	Unit	Expected Sign	Source
Economic growth	EG	Real GPD per capita (annual growth rate %)	Percentage	DV	WDI
External debt	EXD	External debt stock (% GDP)	Percentage	+	WDI
Interest rate	IR	Real interest rate	Percentage	-	WDI
Exchange rate	EXR	Real exchange rate	USD	-	WDI
Governance	GOV	PCA was used to construct an index for Governance, which includes (Government effectiveness, Control of corruption, Voice and accountability, regulatory quality, rule of law, and political stability)		+	WGI

Source: Authors' construct.

Tools of Data Analysis

This study employs the Cross-sectionally Augmented Autoregressive Distributed Lag (CS-ARDL) model to examine the relationship between external debt and economic growth across ECOWAS member states, in line with Chudik and Pesaran (2015). As an advanced extension of the traditional ARDL framework, the CS-ARDL estimator addresses key econometric challenges, including cross-sectional dependence, mixed-order variable integration, and endogeneity, while simultaneously estimating short- and long-run coefficients. Unlike the conventional panel models, the CS-ARDL approach does not rely on fixed or random effects. Instead, it incorporates the cross-sectional averages of both the dependent and independent variables, which serve as proxies for unobserved common factors. This modification enhances the robustness of the model by mitigating slope heterogeneity and weak exogeneity biases, particularly when lagged dependent variables are included. Additionally, the use of lagged cross-sectional averages further minimizes endogeneity concerns, ensuring more reliable parameter estimates. Moreover, the choice of the CS-ARDL model is based on the fact that it strengthens the link between theory and empirics by being honest about the data's limitations**.** It does not assume a perfect and clean world. Instead, it starts from the premise that data are "dirty", interconnected, trending, and heterogeneous, and its methodological design is built to clean that data and isolate the fundamental theoretical relationship you are trying to test. In this case, the debt growth nexus in the ECOWAS countries is.

It also provides empirical results that provide a credible and robust reflection of the underlying theory. If a relationship holds under the rigorous conditions imposed by CS-ARDL, confidence that the theory is correct is substantially higher.

The baseline CS-ARDL model specification, adopted from Chudik and Pesaran (2015) with little modification, is expressed as follows:

$$y_{it} = \sum_{J=1}^{k_y} \varphi_{i,J} + y_{i,t-1} + \sum_{J=0}^{k_x} \beta'_{i,J}\, x_{i,t-1} + \sum_{J=0}^{k_z} \delta_{i,J} + \bar{z}_{t-1} + \alpha_i + \omega_i \tau + \varepsilon_{i,t} \qquad (1)$$

where i = 1, 2, ...,13 stands for the country; t = 1, 2, ..., 23 for the time period; y for economic growth (EG) and x for the vector of explanatory variables including the

main variable of interest, which is public debt (debt); as well as control variables including exchange rate (EXR), interest rate (IR), governance (GOV), and the interactive terms (EXD*GOV, IR*GOV, and EXR*GOV). Similar to other studies (Kostarakos, 2021; de Mendonca and Brito, 2021), all variables except for governance are transformed into their logarithmic form.

In equation 1, the vector

$$\bar{Z} = (\bar{y}_t, \bar{x}_t)' = N^{-1}\sum_{j=1}^{N} y_{it}, N^{-1}\sum_{j=1}^{N} x_{it} \quad (2)$$

proxies the common correlated factors, while the set of parameters δ refers to the country-specific factor, α_i to the country-specific intercept, ɾ to the linear time trend, and ε_{it} denotes the error term. In addition, the set of parameters φ, ω, β, and δ is are heterogeneous coefficient randomly distributed around a common mean with unit-specific noise.

Following Ditzen (2021), Equation 1 can be rewritten in error-correction (EC) form:

$$\Delta y_{i,t} = \varrho_i\left[y_{i,t-1} - \bar{z}_{t-1}\theta_i - \alpha_i^1 - \omega_i t\right] + \sum_{j=1}^{k_{y-1}} \varphi_{i,J}\,\Delta_J y_{i,t-1} + \sum_{J=0}^{k_{x-1}} \beta'_{i,J}\,\Delta_J x_{i,t-1} + \sum_{J=0}^{k_z} \delta_{i,J}\,\Delta_J \bar{z}_t + \varepsilon_{i,t} \quad (3)$$

The parameter φ and the set of parameters β represent the short-run effects, whereas the long-run coefficients are provided as follows:

$$\theta_i = \frac{\sum_{j=0}^{k_x} \beta_{i,j}}{1 - \sum_{j=1}^{k_y} \varphi_{i,j}} \quad (4)$$

The error-correction term, which is denoted by ϱ_i, indicates an adjustment of short-term disequilibrium towards long-run equilibrium after an economic shock.

This study adopted a systematic five-phase analytical approach to investigate the debt-growth nexus. The empirical investigation began by examining cross-sectional dependencies among panel units through Pesaran's (2015) CD test, which verified significant interdependence across economies. Building on these findings, we evaluated the stationarity properties of the variables using Pesaran's (2007) second-generation CIPS unit root test, a methodology specifically designed to accommodate cross-sectionally correlated data. Having established the integration properties of the series, we implemented Westerlund's (2007) cointegration framework to test for the presence of stable long-run equilibrium relationships. The final stage of the analysis employed the robust CS-ARDL estimator to simultaneously capture both short-term adjustments and long-term relationships, which is particularly suited to address the challenges of cross-sectional dependence and parameter heterogeneity inherent in panel datasets. However, to check for the debt threshold, a squared term of external debt (EXD^2) was introduced in the model.

Results and Discussion

Descriptive statistics provide a crucial first look at the macroeconomic landscape of the ECOWAS countries from 2000 to 2023, revealing patterns of volatility, vulnerability, and institutional challenges that underpin the region's economic experience.

Table 2. Descriptive Statistics

Variables	Economic Growth	External Debt	Exchange rate	Interest rate	Governance
Obs.	299	299	299	299	299
Mean	3.779	79.423	4.886	13.257	-0.644
Std. Dev	4.297	69.553	1.877	6.227	0.609
Min	-29.999	4.851	-3.239	2.947	1.957
Max	28.417	384.580	7.268	37.210	0.876
Kurtosis	11.183	8.238	3.96	3.575	3.102

Source: Authors' computation using STATA.

Economic Growth (EG): The average growth rate of 3.78% is modest and aligns with the "subdued growth" narrative mentioned in the introduction, especially when compared to the pre-pandemic average of 5.1%. However, the most telling feature is extreme volatility, with a standard deviation of 4.30 and, range from -29.999% to 28.417%. This high volatility, coupled with a kurtosis of 11.18 (indicating a heavily tailed distribution), points to frequent and severe boom-bust cycles. These cycles are characteristic of poverty-dependent economies that are susceptible to external shocks, political instability, and inconsistent policy environments, which are central to this study. The negative minimum value underscores the fact that deep recessions are not uncommon in the region, highlighting its economic fragility.

External Debt (EXD): The mean external debt stock of 79.42% of GDP is a cause for significant concern, sitting well above the commonly cited 60% threshold for emerging economies and approaching an ECOWAS/UEMOA ceiling of 70%. The maximum value of 384.58% is an extreme outlier, likely reflecting a specific country-year of acute crisis (e.g., Cabo Verde in a particular year). A high standard deviation (69.55) indicates vastly different debt burdens across countries and times. This heterogeneity is critical as it suggests that a "one-size-fits-all" debt policy for ECOWAS is inappropriate; some nations are in debt distress, while others have more fiscal space. This variability directly justifies the use of an econometric model, such as CS-ARDL, that can account for such cross-country differences.

Exchange Rate (EXR): The negative minimum value for the real exchange rate (-3.239) is particularly revealing. This suggests periods of severe currency overvaluation or crisis, when the official exchange rate diverged dramatically from its fundamental value. Such episodes, often preceding or coinciding with balance of payments crises, create massive macroeconomic distortions. The moderate standard deviation (1.877) around the mean (4.886) should not be mistaken for stability; it masks these sharp, disruptive corrections, which are highly detrimental to growth, as confirmed by the negative coefficient in the long-run CS-ARDL results.

Interest Rate (IR): The average real interest rate of 13.26% is exceptionally high, reflecting the premium demanded by investors for the elevated risks in the region, including inflation volatility, default risk, and weak financial sectors. The wide dispersion (from 2.95% to 37.21%) indicates starkly different monetary policy stances and financial market conditions across the bloc. Persistently high interest rates crowd

out private investment and increase government debt servicing costs, creating a vicious cycle that stifles growth, a dynamic that our regression results strongly support.

Governance (GOV): Perhaps the most informative statistic is the mean governance index of -0.64. Constructed from World Governance Indicators, this negative value unequivocally confirms that the average institutional quality of the sample is weak. The narrow range (from -1.957 to 0.876) indicates that no country in the sample consistently achieves "strong" governance by global standards, and most clusters are in the low-to-medium quality band. This directly contextualizes the study's core argument that the region's growth and debt challenges are fundamentally intertwined with a pervasive governance deficit. The significant kurtosis (3.102) further suggests that most observations are clustered around this weak meaning with few positive outliers.

Table 3. Pairwise Correlation Analysis

Summary	Economic Growth (EG)	External Debt (EXD)	(EXR) Exchange Rate	Interest Rate (IR)	Governance (GOV)
Economic Growth	1				
External Debt	0.020	1			
Exchange rate	-0.215	-0.107	1		
Interest rate	0.039	0.460	-0.268	1	
Governance	0.020	-0.010	-0.127	-0.028	1

Source: Authors' computation using STATA.

Correlation analysis reveals that external debt (EXD) and interest rates (IR) have a moderate positive relationship (0.460), suggesting that higher debt correlates with higher borrowing costs. Economic growth (EG) shows a weak negative link with exchange rates (EXR) (-0.215), implying that currency depreciation may slightly hinder growth, whereas governance (GOV) displays negligible correlations with all variables. Most of the other relationships were weak or insignificant, indicating limited linear associations in this dataset.

Conventional panel cointegration approaches and first-generation unit-root tests may yield biased results when cross-sectional dependence exists among panel variables. To address this issue, we first examine whether cross-sectional dependence (CD) exists using the test proposed by Pesaran (2015). This step is crucial for selecting the appropriate panel unit root test and estimation methodology. The CD test results reported in Table 4 strongly reject the null hypothesis of cross-sectional independence for all variables, confirming significant dependence across sections in the dataset.

Table 4. Pesaran Test for Cross-Sectional Dependency

Variables	CD test	P-Value
Economic growth	2.722***	18.411***
External debt	10.801***	16.524***
Exchange rate	13.233***	13.233***
Interest rate	13.922***	29.857***
Governance	4.368***	7.668***

***, **, * show the significance level at 1%, 5% and 10%, respectively.

Source: Authors' computation using STATA.

Cross-sectional dependence can lead to slope heterogeneity within the panel. To account for this, we test the null hypothesis of slope homogeneity using Pesaran and Yamagata's (2008) method. As shown in Table 5, the null hypothesis of slope homogeneity was strongly rejected at the 1% significance level, confirming the presence of slope heterogeneity across the panel units.

Table 5: Result of Slope Heterogeneity Analysis

Statistics	Test Value	P-value
Delta tilde	5.411***	0.000
Adjusted Delta tilde	6.442***	0.000

*** show the significance level at 1%.
Source: Authors' computation using STATA.

In Table 6, the second-generation unit root tests using Cross-sectional Im-Pesaran-Shin (CIPS) and Cross-sectional Augmented Dickey-Fuller (CADF) show that most variables are stationary at level I (0). However, Economic growth is non-stationary at level I (0) but becomes stationary after taking its first difference, I (1), as indicated by the CADF test. This mixed order of integration, in which most variables are stationary at the level and one variable requires first differencing, necessitates a panel cointegration test to examine the long-run relationship among the variables.

Table 6: Second Generation Unit Root Test

Variables	CIPS		CADF	
	I (0)	I (1)	I (0)	I (1)
Economic Growth	-2.580***	-------	-1.247	-3.087***
External debt	-3.452***	-------	-2.880***	-------
Exchange rate	-3.316 ***	-------	-2.737***	-------
Interest rate	-3.135***	-------	-2.500**	-------
Governance	-5.850 ***	-------	-3.796***	-------

***, **, * show the significance level at 1%, 5% and 10%, respectively.
Source: Authors' computation using STATA.

The concluding phase of our preliminary analysis examined the potential cointegration among the study variables. The Westerlund (2007) cointegration test results presented in Table 7 demonstrate statistically significant evidence of a stable long-run relationship, as indicated by the rejection of the null hypothesis of no cointegration at the 5% significance level.

Table 7. Westerlund Cointegration Test

Statistic	Value	value	value
G_t	-3.180***	-5.188	0.000
G_a	-11.443**	-1.997	0.015
P_t	10.120**	-4.313	0.000
P_a	10.869***	-3.466	0.000

*** and ** indicate statistical significance at the levels of 1% and 5%, respectively.
Source: Author's computation using STATA.

Following the confirmation of cointegration among the variables, we employ the Cross-Sectionally Augmented Autoregressive Distributed Lag (CS-ARDL) model to examine both the short-run adjustments and long-term equilibrium relationships. This

approach is particularly suited to our analysis, as it addresses cross-sectional dependence and slope heterogeneity while providing efficient estimates of dynamic relationships.

Table 8. CS-ARDL Estimation Results with Common Correlated Effect and Moderator

Variables	(1)	(2)	(3)	(4)
Long-run results				
External debt (EXD)	0.216***		0.083**	0.499**
	(0.02)		(0.021)	(0.013)
External debt squared (EXD^2)	-0.142***			
	(0.01)			
Exchange rate (EXR)	-0.232**	-0.639**		-0.570**
	(0.168)	(0.000)		(0.000)
Interest rate (IR)	-0.016*	-0.233**	-0.306**	
	(0.024)	(0.032)	(0.002)	
Governance (GOV)	0.105***			
	(0.047)			
EXD*GOV		0.168***		
		(0.801)		
EXR*GOV			-0.630*	
			(0.018)	
IR*GOV				-0.218**
				(0.056)
Short-run results				
External debt (EXD)	0.147***			0.377**
	(0.003)			(0.234)
External debt squared (EXD^2)	-0.213***			
	(0.12)			
Exchange rate (EXR)	-0.246**	-0.129*	-0.959*	-0.011***
	(0.217)	(0.082)	(1.260)	(0.001)
Interest rate (IR)	-0.009**	-0.001**	-0.025**	
	(0.022)	(0.017)	(0.018)	
Governance (GOV)	0.016***			
	(0.001)			
EXD*GOV		0.003**		
		(0.032)		
EXR*GOV			0.396**	
			(0.009)	
IR*GOV				-0.131***
				(0.211)
ECT (-1)	-0.721***	-0.701***	-0.69***	-512***
	(0.147)	(0.231)	(0.312)	(0.162)
F - Statistic	4.67***	4.12***	3.12***	5.06***
Adjusted R^2	0.68	0.72	0.69	0.71
CD P-value	0.296	0.321	0.232	0.423

*** and ** indicate statistical significance at the levels of 1% and 5%, respectively.
Source: Author's computation using STATA.

The core finding of this study is the significant yet complex long-run relationship between external debt and economic growth in ECOWAS countries, a relationship whose ultimate impact is critically mediated by the quality of governance. The initial positive coefficient for external debt (EXD = 0.216) indicates that, on average, a 1% increase in the external debt-to-GDP ratio is associated with a 0.216% increase in economic growth. This finding supports the "productive debt hypothesis," suggesting

that ECOWAS nations can, on average, use debt to finance beneficial investments in infrastructure, human capital, and technology.

However, this positive effect was neither linear nor automatic. The most definitive finding of our analysis is the statistically significant and negative coefficient for the squared debt term (EXD2 = -0.142). This is essential evidence for the Debt Laffer Curve hypothesis, confirming that the relationship between debt and growth is nonlinear and concave. The positive sign of EXD and the negative sign of EXD2 together reveal that, while moderate debt enhances growth, there are diminishing marginal returns, and beyond a specific tipping point, additional debt accumulation becomes harmful. By calculating this threshold from the coefficients, we find that the turning point occurs at a debt-to-GDP ratio of approximately 76.1%. This implies that for the ECOWAS region as a whole, the growth benefits of debt are maximized below this level, while exceeding it pushes economies into a "debt distress zone" where the burdens of servicing the debt outweigh its initial benefits.

However, the most critical insight is that the threshold of 76.1% is not fixed. It is powerfully conditioned by governance, as demonstrated by the positive and highly significant coefficient of the interaction term EXD*GOV (0.168). This provides direct empirical validation of the Institutional Theory framework. This implies that the growth return from each additional unit of debt is amplified in countries with better governance. For instance, in a country with strong institutions, the effective growth impact of debt is 0.216 + (0.168 × High_GOV_Score), which is substantially larger than that in a country with weak governance. Consequently, a well-governed nation can likely sustain a higher *effective* debt threshold without falling into distress, whereas a poorly governed nation will hit that detrimental point much sooner. This finding powerfully explains the paradoxical outcomes within ECOWAS: why a country like Ghana (with a debt-to-GDP ratio of 95%) experienced a debt crisis and growth collapse in 2022-2023, while Côte d'Ivoire (with a debt-to-GDP ratio of 60 %) maintained robust growth over the same period. The difference lies not only in the debt level, but also in the quality of institutions that ensure that debt is used for productive public investment rather than being lost to corruption or recurrent expenditure.

Our results on the direct effect of governance (GOV = 0.105) further corroborate the seminal work of Acemoglu and Robinson (2012), confirming that institutions are fundamental determinants of long-term growth trajectories. Effective governance creates a stable environment that attracts complementary private investments, thereby enhancing the productivity of debt-financed public projects.

The negative coefficients for the exchange rate (EXR) and interest rate (IR) align with classical economic theory and the region's recent struggles. The finding that exchange rate depreciation hampers growth (-0.232) is particularly salient, given the sharp currency depreciation witnessed in Nigeria (NGN) and Ghana (GHS) in 2023-2024, which fueled inflation, increased the local currency cost of debt servicing, and eroded purchasing power. The significant interaction terms EXR*GOV (-0.630) and IR*GOV (-0.218) reveal the crucial stabilizing role of governance. The negative coefficient for EXR*GOV* suggests that strong governance mitigates the adverse growth effects of currency volatility. This can be interpreted as well-governed countries being more likely to implement credible monetary policies, hold adequate foreign reserves, and maintain investor confidence, cushions the economy against exchange rate shocks. Similarly, *IR*GOV indicates that in countries with poor governance, high interest rates are particularly damaging, likely due to a weak financial transmission mechanism and

heightened uncertainty. This resonates with the situation in Ghana, where high interest rates failed to curb inflation but severely stifled private sector credit, a symptom of deeper institutional weaknesses in monetary policy credibility.

The short-run results reveal an immediate and potentially riskier picture. The positive but smaller coefficients for external debt (0.147, 0.377) suggest that, while debt can provide a short-term fiscal stimulus, its growth payoff is less certain and potentially unsustainable, as seen in the region's post-pandemic debt surge without commensurate growth.

A highly significant and negative Error Correction Term (ECT) between -0.512 and -0.721 is a robust finding. This indicates that 51–72% of any deviation from the long-run equilibrium is corrected within one year. This surprisingly fast adjustment speed suggests that the ECOWAS economies are reactive but vulnerable. They can quickly rebound from small shocks, but this also implies that negative shocks, such as a sudden stop in capital flows or a commodity price crash, can precipitate rapid downturns. This finding contextualizes the region's volatile growth patterns and underscores the lack of strong structural buffers.

In conclusion, the findings of this study successfully integrate three theoretical pillars. The positive base effect of debt reflects the Solow growth model of capital accumulation. The negative squared term validates the Debt-Laffer curve, demonstrating a clear regional threshold. Crucially, this threshold is not universal, but is conditionally shaped by governance, as per Institutional Theory, which provides an overarching explanation: governance is the linchpin that determines whether external debt becomes a development tool or a distress trigger. The observation period (2000-2023) captures critical moments that weigh these findings. Our results suggest that post-2020 debt accumulation has been less productive than in previous decades, as weak governance structures have been overwhelmed by the scale of borrowing, leading to the current precarious debt situation. By confirming these results, this analysis strengthens the argument that governance is not a peripheral issue, but a central channel through which external debt impacts economic growth in ECOWAS.

Robustness Check

To ensure that our results are not driven by the specific choice of estimator, we conduct a robustness check using the Panel Autoregressive Distributed Lag (PARDL) model estimated using the Pooled Mean Group (PMG) and mean group MG estimators. The results, presented in Table 9, confirm our core findings regarding the nonlinear debt-growth nexus and the positive moderating role of governance.

This analysis employed the Pooled Mean Group (PMG) and Mean Group (MG) estimators as robust validation exercises for the core relationships identified by the CS-ARDL model. According to the insignificant Hausman test, the PMG estimator assumes that the long-run equilibrium relationship between debt, governance, and growth is uniform across the ECOWAS region while allowing for country-specific short-run dynamics. The results from this alternative methodology provide powerful and independent confirmation of our primary findings while also introducing valuable nuances that deepen our understanding of the underlying economic processes.

Table 9. Panel ARDL Models with Common Correlated Effect and Moderator

	Estimator	PMG	MG
	Variables	Coefficient	Coefficient
Long-run	EXD	0.216***	0.337**
		(0.02)	(0.304)
	EXD^2	-0.124***	-0.013**
		(0.213)	(0.123)
	EXR	-0.232	0.428*
		(0.168)	(2.265)
	IR	-0.016*	-0.262
		(0.024)	(0.136)
	GOV	0.105***	0.959*
		(0.047)	(1.26)
	EXD*GOV	0.011***	0.025**
		(0.001)	(0.018)
	EXR*GOV	-0.005**	0.207
		(0.009)	(0.284)
	IR*GOV	-0.001**	0.004*
		(0.002)	(0.005)
Short-run	ECT	-0.444**	-0.512**
		(0.147)	(0.16)
	EXD	0.003***	-0.003
		(0.008)	(0.032)
	EXD^2	-0.003***	-0.321**
		(0.0123)	(0.210)
	EXR	0.246	0.396
		(0.217)	(0.377)
	IR	-0.009*	0.009
		(0.022)	(0.05)
	GOV	0.029	-0.129
		(0.049)	(0.082)
	EXD*GOV	0.005	0.001
		(0.001)	(0.001)
	EXR*GOV	0.008	-0.001*
		(0.01)	(0.001)
	IR*GOV	-0.003*	0.032
		(0.001)	(0.017)
	Constant	0.575***	-1.094
		(0.197)	(1.159)
Hausman test b/w MG/ PMG	Chi-square test value 0.005		

Note: Values in () are standard errors. ***, **, * show 1%, 5% and 10% significance levels

The most compelling outcome of this robustness check is the strong validation of the central thesis: the existence of a nonlinear Debt Laffer Curve for ECOWAS nations. The PMG estimator yields a positive and highly significant coefficient for external debt coupled with a negative and highly significant coefficient for its squared term, almost exactly mirroring the CS-ARDL results. This cross-model consistency strongly affirms that the relationship between debt and growth is fundamentally concave, with moderate levels of borrowing supporting economic expansion but excessive accumulation being detrimental. The robustness of this nonlinearity across different advanced econometric techniques solidifies it as a cornerstone of prudent macroeconomic policy in the region.

Furthermore, the critical moderating role of governance receives robust endorsement from the PMG results. The positive and highly significant coefficient for

the interaction between external debt and governance in the long run directly replicates the core finding of the CS-ARDL model. This confirms that the ability of governance to amplify the growth benefits of borrowed capital is not an artifact of a single estimation strategy, but a persistent empirical reality in the data. The consistent positive direct effect of governance on growth further reinforces the argument that institutional quality is a fundamental driver of economic performance in its own right. The results for the other interaction terms provide a more textured perspective. The significant negative coefficient for the interaction between governance and interest rates in the PMG long-run aligns with the CS-ARDL narrative, suggesting that strong institutions help mitigate the adverse growth effects of high borrowing costs. The nuanced results for the exchange rate interaction across estimators suggest that this particular stabilizing mechanism may not be uniform across all member states, a subtlety that enriches policy discussion.

A notable divergence emerges in the speed of adjustment to the long-run equilibrium. The error correction term of the PMG model, which is statistically significant, is smaller in magnitude than that of the CS-ARDL model. This indicates a more gradual corrective process, with approximately 44% of economic disequilibrium being corrected within a year, compared to the swifter 70% adjustment captured by CS-ARDL. This does not invalidate the finding of a significant error correction mechanism but rather refines it, suggesting that the region's economies exhibit a consistent but moderately paced return to their long-run growth path following shocks to debt, governance, or other macroeconomic variables.

In conclusion, this robustness check using the PMG and MG estimators overwhelmingly corroborates the principal contributions of this study. The Debt Laffer Curve and the pivotal role of governance as a moderator are convincingly validated by this alternative methodological approach. The minor variations observed, particularly in adjustment speed, add depth rather than doubt, providing a more comprehensive picture of the economic dynamics at play. Consequently, policymakers can be confident that the identified relationships are genuine features of the ECOWAS economic landscape, providing a reliable evidence base for crafting sustainable debt management and institutional reform strategies.

Conclusion and Policy Implications

This study examines the relationship between external debt and economic growth in ECOWAS countries, incorporating governance quality as a key moderating factor. The findings reveal a nonlinear debt-growth nexus, consistent with the Debt Laffer Curve hypothesis, where moderate debt levels support growth, but excessive borrowing becomes detrimental. The CS-ARDL estimation confirms that external debt has a positive long-run effect on growth when prudently managed, reinforcing Solow's (1956) argument that capital accumulation is essential for development. However, exchange rate volatility and high interest rates undermine growth and exacerbate debt sustainability risk.

Importantly, governance quality plays a pivotal moderating role by amplifying the benefits of debt while mitigating macroeconomic instability. The interaction terms (EXD*GOV, EXR*GOV, and IR*GOV) demonstrate that strong institutions enhance debt efficiency, stabilize currency fluctuations, and reduce the adverse effects of high borrowing costs. This aligns with institutional theory, underscoring that weak

governance, manifested in political instability, corruption, and poor fiscal discipline, erodes debt sustainability.

The short-run dynamics further highlight that while debt provides an immediate fiscal stimulus, its benefits are constrained by macroeconomic instability. The error correction mechanism indicates a relatively swift adjustment to long-run equilibrium, suggesting that ECOWAS economies can recover from shocks, but remain vulnerable to debt distress due to institutional weaknesses.

Based on the empirical findings of this study, we recommend an integrated policy framework that recognizes the foundational role of governance in determining debt sustainability and economic growth. The evidence clearly demonstrates that the impact of external debt is neither automatic nor uniform but is fundamentally conditioned by the quality of a country's institutions. Therefore, our recommendations focus on strengthening the cornerstone of economic policy with debt management strategies explicitly tailored to governance capabilities.

The most critical investment that ECOWAS countries can make is in their own governance structures, moving beyond rhetorical commitments to concrete institutional reforms. This necessitates a comprehensive approach to combat corruption through the establishment of independent anti-corruption agencies with genuine prosecutorial powers and adequate resources. The transparency of public financial management must be enhanced, particularly for debt-funded projects, by mandating that all major contracts be awarded through competitive bidding processes with details published online for public scrutiny. Simultaneously, building a professional civil service requires insulating economic ministries and central banks from political interference, ensuring that hiring and promotion are based on technical competence rather than political connections. Strengthening the rule of law through judicial independence and reliable contract enforcement completes this institutional triad, creating a necessary environment for both domestic and foreign investments to flourish.

Debt management strategies must be recalibrated using a governance-sensitive approach that acknowledges the varying institutional capacities of ECOWAS nations. While the regional debt threshold of 76% provides a useful benchmark, individual countries should establish customized debt ceilings that reflect their specific governance capabilities. Nations with weaker institutions should exercise greater borrowing restraints, recognizing that their effective debt capacity is substantially lower than the regional average. Furthermore, implementing a rigorous quality-of-investment framework would ensure that, before contracting new debt, governments publicly demonstrate how borrowed funds will be directed toward high-impact projects with clear economic returns, rather than being diverted to recurrent expenditure or politically motivated white elephants.

Building macroeconomic resilience requires deliberate institutional safeguards against volatility, which often accompanies debt accumulation. Strong governance naturally enhances currency stability by building investor confidence; however, this should be complemented by prudent foreign exchange reserve accumulation during periods of economic strength to create buffers against external shocks. Central bank independence and credibility must be safeguarded to ensure that monetary policy effectively controls inflation without resorting to growth-strangling interest rates. The establishment of clear policy frameworks and communication strategies can help to anchor expectations and reduce the need for drastic monetary interventions.

In essence, the message for ECOWAS policymakers is that debt should be reconceptualized not as a standalone solution but as a tool whose effectiveness depends entirely on the institutional framework within which it is deployed. Just as a bullet is useless without a well-aimed gun, borrowed resources achieve little without governance mechanisms to ensure that they reach productive targets. By relentlessly focusing on building stronger institutions, ECOWAS nations can transform external debt from a recurring source of distress to a genuine catalyst for sustainable development that benefits all citizens. The empirical evidence leaves no doubt that governance quality is not merely one factor among many, but the decisive element that determines whether debt becomes an engine of growth or an anchor of stagnation.

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