

External Debt and Economic Growth in West Africa Monetary Zone: An Autoregressive Distributed Lag Bound Test Approach

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ABSTRACT

This study examines the relationship between external debt and economic growth in the West African Monetary Zone (WAMZ). Scope: The study covered the period from 2000 to 2021, encompassing The Gambia, Ghana, Guinea, Nigeria, Sierra Leone, and Liberia. Methods: This study draws upon the debt-overhang theory, emphasizing adverse consequences excessive foreign debt has on the economic prospects. Utilizing a comprehensive model that considers real GDP as the dependent variable; external debt as a percentage of GDP as primary independent variable, along with control variables like trade, inflation, government expenditure, and population growth. Results: The analysis reveals that high levels of foreign debt impact the growth of the economy negatively in the WAMZ. Conclusions: The study suggests the need for policymakers in the WAMZ to exercise caution when accumulating external debt, prioritizing productive investments that can generate income and reduce debt service burdens. Emphasis should be placed on investing in trade and infrastructure, as these areas have positive spillover effects on economic growth. Practical implications: Improving institutional quality, reducing corruption, and controlling inflation are key steps to attract investment and enhance the business environment in the region, ultimately fostering economic growth.

Keywords: External debt, Economic Growth, West African Monetary Zone.

1. Introduction

The economic literature extensively discusses the advantages of utilizing external credit and the detrimental consequences associated with extensive external debt accumulation on a nation's economic growth. External debt is commonly defined as the monetary obligation a country owes to foreign creditors, encompassing loans, bonds and various financial instruments. While externally generated debt can serve as crucial means of financing for nations, it may also exert adverse effect on economic growth (Onafowora, & Owoye, 2019). One prominent argument favouring external borrowing relates to the necessity of funding vital social and economic infrastructure, particularly in situation when nation's savings are insufficient or in deficit. The prevailing consensus within economic research suggests that foreign debt is capable of stimulating investment and growth up to a certain optimal threshold. However, surpassing this threshold leads to negative outcomes. In such cases, excessive external debt can erode the return on investment

in the domestic economy as higher taxes are imposed to service escalating debt burden. Consequently, this situation can deter both domestic and foreign investment resulting in sluggish output growth (Onodugo & Eboigbe, 2013).

In recent year, West Africa has witnessed gradual economic expansion (Zakari, 2015). The West Africa Monetary Zone (WAMZ) is a sub-regional entity encompassing six countries: The Gambia, Ghana, Guinea, Nigeria, Sierra Leone, and Liberia.

WAMZ boasts a collective population exceeding 330 million individuals and a cumulative Gross Domestic product (GDP) exceeding \$700 billion (World Bank, 2020). Despite this economic growth, the WAMZ countries face the challenge of increased external debt.

External debt in the WAMZ consists of different types of loans and financing sources. These include bilateral debt (owed to individual countries), multilateral debt (owed to international organizations), and commercial debt (owed

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to private creditors). The composition of external debt can vary among WAMZ countries, reflecting their borrowing strategies and relationships with different creditors (Nwakoby and Ezeaku, 2021).

The WAMZ countries have experienced varying levels of external debt. Nigeria, being the largest economy in the region, has historically suffered most significant economic liability due to external debt. Ghana has faced significant levels of debt externally, while the other WAMZ countries have significant low debt levels. Also, external debt levels can fluctuate over time due to factors such as borrowing for infrastructure projects, commodity price shocks, and debt management strategies (Nwakoby and Ezeaku 2021).

Prior to gaining independence from colonial rule, many WAMZ countries experienced limited external borrowing as their economies were largely controlled by colonial powers. The external debt burden during this period was relatively low. After gaining independence in the 1960s and 1970s, WAMZ countries faced significant development challenges and started to borrow externally to finance infrastructure projects, industrialization efforts, and social programs. The oil boom in the 1970s provided a source of revenue for some oil-producing countries like Nigeria, leading to increased borrowing to fund ambitious development plans. In the 1980s, WAMZ countries, along with many other developing nations, faced a severe debt crisis. External debt levels became unsustainable, and countries struggled to service as a result of decline in price of commodities, increase in interest rate and mismanagement. This has caused increase in debt servicing burden that has hindered economic growth and development (Onodugo, Vincent, & Eboigbe, 2019).

In response to the debt crisis, World Bank and the International Monetary Fund (IMF), implemented Structural Adjustment Programs (SAPs) in the 1980s and 1990s. These programs aimed to address macroeconomic imbalances, promote economic reforms, and improve debt management in the WAMZ countries. In recent years, WAMZ countries have made efforts to oversee their foreign debt levels while encouraging sustainable borrowing strategies. Some countries have implemented debt management reforms, including strengthening debt monitoring systems, enhancing transparency, and improving debt sustainability analyses. The emphasis has been on prudent borrowing, reducing reliance on non-concessional loans, and ensuring debt sustainability (Onodugo & Eboigbe, 2019).

In academic discourse, several researchers have delved into the correlation between foreign debt and economic growth. Some investigations suggest that external debt can exert a favourable influence on economic growth chiefly by furnishing funds for investment and infrastructures initiatives. Nevertheless, divergent scholarly inquiries

have unearthed that elevated levels of external debt may impede economic growth, primarily due to the escalated obligations associated with servicing debt and the consequent diminishment of the resources available for other investment domains. Recognizing the pivotal of external debt within the West Africa Monetary Zone (WAMZ) nations, it becomes important to investigate the nexus between foreign debt and regional growth of the economy. The study endeavors to augment the existing literature by analyzing the impact of external debt on economic growth in WAMZ (2000-2021).

2. Literature Review

The link between external debt and economic growth is a topic of substantial discussion in economics. Various studies has offered insights into this relation;

Ndikumana and Boyce (2003) for African nations and Cheng and Ma (2014) for Asian countries, argues that external debt can stimulate economic growth by providing funding for investments and infrastructure. Conversely, studies such as Reinhart and Rogoff (2010) for advanced economies and Kose *et. al.* (2008) for developing countries suggest that excessive external debt can hinder economic growth. In Paskistan, Hameed *et. al.* (2008) found that debt service negatively affects GD, particularly impacting capital and labour productivity.

Adegbite *et.al.* (2018) investigated Nigeria's case and discovered that foreign debt contributes positively to growth up to a point, after which it becomes detrimental. The study also explored how debt servicing "crowds out" private investment. Also, Mencinger, Aristovnik and Verbic (2015) analyzed OECD and non-OECD EU member states and found that at low debt levels, external debt positively affects economic growth, but beyond a threshold, the effect turns negative. For emerging economies, this threshold is lower

Akram (2013) studied South Asian countries and identified negative impacts of public external debt on economic growth and investment. Lastly, Benayed, Gabsi, and Belguith (2019) investigated 10 African economies and established a debt-to-GDP threshold, indicating the presence of positive relationship of external debt on domestic investment below the threshold but inversely related when debt exceeds it.

2.1 Theoretical Framework

The study is anchored on debt overhang theory. This theory gained prominence with the seminal work of economists Robert E. Cooter and Jeremy Bulow in the late 1980s. In their influential paper, Cooter and Bulow explored the implications of debt overhang in corporate bankruptcy situations. This theory explains the negative effects of excessive foreign debt on the future prospects and growth potential of companies or economies. It suggests that when

entities carry a heavy debt burden that they cannot easily repay or service, it can lead to economic inefficiencies and hinder investment and growth. One of the key issues associated with debt overhang is the increased financial risk faced by the debtor. Excessive debt can make the generation of sufficient cash flows to service debt obligations very difficult, resulting in higher borrowing costs and constrained investment opportunities. Additionally, the presence of

excessive debt reduces incentives for investment and innovation, as the focus often shifts towards debt repayment rather than productive ventures (Rancière, Tornell and Westermann, 2008). The theory particularly highlights effect of debt overhang on the perceptions and confidence of the market. Heavily indebted entities may be viewed as risky by investors, leading to limited access to capital and restricted growth opportunities.

Table 1 : Descriptive Statistics

	GDP	EXD	DBS	GCF	INF	POP	TOT	TRD
Mean	4.760570	41.33140	2.025004	20.29671	11.93017	2.601887	122.4980	47.34810
Median	5.307924	37.31321	1.612340	19.89700	10.73427	2.582687	110.2598	49.93430
Maximum	20.71577	139.4387	9.669044	52.66984	41.50950	3.113649	224.3545	132.3825
Minimum	-20.59877	4.950816	0.100218	4.562497	0.844970	1.978668	42.84384	3.830962
Std. Dev.	4.781542	29.98178	1.651468	7.431876	7.373289	0.247035	44.31334	33.99554
Skewness	-1.297136	1.547047	1.716298	1.019765	1.878855	0.036978	0.395846	0.235409
Kurtosis	11.75200	5.524189	7.305550	5.930983	7.541098	3.076785	2.691132	2.005448
Jarque-Bera	322.8949	61.78668	117.4918	49.40760	134.6251	0.044041	2.798431	4.691864
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.978220	0.246790	0.095758
Sum	442.7330	3843.820	188.3254	1887.594	1109.506	241.9755	11392.31	4403.373
Sum Sq. Dev.	2103.409	82699.45	250.9160	5081.416	5001.616	5.614412	180657.8	106324.1
Observations	93	93	93	93	93	93	93	93

Source : Authors' Computation, 2023

Table 2 : Lag Selection

VAR Lag Order Selection Criteria						
Endogenous variables: GDP EXD DBS GCF INF POP TOT TRD						
Exogenous Variables: C						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1510.083	NA	1.18e+11	48.19312	48.46526	48.30016
1	-1151.609	614.5273	10401461	38.84473	41.29403*	39.80805
2	-1072.945	114.8747	7172795.	38.37920	43.00565	40.19881
3	-1026.185	56.40839	16067321	38.92652	45.73012	41.60241
4	-935.6345	86.23878	12053590	38.08364	47.06439	41.61581
5	-812.5421	85.96930*	5491756.	36.20769	47.36559	40.59615
6	-632.9400	79.82315	1234096.*	32.53778*	45.87284	37.78252*

*indicates lag order selected by the criterion
 LR: sequential modified LR test statistic (each test at 5% level)
 FPE: Final prediction error
 AIC: Akaike information criteria
 SC: Schwarz information criteria
 HQ: Hannan-Quinn information criteria

Source : Authors' Computation, 2023

Based on these criteria, the selected lag order is indicated by an asterisk (*).

Different criteria may suggest different lag orders, but in this case, lag order 6 appears most frequently.

3. Methodology

To investigate the correlation between external debt and regional economic growth in the West African Monetary Zone (WAMZ), utilizing data spanning from 2000-2021 across six WAMZ countries: The Gambia, Ghana, Guinea, Nigeria, Sierra Leone, and Liberia, This study adapted the model used in the study conducted by Jarju, *et. al.* (2016) on the relationship between external debt & economic growth.

The model is thus specified as :

$$GDP_{it} = f(EXD_{it}, DBS_{it}, GCF_{it}, TRD_{it}, POP_{it}, TOT_{it}, INF_{it}, \mu) \dots\dots\dots (1)$$

The model can be restated in an econometric form as :

$$GDP_{it} = \beta_0 + \beta_1 EXD_{it} + \beta_2 DBS_{it} + \beta_3 GCF_{it} + \beta_4 TRD_{it} + \beta_5 POP_{it} + \beta_5 TOT_{it} + \beta_5 INF_{it} + \epsilon_{it} \dots\dots\dots (2)$$

where, GDP = Economic growth (Dependent); EXD =

External debt; DBS = Debt Servicing; GCF = Gross capital formation; TRD = Trade Openness; POP = Population growth; TOT = Terms of trade; INF = Inflation.

In the ARDL model form :

$$GDP_t = \beta_0 + \beta_1 \Delta EXD_{t-1} + \beta_2 \Delta DBS_t + \beta_3 \Delta GCF_{t-1} + \beta_4 \Delta TRD_{t-1} + \beta_5 \Delta POP_{t-1} + \beta_5 \Delta TOT_{t-1} + \beta_5 \Delta INF_{t-1} + \epsilon_{t-1}$$

4. Result and Discussion

The mean value for GDP, EXD, DBS, GCF, INF, POP and TOT reveals the average value from the period 2000-2021. The standard deviation values for GDP, EXD, DBS, GCF, INF, POP and TOT shows deviation of the variables from its Mean. The skewness value for EXD, DBS, GCF, INF, POP, TOT shows that the variables are positively skewed which means it has a higher value than the sample mean, while COC, GOE, RTQ, RUL, TRD and VOC shows the negative skewness of the variables.

Table 3 : ARDL Result

Dependent Variable: D(GDP)				
Dynamic regressors (1 lag, fixed): EXD DBS GCF INF POP TOT TRD				
Fixed regressors:				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Long Run Equation				
EXD	0.190200	0.028862	6.589959	0.0000
DBS	-5.008262	0.565206	-8.860949	0.0000
GCF	0.341115	0.065642	5.196621	0.0000
INF	-0.258910	0.104871	-2.468837	0.0173
POP	0.490905	0.957129	0.512893	0.6105
TOT	0.014880	0.010951	1.358702	0.1809
TRD	-0.038942	0.017524	-2.222154	0.0312
Short Run Equation				
COINTEQ01	-0.734090	0.196720	-3.731643	0.0005
D(EXD)	-0.452412	0.158153	-2.860591	0.0063
D(DBS)	-0.382906	1.938782	-0.197498	0.8443
D(GCF)	-0.240280	0.086023	-2.793208	0.0076
D(INF)	-0.011934	0.178547	-0.066837	0.9470
D(POP)	-0.967646	13.08848	-0.073931	0.9414
D(TOT)	0.038259	0.116637	0.328016	0.7444
D(TRD)	0.248761	0.236237	1.053016	0.2978

Source : Authors' Computation, 2023

COINTEQ01 coefficient which explains the equilibrium in the long run is -0.734090. The coefficient which is less than 1 is negatively significant and that when there is disequilibrium, it takes an average speed of 73.4% (which signify that the adjustment speed from the short run to long run is high)

D(EXD) is -0.452412, suggesting that an increase in the change in exports by 1% brings a 0.452412% decrease of GDP in the short run while the coefficient in the long run is 0.19% increase in GDP. Also, D(DBS) coefficient is -0.382906, implying that a 1% increase in the change in domestic borrowing stock decreases GDP by 0.382906% in the short run and a 5.008262% decrease in the long run.

The coefficient of D(GCF) which is -0.240280, indicate short run decrease of 0.240280% of GDP in the short run while there is increasing long run effect of 0.341115% in GDP. Likewise D(INF) & D(POP) (-0.011934 & -0.967646 respectively) negatively affects GDP in the short run while it is positive in the long run.

D(TOT) and D(TRD) positively affects GDP both in the short run(0.038259and 0.248761 respectively), and long run (0.014880 and 0.038942 respectively).

Table 4 : The Gambia

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
COINTEQ01	-1.202382	0.087364	-13.76283	0.0008
D(EXD)	-0.326813	0.006251	-52.27895	0.0000
D(DBS)	1.399425	4.390022	0.318774	0.7708
D(GCF)	-0.230448	0.093796	-2.456896	0.0911
D(INF)	0.598643	0.215191	2.781915	0.0689
D(POP)	-46.65705	665.4257	-0.070116	0.9485
D(TOT)	-0.298848	0.034738	-8.602789	0.0033
D(TRD)	0.176058	0.054219	3.247140	0.0476

Source : Authors' Computation, 2023

COINTEQ01 coefficient which explains the equilibrium in the long run is -1.202382. This coefficient (less than 1) negatively significant which implies that when there is disequilibrium, it takes an average speed of 120.2% to return back for The Gambia to return from short to long run.

D(EXD): The coefficient is -0.326813, indicating that a 1% increase in the change in exports (D(EXD)) brings 0.326813% decrease in the growth of the economy.

D(DBS) is 1.399425, suggesting that a 1% increase in the change in domestic borrowing stock (D(DBS)) leads to a 1.399425% increase but not significant statistically.

D(GCF): is -0.230448 which implies decrease in economic growth by 0.230448% but not significant.

D(INF): The coefficient is 0.598643, indicating that a 1% increase in the change in inflation (D(INF)) brings 0.598643% increase in GDP.

D(POP): The coefficient is -46.65705, suggesting that a 1% increase in the change in population (D(POP)) leads to a 46.65705% decrease in GDP.

D(TOT(-0.298848) negatively impact economic growth while D(TRD) coefficient which is 0.176058 positively affect economic growth and the coefficient for the two variables are significant statistically.

Table 5 : Ghana

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
COINTEQ01	-0.077676	0.009128	-8.509763	0.0034
D(EXD)	-0.103306	0.002935	-35.19600	0.0001
D(DBS)	0.186350	0.442404	0.421221	0.7020
D(GCF)	-0.108905	0.033826	-3.219533	0.0486
D(INF)	-0.001826	0.011325	-0.161216	0.8822
D(POP)	-2.689353	167.4789	-0.016058	0.9882
D(TOT)	0.047167	0.006183	7.627983	0.0047
D(TRD)	0.108710	0.002148	50.62054	0.0000

Source : Authors' Computation, 2023

COINTEQ01 coefficient which explains the long run equilibrium is -0.077676. This indicates that it takes an average speed of 7.77% to return back to the short run.

(EXD) have coefficients that are statistically significant, suggesting a strong relationship with the dependent variable being analyzed.

GCF has a coefficient that is marginally significant, indicating some evidence of a relationship.

Table 6 : Guinea

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
COINTEQ01	-0.523817	0.021966	-23.84657	0.0002
D(EXD)	-0.174078	0.006159	-28.26436	0.0001
D(DBS)	1.795934	0.783462	2.292306	0.1057
D(GCF)	-0.059267	0.004081	-14.52146	0.0007
D(INF)	0.081841	0.012103	6.762219	0.0066
D(POP)	12.69920	79.20887	0.160325	0.8828
D(TOT)	0.075645	0.006713	11.26816	0.0015
D(TRD)	0.045748	0.001582	28.92522	0.0001

Source : Authors' Computation, 2023

DBS, INF, and POP have coefficients that are not statistically significant, implying no strong relationship with the dependent variable.

The variables TOT and TRD have coefficients that are highly statistically significant, indicating a robust relationship with the dependent variable.

COINTEQ01 coefficient which explains equilibrium in the long run is -0.523817. The negative coefficient reveals that when there is disequilibrium, it takes an average speed of 52.4% to return back from the short to the long run in Guinea.

D(EXD) has a coefficient of -0.174078 and D(GCF) has a coefficient of -0.059267. they are both significant and exhibit negative relation with economic growth

The D(DBS) variable has a coefficient of 1.795934 with probability value of 0.1057 Therefore, no strong evidence of exists (D(DBS) and GDP).

D(GCF) and D(POP) with the coefficient of -0.059267 and 12.69920 respectively but not significant; indicates no strong relationship with the dependent variable.

The D(INF) variable has a coefficient of 0.081841 and significant statistically.

D(TOT) and D(TRD) variable has a coefficient of 0.075645 and 0.045748 respectively and are both significant; indicates the two variables has positive relationship with economic growth.

Table 7 : Nigeria

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
COINTEQ01	-0.922618	0.009134	-101.0142	0.0000
D(EXD)	-0.857183	0.012605	-68.00238	0.0000
D(DBS)	2.674803	0.251591	10.63155	0.0018
D(GCF)	-0.552989	0.021940	-25.20504	0.0001
D(INF)	-0.387311	0.009025	-42.91493	0.0000
D(POP)	32.92740	137.3968	0.239652	0.8260
D(TOT)	-0.055792	0.000202	-276.8700	0.0000
D(TRD)	1.150766	0.050667	22.71255	0.0002

Source : Authors' Computation, 2023

COINTEQ01 coefficient which explains equilibrium in the long run is -0.922618. The negative coefficient reveals that when there is disequilibrium, it takes an average speed of 92.3% to return back the long run from the short run in Nigeria.

D(EXD): The coefficient of -0.857183 implies a negative relationship between D(EXD) and the dependent variable.

D(DBS) and D(TRD) with coefficients of 2.674803 and 1.150766 suggests D(DBS) affects the dependent variable positively.

D(GCF), D(INF) and D(TOT) are is -0.552989, -0.387311 and -0.055792 respectively implies a negative correlation of D(GCF), D(INF) and D(TOT) on economic growth

D(POP): The coefficient of 32.92740 suggests a non-significant positive correlation between D(POP) and economic growth.

Table 8 : Sierra Leone

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
COINTEQ01	-0.943956	0.070872	-13.31915	0.0009
D(EXD)	-0.800679	0.226793	-3.530435	0.0386
D(DBS)	-7.971043	81.30801	-0.098035	0.9281
D(GCF)	-0.249791	0.064490	-3.873318	0.0305
D(INF)	-0.351015	0.530324	-0.661889	0.5553
D(POP)	-1.118424	268.1282	-0.004171	0.9969
D(TOT)	0.423123	0.107304	3.943228	0.0291
D(TRD)	-0.237477	0.197046	-1.205186	0.3145

Source : Authors' Computation, 2023

COINTEQ01 coefficient which explains equilibrium in the long run is -0.943956. The negative coefficient reveals that when there is disequilibrium, it takes an average speed of 94.4% to return back to the long run from short run in Sierra Leone.

D(EXD) and D(GCF) coefficients are -0.800679 and -0.249791 respectively, showing negative correlation with GDP. The coefficients indicate statistical significance.

D(DBS), D(POP) and D(TRD) with coefficients - 7.971043, -1.118424 and -0.237477 respectively suggests a negative relationship with GDP.

D(INF) is -0.351015, which exert non significant negative effect on GDP.

D(TOT) is 0.423123 and it exert a positive effect on GDP.

5. Diagnostics Test

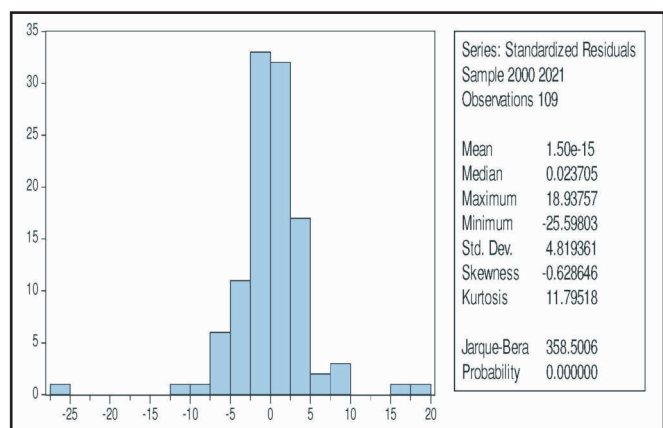


Figure 1 : Normality Test

From the above, the probability value (0.003572) of Jaque-Bera is below the significant value of 0.05 which implies normal distribution of the residuals.

6. Conclusion and Policy Implications

The analysis provides important insights into impact of external debt on the growth of the economy in WAMZ. Specifically, high levels of foreign debt have significant negative impact on economic growth in the region. This suggests the need for policymakers in the WAMZ to take steps to manage external debt and prioritize investment in areas such as trade and infrastructure, which positively impact economic growth.

The following are policy implications drawn from the analysis:

1. The policymakers in the WAMZ should be cautious about taking on high levels of external debt, and should prioritize investment in productive activities that can generate income and reduce the burden of debt service.
2. The policymakers should prioritize investment in trade and infrastructure, which can have positive spillover effects on economic growth.
3. The policymakers should focus on improving the quality of institutions, reducing corruption and curbing inflation which can help to attract investment and improve the business environment in the region.

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