



## **EXTERNAL DEBT, EXCHANGE RATE AND INFLATION IN AFRICA, A MODERATING ROLE OF GOVERNANCE QUALITY**

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### **Abstract**

*The study investigated external debt, exchange rate, and inflation in Africa, moderating governance qualities, using a two-step system Generalized Method of Moments (GMM) and panel data analysis spanning 2012 to 2021 with a sample size of 42 African countries. The theoretical model is based on debt overhang and crowding-out effect theories. The empirical findings revealed that, there is a significant relationship between external debt, exchange rate and inflation in Africa. Apart from control of corruption, there is negative significant relationship between all the governance indicators and external debt, which means that as debt increases, these governance indicators reduce indicating weak institutional quality in Africa. The study concluded that, African governments must implement pragmatic strategies to improve the quality of their legal systems, as well as their public and civil service, to derive maximum benefits from borrowed funds.*

*Keywords: External debt, Exchange rate, Inflation, Debt overhang, Governance quality*



## INTRODUCTION

The part of a country's debt that is borrowed from overseas lenders through commercial banks, governments, or international financial institutions is referred to as external debt (Taghizadeh-Hesary, Mohsin, Ullah, & Iqbal, 2021; Pattillo & Ricci, 2011). A debt crisis occurs when a country is unable to fulfil its external debt (Chang & Velasco, 2001). External debt can take the form of a tethered loan, in which the borrower is required to apply any cash spent to the country that provided the loan. A sovereign default occurs when a country is unable or unwilling to service its external debt. This may cause lenders to withhold future asset releases that the borrowing country may require. Such events might have a cascading effect on the borrower's currency, causing the country's overall economic growth to slow. Many developing countries consider external debt to be a significant revenue source to supplement domestic sources for economic growth and development. Most Sub-Saharan African countries, on the other hand, have failed to successfully use these external monies to develop their economies, with some even worsening and facing issues such as debt overhang and liquidity constraints (Kavila, 2022; Depetris-Chauvin, 2022).

The shifting form of Africa's debt is also a major source of concern; governments are increasingly turning to non-concessional and domestic debt, which carries higher interest rates (Ndulu & O'Connell, 2021). The ease with which governments can access and regulate the domestic debt market has resulted in unsustainable public debt accumulation and macroeconomic instability. Excessive domestic debt stifles credit to the private sector, which is the main engine of growth and job creation, in addition to the high interest rate and debt-servicing load (Rothenberg, Chappe, & Feldman, 2021). Given the interconnectedness of African economies with the global financial market, the social impact of debt accumulation on sustainable development, the widening infrastructure deficit despite rising debt commitment, dampened growth prospects, and the high incidence of poverty, Africa's debt position has significant broader implications (Owusu-Nantwi & Owusu-Nantwi, 2021).

The necessity for a comprehensive approach to the debt difficulties of the poorest low-income nations was recognized by the international financial community in 1996. The Bretton Woods Institutions, the International Monetary Fund, and the World Bank launched the Heavily Indebted Poor Countries Initiative, which was the first significant coordinated effort in this area (Gutner, 2022). The Initiative was created in response to worries that many low-income nations would still be burdened by unsustainable external public debt loads after receiving traditional debt reduction. In this context, the HIPC Initiative's purpose was to reduce all eligible severely indebted poor countries' (HIPC's) external public debt burdens to sustainable levels in a reasonable amount of time. The goal of the Initiative was to enable all HIPC's to satisfy their

present and future external debt service commitments in full, without resorting to debt rescheduling or arrears, and without jeopardizing growth (Schuemann, 2022).

Few studies have looked at how external debt impacts inflation and the exchange rate in different countries, and the results have been mixed (Ebeke & Fouejieu, 2015; Bunesco, 2014; Bortz, 2014). Saheed, Sani, and Idakwoji (2015) discovered a slight negative relationship between exchange rate and external debt. Kumar, Bhutto, Mangrio, and Kalhoru (2019) on the other hand, found that external borrowing had a beneficial impact on the exchange rate. External borrowing contributed to exchange rate swings in debt trap countries 12 and non-debt trap countries, according to Akyüz (2007); however the intensity of the relationship varied. Nwanne & Eze (2015) found a positive and significant impact of external borrowing on the exchange rate, while Kim, Chung, Hwang and Pyun (2020) found a negative impact of foreign debt on the exchange rate. These studies have produced contradictory outcomes when it comes to the impact of external debt on the exchange rate. Except for Kouladoum, Wirajing and Nchofoung (2022), who found that external borrowing had a positive and significant impact on inflation in Sub-Saharan Africa, there are few studies on external debt, exchange and inflation in Sub-Saharan Africa.

This study used secondary data from the World Development Indicators, World Governance Indicators, to bridge the knowledge gap on the impact of external debt, exchange rate, and inflation in Africa with moderating role of governance quality, covering 42 African countries using convenience sampling technique and two-step system generalized method of moment for estimation. The remaining part of the paper includes the literature review, methodology, results, analysis and findings and recommendation.

## **LITERATURE REVIEW**

### **Theoretical Literature Review**

The cost of servicing external debt has become a serious hindrance to emerging countries' progress and stability. Economists have opted to investigate the routes by which the consequences of external debt load are studied, and have developed two opposing theories: the debt overhang theory and the crowding-out effect theory.

Debt-overhang occurs when a country's debt exceeds its ability to repay. According to Kobayashi, Nakajima, & Takahashi (2021) debt overhang occurs when the expected repayment amount of a debt exceeds the actual amount contracted. Liebersohn, Correa and Sicilian (2022) described debt overhang as a situation in which the debtor country receives very little benefit from higher investment returns due to large debt servicing obligations. The debt overhang effect occurs when a large amount of debt is amassed, discouraging investors from investing in the

private sector for fear of being taxed heavily by the government. This is referred to as a tax disincentive because of the high debt and consequently large debt service payments, it is assumed that any future income accrued to potential investors will be heavily taxed by the government in order to reduce the amount of debt service, scaring off investors and resulting in disinvestment in the overall economy and, as a result, a drop in the rate of growth (Turan & Yanikkaya, 2021).

Apart from the effect of large debt stock on investment, external debt can also affect growth through accumulating debt service obligations, which are likely to crowd out investment (private or public) in the economy, according to (Igudia, 2021; Ifeanyi, Ndubuaku, Uche, & Onwuka, 2021; Mohsin, Ullah, Iqbal, Iqbal, & Taghizadeh-Hesary, 2021). The crowding out effect describes a situation in which a country's revenue from foreign exchange earnings is used to pay off debt servicing. This diminishes the amount of resources available for use in the domestic economy because majority of them are absorbed by the external debt servicing burden, which reduces investment. According to Saungweme and Odhiambo (2021) debt servicing has a negative influence on growth because of debt-induced liquidity limitations, which reduce government spending in the economy. These liquidity constraints come as a result of debt servicing obligations, which shift the attention away from domestic economic development and toward debt repayment. Public spending on social infrastructure is significantly cut, which has an impact on the level of public investment in the economy.

Taghizadeh-Hesary, Mohsin, Ullah, Iqbal, and Iqbal (2021) devised a second model in which external debts are used to support business shortfalls. Fabella discovers, using Taylor's model, that in the presence of a commercial deficit financed by external debt, real exchange rates based on current prices remain undervalued. Other researchers included internal equilibrium in their research. This provides the most comprehensive picture of the relationship between external debt and real exchange rates. The authors also demonstrated that real exchange rate misalignments in Sub-Saharan African countries are caused by massive external debt buildup. They used microeconomic principles to a freshly open macro economy and discovered that creditor countries' real exchange rates continue to rise while borrowing countries' currency rates depreciate.

Sitompul, Ichsan, and Nasution (2021) discovered that a fall in the value of the domestic currency, which resulted in an increase in demand for foreign currencies, was one of the variables that led to an increase in the quantity of foreign debt and a depreciation of the exchange rate in India. The rate of debt acceleration was found to be 11.80 per cent in this study's compound annual growth rate. As debt grew, so did the exchange rate of the Indian Rupee.

Marwa (2021) discovered that foreign debt is used to raise foreign exchange reserves, balance the payment imbalance, and address revenue deficiencies in their study. As a result, the debt stock has been steadily increasing at an alarming rate. The study also found that in the long run, public debt and foreign exchange reserves were positively and significantly related, indicating that the sovereign debt crisis can be linked to exogenous and endogenous factors such as the economy's nature, economic policy, high reliance on oil, and foreign exchange. The exchange rate had an impact on international debt as well; if the exchange rate depreciated, foreign debt increased, and vice versa.

Inflation is a monetary phenomenon, and monetary authorities are in charge of controlling it. Epaphra and Dunia (2021) claims that an expansionary monetary policy boosts both real output and the general price level in the short term, but only the price level in the long run. Studies have recently revealed that inflation is not simply a monetary issue, but also a fiscal one, with fiscal variables influencing price stability.

Theoretical debates on the relationship between public debt and inflation also revolve around the Ricardian and non-Ricardian price level determination strategies. Aimola and Odhiambo (2021) claims that a Ricardian policy is one in which the inter temporal budget constraint is satisfied for any price level, whereas a non-Ricardian policy is one in which only the equilibrium price level is satisfied.

### **External Debt Burden and Transparency in Africa**

Most African countries' debt burden has hampered their growth and development, as well as exacerbated their poverty levels and lowered their living standards (Fagbemi & Asongu, 2021). In 2012, 33 nations in Sub-Saharan Africa were designated as extremely indebted poor countries (Archibong, Coulibaly, & Okonjo-lweala, 2021). The massive debt burden in Sub-Saharan Africa is a significant impediment to job creation and growth, as investment resources that should be employed for productive purposes are diverted to fulfil external debt servicing commitments (Ologbenla, 2021). More than half of the world's low-income countries, the majority of which are in Africa, are either in debt or on the verge of becoming indebted (Toussaint, 2022). This revelation comes as the public debt stock in the majority of the world's low-income countries continues to rise to levels never seen before in contemporary history. There is a concerning tendency characterized by a lack of debt transparency. Keeping track of public debt in most low-income nations has become nearly impossible (Nega, 2021). This is owing to issues with incomplete data recorded in official statistics, as well as constraints imposed by confidentiality clauses commonly included in loan agreements.

It's worth noting that lack of debt transparency isn't just a risk for creditors; it's also a risk for borrowers. Previous requests for more debt transparency have sadly failed to produce results (Haughton & Keane, 2021). And it's for this reason that the World Bank's commentary stated that it's past time for developing economies to have a better grasp on debt (Rhodes, Lipsky, Checki, Cooper, Dudley, & inWalker, 2022). The World Bank emphasized three facts that should encourage every country to take debt issues seriously: 40% of low-income countries have not published any sovereign debt data in more than two years, and many of those that have published data tend to focus on central-government debt and standard debt instruments (Rivetti, 2021). There are huge gaps in publicly available debt estimates in low-income states today; the difference between what national debt authorities disclose on their websites and what multilateral development banks report can be as high as 30% of gross domestic product in some cases. Currently, 15 low-income nations have debt backed by natural resources, but none of them disclose the details of the collateral arrangements (Rhodes & Walker, 2022). Debt transparency makes it easier for governments to make informed borrowing decisions in the future. Similarly, it makes it easier for individuals to hold their leaders accountable for the loans they have taken out. Debt transparency also aids lenders in assessing and determining if a country's current debt stock is sustainable. It also aids countries in expediting the debt restructuring procedure (Keane & Haughton, 2021).

## METHODOLOGY

The study adopted a longitudinal research design strategy targeting fifty-four (54) African countries using convenience sampling technique. Forty-two (42) countries were sampled by secondary data from the World Development Indicators (WDI), and World Governance Indicators (WGI), spanning 2012 to 2021. Two-step system Generalized Method of Moments was used based on the short time series dimension of the sample as compared to cross-sectional T(number of years) which is ten (10), N(number of countries) forty-two (42).

GMM is a dynamic panel estimator that controls for endogeneity of the lagged dependent variables in a dynamic panel model when there is correlation between the explanatory variable and the error term in a model. GMM also controls for omitted variable bias, unobserved panel heterogeneity and measurement error. There are two main GMM estimators that are used in estimating panel data, difference and system GMM. According to (Arellano, 1991), Difference GMM corrects endogeneity by transforming all regressors through differencing to remove fixed effects. According to (Blundell, 2000; Blundel & Bond, 1998) system GMM corrects endogeneity by introducing more instruments to dramatically improve efficiency. It transforms the instruments to make them uncorrelated (exogenous) with the fixed effects. This

leads to the building of two equations, the original equation and the transformed equation. System GMM also uses orthogonal deviations instead of subtracting the previous observation from the contemporaneous one; it rather subtracts the average of all future available observations of a variable, no matter the number of gaps. This is computable for all observations except the last for each individual and therefore minimizes data loss.

**Model Specification**

The study adopted a dynamic panel specification and system Generalized Methods of Moments (GMM) estimation technique from, (Beck, Levin, & Angelone, 2007; Beck, Demirguc-Kunt, & Levine, 2004). The dynamic panel regression model provides the researcher with the opportunity to include lags of the dependent variable as a predictor variable which is specified as follows:

$$Y_{it} = \alpha Y_{it-1} + \beta X_{it} + \varepsilon_{it} \dots\dots\dots (1)$$

$$\varepsilon_{it} = \mu_t + \lambda_i$$

The  $Y_{it}$  represents the dependent variable for the model,  $Y_{it-1}$  is the lag of the dependent variable, whereby  $Y$ ,  $X_{it}$ , represent a matrix of the dependent variable (1 x k),  $\beta_0$  is the unobserved country effect,  $\alpha$  is the coefficient of the lag dependent variable,  $\beta$  is the coefficient of the explanatory variables including the control variables. The unobserved individual effect is represented by  $\lambda_i$ ,  $\mu_t$  is the time effect,  $i$  is the number of variables or observations in the study.  $N$  represents the number of countries and  $T$  is the time (years).  $\varepsilon$  represents the error term which is correlated with the lagged dependent variable ( $Y_{it-1}$ ). The inclusion of the lag dependent variable is to enable researchers deal with the issues of autocorrelation. Since these equations are generally dynamic models, the Generalized Method of Moments (GMM) and the 2SLS (De Boef, 2005) are used in the estimation process.

In order to ascertain the effect of human development on financial inclusion, a model is specified as follows:

$$Extdebt_{it} = \alpha_1 Extdebt_{it-1} + \alpha_2 Excrate_{it} + \alpha_3 Inflation_{it} + \alpha_4 Z_{it}\lambda' + \varepsilon_{it} \dots\dots\dots (2)$$

$Extdebt_{it}$  is External Debt for country  $i$  at time  $t$ ,  $Excrate_{it}$ , and  $Inflation_{it}$  represents Exchange rate and Inflation for country  $i$  at time  $t$ ,  $Z_{it}$  represent a set of control variable showing external debt, exchange rate, and inflation rate for country  $i$  at time  $t$ . (Gross capital formation and trade openness) parameter estimates measuring the effect of explanatory variables on the dependent variables.

Also, to investigate the impact of Exchange rate on External debt, a third model is specified below:

$$Excrate_{it} = \alpha_1 Excrate_{it-1} + \alpha_2 Extdebt_{it} + \alpha_3 Inflation_{it} + \alpha_4 Z_{it}\lambda' + \varepsilon_{it} \dots\dots\dots (3)$$



The  $\alpha_3 Z_{it} \lambda'$  is the variables which determine Exchange rate without External debt index,  $\epsilon_{it}$  is the error term.

Another model is also specified to investigate the impact of Inflation on external debt in Africa. The equation is specified as follows:

$$Inflation_{it} = \alpha_1 Inflation_{it} + \alpha_2 External\ debt_{it} + Exchange\ rate_{it} + \alpha_3 Z_{it} \lambda' + \epsilon_{it} \text{-----} (4)$$

**Moderating Effect Model Specification**

Finally, to investigate the moderating effect of governance quality on external debt, exchange rate and inflation in Africa, an equation is equally specified as follows:

$$Extdebt_{it} = \alpha_1 Extdebt_{it} + \alpha_2 Excrate_{it} + \alpha_3 Inflation_{it} * GQ + \alpha_3 Z_{it} \lambda' + \epsilon_{it} \text{-----} (5)$$

Table 1 Description of Variables

S/NO	Variable	Notation	Description and Definition of Variables
1.	External Debt	Extdebt	It is measured as a composite Debt services on external debt, total from the world Development indicators (WDI)
2.	Extchange rates	Extrate	Composite index of real effective exchange rate, from the world development indicators (WDI).
3.	Inflation	Inflation	Index of Inflation rate, GDP deflator (annual %)
4.	Governance quality	GQ	Composite index of, (i) political stability and absence of violence, (ii) control of corruption, (iii) voice and accountability, (iv) governance effectiveness, (v) rule of law, and (vi) regulatory quality
5.	Gross capital formation	GCF	Gross capital formation is used as a control variable and measured as current LCU
6.	Trade openness	Trade	Percentage of GDP is used as a control variable and measured as a percentage of Gross Domestic Product

**RESULTS AND DISCUSSION**

Descriptive statistics provide a concise overview of the coefficients that summarize the research data (yellapu, 2018). All the variables in the model have sample size of 420 observations. The table shows that, inflation has a mean of 49.6% and a standard deviation of 30.8%, indicating how far the standard deviation dispersed from the mean and also demonstrates that inflation increased by 49.6% on average in Africa. Exchange rate has a mean and standard deviation of 61.2% and 27.3% respectively. External debt also has a mean and standard deviation of 45.4% and 27.3%. Gross Capital formation has a mean of 25.2% and a



standard deviation of a deviation of 74.4%, voice and accountability 56.6% and standard deviation of 44.3%. Political stability has the highest mean of 86.2% and deviation of 36.5%. Government effectiveness has mean of 59.4%, standard deviation of 20.8%. Regulatory, rule of law, and control of corruption has mean of 38.8%, 60.4% and 60.1%, with standard deviation of 35.9%, 46.3% and 49.2% respectfully.

Table 2 Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
infl	420	49.577	30.789	-21.83	130.19
excrate	420	61.233	27.089	-17.79	157.21
extdebt	420	45.378	27.303	-24.7	110.68
gcf	420	25.192	30.321	-19.837	170.689
trade	420	71.558	74.412	-10.89	456.7
vo	420	56.578	44.253	3.78	181.18
po	420	86.151	36.519	16.87	196.07
ge	420	59.433	20.841	26.5	112.23
rq	420	38.822	35.868	-9.58	147.21
rl	420	60.445	46.265	-3.6	185.06
ccor	420	60.118	49.152	-18.38	176.3

### Correlation analysis

A review of the correlation matrix presented in table 3 discloses complimentary relationship between the variables in the model. Inflation and exchange rate have a positive relationship with external debt. Also, apart from rule of law that has a negative relationship with external debt, all the governance indicators have positive relationship with external debt. Voice and accountability has a weak positive relationship with external debt, indicating that there is less accountability or the citizens are unable to hold government and stakeholders to account for borrowed resources they are allocated to use for developmental project. Political stability also has a very weak positive correlation with external debt. This also implies that Africa has quite unstable political environment which greatly impacts external debt. Governance effectiveness and control of corruption have weak positive correlation with external debt. However, regulatory quality and rule of law have weak negative correlation with external debt. The results thus indicate that, there is no multicollinearity issue between the explanatory variables and therefore no perfect or near perfect collinearity is observed. In that respect, no variable could be drop from the model since the model has no multicollinearity problems.

Table 3 Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) infl	1.000										
(2) excrate	0.656	1.000									
(3) exdebt	0.512	0.851	1.000								
(4) gcf	-0.062	-0.172	-0.212	1.000							
(5) trade	0.259	0.030	-0.056	0.084	1.000						
(6) vo	0.815	0.514	0.450	-0.159	0.170	1.000					
(7) po	0.074	0.023	0.173	0.363	-0.004	0.044	1.000				
(8) ge	0.384	0.297	0.149	0.087	0.363	0.446	-0.003	1.000			
(9) rq	0.086	-0.049	-0.251	0.192	0.573	-0.041	-0.117	0.276	1.000		
(10) rl	-0.592	-0.466	-0.420	0.074	-0.052	-0.497	0.034	-0.065	0.135	1.000	
(11) ccor	0.875	0.614	0.572	-0.098	0.104	0.927	0.105	0.406	-0.129	-0.526	1.000

### Diagnostic Test

Diagnostics performed indicated that all the underlining assumptions of regression have been fulfilled. Breusch-pagan heteroskedasticity results show insignificant results indicating that the null hypothesis of constant variance is positive. This implies that there is no heteroskedasticity in the data.

A Huasman test further conducted to select between fixed and random effect also revealed that there is no fixed effect in the data. To further confirm whether pool ordinary least square or random effect model should be used, a Breusch and pagan Lagrangian multiplier test for random effect is carried out and the results are significant, indicating that there is panel effect in the data.

Table 4 Dynamic two-step system GMM estimation for external debt, exchange and inflation

Variable	(1) Inflation	(2) External Debt	(3) Exchange Rate
L.inflation	0.876*** (5.62)		
inflation		0.242*** (0.10)	0.189*** (0.44)
Exchange rate	0.112*** (3.43)	0.124*** (0.11)	
External debt	0.0505*** (2.33)		0.144*** (0.84)

Gross capital form	0.0884** (1.91)	0.131*** (0.18)	-0.139 (-1.43)	Table 4...
trade	0.000777*** (0.01)	0.206 (0.75)	-0.0239 (-0.27)	
Voice and account	0.0482 (0.19)	1.105*** (0.44)	0.171 (0.52)	
Political stability	-0.0230 (-0.24)	-0.159 (-0.50)	0.00930 (0.08)	
Government effective	0.00538*** (0.04)	-0.0663*** (-0.04)	0.0317*** (0.10)	
Regulatory quality	0.0432*** (4.24)	0.223*** (0.60)	-0.0833 (-0.58)	
Rule of law	0.0142 (0.28)	0.0150 (0.06)	-0.00417 (-0.05)	
corruption	-0.00354 (-0.02)	-1.221 (-0.30)	-0.208 (-0.51)	
L.External debt		0.794*** (1.30)		
L.Exchange rate			0.752*** (5.74)	
_cons	-5.430*** (-0.88)	-46.43*** (-0.31)	5.960*** (0.35)	
<i>N</i>	378	378	378	
<i>AR2</i>	0.670	0.320	0.205	
<i>SARGAN</i>	0.971	0.612	0.921	
<i>HANSEN</i>	0.313	0.257	0.332	
<i>No of Instr</i>	16	16	17	
<i>No of Group</i>	42	42	42	
<i>Prob&gt;ch2</i>	0.000	0.000	0.000	

t statistics in parentheses

\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

### Inflation and external debt

The lag of inflation is significant at one per cent (1%) this indicates that inflation depends on its past value and contemporaneous value, all things being equal. There is also a positive significant relationship between inflation and external debt, an increase in external

debt will result in an increase in inflation. High debt levels may cause countries to be unable to service loans and support internal spending. As a response, most countries will print more currency in order to pay workers and meet operating costs. Demand pull and cost push inflation are both possible outcomes of this phenomena. More money tends to necessitate fewer items, or a rise in aggregate demand. African countries will have to expand local production, intensify internally generated finances, severely reduce wastage, and reduce external borrowing in order to be able to undertake developmental initiatives and improve residents' quality of life. This is in line with the findings of Yien, Abdullah, and Azam (2017) that conducted research into public debt and inflation, and found a positive link between foreign debt and inflation. The authors came to the conclusion that governments should be cautious while contracting loans in order to reduce inflation volatility and associated risks in the economy. An increase in inflation causes the currency to depreciate, and as the majority of these obligations are in foreign currency, a reduction in the local currency's value causes the foreign currency to appreciate, increasing the debtor's debt load (Nercessian, 2022; Berg, 1999; Gabaix & Maggiori, 2015).

### **External Debt and Exchange rate**

There is a significant relationship between external debt and exchange rates in Africa, as seen in table 4. When the inflation rate is stable and low, the value of the currency rises, enhancing the purchasing power of the needed currency. Countries with higher inflation see their currencies depreciate significantly in comparison to their trading partners. This usually results in increased interest rates in the economy. As a result, interest rates, inflation, and the exchange rates are all intertwined. When interest rates are adjusted, inflation and exchange rates always respond directly. Increased interest rates attract overseas investors and capital, causing exchange rates to rise.

On the other hand, if a country's inflation is higher than that of its trading partners, interest and exchange rates will falls accordingly. This assumption is supported by the findings of (Nazamuddin, Wahyuni, Fakhruddin, & Fitriyani, 2022; Zuhroh & Pristiva, 2022) who conducted comparable research and determined that exchange rates and external debt had a positive association. As the country's external debt grows, so do exchange rates. According to literature, governments with bigger debts are less appealing to foreign investors; large debts cause inflation since countries may create more currency to pay for external debt and public sector employees.

### **Moderating Effect of Governance Quality on External Debt**

A fourth model is developed to evaluate the relationship between the moderating influences of governance quality on external debt in Africa. There is a negative significant association between the interaction variables, external debt, and voice and accountability, as shown in table 5, model one (1). This means that as African countries continue to borrow more, their voice and accountability diminishes, implying that there are insufficient accountability processes within African governance frameworks. This assertion is supported by a study by Farooque, Hamid, & Sun (2022) which found a negative relationship between external debt and voice and accountability. The World Bank defines voice and accountability as "the perception of the extent to which a country's population are able to participate in selecting their government, as well as freedom of expression, freedom of association, and free media," when foreign debt rises. Strong accountability is important, and when it works, everyone benefits. It allows citizens to learn about the government's performance and how to seek redress when things go wrong. It ensures that ministers and civil workers behave in the people's best interests. There is also a negative significant relationship between external debt and political stability, with a government's propensity to collapse due to conflicts or political parties, and the occurrence of a government change increasing the likelihood of subsequent changes; these factors define a government's political stability. Table (5) shows that as political instability increases, external debt decreases. This is because no external financial institution will be willing to lend money to a country that lacks a formal government or is prone to frequent government changes. This is supported by a study by Makun (2021) which found that political instability reduces foreign debt since no financial institution will lend funds to a bankrupt government. External debt has a negative significant interaction relationship with government effectiveness; perceptions of public service quality, civil service quality and independence from political pressures, policy formulation and implementation quality, and the credibility of the government's commitment to such policies define effective governance. Model three (3) shows that effective governance quality lead to effective debt management, while weak governance leads to a rise in public debt. Public debt rises as effective governance declines, resulting in increased exchange rates and inflation. With the interacting term of external debt and regulatory quality, regulatory quality is also negatively significant. The view of the government's ability to establish and enforce solid rules and regulations that allow and support private sector development is captured by regulatory quality. Poor regulatory quality will suffocate the private sector, resulting in high unemployment and a high dependency ratio on the government (Bhattacharya & Inekwe,

2021; Kinyondo, Pelizzo, & Byaro, 2021). To fulfil domestic expenditures and execute development initiatives, the government will have to seek more funding from outside sources, which will naturally increase the government's debt stock. There's also a link between rule of law and external debt that's negative and considerable. However, there is a positive relationship between foreign debt and corruption; this means that, because Africa's political institutions are often poor, the economy is prone to excessive corruption and waste. Most African countries have dramatically raised their debt pile without corresponding development initiatives to show for it. Corruption rises in lockstep with African countries borrowing more money.

Table 4 Moderating Role of Governance Quality on External Debt, Exchange Rate, and Inflation in Africa

	(1)	(2)	(3)	(4)	(5)	(6)
	Inflation	Inflation	Inflation	Inflation	Inflation	Inflation
L.inflation	0.820 <sup>***</sup> (4.66)	1.047 <sup>***</sup> (4.23)	0.988 <sup>***</sup> (4.10)	0.873 <sup>**</sup> (3.24)	0.891 <sup>***</sup> (8.75)	0.622 <sup>***</sup> (4.17)
Excrate	0.132 <sup>***</sup> (1.48)	0.174 <sup>***</sup> (2.85)	0.0717 <sup>***</sup> (1.14)	0.0182 <sup>***</sup> (0.12)	0.132 <sup>***</sup> (3.51)	0.120 <sup>**</sup> (2.84)
Extdebt	0.176 <sup>***</sup> (0.41)	0.541 <sup>***</sup> (1.96)	0.00302 <sup>***</sup> (0.01)	0.372 <sup>***</sup> (1.38)	0.208 <sup>***</sup> (3.08)	-0.482 <sup>**</sup> (-2.58)
GCF	0.118 (1.95)	0.176 <sup>**</sup> (3.10)	0.136 <sup>**</sup> (3.05)	0.122 <sup>***</sup> (1.59)	0.154 <sup>***</sup> (4.36)	0.129 <sup>***</sup> (3.48)
CO	0.214 (0.58)	1.067 (1.85)	0.796 (1.53)	0.294 (1.20)	0.641 <sup>*</sup> (2.18)	0.475 (1.76)
trade	0.0710 (1.07)	0.109 (1.16)	0.116 (1.39)	0.0884 (1.09)	0.0860 (1.63)	0.108 (1.59)
PO	0.0984 (1.17)	0.498 <sup>*</sup> (2.18)	0.167 (1.73)	0.104 (0.97)	0.158 <sup>*</sup> (2.36)	0.154 (1.96)
GE	0.0545 (0.35)	0.122 (0.81)	0.0375 (0.13)	0.125 (0.89)	0.0366 (0.45)	0.338 <sup>*</sup> (2.08)
RQ	0.0686 (0.74)	0.102 <sup>*</sup> (2.06)	0.0254 (1.14)	0.362 (1.76)	-0.00446 (-0.18)	0.184 <sup>**</sup> (2.97)
RL	0.0520 (1.12)	0.114 (1.91)	0.0703 (1.43)	0.0693 (1.19)	0.0519 (1.38)	0.0750 (1.93)
ccor	0.265 (0.87)	1.040 (1.65)	0.784 (1.30)	0.254 (1.05)	0.517 (1.84)	1.147 <sup>*</sup> (2.17)

Extdebt*VO	-0.00191 <sup>***</sup>					
	(-0.27)					
Extdebt*PO		-0.00403 <sup>***</sup>				
		(-1.88)				
Extdebt*GE			-			
			0.000520 <sup>***</sup>			
			(-0.11)			
Extdebt*RQ				-0.00490 <sup>***</sup>		
				(-1.53)		
Extdebt*RL					-0.00208 <sup>***</sup>	
					(-2.79)	
Extdebt*COR						0.0108 <sup>***</sup>
						(2.39)
_cons	2.471 <sup>***</sup>	20.76 <sup>***</sup>	23.84 <sup>***</sup>	25.00 <sup>***</sup>	7.288 <sup>***</sup>	39.31 <sup>***</sup>
	(0.07)	(1.44)	(1.51)	(1.32)	(1.07)	(2.05)
N	378	378	378	378	378	378
AR2	0.471	0.221	0.317	0.651	0.451	0.536
SARGAN	0.751	0.821	0.531	0.859	0.771	0.456
HANSEN	0.206	0.253	0.361	0.233	0.531	0.331
NO of Instr	17	18	17	17	17	18
NO of group	42	42	42	42	42	42
Prob >Ch2	0.000	0.000	0.000	0.000	0.000	0.000

## CONCLUSION, RECOMMENDATIONS AND POLICY IMPLICATIONS

The purpose of this research is to demonstrate how external debt affect exchange rate and inflation in the presence of governance attributes. It employed a two-step system GMM estimation technique with data gathered from 42 African countries' world development indices from 2012 to 2021. The research revealed that there is a strong link between external debt and inflation in Africa, with inflation rising as external debt rises. This is due to the fact that most African countries have weak political institutions and hence are unable to effectively manage the borrowed monies. The more they borrow, the more interest they must pay on the borrowed



monies, forcing the majority of these countries to devalue their currencies in order to fulfil their loan obligations, equally the more money in circulation, the higher the inflation rate.

Furthermore, there is a positive substantial association between foreign debt and exchange rates, an increase in exchange rates leads to an increase in external debt. The national currency loses power as more external debt is contracted. Majority of African countries with high debt-to-GDP ratios are currently experiencing currency weakness, causing exchange rates to rise. Furthermore, data from the interaction effect of governance quality revealed that all governance indicators and foreign debt have a substantial negative relationship. As external debt grows, voice and accountability, political stability, governance effectiveness, regulatory quality, and the rule of law all suffer a one per cent reduction. This is because Africa's institutions are often weak, and it frequently fails to handle its debts properly. There was also a positive significant association between external debt and corruption, as debt increases, corruption also increases and vice versa. As proven by Popper (2022) who maintained that the Guidotti-Greenspan rule is critical in mitigating reserve holdings, it is apparent that access to external debt must be limited. This will be used as a guide and a benchmark for obtaining external loans and other debt-related expenses. If borrowed funds are not efficiently employed as anticipated, economies with financial difficulties risk encountering a crisis. Before obtaining external loans, African countries should ensure that they assess the financial facility's economic benefits as well as their potential to produce buffers. Improved governance attributes will also increase effective management of external debt, exchange, and inflation, according to the research. As a result, it is recommended that African governments improve institutional quality in order to promote the effective utilization of the credit facilities they take on.

## **WAY FORWARD AND FURTHER STUDIES**

African countries must implement policies to improve the quality of their legal systems, as well as their public and civil services. To enable sound policy formation and implementation, civil and public service independence should be encouraged, and political involvement should be maintained to a minimum. Most critically, African governments must commit to policies that will curb the pervasive corruption undermining many African economies. As a result, effective corruption control, political stability, functioning legal systems, freedom of expression and association, and an atmosphere in which people participate in the selection of their government would all help to boost economic growth. African governments should channel these external funds into projects that provide new investment opportunities and attract additional investors to the continent whilst creating the needed job opportunities for citizens.

The study focused on external debt, exchange rate and inflation in Africa using longitudinal data, further studies with time series data on country specific effect and the overall debt effect on financial inclusion and human development can be investigated.

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