Debt Policy, Budgetary and Financial Management Systems and Public Debt Accumulation in Africa

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Abstract

The phenomenon of unsustainable public debt among African countries in recent years has kindled significant interest among policymakers, researchers, and governments in prudent financial and debt management strategies. This study therefore seeks to find out how cross-country effective public debt policy and the quality of budgetary and financial management systems influence the accumulation of public debt among African countries. The generalized method of moments estimation technique was deployed. The study depended on secondary annual data spanning from 2005 to 2022 for 36 countries in Africa. The study found that improvement in the CPIA debt policy rating index will reduce public debt percentage of GDP among African countries. Also, improvement in the CPIA quality of budgetary and financial management rating index will reduce public debt percentage of GDP among African countries. The study recommends that African states comprehensively institutionalise public debt management frameworks, and adequately implement these frameworks to the latter. Governments are also urged to adopt a designated public debt management law to provide a clear framework for strategic debt management.

Keywords

Public debt, Public debt policy, Budgetary and financial management, Rule of law, Political stability

Introduction

In recent years the pace with which African states have accumulated public debt raises concerns about debt sustainability and this is likely to affect the continent's ability to achieve the goals of Agenda 2063 (Soko, 2022). Public debt unsustainability renders a country less competitive and further deteriorates the vulnerability of a country's financial market to international shocks (Saungweme and Odhiambo, 2019). The IMF and World Bank debt management objectives seek to ensure that governments over the medium to long run, obtain their financing needs and abide by their payment obligations at the lowest possible cost, consistent with a prudent degree of risk (Awadzi, 2015). Public Debt Management (PDM) is thus the process of establishing and executing a strategy for managing the government's debt to achieve these objectives. Prudent management of public debt will culminate in sustainable debt levels that are aligned with the government's monetary and fiscal policies.

The inadequacy of internal resources to finance domestic demands, results in governments using external sources to finance its expenditure which may be healthy for the economy if the debt is managed efficiently. Factors such as budget deficits, trade deficits, and gaps in saving–investment have culminated in developing countries borrowing enormous amounts of external debt (Dawood, Baidoo, and Shah, 2021). Recently, most African countries are either in debt distress or are at high risk of becoming debt distressed due to debt unsustainability. Africa's total external debt in 2010 was 300 billion USD and this has increased to 775 billion USD in 2020 with the average debt-to-GDP ratio increasing from around 40 percent to 57 percent during the same period. The number of African countries the IMF/World Bank's Debt Sustainability Framework (DSF) classified as being in distress, or as having a high risk of distress rose from nine in 2012 to twenty-three in 2022 (Soko, 2022) which confirms the unsustainable levels of debt accumulation by African countries. African governments in 2010 spent less than 5% of their revenues on servicing external debt but this has increased to 16.5% in 2021 (World Bank Group, 2023).

Soko (2022) attributes the main cause of increasing levels of debt in most African states to weak public debt management and governance since several African countries assessed by the World Bank's Debt Management Performance Assessment (DeMPA) performed below average which is an indication that their public debt management and governance systems are ineffective. It presupposes that effective public debt management and governance systems should minimise budgetary risks and ensure long-term debt sustainability which would reduce the excessive accumulation of public debt. Similarly, budgets linked comprehensively and

credibly with policy priorities, in addition to effective financial management systems with timely and accurate accounting and fiscal reporting, would lead to a reduction in the excessive accumulation and sustainable public debt. Therefore, this study seeks to find out how cross-country effective public debt policy and the quality of budgetary and financial management systems have influenced the accumulation of public debt among African countries. This article contributes to the literature by exploring empirically how effective public debt policy and quality of budgetary and financial management systems influence the accumulation of public debt among African countries using Country Policy and Institutional Assessment (CPIA) debt policy and quality of budgetary and financial management ratings since existing literature has not addressed this issue.

This paper continues with a presentation of a literature review the methodology, results and discussion, and finally, the conclusion.

Literature review

The CPIA is made up of 16 criteria which are grouped in four equally weighted clusters. These clusters are; structural policies, economic management, public sector management, and institutions and policies for social inclusion and equity. There are three criteria within the economic management cluster which include debt policy and management, monetary and exchange rate policies, and fiscal policy. The debt policy index evaluates the conduciveness of debt management strategy in minimizing budgetary risks and ensuring long-term debt sustainability while the quality of budgetary and financial management index evaluates the extent to which comprehensive and credible budgets are linked to policy priorities, effective financial management systems, as well as timely and accurate accounting and fiscal reporting.

Theoretical Model of Debt Accumulation

In the literature, there are several theoretical frameworks and econometric models used in analyzing external debt accumulation. Deficits in the economy that warrant borrowing by governments to balance their budget have been documented in the literature (Dawood, Baidoo, and Shah, 2021; Waheed, 2017). These deficits include the fiscal constraint gap, the foreign exchange gap, and the saving-investment gap.

These deficits; fiscal-constraint gap ($B_{t+1} = (1 + r_t)B_t + G_t - T_t$), foreign exchange gap ($B_{t+1} = M_t - X_t + (1 + r_t) + (R_{t+1} - R_t)$), and saving-investment gap ($B_{t+1} = I_{t+1} - S_{t+1} + (1 + r_t)B_t$) influence public debt. This implies that export, tax revenue, and savings negatively influence public debt accumulation whilst government expenditure, investment, and import, positively influence public debt accumulation. PDM can help countries reduce their borrowing cost, develop the domestic financial market through a carefully balanced composition of securities that can contain risk, and reduce the vulnerability of the economy to economic and financial shocks. Good public debt management will culminate in the reduction of public debt. Since prudent management of public debt and finances is expected to prevent excessive debt accumulation, the three deficits; the fiscal-constraint gap, the foreign exchange gap, and the saving-investment gap theoretical frameworks can be deployed to find out how cross-country effective public debt policy and quality budgetary and financial management systems can influence the accumulation of public debt among African countries.

Empirical literature

Theoretically, it has been shown above that factors such as export, tax revenue, and savings negatively influence public debt accumulation whilst government expenditure, investment, and import, positively influence public debt accumulation. Empirical studies on these determinants of public debt abound. A study by Abotsi, (2024) revealed that total government expenditure and investment increase government gross debt while economic growth and government revenue decrease public debt. Elsewhere, investment was found to reduce the external component of government debt in Asian, developing, and transitioning economies (Dawood, Baidoo, and Shah, 2021). Other studies also show that factors such as the growth rate of GDP, trade openness, and inflation (Beyene and Kotosz, 2020a, 2020b), exports and foreign direct investment (Beyene and Kotosz, 2020a), general government revenue, and gross domestic savings (Waheed, 2017) reduce public debt. Other empirical studies show that improvement in governance indicators such as political stability, regulatory quality, and rule of law decrease the public debt to GDP ratio (Ali and Al Yahya, 2019). In addition to these factors, it is equally important to know how effective public debt policy and quality budgetary and financial management systems influence the accumulation of public debt among African countries which is the gap this study seeks to fill.

Methodology

Model specification and Estimation technique

The general dynamic panel model presented in equation (11) is deployed for the study.

$$Y_{it} = \delta_0 + \delta_1 Y_{i,t-1} + X'_{it}\beta + \varepsilon_{it} \quad (11)$$

The term, Y_{it} represent the dependent variable, $Y_{i,t-1}$ is the lag of the dependent variable, X'_{it} represent the independent variables, δ_0, δ_1 β represent parameters to be estimated and $\varepsilon_{it} = u_i + v_i$ for i = 1, … … …, N (countries) and t = 2, …, T (time), with $|\delta_1| < 1$. The term ε_{it} represent the disturbance which is made up of two orthogonal components, the fixed effects u_i and the idiosyncratic shocks v_i . $E(u_i) = E(v_{it}) = E(u_i\ v_{it}) = 0$ for i =1, … , N and t = 2, … , T.

The framework for assessing the influence of public debt and financial management systems on government gross debt is presented in equation (12).

$$Gov_Debt_{it} = \delta_0 + \delta_1 Gov_Debt_{i,t-1} + \varphi_1 CPIA\ Debt_policy_{it} + \varphi_2 CPIA\ quality_bud_fin_man_{it} + \gamma z_{it} + \varepsilon_{it} \quad (12)$$

The dependent variable, Gov_Debt_{it} is a measure of total government gross debt in country i at time t , $Gov_Debt_{i,t-1}$ is a measure of total government gross debt in country i at time t −1, $CPIA\ Debt_policy_{it}$ is a measure of CPIA debt policy rating index i at time t, $CPIA\ quality_bud_fin_man_{it}$ is a measure of CPIA quality of budgetary and financial management rating index i at time t, Z_{it} represent a set of control variables (total expenditure, inflation, government revenue, total investment, volume of exports, political stability, government effectiveness, and rule of law) in a country i at time t, δ_0, δ_1, φ_1, φ_2, and γ represent parameters to be estimated, and ε_{it} is the disturbance term.

Data

The study depended on secondary annual data spanning from 2005 to 2022 for 36 countries in Africa. The theoretical and empirical literature on debt accumulation and data availability informed the choice of the variables. The variables included in the study and its source are presented in Table 1. The original scale of the variables, political stability, government effectiveness, and rule of law is between -2.5 (weak) and 2.5 (strong). The study transformed

the original scale to a new scale ranging from 0 to 100 to enable easy interpretation of the results by adopting the formula ($M = (\theta + 2.5) * 20$) where M and θ refer to the value of the transformed variable and that of the original scale respectively (see Abotsi and Iyavarakul, 2015).

Results and discussions

The results of the estimated GMM models are presented in Table 3. The government gross debt percent of GDP is the dependent variable and the independent variables include the variables of interest; the CPIA debt policy rating index and the CPIA quality of budgetary and financial management rating index. The number of groups is 36 and the number of instruments is 31 which was gotten from the restriction to use two lags for levels and two for differences in the data (i.e., the restriction is set to (2 2) in xtabond2). The total government expenditure variable is used as the endogenous. The control variables include government expenditure, government revenue, government investment, inflation rate, the volume of exports, political stability, rule of law, and government effectiveness.

Descriptive statistics

The descriptive statistics of the variables are presented in Table 3. The analysis shows that the panel data is not balanced since the highest observation is 657 and the lowest is 611. With a standard deviation of 40.10, it indicates that the government debt accumulation is widely dispersed among African countries while the mean government debt is 53.37% of GDP. The debt-to-GDP ratio threshold prescribed by the AMCP for developing economies is 60% and that prescribed by the IMF is 55% (Abotsi, 2021). The mean government debt of 53.37% of GDP shows that on average, African countries meet these thresholds though some of these countries exceeded both thresholds for prudent debt levels in 2020. The mean value of the CPIA debt policy rating index is 3.16 which is a little above the mid score of 3.0 on the index scale of 1 to 6 which indicates that on average African countries are not performing well on the debt policy rating. The CPIA quality of budgetary and financial management rating index is 3.04 also shows that on average African countries are not performing well on the quality of budgetary and financial management rating and thus are unable to achieve the goals or objectives of PDM. The minimum and maximum scores for debt policy ratings are 1.00 and 5.00 respectively and for the budgetary and financial management ratings are 1.00 and 4.50 respectively. The standard deviation of 0.91 and 0.63 for debt policy rating and quality of

budgetary and financial management rating respectively indicate that these indexes are not widely sparse among African countries.

Table 3. Descriptive Statistics of Variables

Variable	Observation	Mean	Std. Dev.	Min	Max
gov_debt_weo	651	53.370	40.097	7.276	295.748
CPIA_debt_policy	657	3.158	0.908	1.000	5.000
CPIA_quality_bud_fin_man	657	3.043	0.627	1.000	4.500
gov_total_exp	657	22.489	9.706	3.787	74.282
total_invest	611	23.369	11.004	-3.946	79.401
gov_rev	657	20.104	11.161	1.983	164.054
Inflation_weo	654	346.753	1712.575	12.567	36131.060
vol_exports	630	5.752	26.473	-64.894	501.700
political_stability	657	35.863	15.806	0.293	69.247
govern_effectiveness	657	31.338	9.583	0.994	57.113
rule_law	657	33.610	10.382	2.596	63.244

Another observation is the mean inflation value of 346.75 and standard deviation of 1712.58, which indicate that within the period of observations, fluctuation of inflation among the African countries was high. The total number of observations of investment as a percentage of GDP is 611 and this shows that some of the data points for this variable are missing. Nonetheless, the mean total investment as a percentage of GDP is 23.37% and the standard deviation of 11.004 indicates that investment expressed as a percentage of GDP is relatively widely sparse among African countries.

Interpretation and discussion of results

The results of the estimated models are presented in Table 4. The dependent variable in all three models is government gross debt. Three models are estimated where the estimated model (1) includes the CPIA debt policy rating index, CPIA quality of budgetary and financial management rating index, and the control variables excluding governance indicator variables. The estimated model (2) includes the CPIA debt policy rating index, CPIA Quality of budgetary and financial management rating index, and governance indicator variables as control variables. To find out how the rule of law affects the direction or strength of the relationship between debt policy and the quality of budgetary and financial management and public debt, another estimation is done (estimate (3)) where the interaction terms are included as part of the control variables since the legal framework for PDM is key to ensuring effective public debt management.

The results show that the lag-dependent variable (Gross government debt), has significant positive coefficients (0.833, 0.746, and 0.766) for the estimated models (1), (2), and (3) respectively and this specifies the tenacity of government debt among the African economies. The results show that the value of the estimated coefficients on the lag-dependent variable in all three models is less than (absolute) unity which means that the steady-state assumption holds (Abotsi and Iyavarakul, 2015; Roodman, 2009). The sign on the CPIA debt policy rating index is negative which indicates that improvement in the index reduces the general gross debt percent of GDP among African countries. The coefficients of CPIA debt policy rating is -5.796 and -7.715 for models (1) and (2) respectively and significant at 5% indicating that a unit increase in the CPIA debt policy rating index will substantially reduce the general government gross debt by at least 6% of GDP. This implies that a prudent debt management strategy is conducive to minimizing budgetary risks and ensuring long-term debt sustainability which will culminate in the reduction of public debt. The sign on the CPIA quality of budgetary and financial management rating index is negative which indicates that improvement in the index reduces the general gross debt percentage of GDP among African countries. The coefficients of CPIA quality of budgetary and financial management rating index is -11.03 and -15.84 for models (1) and (2) respectively and significant at 1%. The results indicate that a unit increase in the CPIA quality of budgetary and financial management rating index will substantially reduce the general government gross debt by at least 11% of GDP. This implies that the accumulation of public debt will be reduced when the government budget is comprehensive and credibly linked to policy priorities, coupled with effective financial management systems, timely and accurate accounting and fiscal reporting, as well as audited public accounts.

The coefficient of the rule of law is 1.044 and is significant at 1% indicating that a unit increase in the rule of law index will increase the government gross debt by 1.04% of GDP. This finding contradicts the finding by Ali and Ahmed (2017) who found that the rule of law decreases the public debt to GDP ratio in MENA countries. Since laws are enacted by governments, on the one hand, if these laws are good but not strictly adhered to by the governments, public debt management strategies will not be effective because a legal framework is key for ensuring effective PDM. On the other hand, if the laws are bad, it will also lead to ineffective PDM. The PDM legal frameworks of several African countries including Botswana, The Gambia, Ghana, Kenya, Namibia, Nigeria, Sierra Leone, South Africa, Zambia, and Zimbabwe are aligned with international practice (Soko, 2022). According to Soko (2022), though most African states have institutionalised public debt management frameworks, these frameworks are not

comprehensive and are not implemented adequately in some instances. Though international best practice in debt management urges governments to adopt a designated public debt management law to provide a clear framework for strategic debt management, only a few African states such as Cote d'Ivoire, Djibouti, Ethiopia, Lesotho, Mali, Mauritius, Niger, Nigeria, Seychelles, Sierra Leona, Tanzania, Zambia, and Zimbabwe have been able to adopt this practice (Soko, 2022). The debt management laws, in some African countries have notable deficiencies where the executives in some cases fail to comply with the legal requirements when executing debt management activities which results in weak governance (Soko, 2022). This may account for the reason why improvement in the rule of law index leads to an increase in government gross debt. In estimated model (3) however, the coefficient of debt policy is positive (23.06) and significant at 5% and the interactive term with rule of law is negative (-0.815) and significant at 1%. The marginal effect, $\left[\left(\frac{\mathrm{dy}}{\mathrm{dx}} = \varphi_1 + \gamma * \overline{\text{rule_law}}\right) = 23.06 - 0.815 * (33.610) = -4.33215\right]$ indicate that a prudent debt management strategy is conducive to minimizing budgetary risks and ensuring long-term debt sustainability in the presence of the rule of law, which will culminate in a substantial reduction of public debt among African countries. The coefficient of the CPIA quality of budgetary and financial management rating index is significant but the interactive term with rule of law is not significant in this study.

To address problems of over-identification restrictions and serial correlation, the standard Sargan and Hansen J test for over-identification restrictions and Arellano-Bond test for autocorrelation were deployed to ensure the reliability and consistency of the results. The expectation is that the null hypothesis of no autocorrelation of the second order, AR (2), is not rejected for the model to be well specified. In these estimations, the p-values (0.813, 0.588, and 0.789 of models (1), (2), and (3) respectively) show that the null hypothesis of no autocorrelation of the second order, AR (2), cannot be rejected in all the models which indicate the validity of the specified models. The Hansen J-test of over-identifying restrictions in all three models fails to reject the null hypothesis at any conventional level of significance (p = 0.185, 0.354, and 0.349 of models (1), (2), and (3) respectively), signifying that these models have valid instrumentation. Similarly, the Sargan test of over-identifying restrictions in all three models also fails to reject the null hypothesis at any conventional level of significance (p = 0.103, 0.122, and 0.104 of models (1), (2) and (3) respectively), signifying that these models have valid instrumentations. Also, with the number of instruments (31) being less than the

number of groups (36) the assumptions underpinning the two procedures are not violated. Finally, the Wild Chi-square test of joint significance rejects the null hypothesis that the independent variables are jointly equal to zero (p=0.000) in all three models at any conventional level of significance. It therefore can be confirmed from all these tests that the estimated models do not suffer from endogeneity, higher-order autocorrelation, and multicollinearity problems.

Table 4: Estimated results

VARIABLES	(Estimate 1) gov_debtweo	(Estimate 2) gov_debtweo	(Estimate 3) gov_debtweo
gov_debtweo_1	0.833***	0.746***	0.766***
	(0.0271)	(0.0309)	(0.0451)
CPIA_debt_policy	-5.796**	-7.715**	23.06**
	(2.564)	(3.124)	(11.60)
CPIA_quality_bud_fin_man	-11.03***	-15.84***	-25.93**
	(2.537)	(3.386)	(12.54)
gov_total_exp	0.789***	0.963***	0.960***
	(0.114)	(0.107)	(0.108)
total_invest	0.269**	0.0480	-0.0818
	(0.133)	(0.0993)	(0.129)
gov_rev	-1.322***	-1.132***	-1.175***
	(0.0877)	(0.0759)	(0.106)
inflationweo	0.00582	0.00704*	0.00548
	(0.00572)	(0.00414)	(0.00480)
vol_exports	-0.196***	-0.156***	-0.191***
	(0.0189)	(0.0289)	(0.0316)
political_stability		-0.586***	-0.458***
		(0.181)	(0.176)
govern_effectiveness		0.392	0.164
		(0.318)	(0.306)
rule_law		1.044***	1.976
		(0.340)	(1.312)
CPIA_debt_rule_law			-0.815***
			(0.283)
CPIA_quality_rule_law			0.456
			(0.342)
Constant	62.97***	58.80***	7.766
	(7.470)	(5.562)	(47.24)
Observations	597	597	597
Number of countries	36	36	36
Arellano-Bond test for AR (2)	0.813	0.588	0.789
Sargan test of overid. (p-value)	0.103	0.122	0.104
Hansen test of overid. (p-value)	0.185	0.354	0.349

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

Conclusion and recommendation

This study investigated empirically how effective public debt policy and quality of budgetary and financial management systems influence the accumulation of public debt among African countries using Country Policy and Institutional Assessment (CPIA) debt policy and quality of budgetary and financial management ratings. GMM estimation was used for the estimation to control for endogeneity, autocorrelation, and simultaneity bias problems. It was found that a unit increase in the CPIA debt policy rating index will substantially reduce the general government gross debt by at least 6% of GDP. This implies that a prudent debt management strategy is conducive to minimizing budgetary risks and ensuring long-term debt sustainability which will culminate in the reduction of public debt. It was also found that a unit increase in the CPIA quality of budgetary and financial management rating index will substantially reduce the government gross debt by at least 11% of GDP. This implies that when the government budget is comprehensive and credibly linked to policy priorities, coupled with effective financial management systems, timely and accurate accounting and fiscal reporting, as well as audited public accounts, the accumulation of public debt will be reduced. The study found that a unit increase in the rule of law index will increase the government's gross debt by 1.04% of GDP. However, because the legal framework for PDM is key to ensuring effective public debt management (Soko, 2022), the study found out how the rule of law affects the direction or strength of the relationship between public debt and debt policy. The findings indicate that a prudent debt management strategy is conducive to minimizing budgetary risks and ensuring long-term debt sustainability in the presence of the rule of law, which will culminate in a substantial reduction of public debt. The study recommends that African states should comprehensively institutionalise public debt management frameworks, and adequately implement these frameworks to the latter. Governments are also urged to adopt a designated public debt management law to provide a clear framework for strategic debt management. The limitation to the study is that only IDA-eligible countries in Africa were included in the study due to data unavailability, but since the instruments used are valid the outcome of the study is good for policy formulation in all African countries and the world at large.

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