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ANALYSIS OF INDEBTEDNESS DRIVERS

IN AFRICAN COUNTRIES

SUMMARY

This study examines the public debt drivers in African countries. After taking stock of public debt in these countries, a panel econometric approach was used to achieve this objective.

The System Generalized Method of Moments (Sys-GMM) proposed by Blundell and Bond (1998) was applied to recent data from 2010 to 2023. It was found that rising real interest rates tend to increase the debt-to-GDP ratio. Moreover, inflationary pressures and exchange rate depreciation increase countries' indebtedness. However, improving the growth rate, primary budget balance, and macroeconomic governance reduce the debt ratio.

In light of these findings, recommendations for economic policy and public debt management have been formulated. These include continuing to control inflation, optimizing public spending, improving the mobilization of internal resources, and ensuring exchange rate stability. In addition, it is critical to create sound conditions for sustained economic growth, favour borrowing at concessional rates, and put in place measures to strengthen transparency and accountability in public debt management.

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ACRONYMS/ABBREVIATIONS

DSA: Debt Sustainability Analysis

SSA: Sub-Saharan Africa

AfDB: African Development Bank

WB: World Bank

CADTM: Committee for the Cancellation of Third World Debt

ECA: Economic Commission for Africa

UNCTAD: United Nations Conference on Trade and Development

DSF: Debt Sustainability Framework

SDR: Special Drawing Rights

CPIA: Country Policy and Institutional Assessment

ADF: African Development Fund

IMF: International Monetary Fund

MDRI: Multilateral Debt Relief Initiative

IDA: International Development Association

IFI: International Financial Institutions

OECD: Organization for Economic Cooperation and Development

OPEC: Organization of the Petroleum Exporting Countries

SAP: Structural Adjustment Policies

AMCP: African Monetary Cooperation Programme

GDP: Gross Domestic Product

HIPC: Heavily Indebted Poor Countries

WDI: World Development Indicators

WEO: World Economic Outlook

Introduction

In the mid-20th century, with the wave of decolonization, the idea emerged that developed countries should help newly independent, mainly poor countries characterized by low levels of domestic savings to support their development process by financing their investment needs. Like other low-income countries worldwide, African countries faces many challenges, including infrastructure, deficit, low economic development, and high poverty.

To finance development projects to meet these challenges, African countries, following the example of the Marshall Plan, began to borrow heavily from International Financial Institutions (IFIs) such as the World Bank (WB) and the International Monetary Fund (IMF), as well as from developed countries. These loans were often granted at concessional terms. Moreover, strict conditions were attached to the loan agreements, such as the implementation of Structural Adjustment Policies (SAPs), which led to a deterioration in the living conditions of the population and a significant increase in debt servicing, thus triggering a new cycle of indebtedness in the long term (Didier Gobbers, 2001).

In the mid-2000s, the resurgence of debt levels prompted the IFIs to launch debt restructuring programs, such as the 1996 Heavily Indebted Poor Countries (HIPC) Initiative, which covered 34 African countries out of 39 worldwide, and the Multilateral Debt Relief Initiative[1] (IMF, 2005). Through these initiatives, some countries managed to reduce their debt via prudent economic management and sustained economic growth. Nevertheless, many countries that previously benefitted from debt relief initiatives by multilateral institutions continued to face unsustainable levels of debt, making it difficult for them to service their debts (OECD, 2007).

The solutions proposed by creditors to contain the debt crisis would prove to be counterproductive. These initiatives have failed to resolve Africa's debt crisis. Instead, they would have exacerbated it (CADTM, 2022)[2]. A little over a decade after the debt relief measures implemented by the prominent donors, some African countries are still grappling with high public debt, notably by subscribing to the Debt Service Suspension Initiative (DSSI) launched by the G-20 countries in 2020, particularly as a response to COVID-19 effects, or a possible restructuring under the new Common Framework intended to deal with insolvency and protracted liquidity problems (Ferry, 2021).

In recent years, countries have diversified their lenders, turning to China and private investors with the issuance of Eurobonds, in addition to their traditional creditors. As a result, the Continent faces several risks of deterioration in its growth prospects as global financial conditions tighten and exchange rates depreciate, exacerbating debt servicing costs. This could increase the risk of debt distress[3] (IMF, 2021; ADB, 2023; WB, 2023). According to IMF assessments, in 2022, more than half of the countries in Sub-Saharan Africa (SSA) were at high risk of debt distress. This presence of risk has made it difficult for African countries to access international capital markets. It has led to instability in the foreign exchange market, preventing most Central Banks from effectively maintaining price stability.

The stock of public debt in SSA is estimated at $1,140 billion at the end of 2022, up from $354 billion at the end of 2010, while its average weight relative to Gross Domestic Product (GDP) rose from 32 percent in 2010 to 57 percent in 2022, with low domestic resource mobilization combined with an increase in

[1] The Multilateral Debt Relief Initiative (MDRI) aims to cancel all eligible debt owed by countries that have reached the HIPC completion point to three multilateral institutions - the IMF, the World Bank's International Development Association (IDA), and the African Development Fund (ADF).

[2] Committee for the Abolition of Illegitimate Debt, formerly Committee for the Cancellation of Third World Debt (CADTM), based in Belgium and Africa, is composed of organizations active in 15 African countries (Benin, Burkina Faso, Côte d'Ivoire, Cameroon, Congo, Democratic Republic of Congo, Gabon, Guinea, Kenya, Mali, Morocco, Niger, Senegal, Togo, and Tunisia).

[3] Over-indebtedness: According to the IMF, this characterizes a country that is experiencing difficulties in repaying its debt, as evidenced by the presence of arrears, or where debt restructuring is underway or imminent, or where there are early signs of over-indebtedness (for example, debt and debt service indicators significantly exceed short-term reference thresholds, and these exceedances are high or prolonged).

public expenditures (WB, 2023). Debt service limits the resources available for public investment in infrastructure, including in education, health, and other vital sectors. Over 60 percent of African countries devote more resources to debt repayment as opposed to financing primary needs (CADTM, 2022). Moreover, the conditions imposed by international lenders at times hinder African countries' economic and social development and jeopardize the economic policies put in place (Gobbers, 2020).

Given the critical importance of the debt issue for African countries, this study analyzes the indebtedness drivers, using an econometric approach on panel data covering the period 2010-2023. Results of the econometric analysis allowed to formulate some conclusions and recommendations to improve debt policy of the Continent's countries.

I. Some historical facts about Africa's debt

1.1 African debt context

Since independence, African countries have faced difficulties in financing their development, especially with the succession of crises marked by commodity shocks.

In the wake of the first oil crisis in 1973, resulting from significant increases in oil prices and adversely affecting African economies, many countries were forced to borrow more to close huge financing gaps ensued by the crisis. This situation led to an unsustainable increase in their public indebtedness, with the annual debt service absorbing a large proportion of capital inflows, resulting in debt restructuring initiatives by IFIs, the Washington Consensus, and the Paris and London Clubs. However, the imposition of strict conditions on borrowing countries, such as the implementation of Structural Adjustment Policies (SAPs) by the IMF and WB, led to a deterioration in living conditions, a significant increase in debt servicing and, in the long term, a new cycle of indebtedness (Gobbers, 2001).

The countries were characterized by very low economic diversification, exposure to shocks arising from volatile commodity prices, and institutional and political fragility. In addition, deteriorating terms of trade led to a decline in government revenues, creating an increasingly acute need for financing.

Thus, faced with this new situation, the Organization of the Petroleum Exporting Countries (OPEC), which were making huge profits, placed their surplus with private international banks, which used these funds to lend to developing countries (Gharyeni, 2015). As the World Bank multiplied its loans in the following years, developing countries became massively indebted before the end of the 1980s. The resulting sharp increase in interest rates, combined with U.S. monetary policy, tightened the conditions under which countries could repay their loans. These conditions forced countries to rely on revolving credit or ODA, which has been absorbed by debt servicing to the detriment of economic and social investments. The debt servicing ratio to export earnings soared (+18 percent), and countries' debt became unsustainable, with an average external debt ratio of 394.6 percent in 1996 (Moisseron and Cottenet, 1999).

African countries were heavily indebted, with an average debt ratio of about 92.2 percent (UNECA, 2004), and now face the challenge of servicing their debts in a context of limited budgetary margin. To contain this debt crisis, the IFIs adopted financial management of the debt crisis through debt rescheduling programs and the application of Structural Adjustment Programs (SAPs) in most countries until 2000. This approach aimed to reduce structural imbalances in public finances, the current account deficit and, indirectly, the debt ratio. More generally, the IFIs sought to respond to these countries' rising debt ratios and increasing government payment difficulties without really committing themselves to the long-term correction of the countries' fundamental double vulnerability: the vulnerability linked to their high exposure to shocks arising from the volatility to commodity prices due to their dependence on imports while only exporting raw materials and products with low to no value-added and the vulnerability resulting from their institutional and political fragility. These vulnerabilities are exacerbated by the risks associated with climate change, which are becoming increasingly significant, as evidenced by the number of climatic disasters and the interest shown by stakeholders in incorporating them into their analysis.

1.2. Debt relief initiatives

Since the 1980s, several initiatives and monitoring frameworks have been implemented in favour of debt relief, debt suspension, and sound public debt management.

1.2.1. Debt relief initiatives

Structural adjustment plans failed to stabilize debt, so traditional donors undertook a debt restructuring process. Bilateral public development institutions, followed by private lenders, granted debt relief through the Paris and London Clubs.

Through concerted action by multilateral institutions, these initiatives aim to reduce the debt burden of very poor and heavily indebted countries to sustainable levels, enabling them to meet debt service payments from their export earnings. To be eligible, each country must draw up a Poverty Reduction Strategy Paper (PRSP) to allocate the surpluses generated by debt service relief in line with its priority objectives. After negotiations, the initiative involved $70 billion in debt relief and $5 billion in additional costs, spread over 34 African countries over 39 eligible, which have reached completion to reduce debt stock by 90 percent.

In 2005, the HIPC initiative was completed by the Multilateral Debt Relief Initiative (MDRI) for the poorest countries. This initiative was designed to cancel debt owed to the IMF, the World Bank, and the African Development Bank (AfDB). To qualify, however, each country had to meet several criteria: (i) be an International Development Association (IDA) borrower alone, (ii) have an unsustainable debt burden, and (iii) implement reforms as part of a program agreed with the IMF. Once these criteria are met, the IMF and World Bank Boards formally decide whether a country is eligible for debt relief. The creditors then commit to reducing the debt to the agreed sustainability threshold, estimated at 150 percent of export earnings or 250 percent of government revenue, excluding grants. These thresholds constitute the "decision point" and the country concerned is granted interim debt service relief. Debt stock relief granted at the decision point becomes definitive for all bilateral and multilateral creditors and represents the completion point. At this point, creditors must grant the recipient country the full debt relief promised at the decision point.

1.2.2. Public debt monitoring framework

To help developing countries, particularly African countries, monitor their indebtedness following the implementation of debt relief and cancellation initiatives, the IMF and World Bank have adopted the Debt Sustainability Framework (DSF) to help low-income countries mobilize resources while minimizing the risk of over-indebtedness. Four levels of risk have been defined: low, moderate, high, and over-indebtedness. In 2015, the DSF was improved with revised debt limits, considering the diversification of financing in developing countries. In addition, the new framework includes the analysis of domestic debt and non-concessional external financing, which are rapidly growing in African countries as alternative sources to borrowing from traditional donors.

Despite establishing these mechanisms to alleviate or monitor the debt of highly indebted countries, several events have impacted the debt of African countries.

1.3 Impact of recent shocks on African countries' indebtedness

The decline in commodity prices over the past decade, combined with the slowdown in global activities exacerbated by the effects of COVID-19 and geopolitical conflicts, has weighed heavily on the economies of low-income countries, particularly those in SSA. Indeed, increased spending on health and related sectors in response to the COVID-19 shock and growing revenue losses have worsened fiscal imbalances. This situation has accelerated the already growing indebtedness of African countries in the context of tightening financial borrowing conditions that do not match the expected economic performance of borrowing countries. In this environment, new emerging lenders, notably China, have intensified participation in the debt market with lending conditions incompatible with the consensus framework of traditional creditors. The new dynamic raises concerns about the impact of this new financing on the future indebtedness of recipient countries.

Indeed, the additional debt generated by measures to mitigate the impact of the health crisis on economic growth has put an unprecedented strain on the debt of some SSA countries, undermining their sovereign debt sustainability. Although the current debt levels of most of these countries are lower than those of developed countries, the debt sustainability of countries on the Continent is under threat, given their vulnerability to debt. The rapid increase in debt levels has led authorities and international institutions to fear repeating the debt crisis scenarios of past decades in a context where donor countries are experiencing budgetary constraints that limit their ability to pursue ambitious development aid policies.

According to the IMF outlook (2021), Africa's debt trajectory was projected to accelerate rapidly due to increased public expenditures to mitigate the socio-economic shocks of the health crisis and the contraction of economic activity and government revenues. The capacity to repay debt is significantly low, with some African countries for unproductive investments that have no multiplier effects on growth. Borrowing has been used for operating/recurrent expenses and social transfers. The misallocation of resources and the hostile international environment have severely undermined the solvency of these countries.

For example, the recent initiatives by the G20 to suspend debt service payments on bilateral debt and the recent allocation of Special Drawing Rights (SDR) and other facilities by the IMF aimed to create fiscal space in the context of growing debt overhang. Debt management is essential if governments are to have sufficient fiscal space to meet pressing development needs.

II. Public debt: Concepts, theoretical and empirical reviews

Numerous studies have examined the relevance, causes, and consequences of public debt accumulation. Some studies suggest that public debt can be explained by factors such as budget deficits, fiscal pressure lowness, interest rates, and the business cycle. Other researchers have studied the redistributive effects of public debt, focusing on the impact of economic policies. This literature review aims to focus on the factors that explain its expansion.

2.1. Some concepts and definitions

2.1.1. Definitions of public debt concepts

For a better understanding of the context, it is worth recalling some definitions of key concepts related to public debt. According to the IMF's Government Finance Statistics Manual 2014 (GFSM, 2014), gross public debt consists of all liabilities that require payment or payments of interest and/or principal by the debtor to the creditor at a date or dates in the future. This includes debt liabilities in the form of SDRs, currency and deposits, debt securities, loans, insurance, pensions and standardized guarantee schemes, and other accounts payable. Thus, all liabilities in the GFSM 2014 system are debt, except for equity and investment fund shares, financial derivatives, and employee stock options.

It mainly comprises external debt contracted by a sovereign State from non-residents on international markets with financial institutions States, and domestic public debt contracted in domestic currency with residents (individuals, financial institutions, or Central Banks).

External debt consists of government-guaranteed and non-guaranteed debt. Guaranteed debt is debt issued by public entities that benefit from a government or another public entity guarantee. This guarantee strengthens the credibility and concessional nature of the debt. A distinction is made between:

- Public (government-guaranteed) debt to official creditors includes loans from international organizations (multilateral loans) and governments (bilateral loans). Specifically, loans from international organizations include loans and credits from the World Bank, regional development banks, and other multilateral and intergovernmental organizations;
- Public (government-guaranteed) debt to private creditors includes government or private-sector bonds, commercial bank loans granted by private banks and other private financial institutions, and other private loans guaranteed by a credit institution.

Non-guaranteed debt is issued by public entities but does not benefit from a government guarantee. This type of debt may involve greater risk for investors and carry higher and less favourable interest rates.

Government bonds are debt securities issued by the Government or local authorities. They are usually issued with a fixed maturity and a fixed or variable interest rate. Bonds may be traded in financial markets, allowing holders to resell them before maturity.

Treasury bills are debt securities issued by the government for shorter maturities. They are often used to meet the government's short-term financing needs.

2.1.2. The concept of public debt sustainability

Debt sustainability refers to a country's ability to repay its financial obligations without jeopardizing its long-term economic and social situation. Debt sustainability is often assessed in terms of a country's ability to generate revenue, control public expenditures, and maintain stable economic growth. If a country's debt is assessed as being unsustainable, it can lead to a deterioration in its creditworthiness, higher borrowing costs, and adverse effects on investment, employment, and the general well-being of the population. It is measured by the debt-to-GDP ratio, the debt service-to-exports ratio, and the debt service-to-government revenue ratio, according to critical thresholds.

2.2. Literature review

Public debt dynamics are based on the government's intertemporal budget constraint, with the solvency challenge arising from the intertemporal constraint. Like any other economic agent, the government is subject to budget constraints. However, public expenditure must be financed through taxes, borrowing, or money creation.

Borrowing is key to finance government operations worldwide. Capital expenditures with a positive leverage effect on the economy's productivity can be funded through debt. From this perspective, debt is not inherently bad. On the other hand, when public debt covers recurrent expenditures, it is tantamount to financing the State's "lifestyle" at the expense of future generations.

Economic theory suggests that debt, within reasonable limits and funds invested in projects that benefit the nation, can contribute to a country's economic development. Less-equipped countries' development and financing capacity offer more significant investment potential, with a high propensity for profitability. In this way, the pace of production in less developed countries should accelerate, enabling them to generate substantial revenues to repay their debts well within the stipulated timelines. In this case, the effect of public debt is positive, provided there is no chronic budget deficit. Public debt should be used to finance public investment to stimulate growth, in line with the golden rule of public finance.

On the other hand, the long-term effects of public indebtedness are harmful and could reduce national savings, leading to an increase in interest rates. Consequently, investment and capital growth fall, and labor productivity declines, followed by a decrease in the real wage rate (Buiter, 1977). The resulting public debt service could make the debt unsustainable, leading to macroeconomic imbalances (e.g., current account deficits and budget deficits), a deterioration in specific indicators such as the terms of trade, and low coverage of social expenditures. This imbalance would prevent administrations from effectively meeting their recurrent and others expenditures. From this perspective, the risk of sovereign default would remain elevated. Fiscal adjustment in such circumstances often has disastrous social consequences due to austerity measures resulting from public spending cuts.

This situation can be avoided in developing countries by resorting to external borrowing to finance the public deficit. On the other hand, the issuance of public securities could increase the interest rate, which could encourage the inflow of foreign capital, affecting the capital balance. The impact on the economy depends on the exchange rate regime: (i) under a fixed exchange rate regime, the Central Bank could pursue an expansionary monetary policy, increasing the money supply to satisfy the additional demand for local currency; (ii) under a flexible exchange rate regime, the injection of additional capital increases the demand for local currency in the foreign exchange market, triggering an appreciation of the exchange rate, resulting in a loss of competitiveness and a deterioration in the current account balance.

While numerous empirical studies on emerging and developing countries (e.g., Giorgiani and Holden, 2001 and 2003) have confirmed the validity of the Ricardian equivalence[4] proposition, other works (Sarantis, 1985; Gupta, 1992; Khalid, 1996; Blanchard and Perotti, 1999; Darkos, 2001; Reinhart and Rogoff, 2009) have shown the impact of some macroeconomic indicators on public debt.

[4] Ricardian equivalence theory states that public debt does not affect macroeconomic aggregates. Indeed, Barro (1974), in his article "Are Government Bonds Net Wealth?", claims that the budget deficit is neutral with no multiplier effect on demand, and that the effect of an increase in the budget deficit does not depend on how it is financed

Studies have highlighted the impact of the current account balance on indebtedness, starting with analyses of links between the public deficit and the current account deficit advocated by the notion of "twin deficits" found in the work of Mundell and Fleming (1962 and 1963). Other studies (Obstfeld and Rogoff, 2000; Hatemi and Shukur, 2002; Kaufmann et al., 2002; Kulkarni and Erickson, 2001; Milesi-Ferretti, 2007) highlighted structural differences among developing countries, particularly in terms of their current account balances and debt levels, and found that many countries experienced significant current account imbalances, with high and growing deficits and increasingly elevated levels of debt. Similarly, the results of Reisen (2000), Lane and Milesi-Ferretti (2007), and Chinn and Frankel (2007) econometrically demonstrate a negative relationship between current account balance and external debt for a large sample of countries from 1970 to 2004. They found that countries with higher net foreign assets tend to run current account surpluses, while countries with lower net foreign assets tend to run deficits.

Largent (2017) and Ferry et al. (2021) also examined whether the effects of macroeconomic shocks on the dynamics of public debt and public deficit ratios differ according to economic conditions. They showed that the effects of macroeconomic shocks on the public deficit ratio are more potent during recessions. Largent (2017) also found that growth stimulus and fiscal consolidation are the most effective means of reducing public debt and public deficit ratios during economic downturns. For Ferry et al. (2021), the new wave of indebtedness experienced by African economies over the past decade has offset the Continent's need for development financing. This re-indebtedness has been accompanied by a transformation of the public debt profile and diversification of external creditors, putting many countries at high risk of debt distress in 2019.

Regarding the interaction between public debt and the exchange rate, Abell (1990), Chinn and Prasad (2003), Forbes and Warnock (2012), and Shi and Zhu (2015) have emphasized the existence of an indirect relationship between the budget deficit and exchange rate (relative to the value of the US dollar) caused by fluctuations in the interest rate and foreign capital movements.

In addition, good macroeconomic governance promotes the stability and predictability of economic policies. Prudent fiscal policies and dynamic approaches to public debt management can contribute to lower debt levels. For example, a World Bank study (2014) points out that countries with strong, transparent institutions tend to have lower debt levels. Also, effective public expenditure control mechanisms embedded in robust macroeconomic governance are essential to avoid unsustainable debt levels. Several studies and reports (Mendoza and Ostry, 2008; BIS, 2016; IMF, 2019; OECD, 2020) concluded that countries that implement a rigorous public financial management framework and/or macroeconomic discipline generally show better control of their debt levels.

III. Analysis of public debt in African countries

This section describes the evolution of the Continent’s debt ratio and some macroeconomic indicators. It highlights a multidimensional analysis of the debt profile of African countries.

3.1. Stylized facts about public debt in Africa

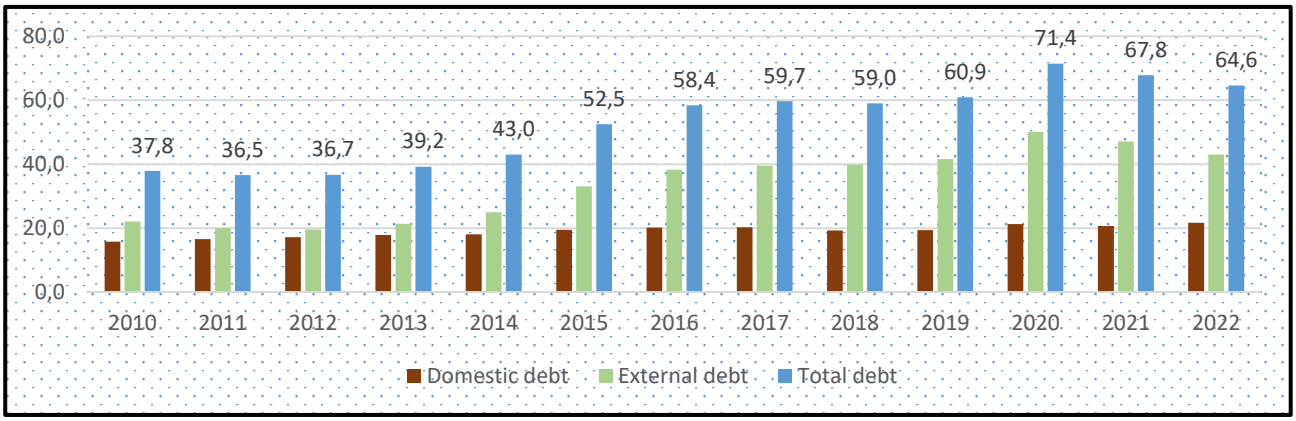
3.1.1. Public debt trends in African countries

Figure 1 below shows Africa’s public debt ratio evolution between 2010 and 2022. The average debt ratio is 64.6 percent in 2022, compared to 37.8 percent in 2010. This ratio is 58.4 percent for resource-rich countries and 73.9 percent for resource-poor countries. According to the AfDB Economic Outlook for Africa, the average debt ratio is 81.5 percent in North Africa and 57.1 percent in SSA.

This increase in the volume of public debt can be seen in both domestic and external debt. Indeed, the volume of domestic public debt has risen on average from 17.4 percent of GDP in 2010 to 22 percent of GDP in 2022, while external public debt has increased from 21 percent to 43.0 percent of GDP. The increase in domestic public debt, whose share of total public debt remains relatively stable, is constrained by a relatively low level of domestic savings, domestic capital markets that are less developed than in

advanced economies, and a more volatile and sometimes fragile domestic financial environment. While domestic public debt is a concern in some African countries (particularly regarding financial and monetary stability and the crowding out of domestic private-sector financing), the high level of external public debt continues to attract more attention.

Figure 1: Public debt in Africa in percentage of GDP



Sources: World Bank International Debt Statistics and Global Debt Database, IMF

African countries have fairly heterogeneous debt levels, with stable debt-to-GDP ratios overall, reflecting a high degree of homogeneity in the evolution of the countries' debt levels over 2010-2022.

The dispersion of public debt in Africa progressed from a median level of 32.3 percent in 2010 to 59.1 percent in 2022 (see Annex 1). However, some countries, such as Guinea, Botswana, the Democratic Republic of Congo (DRC), Seychelles, Comoros, and Sao Tomé & Principe, are expected to register a decline in their debt ratio. In contrast, countries, such as Chad, Côte d'Ivoire, Djibouti, Mauritania, Guinea-Bissau, and Tanzania are projected to have some moderate increase in this ratio (below +20 percent). That said, this last indicator alone is not sufficient to assess the financial difficulties that states may be confronted with. The public debt of African countries rose from 25 percent of GDP in 2007 to 64.6 percent of GDP in 2022, while that of developed countries rose from 71 percent to 104 percent of GDP over the same period despite a lower repayment capacity. As part of the follow-up to the African Monetary Cooperation Program (AMCP) in 2022, 15 countries failed to meet the public debt criterion, with a diverging trajectory, while nine countries that fell short of meeting the criterion converged. In particular, countries with the highest debt ratios were Angola, Congo, Sudan, Eritrea, Cape Verde, Egypt, Mauritius, Zambia, and Mozambique. Countries with the lowest debt ratios are Botswana, Comoros, Djibouti, Eswatini, Guinea, Nigeria, Uganda, Central African Republic, Democratic Republic of Congo, Tanzania, and South Sudan.

In 2022, the North Africa Sub-region had the highest indebtedness rate (61.7 percent), followed by West Africa (64.5 percent), Southern Africa (61.7 percent), East Africa (55.9 percent) and Central Africa (47.9 percent).

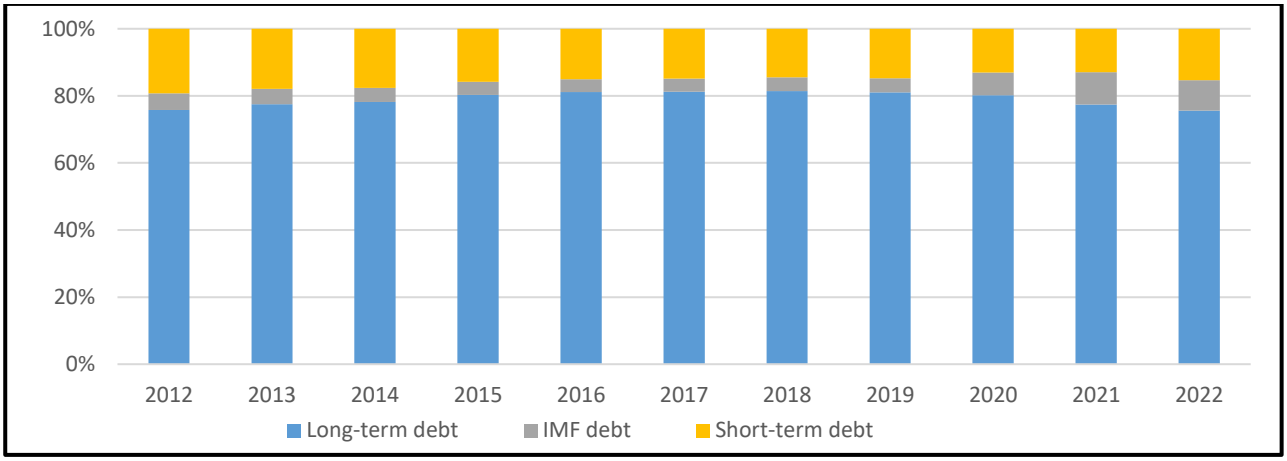
Although accelerated by the COVID-19 pandemic onset, debt levels are stabilizing across the continent, in many countries. However, it remains high and above pre-pandemic levels due to the volatility of public finances, financial market conditions and its rising trend despite the measures taken by governments to mitigate the impact of shocks.

3.1.2. Changes in the composition of public debt in Africa

The debt stock of African countries, like the global debt stock, remains dominated by long-term debt, with an average of 79.1 percent (See Figure 2). The longer period provides countries potential scope to shorten loan repayment periods when circumstances allow while taking advantage of opportunities to restructure loans in such a way as to give borrowers greater flexibility in accessing funds over the long term on fixed terms. These more structured loans offer a broader and more complex range of facilities and revolvers (ASLF, 2020). Short-term debt (14.3 percent of GDP) remained stable over the period.

However, the ratio of short-term public debt to GDP was around 1 percent in Cape Verde, Gabon, and Gambia, against at least 20 percent in Mauritius, Sudan, Tunisia, and Zimbabwe, suggesting that the latter were more exposed to refinancing risks (World Bank, 2021). Although the demand for IMF borrowing is growing, it represents, on average, only 5.6 percent of the debt stock.

Figure 2: Breakdown of public debt in Africa



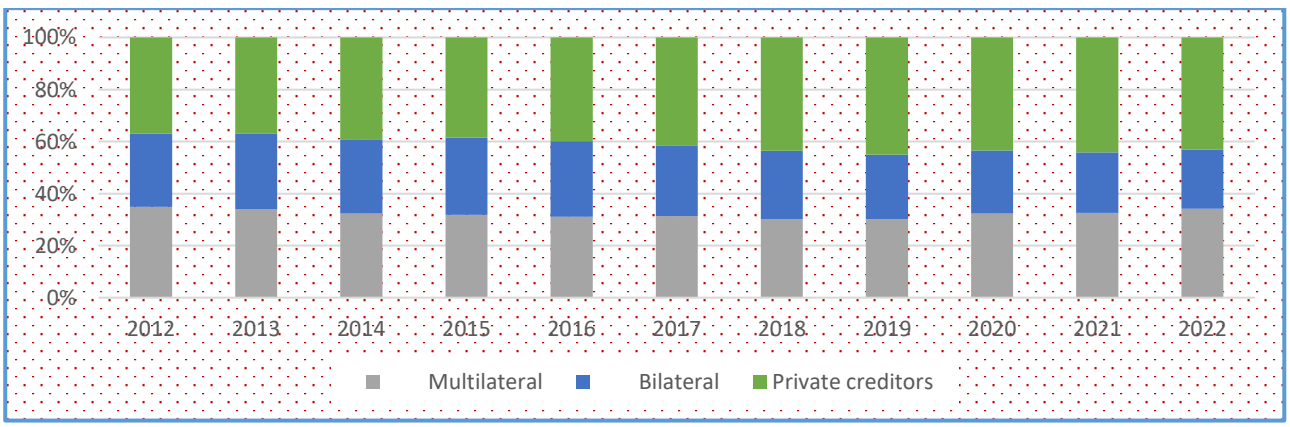
Source: World Bank International Debt Statistics

Annex 2 shows that in 2020, 56.8 percent of the public debt of African countries was denominated in US dollars, 12.7 percent in euros, 2.9 percent in SDRs, and 27.7 percent in other currencies. The high concentration of dollar-denominated external debt is seen in countries such as Angola, Ethiopia, Ghana, Nigeria, South Africa, and Zambia, constituting over 80 percent. This composition shows the extent to which the Continent's debt is exposed. As such, countries with a floating exchange rate and limited revenues have become more vulnerable to exchange rate fluctuations.

3.1.3. Structure of African countries' external creditors

As shown in Figure 3, the dynamics of public debt in African countries are accompanied by changes in the structure of external creditors and, therefore, in the financial terms of public debt. Over the period from 2012 to 2022, the distribution of public debt holders in Africa reflects diversification towards commercial creditors (bondholders and commercial banks), whose share increased from 38 percent in 2012 to 42 percent in 2022, while multilateral donors remained fairly stable. This structure thus reflects the beginnings of a diversification towards more private external creditors, following increases in Eurobond issuance in recent years. Multilateral debt, the most critical component of public debt, has remained stable in terms of share, including more concessional loans from international financial organizations. In 2021, the largest share of public and state-guaranteed external debt owed to private creditors went to South Africa (89.8 percent), followed by Ghana (60.6 percent) and Côte d'Ivoire (60.3 percent). At the same time the share for Angola, Zambia, Gabon, Chad, Morocco, Nigeria, Egypt, and Senegal was around 30 percent.

Figure 3: Structure of guaranteed public debt by creditor

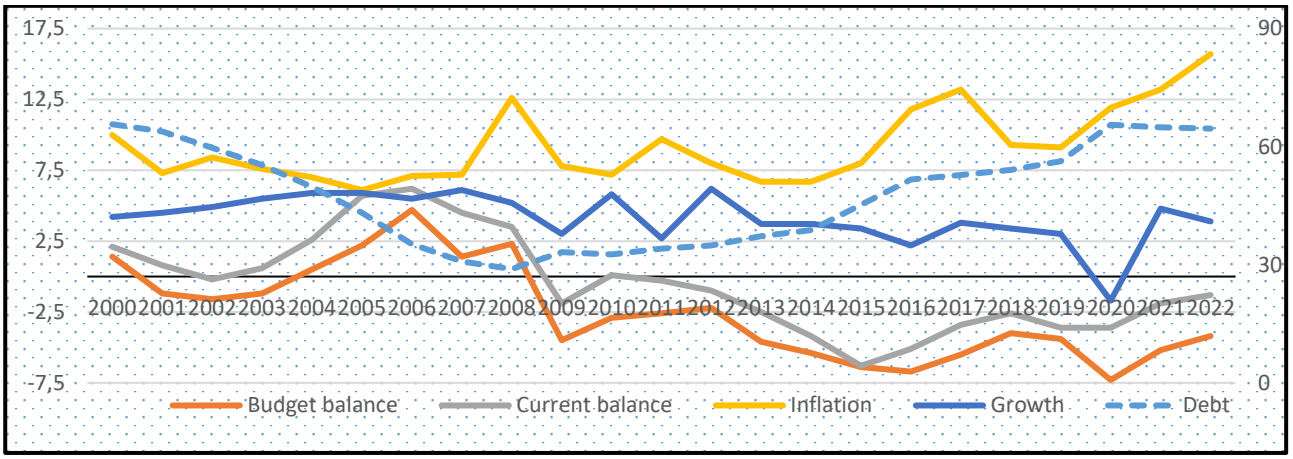


Source: World Bank International Debt Statistics

3.1.4. Debt trends and key economic indicators

Between 2010 and 2022, the public debt ratio has been on an upward trend, and the fiscal balance steadily deteriorated. The rapid accumulation of debt over the past decade was attributed to the fact that many African countries borrowed to support growth and finance their budget deficits. This persistent indebtedness has limited the government's capacity to implement economic and fiscal policies flexibly and to adequately respond to emerging economic and social needs (Fosu, 2010; Gobbers, 2001). This dynamic has somewhat contributed to the lackluster economic growth, which has remained below its potential level, averaging 3.5 percent in the concerned period. More broadly, this low level of economic growth following an increase in debt results from poor macroeconomic management rather than debt intolerance.

Figure 4: Trends in debt levels (right axis) and some key macroeconomic indicators



Source: IMF database

In terms of the balance of payments, the increase in debt is accompanied by a current account deficit averaging 6.3 percent per annum until 2022 (trend shown in Figure 4). This balance is partly worsened by debt service payments, which have increased from $39.7 billion or 6.9 percent of exports to $112.3 billion in 2022 or 12.3 percent of exports in 2022 due to borrowing at near-market terms less concessional. Furthermore, increased debt repayments lead to a depreciation of national currencies, making imports more expensive, with a negative impact on the current account balance due to the fact that African countries are net importers.

3.1.5. Indebtedness drivers

A breakdown of the drivers of African debt dynamics (see Annex 3) reveals a number of factors, notably the continued depreciation of exchange rates, rising financing costs, and the continued deterioration of the primary balance. Strong economic growth contributed to slowing the rate of increase in the debt ratio. Still, more is needed to reduce the debt ratio due to its dynamic nature and rising interest rate environment.

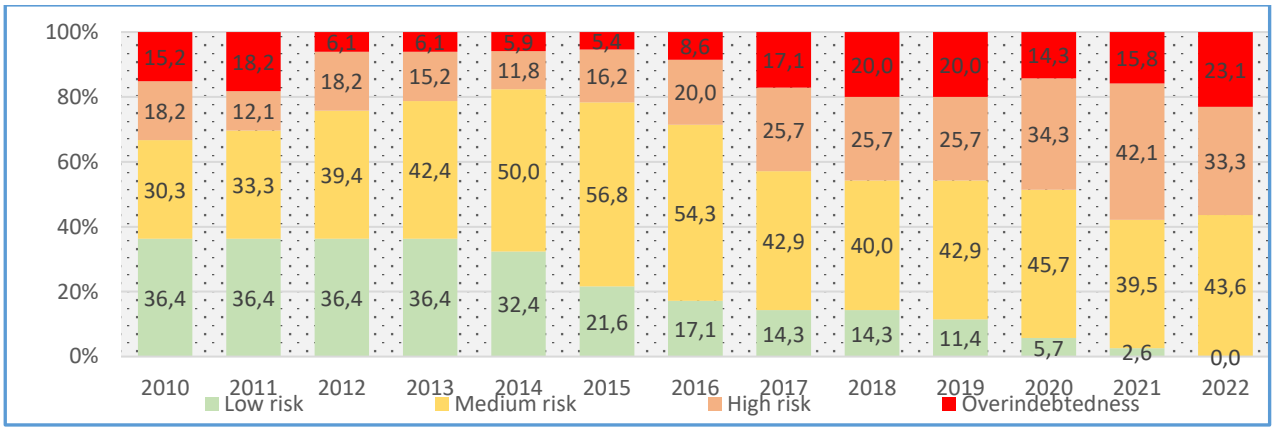
3.1.6. Breakdown of African countries by risk level

Based on data from the IMF's Debt Sustainability Analysis (DSA) of low-income countries, the debt level classification of African countries has steadily deteriorated over the past decade as many governments have increasingly resorted to borrowing to finance their deficits following external shocks resulting from the global health crisis and rising geopolitical conflicts, which exacerbated the tightening of international financial conditions. Indeed, the DSA framework shows that, of the 39 countries for which assessments are available, some 23.1 percent of African countries were assessed to be in debt distress in 2022 (Figure 5), up from 6.1 percent (2 countries over 33) in 2012[5]. This is in comparison to one-third of countries that were assessed to beat high risk of debt distress, compared with one-fifth in 2012. 43.6 percent of

[5] The 2012 DSA exercise covered 33 African countries.

countries were at medium risk, and no country was considered low risk, compared with 12 countries in 2012.

Figure 5: Distribution of African countries by risk level



Source: World Economic Outlook, IMF

3.2. Descriptive analysis of the macroeconomic impact of debt

The macroeconomic impact of public debt in Africa has significantly affected the countries' economic stability and long-term development. It is important to note that the consequences of public debt are country specific, depending on various factors such as debt management, economic structure and fiscal policy. Therefore, it is essential to consider the country specificities when analyzing the macroeconomic impact of public debt in Africa.

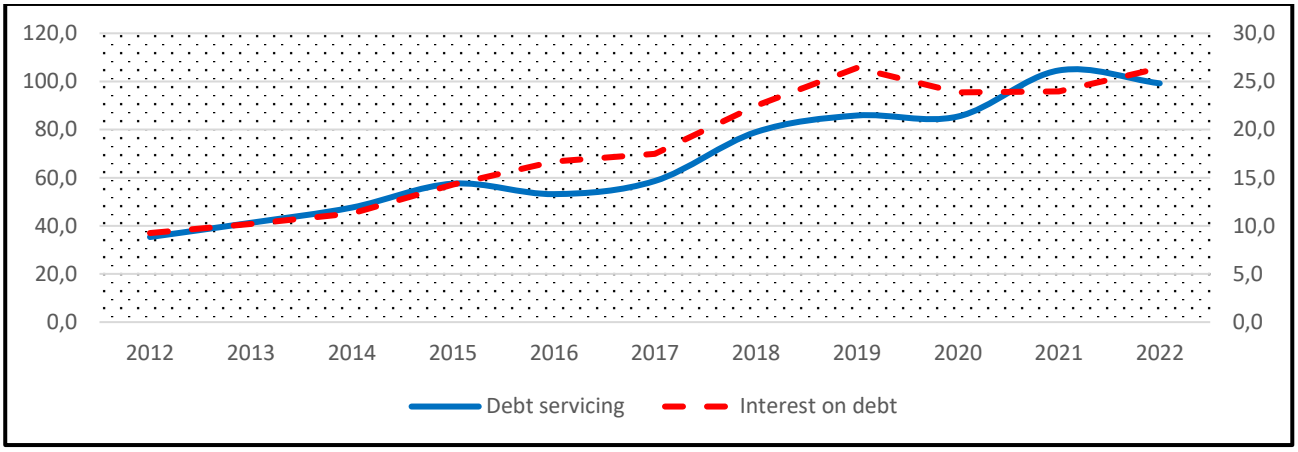
3.2.1. Pressure on public finances: Debt service and interest payments

Figure 6 illustrates the evolution of public debt service, which increasingly takes up a significant share of public expenditures, limiting the resources available for public investment in key sectors such as education, health, and infrastructure. The pressure of interest payments on public finances was estimated to double between 2010 and 2021, rising from 5.8 percent to 12 percent of government revenue, excluding grants. According to the IMF, the share of government revenue (excluding grants) devoted to interest payments increased across 34 SSA countries over this period, and this increase exceeded ten (10) percentage points in 13 countries. By 2021, interest payments as a share of government revenue were highest in countries such as Ghana (44.6 percent), Zambia (38.8 percent), Angola (25.0 percent), Kenya (22.9 percent), Malawi (20.7 percent) and Uganda (15.5 percent). As a percentage of GDP, debt service has risen from 1.2 percent in 2010 to 4.2 percent in 2022.

In terms of exports of goods and services and primary revenues, external debt service has risen from nearly 6.9 percent in 2012 to 15.2 percent in 2021 and 12.3 percent in 2022. The increase in this ratio results from the acceleration in public debt observed over the period, as African countries participate in the less concessional international bond markets. The highest ratios in 2021 were recorded in Mozambique (107.3 percent), Sudan (45.2 percent), Egypt (37.3 percent), Angola (29.2 percent), Rwanda (29.1 percent), and The Gambia (28.1 percent).

Rising debt levels with a changing degree of concessionality negatively affect countries' ability to implement economic and fiscal policies and provide limited scope to address emerging economic and social needs while also hampering the ability to sufficiently respond to economic shocks (CEA, 2023). Between 2019 and 2020, several countries (34) experienced debt arrears, including Mozambique, Angola, Sao Tomé and Principe, Sudan, Zambia, and Zimbabwe (WB, 2021).

Figure 6: External public debt servicing (left axis) and interest (right axis)



Source: World Bank International Debt Statistics

3.2.2. Increased reliance on foreign capital flows

Following the implementation of public debt reduction initiatives, the rise in commodity prices in the 2010s and the improvement in public policies and economic governance resulted in the performance of African economies (between 5 percent and 7 percent growth) as well as a better perception of African debt risk by foreign investors have encouraged recourse to international markets (Diop and Bonnemaison, 2016). Moreover, indebted African countries increasingly depend on foreign capital flows to finance their public expenditures and repay debt. According to the same paper, it is estimated that Africa needs between $130 and $170 billion per year for its infrastructure investments. Yet African countries struggle to generate sufficient domestic revenue and attract limited foreign direct investments.

With abundant liquidity at low cost, the African countries have relied on private banks, bonds, and sovereign lenders, particularly China, in addition to aid and loans from traditional lenders. According to AfDB statistics, bilateral debt (held mainly by Paris Club creditors) accounted for 52 percent of Africa's total outstanding external debt in 2000. This figure has fallen to 27 percent by 2021. In contrast, the share of commercial creditors (bondholders and commercial banks) has more than doubled over the same period, rising from 17 percent in 2000 to 40 percent in 2021.

By the end of 2021, 21 African countries had already issued Eurobonds worth more than $155 billion, compared with just three (3) countries 20 years earlier. This trend shows that African countries are increasingly accessing international capital markets. Between 2010 and 2021, there has been an increase in the frequency of issuances, with Egypt (32 issues), Ghana (16 issues), South Africa (15 issues) and Nigeria (14 issues) being the dominant countries.

The Eurobond issuance as an alternative has increased exposure to economic and financial shocks, such as exchange rate and interest rate fluctuations, which have had a negative impact on economies. African countries pay higher interest rates on newly issued bonds, receive lower credit ratings, and have weaker macroeconomic fundamentals than non-African countries (CEA, 2023). According to statistics from the United Nations Conference on Trade and Development (UNCTAD), portfolio investment has steadily declined since 2018 (see Annex 4), which aligns with Annex 5, as portfolio investments consist essentially of Eurobonds.

3.2.3. Credit rating downgrades [6]

The level of public debt coupled with costly debt servicing and economic shocks in African countries contribute to a downgrading of countries' credit ratings, resulting in an increase in interest rates on issues by the Continent's countries on international markets and a decrease in the frequency of issues since 2018. The downgrading of external debt ratings, combined with higher interest rates demanded by government creditors and macroeconomic tensions, have led to an exponential increase in public debt, which could become explosive if interest rates exceed the GDP growth rate in value terms.

At the time of their entry into the Eurobond market, most African countries were experiencing the fastest growth, with stable macroeconomic conditions and a B or BB rating from Standard and Poor (S&P) in 2014. In 2014, of the 20 rated countries, two (2) had A ratings, and 18 had B- to BBB- ratings. In 2021, 16 percent of them have had their ratings downgraded, two (2) have upgraded their ratings, and the remaining two (2) have kept their ratings stable.

3.3. Public debt management strategies

The issue of public debt reduction is the subject of intense debate on the Continent. When public debt is perceived as excessive by creditors, they demand higher interest rates, which exacerbates the problem of public finance sustainability through a snowball effect. In 2023, according to the Economic Commission for Africa, when uncertainty is high at the beginning of the process, information on debt sustainability assessments can have a significant impact on capital flows, the exchange rate, and new financing.

Thus, debt restructuring appears to be the most plausible option in several African countries, to provide governments with sufficient fiscal space to meet pressing social and economic development needs. According to several studies, debt restructuring involves a reduction in nominal value and an improvement in the macroeconomic situation of debtors (Cheng, Díaz-Cassou and Erce, 2018; Reinhart and Trebesch, 2016).

However, many African countries still need to be convinced to engage in such negotiations due to the perceived high risk of downgrading and the unattractive conditionalities and reforms attached.

Given the current situation, African countries such as Ethiopia, Ghana, Chad, and Zambia need to adopt policies and measures, in coordination with their various creditors, to reduce their public debt burden and financial pressure to free up resources for priority investments and promote their economic development. This may include multilateral initiatives such as the HIPC and MDRI initiatives, which offer specific measures to reduce the debt of the most indebted countries. These initiatives may include restructuring, debt reduction, extended repayment schedules, or partial debt relief.

However, it is crucial to note that debt renegotiation and relief are not long-term solutions but temporary measures to help countries deal with their debt overhang. For long-term solutions, countries must develop debt management strategies and related support measures.

The issue of public debt sustainability is complex due to its dynamics, which depend not only on the current and future macroeconomic situation but also on the interaction between monetary and fiscal policies. Given their macroeconomic characteristics, African countries' debt levels continue to be strategically unsustainable. Measures must be taken to implement prudent borrowing policies and active public debt management.

African countries need to pursue a prudent borrowing policy, carefully assessing financing needs according to priorities while analyzing their repayment capacity and avoiding excessive debt accumulation. This means diversifying sources of financing, seeking more concessional lending terms, managing exchange and interest rate risks, and considering long-term debt sustainability. It would also

[6] According to CEA (2022), the three leading credit agencies (Moody's, Fitch, and S&P Global) have stated that requesting private sector participation in the common framework could result in a rating downgrade, which could be temporary as countries recover from the pandemic crisis. Before deciding to participate in the common framework initiative, countries should consult their legal advisors, creditors, and rating agencies.

be necessary for governments to implement active debt management strategies to optimize the costs and risks associated with their public debt. This could include restructuring existing debt, refinancing debt at lower interest rates, issuing new bonds to replace more expensive debt, and using financial instruments to manage currency and interest rate risks. African countries would also benefit from strengthening their debt management capacities by training and upgrading the skills of officials and institutions responsible for debt management. Implementing these policies requires coordination and cooperation between governments, the private sector, civil society and international partners, and thus, adopting a comprehensive and sustainable approach is essential to promoting economic policies conducive to growth and diversification in Africa.

3.4. Some recent cases of debt restructuring in Africa

In Africa, following the occurrence of several shocks affecting their structural balances, some countries have recently undertaken the restructuring of both their domestic and foreign debt. These include:

- In Ghana, debt trajectory became unsustainable (90 percent of GDP) by the end of 2022, with interest payments representing almost half of government revenues, following a fiscal expansion in response to the COVID-19 crisis. An IMF program enabled the restructuring of domestic debt representing 48 percent of GDP at end-2022 through a voluntary exchange closed in February 2023, and external debt (40 percent of GDP) was submitted for membership of the official creditors' framework, which reached agreement in January 2024 on the treatment of this debt under the G20 common framework;
- Chad's public debt (56 percent of GDP in 2021) has become unsustainable as a result of the COVID-19 pandemic, volatile oil prices, rising insecurity, and food crisis. To this end, the country has reached an agreement with its creditors under the G20 common framework, some of whom have agreed to reprofile part of the debt service due in 2024 and to make their contribution if the debt service/revenue ratio does not stabilize below 14 percent in 2024;
- Zambia accumulated arrears on external debt servicing as a result of fiscal and external imbalances linked to falling commodity prices, droughts, and the COVID-19 pandemic. Total public debt peaked at 150 percent of GDP and external public debt at 96 percent. The country defaulted on its Eurobonds in November 2020 and requested treatment on its external debt under the Common Framework in January 2021, and an IMF-supported program was approved by the IMF Board in August 2022;
- Finally, following its debt unsustainability, Ethiopia was granted treatment under the common framework in February 2021. In November 2023, it reached an agreement with its official bilateral creditors for a moratorium on debt servicing due between January 1, 2023 and December 31, 2024. This moratorium granted by Ethiopia's official bilateral creditors will provide temporary liquidity relief ahead of discussions on a broader debt treatment.

IV. Factors explaining the public debt overhang in African countries: An econometric approach

4.1. Specification of the econometric model

The approach adopted is based on studies carried out by some authors (Buiter, 1985; Blanchard, 1990; Fisher and Easterly, 1990; Bohn, 1998; Frederiksen, 2001; Largent, 2017; and Raffinot and Ferry, 2019), who have tried to explain the dynamics of public debt by studying the relationship between the primary balance and the evolution of public debt.

The following equation gives debt dynamics:

$D_t = D_{t-1} + (T_t - G_t) + r_t D_{t-1}$ (1)

$D_t = (1 + r_t)D_{t-1} + SP_t \qquad with\ SP = T - G$ (2)

Where D_t is the debt at date t, G_t public expenditures, T_t taxes levied, r_t the interest rate and SP_t the primary balance.

We can rewrite the dynamic debt equation as a percentage of GDP (Y_t):

$d_t = \frac{1 + r_t}{1 + g_t} d_{t-1} + sp_t \quad with\ sp_t = \frac{SP_t}{Y_t} = \frac{T_t}{Y_t} - \frac{G_t}{Y_t}, d_t = \frac{D_t}{Y_t}, \qquad and\ g_t$ growth rate (3)

We know that $r_t = (1 + i_t)(1 + \pi_t)$ with i_t the real interest rate et π_t the inflation rate.

$d_t = \frac{1+(1+i_t)(1+\pi_t)}{1+g_t} d_{t-1} + sp_t$ (4)

$d_t = f(d_{t-1}; i_t; \pi_t; g_t ; sp_t)$

Control variables considering trade balance (xm) and the exchange rate (xm) suggested by the work of Largent (2017) were also included in the model.

Then we have: $d_t = f(d_{t-1}; i_t; \pi_t; g_t ; sp_t; xm; ex)$

Thus, the linearized form of the functional simplified equation becomes:

$d_t = \alpha_0 + \alpha_1 d_{t-1} + \alpha_2 i_t + \alpha_3 \pi_t + \alpha_4 g_t + \alpha_5 sp_t + \alpha_6 xm_t + \alpha_7 ex_t + \varepsilon_t$ (5)

4.2. Data and variables

The sample selected for this analysis consists of time series data for 51 African countries from 2010 to 2023. Data are mainly derived from the 2024 World Development Indicators (WDI), World Bank, IMF, AfDB, and Central Banks as part of the African Monetary Cooperation Program (AMCP) follow-up.

Based on recent research and the statistical analysis mentioned above, we have identified the variables that could explain the debt ratio of African countries. They are grouped into three categories: conventional variables (debt ratio and debt service), those related to economic policy (growth rate, inflation rate, and budget balance, including grants), and those linked to the external environment (current account balance and exchange rate). The selected variables are as follows:

- The lagged value of the debt ratio, which represents the accumulation of debt, is in the conventional logic of the dynamics of public indebtedness that influences the said ratio in the same direction, as indicated in the literature;

- The real interest rate, used as a proxy for the interest rate, represents the cost of issued public debt. An increase in debt interest may lead to a rise in expenditures, exacerbating the financing needs and the debt ratio;

- Growth rate: Economic growth logically leads to increased tax revenues due to higher corporate and household incomes, aiding the reduction in the budget deficit and, consequently, the public debt ratio;

- Trade balance: The trade balance indicates that the country imports more/less than it exports and spends more/less abroad than it receives in income, which can increase/decrease its debt ratio. A trade account deficit means that the country has to borrow abroad to finance its imports and investments, which can lead to an increase in its external debt;

- The exchange rate may impact a country's debt ratio. Indeed, if the local currency depreciates against a foreign currency in which debt was incurred, the amount of that debt in the local currency will increase. This can lead to an increase in the debt ratio;

- The inflation rate may influence the debt ratio. Indeed, up to a certain threshold, the inflation rate can play a role in reducing the debt ratio, as it contributes to an increase in current GDP and may imply lower debt servicing costs in real terms. However, a high inflation rate above this threshold could lead to a rise in the cost of goods and services, which could increase current spending and the repayment of fixed-rate debt;

- Budget balance: The primary balance is a financial indicator that measures the difference between the government's revenues and expenditures, excluding the cost of servicing its debt. Thus, improving the primary balance helps reduce a country's debt ratio.

- Macroeconomic governance: Economic policies and the quality of institutions could have an impact on countries' indebtedness. To this end, a variable materialized by the Country Policy and Institutional Assessment (CPIA) index was selected.

- The COVID-19 pandemic could influence the debt ratio: To better capture the recent shock, an indicator variable capturing the impact of the COVID-19 pandemic was introduced.

The different variables selected and expected signs are summarized in the following table.

Table 1: List of variables used in the model and direction of the impact

Variables	**Variable name**	**Expected sign**
TD_{t-1}	Lagged debt (% of total debt)	Positive
G	Economic growth rate (%)	Negative
SP	Primary budget balance as % of GDP	Negative
INF	Inflation rate (%)	Positive
RINT	Real interest rate (%)	Positive
XM	Balance of goods and services as % of GDP	Negative
EX	Change in real effective exchange rate (%)	Positive
CPIA	Country Policy and Institutional Assessment (1-6)	Negative
COV	COVID-19 pandemic (Binary)	positive

4.3. Panel data approach

A panel approach is used to account for unobserved heterogeneity across countries and time effects to capture changes in the economic environment. Thus, the augmented equation chosen is as follows:

$$d_{it} = \alpha_i + \lambda d_{i,t-1} + \beta X_{i,t} + \eta_t + \varepsilon_{i,t} \qquad (6)$$

$$with\ X_{it} = (rint_{i,t};\ \pi_{i,t};\ g_{i,t};\ sp_{i,t};\ xm_{i,t};\ ex_{i,t};\ CPIA_{i,t};\ COV)$$

Where:

- $X_{i,t}$ *represents the vector of explanatory variables i at period t, (* $rint_{i,t}$ *= real interest rate,* $g_{i,t}$ *= growth rate,* $\pi_{i,t}$ *= inflation rate,* $sp_{i,t}$ *= primary budget balance,* $xm_{i,t}$ *= trade balance, and* $ex_{i,t}$ *= real effective exchange rate, CPIA = macroeconomic governance variable, COV = COVID-19 pandemic Impact);*
- d_{it} *corresponds to the debt ratio of country i at period t;*
- *the parameter* α_i *corresponds to the country effect;*
- *the parameter* η_t *corresponds to the year effect.*

The current sample is characterized by a large number of individuals (51 countries) and a number of periods spanning over 14 years. Micro panels raise specific methodological challenges, notably with regard to the risk of endogeneity of explanatory variables, error autocorrelation, and heteroscedasticity due to an insufficient number of periods. In this context, the application of traditional estimation methods, such as Ordinary Least Squares or fixed effects models, can lead to biased and inefficient results. To remedy this, the Generalized Moment Method (GMM) proves to be a particularly appropriate estimation tool.

The utilization of GMM is particularly justified by the use of potentially endogenous explanatory variables and the dynamic specification to capture lagged effects in the behavior of the dependent variable. Thus, a system-GMM approach offers a flexible solution that maximizes the use of available data while minimizing potential biases.

Thus, the use of System-GMM, notably that proposed by Blundell and Bond (1998), by combining the equations in levels (6) and in difference (7), will overcome the endogeneity problems of the lagged value of the debt ratio and endogenous explanatory variables, which could be instrumented. This approach improves estimation efficiency by exploiting all the information available in these short time series and simultaneously addresses the problems of endogeneity, heteroscedasticity, and autocorrelation.

$$\Delta d_{it} = \alpha \Delta d_{i,t-1} + \beta \Delta X_{i,t} + \Delta \eta_t + \Delta \varepsilon_{i,t} (7)$$

In the first-difference equation, variables are instrumented by their level values, delayed by at least one period. In Equation (6), on the other hand, the variables are instrumented by their first differences. The resulting system of equations is estimated simultaneously using the Generalized Method of Moments with an estimator that is more efficient than the GMM in difference estimator (Arellano and Bond, 1991).

This method, known as System-GMM, solves the lagged variable endogeneity problem and other explanatory variables by using a series of instrumental variables generated with their lagged differences and lagged levels.

Finally, some tests associated with the dynamic panel GMM estimator were carried out, namely the Sargan/Hansen over-identification test, which tests the validity of lagged variables as instruments, and the Arellano and Bond (1991) autocorrelation test, with the null hypothesis of the absence of second-order error autocorrelation AR(2).

The system is thus as follows:

$$\begin{cases} d_{it} = \alpha_i + \beta d_{i,t-1} + \gamma rint_{i,t} + \delta \pi_{i,t} + \zeta g_{i,t} + \theta sp_{i,t} + \vartheta xm_{i,t} + \kappa ex_{i,t} + \tau CPIA_{i,t} + \rho COV_{i,t} + \eta_t + \varepsilon_{i,t} \\ \Delta d_{it} = \beta \Delta d_{i,t-1} + \gamma \Delta rint_{i,t} + \delta \Delta \pi_{i,t} + \zeta \Delta g_{i,t} + \theta \Delta sp_{i,t} + \vartheta \Delta xm_{i,t} + \kappa \Delta ex_{i,t} + \rho \Delta CPIA_{i,t} + \Delta \eta_t + \Delta \varepsilon_{i,t} \end{cases} (8)$$

Table 2: Estimation results

VARIABLES[7]	System GMM		
	I	*II*	*III*
TD (-1)	0.951***	0.689***	0.869***
	(0.0506)	(0.0684)	(0.0804)
G	-0.943***	-1.240***	-0.837***
	(0.285)	(0.225)	(0.287)
SP	-2.121***	-0.214	-1.821***
	(0.515)	(0.293)	(0.464)
INF	0.0988*	0.379***	0.0460
	(0.0562)	(0.0883)	(0.0527)
RINT	0.528***	0.366**	0.364**
	(0.181)	(0.164)	(0.165)
XM	-0.553	-0.0810	-0.286
	(0.522)	(0.309)	(0.476)
EX	0.119***	0.0530***	0.0783***
	(0.0252)	(0.0141)	(0.0240)
CPIA		-8.438***	-3.587*
		(2.674)	(2.146)
COV			1.980
			(1.429)
Constant	-3.484	43.87***	15.63
	(5.923)	(11.60)	(12.66)
Observations	535	525	525
Countries Number	46	45	45
Arellano and bond AR(1)	0.005	0.029	0.005
Arellano and bond AR(2)	0.165	0.207	0.125
Hansen sur-identification Test	0.477	0.839	0.389

Notes: For definitions and sources of data, see Table 1 and Annex 10. The Hansen test (p-value=0.125) does not allow to reject the Hypothesis of the validity of level and difference-lagged variables used as instruments. The Arellano and Bond second-order autocorrelation test (p-value=0.389) does not allow to reject the Hypothesis of the absence of second-order autocorrelation. *** p<0.01; ** p<0.05; * p<0.1 and Standard errors in parenthesis.

[7] Cf. Tableau 1.

4.4. Discussion of the results

The results of the econometric estimations show that the public debt ratio is influenced by macroeconomic factors. Indeed, economic growth significantly reduces the debt ratio. According to these results, a one-percentage-point increase in real GDP growth translates into a drop of around 0.8 percentage points in the average debt ratio of the countries under review (III). This is because government revenues increase when the economy expands. In addition, higher real growth leads to a rising nominal growth rate and, thus nominal GDP, which, in turn, leads to a lower debt ratio. This result is confirmed by several works (Reinhart and Rogoff, 2010; Forni and Tamborini, 2016; Cecchetti and Mohanty, 2012).

Surplus budget balance significantly reduces the debt ratio. Indeed, according to estimates, a one-percent deterioration in the primary budget deficit leads to a 1.8 percent increase in the debt ratio. Empirical studies by various authors, including Trehan and Walsh (1991), Alesina and Perotti (1996), Jeong and Hsieh (2013), and Cecchetti and Zampolli (2011) found similar results. Indeed, a higher primary balance contributes to reducing the public debt ratio.

Regarding the real interest rate, its increase leads to a rise in the public debt ratio. An increase of one percent in the real interest rate leads to an increase of almost 0.4 percentage points in the average debt ratio of the countries in the sample. Indeed, if the real interest rate is high, the repaying public debt cost rises, which can lead to an increase in public indebtedness. Moreover, inflationary pressures tend to increase countries' indebtedness. Moreover, inflationary pressures tend to increase countries' indebtedness.

As for macroeconomic governance, according to the results, it has a significant impact on the debt ratio. A one-point increase in the CPIA index results in a 3.6 percent fall in the debt ratio. This could be done through the stability of economic policies, expenditure control, fiscal predictability, economic growth, and the management of external shocks. Effective governance can reduce the risk of excessive indebtedness.

Finally, the results show that the inflation rate has a positive impact on the debt ratio. Indeed, a generalized rise in prices accentuates public expenditures, aggravating the State's balance deficit and prompting the need to finance this deficit through additional borrowing.

Finally, the exchange rate is positively linked to the debt ratio. A positive shock to the exchange rate (depreciation) would increase foreign currency debt servicing in local currency, widening the budget deficit and prompting additional borrowing, thereby increasing the level of debt.

VI. Study limits

This study has revealed some limitations. Firstly, the diversity of countries and economic contexts across the Continent make it difficult to draw general conclusions. Each African country has its characteristics in terms of economic policies, institutional structures, and debt history, which make comparative analysis challenging.

Secondly, the availability and quality of data posed a major challenge. Many African countries suffer from inadequate data collection systems, which lead to missing data, limiting the extension of temporal coverage and further technical analysis.

Some specific variables require extensive resources and access to historical data. Debt is often the result of accumulations and political decisions over time, and such a limited focus on quantitative aspects can minimize its complex evolution.

While this study of the determinants of debt in Africa is essential to understanding the Continent's economic challenges, a multi-disciplinary approach, integrating qualitative and quantitative data and considering inter-temporal dynamics and national specificities, notably security aspects and exposure to climatic shocks, would be necessary to enrich this field of research and give a more authentic picture of African economic realities.

Conclusions and recommendations

This paper highlights the growing indebtedness of many African countries. Exposure risks stem mainly from the rapid accumulation of debt that began immediately after the implementation of debt reduction strategies between 2005 and 2008. Many African countries have resorted to increasing debt to finance their persistent budget deficits, resulting from rising public expenditures on structural and social investments, inadequate mobilization of budgetary resources, and debt service payments. The persistent indebtedness of African countries has led to a downgrading of their credit ratings and a reduction in portfolio investment. This increase in public debt is mainly due to budget deficits and exchange rate depreciations, exposing many countries to the risk of default, as significant portion of their external debt is denominated in US dollars.

The current debt structure in many African countries is a source of growing concern. Although traditional lenders and multilateral institutions hold a significant share of external debt, the debt structure is evolving towards less concessional private borrowing.

As for the factors explaining the debt ratio, results show that the growth rate, improvement in the primary budget balance, moderate inflation, and good macroeconomic governance contribute to reducing it. In contrast, rising real interest rate and exchange rate depreciation tend to increase the debt ratio.

In light of these empirical results, the following recommendations are proposed:

- Control the budget deficit by optimizing public spending, mobilizing domestic resources to meet development needs, and reducing dependence on borrowing. This may include rationalizing non-productive expenditures, improving tax revenue collection by developing appropriate techniques, combating tax evasion, diversifying the economy, and developing high-value-added sectors;

- Invest borrowed resources in structuring or high-value-added projects, which will, in turn, stimulate economic growth, improve productivity, and generate new sources of sustainable income. This would accelerate growth at a faster pace than the cost of debt. In this way, the differential between growth and interest rates would contribute to improving debt sustainability in African countries and their repayment capacities;

- Control inflation by stimulating production, mitigating prices in response to shocks, improving market efficiency and implementing monetary policy;

- Diversify the export base beyond traditional commodities like oil, minerals, and agricultural products and include high-value-added products, which can lessen reliance on volatile commodities and increase the value of export revenues, in addition to providing export incentives and trade finance support, enhancing market access, and promoting industries;

- Borrow at concessional rates to minimize debt service and give preference to the use of Public-Private Partnerships (PPP) that do not generate public debt;

- Implementing measures to strengthen transparency and accountability in public debt management is imperative. These measures include the regular publication of information on debt, the involvement of parliaments and civil society in the decision-making process, the establishment of independent control and monitoring mechanisms, and the fight against corruption and fraudulent practices;

- Finally, ensuring the stability of the exchange rate of local currencies and hedging against exchange rate risk, given that around 70 percent of the external debt of African countries is denominated in foreign currencies.

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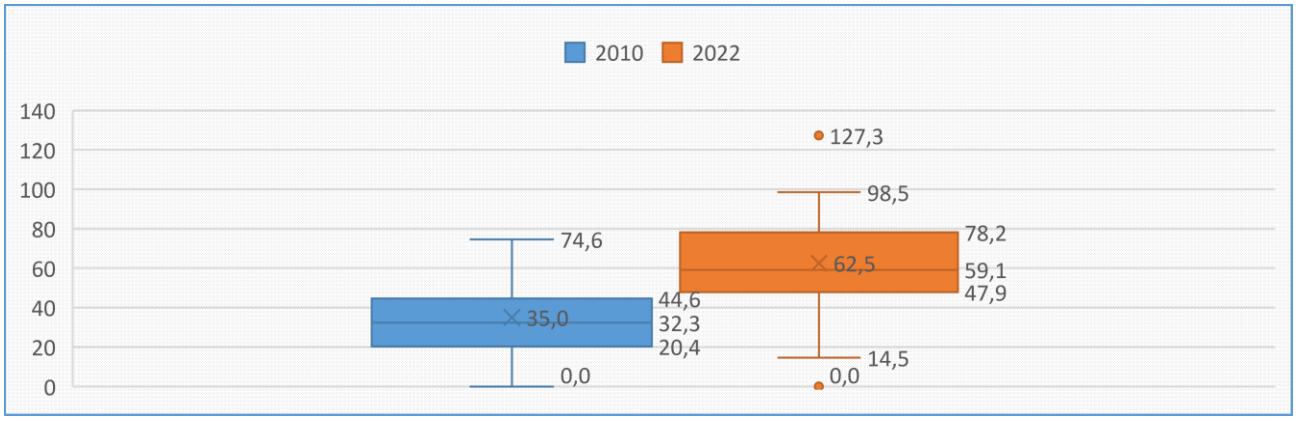
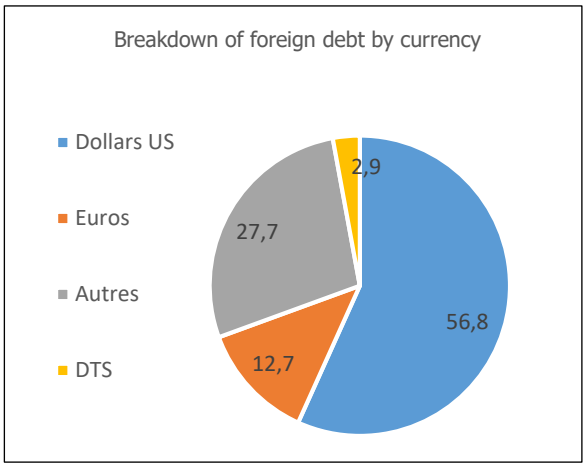
Annexes

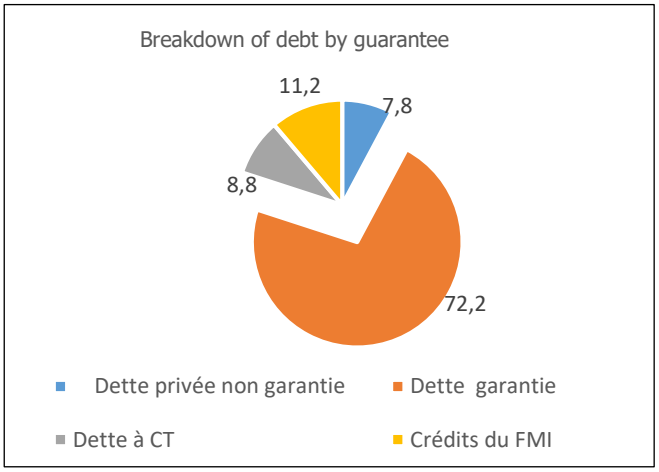
Annex 1: Trends in the Dispersion of Public Debt in Africa



Source: World Bank International Debt Statistics

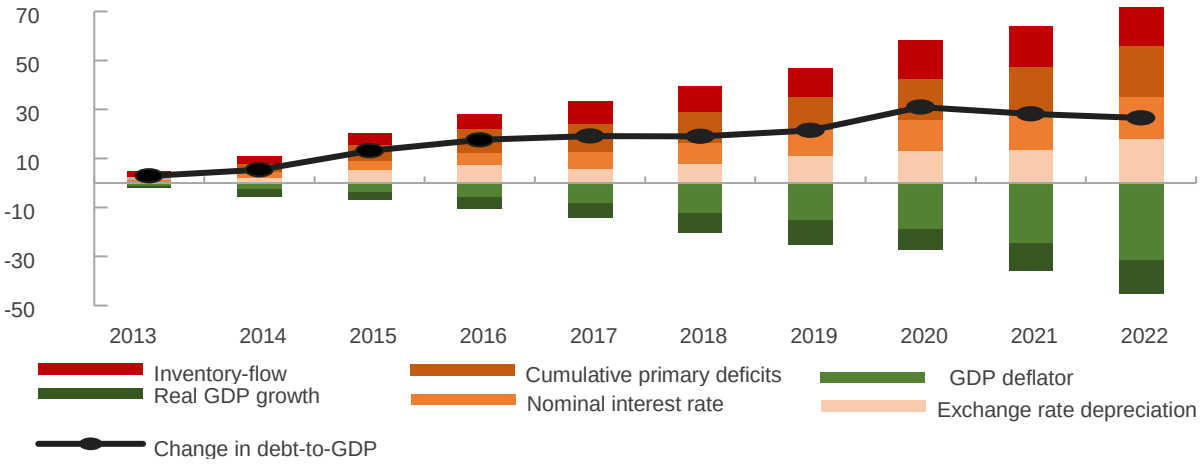
Annex 2: Breakdown of the Continent's debt by currency and guarantee in 2020





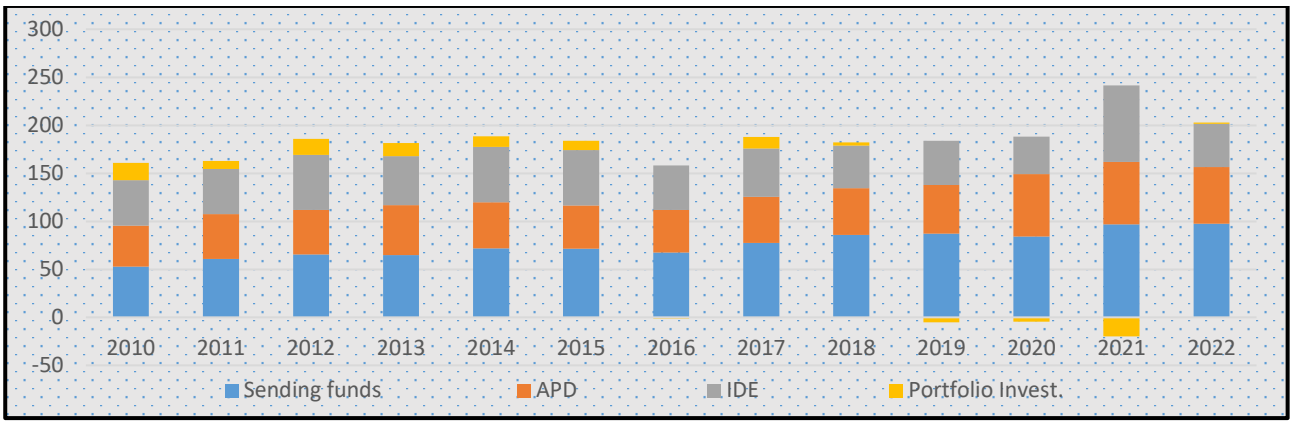
Source: World Bank International Debt Statistics

Annex 3: Breakdown of Debt Leverage in Sub-Saharan Africa



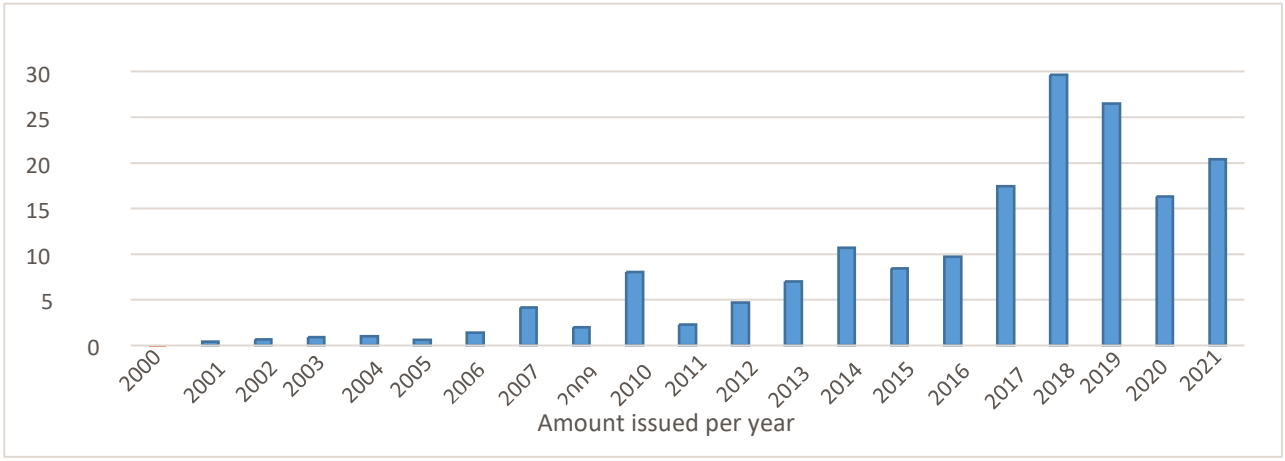
Sources: African Economic Outlook, IMF

Annex 4: Receipt of external financial flows from 2010 to 2022 (in billions of dollars)



Source: WEO and UNCTAD databases

Annex 5: Eurobond issues by African countries (in billions of dollars)



Source: UNECA, African Debt and Finance Profiles

Annex 6: List of panel model variables and their characteristics

Variable	Obs	Mean	Std. dev.	Min	Max
TD	727	54.77136	39.8381	0	316.479
G	748	3.477892	6.793366	-50.339	86.827
SP	752	-2.046999	4.836122	-30.508	24.613
INF	756	10.98163	40.43503	-14.401	667.361
RINT	700	7.12761	10.18294	-77.56128	61.8826
XM	748	-5.488826	9.67568	-65.031	49.499
EX	756	-11.11424	61.20008	-1196.532	29.85866
CPIAM	564	3.431738	.7325494	1	4.5

Annex 7: Correlation matrix

	G	SP	INF	RINT	XM	EX	CPIA
G	1.0000						
SP	-0.3034 0.0000	1.0000					
INF	-0.0613 0.0937	0.0057 0.8767	1.0000				
RINT	0.0595 0.1163	0.0239 0.5275	-0.0812 0.0316	1.0000			
XM	0.0651 0.0754	-0.0309 0.0600	0.0789 0.0310	-0.1842 0.0000	1.0000		
EX	0.0647 0.0771	-0.0878 0.0164	-0.3829 0.0000	0.1214 0.0013	-0.0820 0.0248	1.0000	
CPIA	0.1552 0.0001	-0.0626 0.1140	-0.1615 0.0000	0.0526 0.2014	-0.1089 0.0059	0.2127 0.0000	1.0000

Annex 8: Definitions of Variables and Sources of Data

Variables	Definition and sources
Debt Ratio, TD	General government gross debt as % of GDP. Measured as of a given date, usually the last day of the fiscal year. From World Development Indicators (WDI, 2024), Word Bank.
Economic Growth, G	Annual percentages of constant price GDP as year-on-year changes. The base year is country-specific and according the SNA 1993. From World Economic Outlook (WEO, 2024), IMF.
Primary Budget Deficit, SP	Net lending (+) / net borrowing (–) equals government revenue minus expense, minus net investment in nonfinancial assets as % of GDP. From WEO (2024), IMF.
Inflation Rate, INF	Annual percentages of average consumer prices are year-on-year changes. From WEO (2024), IMF.
Interest, RINT	The real interest rate %. From WDI (2024), World Bank.
Trade Balance, XM	External balance on goods and services as % of GDP. From WDI (2024), World Bank.
Exchange Rate, EX	Change in real effective exchange rate index in %. From WDI (2024), World Bank.
CPIA Index, CPIA	CPIA economic management cluster average (1=low to 6=high). Clustered economic management includes macroeconomic management, fiscal policy and debt policy. Data collected from WDI (2024), World Bank.