**ECONOMICS** – REGIONAL STUDIES

# Is crowding out of private sector credit inhibiting Africa's growth?

European Investment Bank
The EU bank

# Is crowding out of private sector credit inhibiting Africa's growth?

European Investment Bank
The EU bank

**Is crowding out of private sector credit inhibiting Africa's growth?**


This is a publication of the EIB Economics Department.
economics@eib.org
www.eib.org/economics

About the Economics Department
The mission of the EIB Economics Department is to provide economic analyses and studies to support the Bank in its operations and in the definition of its positioning, strategy and policy. The department, a team of 40 economists, is headed by Director Debora Revoltella.

Disclaimer
The views expressed in this publication are those of the authors and do not necessarily reflect the position of the AfDB, the EIB or Invesco.

For further information on the EIB's activities, please consult our website, www.eib.org. You can also contact our InfoDesk, info@eib.org.

Published by the European Investment Bank.
Printed on FSC® Paper.

pdf: QH-09-22-511-EN-N ISBN 978-92-861-5379-2 doi:10.2867/041314

# Is crowding out of private sector credit inhibiting Africa's growth?

Ahmed Attout[*], Alfredo Baldini[#], Vivian F. de O. Schmidt[@] and Sanne Zwart[%,^]

[*]Capital Markets Development Division, African Development Bank Group (AFDB). Email: a.attout@afdb.org
[#]Economics Department, European Investment Bank (EIB). Email: a.baldini@eib.org
[@]Client Relationship Management, Invesco Asset Management Deutschland GmbH.
Email: vivian.schmidt@invesco.com
[%]Economics Department, European Investment Bank (EIB). Email s.zwart@eib.org
[^]The authors would like to thank Judicael Guihy for his contributions during the early stages of the research, and Colin Bermingham, Barbara Marchitto, Christoph Weiss and various anonymous reviewers for their constructive suggestions and comments on preliminary drafts. Editorial closing date: September 2022.

# Executive summary

**Crowding out occurs when financial resources are channelled into government debt instruments to the extent that it considerably limits the availability of funding for private investments and inhibits economic development.** Evidence, often anecdotal, suggests that the "crowding out" effect was already an issue in several African countries before the recent increase in public debt. Financial intermediaries are interested in government debt instruments for both liquidity and capital reasons. Most African financial markets are dominated by sovereign securities, which provide pricing benchmarks and are often the closest available to a risk-free investment. In addition, robust returns and a relatively straightforward due diligence make sovereign debt instruments very attractive investment options to investors. Additional incentives follow, at least for banks, from regulatory (liquidity) requirements. Taken together, these arguments help to explain the structurally low level of bank lending to the private sector in many African countries, which is becoming even more of a bottleneck when demand for private sector credit goes up.

**Crowding out of private sector investment by excessive sovereign borrowing could jeopardize the recovery of African countries from the twin shocks of the COVID-19 crisis and the war in Ukraine.** Many firms or even entire sectors faced a liquidity crunch at the onset of the crisis and are now struggling to survive. The recovery started cautiously in 2021, but it was interrupted by the Russian invasion of Ukraine. However, when economic prospects improve, the need for funding is set to increase. If banks' preferences are skewed towards investing in sovereign securities instead of lending to the private sector, this could put a sustained recovery at risk. An additional complication is posed by the pro-cyclical effects of banking regulations as banks tend to tighten lending conditions when past lending turns sour, and thereby possibly delaying the start of the recovery.

**In this study, we compute an index to quantitatively assess the severity of crowding out (SOCO) effects across African countries and over time, and analyse the impact of the COVID-19 pandemic on bank lending conditions.** The index suggests that for many countries crowding out is both significant and increasing. The pandemic pushed up public debt levels, while its financing relied heavily on domestic funding. The rebalancing by African banks of their asset portfolio towards safer assets, however, was achieved without causing a major credit crunch as the policy response from the monetary authorities in Africa was timely and articulate. Importantly, with the economic recovery underway in 2021, credit demand picked up, while banks' balance sheet growth was lagging, causing the index to reach high levels again. For 2022, preliminary data point to a further intensification.

**As public debt levels are expected to remain elevated throughout Africa, banks' exposure to domestic sovereign debt is likely to remain high, with potential implications for financial stability.** Additional government financing needs have been mostly met by domestic banks as foreign holders in local currency bond markets receded and the domestic investor base remained limited. With public debt at historically high levels and the sovereign credit outlook deteriorating in many countries, a deeper sovereign-bank nexus poses risks to macro-financial stability.

**This study discusses ways to mitigate the occurrence of crowding out and to soften its impact.** Maintaining fiscal discipline is essential as lower public debt levels would reduce government bond yields with (other things being equal) positive spill-overs on the borrowing costs of the private sector. In addition, governments should aim to strengthen the management of public finances, increase debt transparency, support the deepening of domestic capital markets and market-based capital allocation,

and review incentives to hold public debt. Development finance institutions can support these efforts through providing technical assistance and catalysing private sector resources to fund investments with a high social or economic impact, e.g. in the health or education sectors, related to climate change mitigation/adaptation or addressing development bottlenecks.

# 1. Introduction

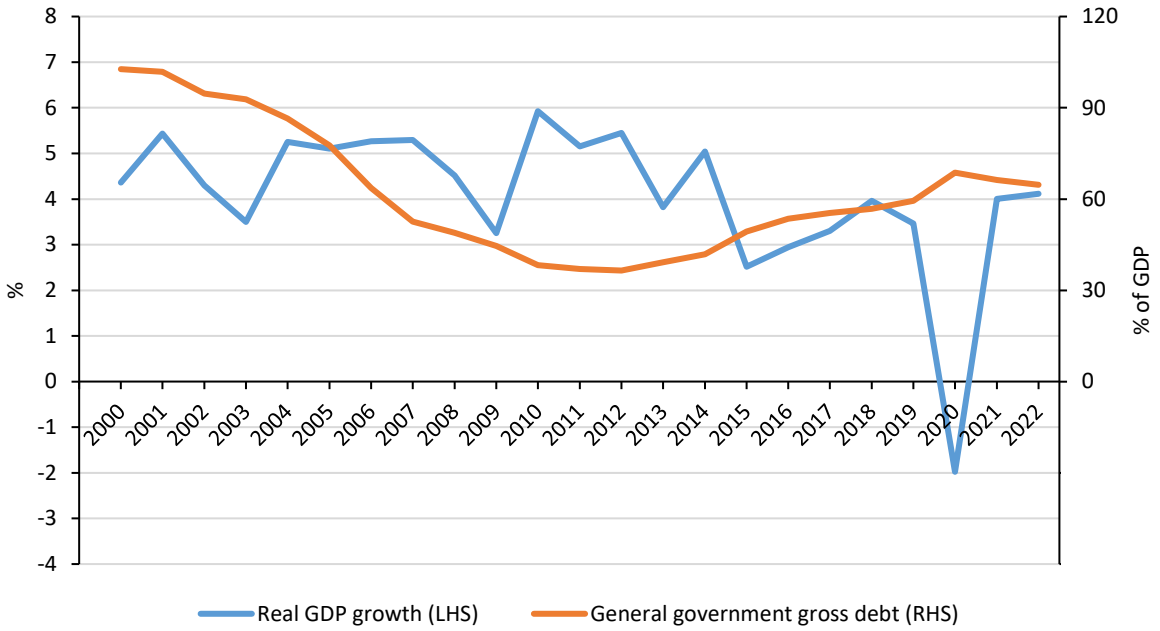
1. **Banks' lending decisions have major repercussions on private sector development and the prospects of a prompt recovery from the COVID-19 crisis.** Hence, understanding what drives banks in allocating their funds is key. This is especially relevant as the low level of credit was already a concern in Africa before the current crisis. The risk-reward profile of various investment alternatives is of course an important driver of these decisions, but the regulatory framework is relevant as well as are perceptions regarding the role of banks and the interaction of banks' objectives with monetary policy. Perhaps the most important trade-off faced by banks is between investing in sovereign securities or lending to firms and households. The risk for the economy is that buying public sector securities "crowds out" bank's financing of private sector investments.

2. **Crowding out occurs when financial resources are channelled into government debt instruments to the extent that it considerably limits the availability of private sector loans and inhibits economic development.** Crowding out is likely to be more pronounced in less developed financial systems due to the narrower availability of funding sources and reliance on the banking sector. Already before the COVID-19 crisis, it was considered a risk for the continent's growth outlook, and the IMF noted in its Regional Economic Outlook for Sub-Saharan Africa in 2017 that "the continued crowding out of the private sector may stifle the expected pickup in growth" (IMF, 2017). Concerns have only intensified since then and relate to a range of countries. For example, the IMF concluded in its 2021 Article IV consultation for Ghana that "Government lending supported the banking sector through the pandemic, but is crowding out private-sector credit and increasing balance sheet risks" (IMF, 2021). Likewise, the South African Reserve Bank stated that "there is a risk that increased holdings of public debt by the financial sector may crowd out private borrowing" (SARB, 2021).

3. **Underlying the growing concerns about crowding out in Africa is a growth slowdown across the continent and a simultaneous increase in public debt.** Already before COVID-19, growth had slowed markedly compared to both the 2000s and the beginning of the decade (Figure 1). The pandemic then knocked off some further 5-6 percentages points of growth rates in 2020 when compared to trend[1], while in 2021 countries only partially recovered the foregone growth. So far, the Russian invasion in Ukraine has weakened growth momentum with the recovery expected to accelerate again in 2023, but this outlook remains uncertain. The deterioration in public debt levels preceded the growth slowdown. Public debt had reached a record low as share of GDP during 2010-12, as many Sub-Saharan countries benefitted from debt relief granted under the Heavily Indebted Poor Countries (HIPC) Initiative in the late 1990s. However, since then, public debt has been increasing steadily, with the pandemic accelerating its pace in 2020. While a growth rebound was recorded in 2021, public debt to GDP ratios are still above pre-pandemic levels and are set to remain high for a prolonged period.

[1] According to IMF WEO (April 2022) data for 49 countries, real GDP growth in 2020 was 5.4 percentage points below the 2016-19 average.

***Figure 1. Growth in Africa has been slowing down while public debt increased***




*Note: Excluding Libya, Somalia and South Sudan.*
*Source: IMF WEO (April 2022).*

4. **Most African governments rely heavily on their ability to issue debt in domestic currency to meet their own financing needs at relatively low rates**. Local capital markets are often shallow, while only few countries have access to international markets, and not always. The range of domestic investors is steadily growing as insurers and pension funds become more prominent players, and an increasing number of international investors are being attracted by the opportunities of the developing African financial markets. However, the supply of public debt largely outpaced these developments. Against this background, banks remain key players in the public debt markets.

5. **Crowding-out effects are not only related to the public debt levels, but also to banks' investment decisions.** Banks tend to increase their holdings of government securities during crises, and this behaviour was confirmed during the COVID-19 crisis. Buying government bonds is often a more attractive option than lending to the private sector due to the lower default probability of governments, better liquidity profile and higher risk-adjusted returns. State-owned banks and pension funds may also be subject to "moral suasion" from their own governments to buy government bonds instead of lending to the private sector.[2] In addition, capital and provisioning requirements call for banks to provision for future loan losses in order to meet risk-weighted capital requirements, thus leaving less resources available for lending to the private sector when activity is down ("pro-cyclicality of lending"). For instance, between end 2019 and end-2021, non-performing loans (NPLs) in Africa were on average 12.5% of total loans, and in 19 out of 45 countries above 11%. However, to reduce the pro-cyclicality of bank lending, monetary and banking sector authorities in Africa intervened during the pandemic with ad-hoc and temporary interventions to ease financing conditions to the economy, thus averting a credit crunch.

[2] For evidence of a large share of public debt held by state-owned banks in Egypt, see Betz et al. (2019).

6. **To avoid that crowding out hampers economic growth in the coming years and beyond, its severity across African countries needs to be better understood and ways to mitigate or soften its occurrence should be explored.** This study builds on earlier research (Schmidt & Zwart, 2018) to assess crowding out across Africa. It confirms that its severity has increased over time and is very high in various countries. It then looks deeper into the impact of the COVID-19 shock on banks and their lending decisions. Finally, it discusses how the impact of larger public debt levels on private sector lending could be reduced to minimise the impact on private sector activity.

## 2. The build-up of public debt in Africa

7. **Public debt of many African countries grew to unsustainable levels in the 1980s, leading to serious concerns by all stakeholders.** Thus, several debt relief initiatives were attempted to help douse the situation. Some of these early attempts include short-term non-concessional debt rescheduling in the post-1982 period, refinancing with new loans at more concessional terms in the Toronto and enhanced Toronto terms, and relief with some debt reductions in the Naples terms. The subsequent Heavily Indebted Poor Countries (HIPC) Initiative was launched in 1996 by the IMF and the World Bank have relieved the 37 participating countries, of which 31 in Africa, of more than USD 100bn in debt in the following decades. Debt in Africa reached its lowest point in 2012 (Figure 1).

8. **Debt vulnerabilities among African sovereigns started building up in the years leading to the COVID-19 pandemic, driven by largely challenging economic, financial, governance and institutional conditions.** The creditor base for Africa's debt has continued to shift away from traditional multilateral and Paris Club lenders toward commercial creditors and official lenders that are not Paris Club members. In 2000, bilateral lenders, mostly Paris Club members, accounted for 52% of Africa's external debt stock, but by the end of 2019, their share had fallen to 27%. By contrast, commercial creditors (bondholders and commercial banks) have more than doubled their share in the last two decades. The top five creditors[3] to Africa since 2015 are bondholders (which account for 27% of the continent's external debt at the end of 2019), China (13%), the World Bank-International Development Association (12%), the African Development Bank (7%), and other multilateral lenders (7%).

9. **In the absence of timely fiscal consolidation, the surge in government financing needs as a result of COVID–19 spending and subsequently the spill-overs of the war in Ukraine could lead to a protracted period of fast paced debt accumulation**. Although the average debt-to-GDP ratio, a standard measure of debt sustainability, had stabilized at around 60% of GDP at the end of 2019, pandemic-related spending is estimated to have caused the debt-to-GDP ratio to average as much as 10% higher at the end of 2021 (Figure 1). Growing debt levels and debt service burdens (more than 20% of tax revenue for many countries) have squeezed available fiscal space for most countries, adding to gross financing needs. During 2020-21, the Debt Service Suspension Initiative (DSSI) granted by G20 countries and the emergency budget support by multilateral institutions have helped to temporarily alleviate the financing constraints. With the expiration of the DSSI at end-2021, the fiscal problems are intensifying in several countries. In addition, the Russian invasion of Ukraine raised fuel and food prices with heavy negative repercussions for African oil- and food importers while at the same time causing a global economic slowdown

[3] The figures are based on publicly available statistics. The creditor compositor difference considerably across countries.

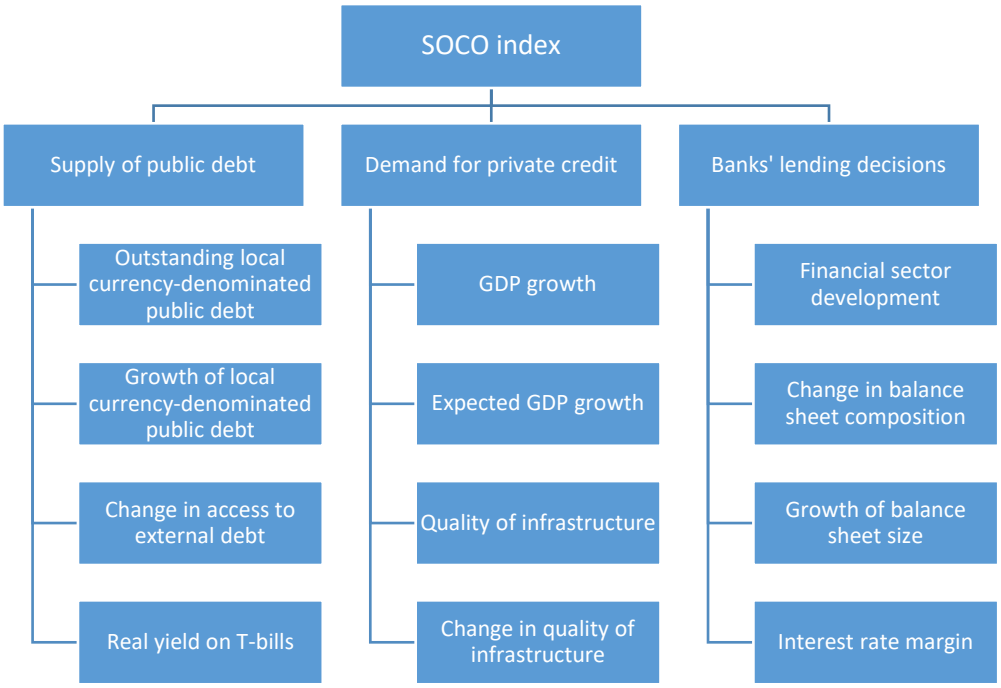
10. **With risks increasing, many countries have problems accessing external financing and are thus relying on domestic financing.** Earlier increases in the debt stock together with the recent economic shocks increased the risk of debt defaults, restructuring and lengthy resolution. For example, Zambia defaulted on its payment obligations of USD 42.5 million Eurobond coupon in October 2020. Though Zambia emerged as the first African country to experience a debt default during this challenging period, several other African countries are also at high risk of debt distress and their safety margins are being depleted by COVID-19 related spending pressures, which means many of them are likely to shift into debt distress situation. This will effectively undo the progress achieved over the recent decades and highlights the need to help countries navigate a "global tsunami of debt distress" and resolve their debt issues in an orderly manner. The direct and tangible effect is that several countries which were able to tap international capital markets in the recent past are no longer able to do so.

## 3. The severity of crowding out across Africa

11. **The build-up of public debt could lead to "crowding out" of private sector lending.** Although intuitively clear, the concept of crowding out is not univocally determined, complicating a systematic cross-country analysis. Researchers have used different approaches to measure the extent of crowding out of private credit by measuring government spending, estimating the impact of public debt on interest rates or regressing the amount of credit to the private sector or its growth rate on government borrowing. However, given the complexity of the issue, all approaches present advantages and disadvantages and rarely provide a consolidated cross-country analysis on different factors underlying the phenomenon.

12. **The Severity Of Crowding Out (SOCO) can be comprehensively gauged by the SOCO index.** This index was originally developed in Schmidt & Zwart (2018) and is further refined in this study. By construction, it allows for comparisons across countries and over time. Each country is assessed on 12 indicators, either relative to its past performance or to that of other countries. The indicators can be grouped into three sub-indices to get a better understanding of various factors at play. The first sub-index concerns the supply of public debt and includes the local-currency debt-to-GDP ratio (level and change), changes in the composition of debt (foreign currency versus local currency) and the real yield on T-bills. The second sub-index measures the demand for private credit by looking at GDP growth rates for the current and the next year. It also includes a more structural indicator of economic development, namely the African Infrastructure Development Index (level and change). Finally, the third sub-index explicitly assesses banks' behaviour towards lending to the private sector and considers financial sector development, balance sheet developments (growth and composition) and pricing. Figure 2 provides an overview of the index, the sub-indices and the underlying variables (Appendix A contains the full details).

***Figure 2. The SOCO Index aggregates three sub-indices with each four underlying variables***

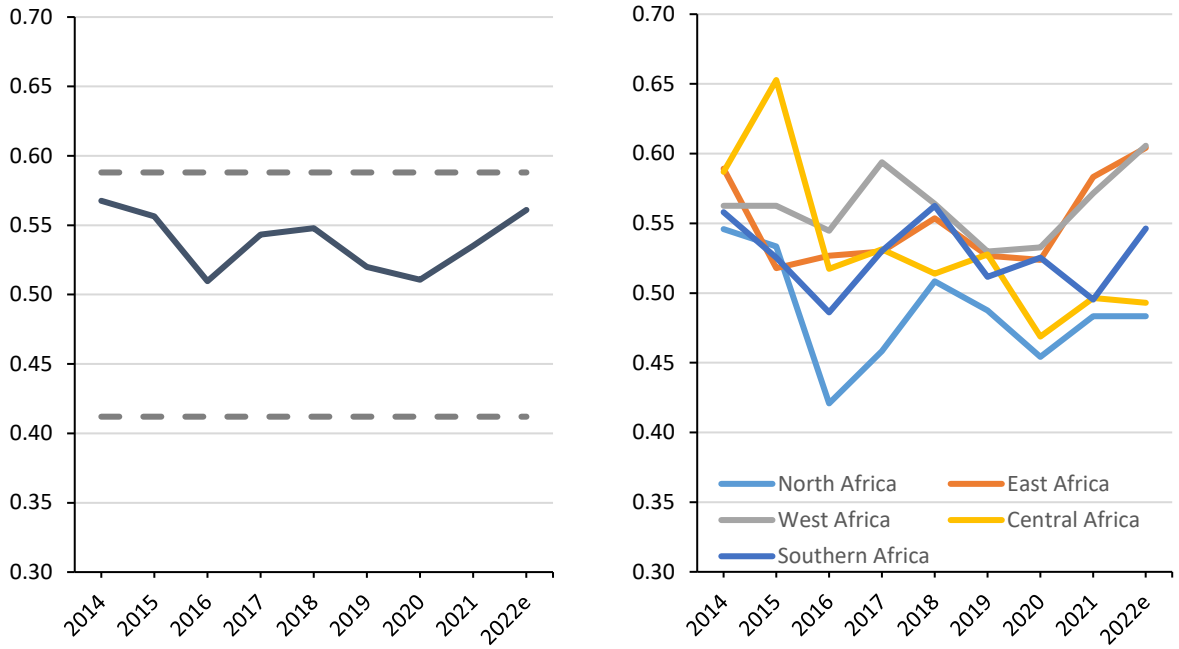



13. **The SOCO index indicates that crowding out intensified significantly in 2021, reaching relatively high levels.** Since 2014, the first year for which the index is available, it has been above its neutral value of 0.5[4], indicating that crowding out is a risk (Figure 3, Panel A). After starting at a relatively high level, it dipped in 2016 when an economic slowdown reduced demand for private sector debt considerably. It returned to higher levels in 2017 and 2018 when economic activity picked up. In 2019, the SOCO index had eased as several years of robust growth had supported public finances. The sharp increase in 2020 was mainly due to a rebound in credit demand and, with the increased supply of pubic debt further pushing up the index. While it is too early to obtain the definitive value for 2022, based on some conservative assumptions, it can be expected to increase further as the recovery strengthens. The index will be close to (if not exceeding) the maximum observed during 2014-20 and will also approach the upper bound of the 95%-band (which can loosely be associated with "normal conditions"), indicating that pressures are relatively high.

[4] The scaling of the variables is done such that during the period 2004-2013 (which includes both episodes of rapid economic expansion and slowdown) the average of each scaled variable is 0.5. Hence, by constructed the average SOCO index during 2004-2013 is also 0.5. Appendix A contains the full details.

***Figure 3. The Severity of Crowding in Africa is increasing since 2021 according to the SOCO Index***

*A. The Severity Of Crowding Out index* *B. The index by region*




*Notes: 0 indicates low severity; 1 high severity; 0.5 is the average for 2004-13. The dotted lines in Panel A indicate the approximate 95%-confidence interval for a neutral common factor across countries (see Appendix B for the details). The values for 2022 are estimates.*

*Source: Authors' calculations based on publicly available data.*

14. **West and East Africa had the highest SOCO scores across Africa in recent years (Figure 3, Panel B).** In both regions, the index was picking up in 2021, mainly driven by the supply of public debt and demand of private credit: while macroeconomic fundamentals generally improved as a result of the recovery of global demand, financing conditions continued to deteriorate boosting debt levels especially in non-oil resource-intensive economies. While the severity of crowding out eased in Southern Africa during 2021, due to improvements in Angola and Mozambique, an intensification is expected for 2022. Northern and Central African countries regions are now on the lower end of the range as public debt fell somewhat despite widening budget deficits and a drop in public revenues. In comparison to the other regions, the index points at a generally lower demand for private credit for these regions.

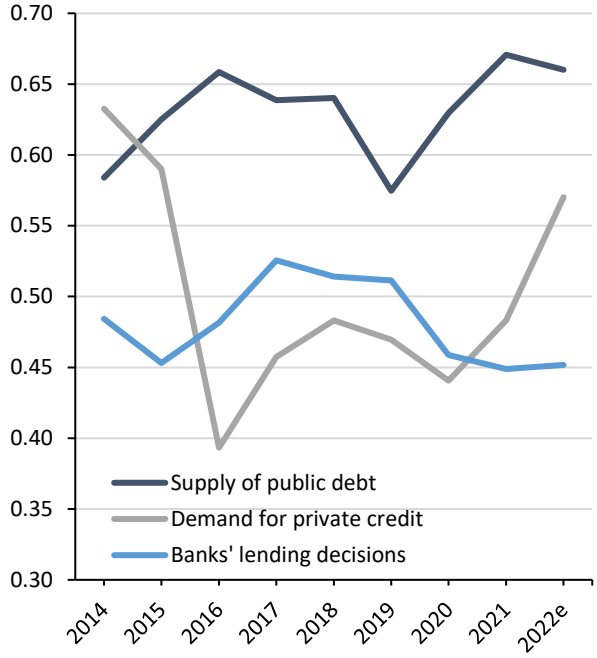
15. **Countries in which the severity of crowing out was particularly high in 2021 include (in descending order) Ghana, Rwanda, Uganda, Benin, Cape Verde, Kenya and Sierra Leone.** Pressures increased across the continent, but in these countries, the SOCO-index is above 0.65 and even above 0.7 in the case of Ghana[5] (see Appendix B for an overview of the index by country). The increased supply of public debt is the main driver of higher SOCO scores and is especially high for Chad, Uganda and Senegal. Conversely, credit growth remains timid in most countries, broadly reflecting risk aversion of financial institutions. It has been expanding considerably, though, in Burkina Faso, the Democratic Republic of the Congo, Ghana, Kenya, Lesotho and Sierra Leone. Banks' lending decisions are overall stable but deteriorated in Eswatini and Zambia. For 2022, an increase in the index is

[5] The upper bound of the 95%-confidence interval for individual countries is 0.7.

expected for just over half of the countries, while a quarter of the countries are expected to see an improvement.

16. **The construction of the index allows further assessment of the underlying drivers.** In the period before the pandemic, the supply of debt pushed up the index (Figure 4). Even though the debt stock stabilized in 2019 and yields remained low, this sub-index remained well above 0.5 though, indicating above-average pressure. Moreover, the outbreak of the pandemic interrupted the decline of this sub-index, and it is now at the highest level since 2014. On the other hand, demand for loans remained relatively subdued as growth slowed across the continent, although 2017-19 saw a marked improvement when economic activity accelerated again. In 2021, the rebound pushed up demand to such an extent that this sub-index is also above its historic average. The effect of banks' lending decision remained broadly neutral during 2014-19. Most notably, due to the economic shock, the relative size of banks' balance sheets increased in 2020, causing the sub-index to fall. The reverse can be expected to occur gradually but is not yet reflected in the data.

***Figure 4. The sub-indices of the Severity of Crowding Out index***




*Notes: 0 indicates low severity; 1 high severity. The values for 2022 are estimates.*
*Source: Authors' calculations based on publicly available data.*

17. **The contemporaneous correlations between sub-indices are low (almost by construction), but nevertheless provide some interesting, albeit tentative, insights.** The supply of debt and the demand for loans are somewhat negatively correlated (-0.11 during 2004-2019, -0.09 when 2020-21 is included as well), reflecting that in times of robust economic growth, governments spend less and companies invest more (and the opposite in downturns). However, the supply of debt is negatively correlated with bank's lending decisions (-0.07 and -0.12), which suggests that when public debt is relatively high, e.g. during a slowdown, banks are on average able to avoid negative repercussions on private sector credit, perhaps because demand for the latter is typically subdued. On the other hand, the correlation between the demand for loans and banks' lending decisions is moderately negative as well (-0.14 and

-0.10). Hence, banks only increase financial intermediation weakly when faced by higher market demand.

18. **The dip in 2020 and the subsequent rebound mask a concerning shift in the underlying drivers.** In 2020, the lower demand for loans due to the crisis outweighed the large funding needs of sovereigns. In addition, banks assets grew fast (17%), although the beneficial effect was partly undone by a shift in asset allocation away from private lending (which only grew by 12%). Importantly, the feeble loan demand due to subdued economic growth is expected to be temporary, while the deterioration in public finances is of a more permanent nature. Indeed, the substantial increase of the index in 2021 was driven by both sub-indices. With debt levels expected to remain high and the economic recovery strengthening, these factors will keep pushing up the severity of crowding out.

19. **In the coming years, banks' stance will be crucial to avoid that crowding out will hamper economic activity.** With the other two sub-indices pushing up the SOCO index, the only respite can come from banks' lending decisions. In particular, it is crucial that the high amount of public paper does not distract banks from lending to the private sector while the overall conditions faced by banks also create the right incentives. The next two sections will analyse these considerations in detail, first by looking closer at how banks reacted to the pandemic, and then by considering ways to mitigate the negative impact of high public debt levels in the future.

## 4. The impact of the pandemic on bank lending conditions in Africa

20. **The global economic crisis triggered by the COVID-19 pandemic caused a decrease in banks' risk appetite and a significant asset reallocation (e.g. flight to liquidity and/or to quality).** As in the aftermath of the great financial crisis in 2010-11, a marked shift of banks' asset reallocation from riskier activities (i.e. lending to the private sector) to safer assets (i.e. reserves at the central bank or short-term government securities) can be expected. The increase in severity of the SOCO sub-index on banks' lending (Figure 4) since 2020 indicates such a shift in banking asset reallocation.

21. **These assumptions can be tested with the data underlying the SOCO index.** The following subsection provides some evidence on whether in the aftermath to the COVID-19 pandemic shock, African banks rebalanced their asset portfolio, in particular towards government bonds, and if banks increased lending rates. Subsequently, the various types of policy responses implemented by the monetary authorities in Africa to reduce the impact of COVID-19 on the economy are discussed before the related risks are considered. Box 1 summarizes the economic literature on the theory of crowding out in the context of Africa and summarizes how the underdevelopment of financial markets tends to exacerbate crowding out effects.

## Box 1. Crowding Out Effects and the Role of Financial Institutions in Africa

22. **Elaborated originally by J. M. Keynes, the theory of crowding out effect is that an increase in public sector spending funded by public borrowing, may have the rather undesirable effect of displacing or crowding out private sector's funds for private sector investment.** This box summarizes why crowding out emerges as a recurrent feature in Africa during times of crises, and why financial institutions are not able to perform their functions efficiently and crowding out becomes a sub-optimal equilibrium. Three main reasons can be identified.

23. **A well-functioning economy needs a financial system that intermediates funds from savings into productive investments.** In other words, a well-functioning and sound financial system acts as a conduit for sustainable economic growth. In Africa, however, financial markets are far from being efficient and diversified and domestic savings are very low. In this context, banks tend to be selective when offering credit to the economy, due to several factors, such as lack of acceptable collateral or poor credit history. Moreover, foreign capital tends to be volatile and biased toward the government bonds (either in foreign or domestic currency (IMF, 2020)) for lack of alternative private sector securities such as corporate bonds and stocks.

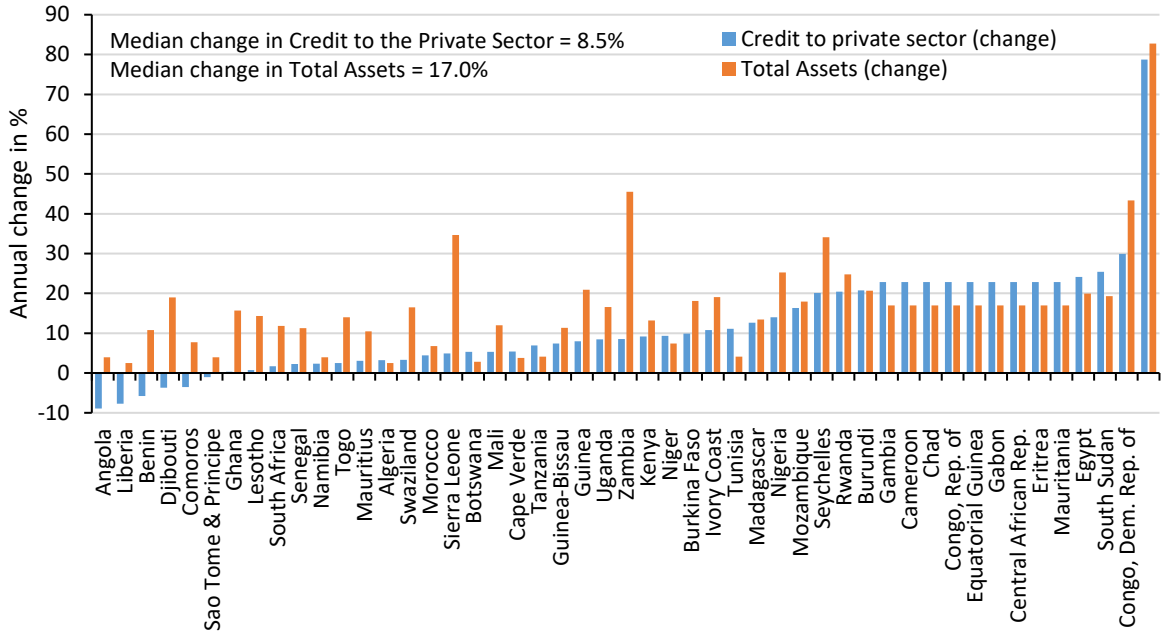
24. **In general, financial markets and institutions facilitate the allocation of resources due to market failures, but in less developed countries these frictions are more pronounced.** The complexity of economic structures gives rise to information and transaction costs. Financial markets and institutions then emerge to minimize the risks associated with these costs through the trading, hedging and pooling of risk. Across SSA, however, banks may be reluctant to raise interest rates sufficiently to eliminate excess demand for loans, either because of adverse selection (as in Stiglitz and Weiss (1983), costly state verification (as in Williamson (1987)) or moral hazard (as in Bester and Hellwig (1987)). Therefore, due to a decrease in risk appetite of local banks, during crises crowding out could become a sub-optimal equilibrium in a bank's decision process to lend out funds (Baldini et al., 2015).

25. **Lack of marketable financial securities hamper funding to the private sector**. Deep and liquid bond and stock markets are essential for a country to enter a sustained phase of development, driven by market-determined capital allocation. However, bond and stock markets in Africa remain largely underdeveloped, with corporate bond markets non-existent or in their infancy (Smith, 2021). African financial markets are still dominated by banks and in most countries the only marketable securities available are government bonds. This reinforces the tendency for banks to buy government bonds due to lack of other marketable financial securities, thus reducing the flows of funds towards the private sector.

## 4.1. African banks' risk appetite in response to the crisis and related evidence.

26. **The asset composition of the banking sector and the average cost of lending changed substantially during the pandemic.** In 2020, despite the pandemic shock, credit to the private sector continued to increase (in nominal terms) relative to 2019 in about 40 countries out of a sample of 49 African countries and fell in 9 countries (Figure 5). However, in 39 countries (77% of the sample) banks rebalanced their portfolio towards less risky or liquid activities. Overall, the median growth in lending to the private sector in 2020 was, at 8.5%, substantially lower than the increase in total assets, which was 17%.

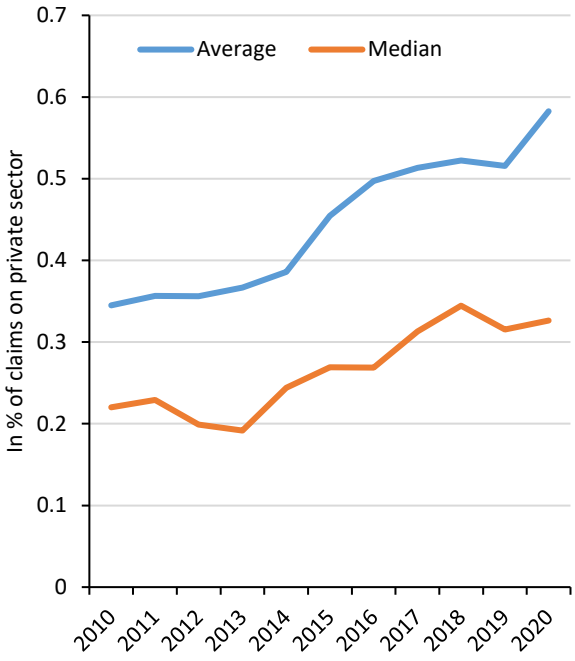
***Figure 5. 2020 Bank assets and credit flows to the private sector in selected African countries***




*Note: The assets flows are measured by computing the annual change in outstanding stocks.*
*Source: IFS and author's calculations.*

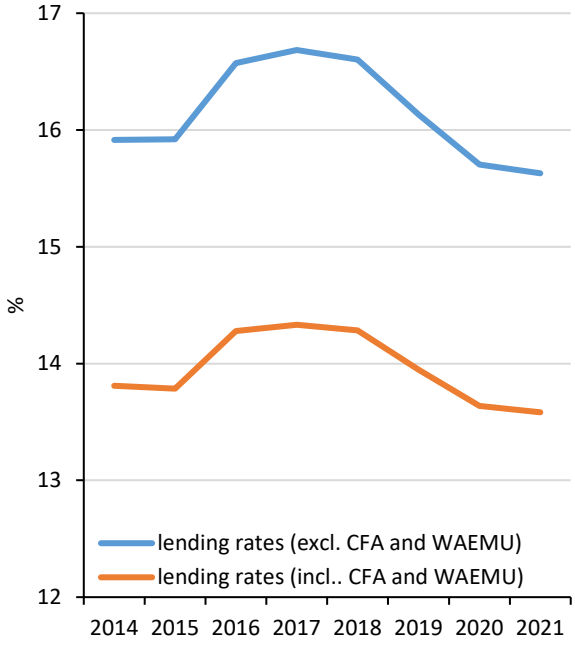
27. **Part of this asset reallocation went to the public sector, therefore showing some degree of crowding out effect (Figure 6).** Interestingly, the banks' asset reallocation occurred despite a decline in annual average nominal lending rates in the same sample (Figure 7), in 2020 and 2021, respect to pre-pandemic shock levels.

***Figure 6. Claims on central government***




*Note: 49 African countries.*
*Source: Authors' calculations based on publicly available data (see Appendix B).*

***Figure 7. Banks' lending rates in selected Africa countries***




*Source: Authors' calculations based on publicly available data (see Appendix B).*

## 4.2. African authorities' policy response

28. **The policy response from the monetary authorities in Africa was timely and articulate in easing financing conditions and avoiding a credit crunch in the face of the pandemic shock.** Table 1 summarizes the main interventions implemented by the monetary and national authorities in 32 African countries to reduce the negative impact of the pandemic on banking sector and in particular on the credit to the economy and to the SMEs. The policy measures can be classified under four main categories: (i) temporary relief on loan payments (debt moratorium); (ii) loan guarantees and other measures aimed at easing the collateral requirements; (iii) liquidity provision to the financial system and other form of indirect and direct financial assistance to non-financial firms; (iv) a reduction of the policy interest rate to ease financing conditions on lending rates to the economy. As is evident from Table 1, all the countries provided liquidity and financial assistance to the financial and economic system and all countries enacted a reduction in the monetary policy rate during the pandemic in 2020. Of these, thirteen countries also allowed for other measures such as a debt moratorium and/or loan guarantee schemes. Three countries (Botswana, Morocco and Lesotho) offered all the four types of policy measures.

***Table 1. Definitions of Indicators***

| Country | Institution | Debt Moratorium | Loan Guarantees | Financial Assistance/Liquidity measures | Lower Interest Rates |
|---|---|---|---|---|---|
| Benin[1] | Central Bank | | | Yes | Yes |
| Botswana | Government | Yes | Yes | Yes | Yes |
| Burkina Faso[1] | Central Bank | | | Yes | Yes |
| Cameroon[2] | Central Bank | | | Yes | Yes |
| Cape Verde | Government | Yes | | Yes | Yes |
| Central African Rep.[2] | Central Bank | | | Yes | Yes |
| Chad[2] | Central Bank | | | Yes | Yes |
| Congo, Rep. of[2] | Central Bank | | | Yes | Yes |
| Egypt | Central Bank, Government | Yes | | Yes | Yes |
| Eswatini | Government | | | Yes | Yes |
| Equatorial Guinea[2] | Central Bank | | | Yes | Yes |
| Gabon[2] | Central Bank, Government | | Yes | Yes | Yes |
| Ghana | Government | | Yes | Yes | Yes |
| Guinea-Bissau[1] | Central Bank | | | Yes | Yes |
| Ivory Coast[1] | Government | | | Yes | Yes |
| Lesotho | Government | Yes | Yes | Yes | Yes |
| Liberia | Government | | | Yes | Yes |
| Mali[1] | Government | | Yes | Yes | Yes |
| Malawi | Central Bank | Yes | | Yes | Yes |
| Morocco | Government | Yes | Yes | Yes | Yes |
| Niger[1] | Central Bank | | | Yes | Yes |
| Nigeria | Central Bank, Government | Yes | | Yes | Yes |
| Rwanda | Government | | Yes | Yes | Yes |
| Sao Tome and Principe | Central Bank | Yes | | Yes | Yes |
| Senegal[1] | Central Bank | | | Yes | Yes |
| Seychelles[3] | Central Bank, Government | | | Yes | Yes |
| Sierra Leone | Government | | | Yes | Yes |
| South Africa[4] | Central Bank, Government | | Yes | Yes | Yes |
| Togo[1] | Central Bank | | | Yes | Yes |
| Uganda | Government | | | Yes | Yes |
| Zambia | Central Bank | | | Yes | Yes |
| Zimbabwe | Government | | | Yes | |

*Notes:*

*[1] Measures implemented by the Central Bank of the West African States (BCEAO) which is the common central bank of the eight member states which form the West African Economic and Monetary Union.*

*[2] Measures implemented by the Central Bank of Central African States (BEAC) which is the common central bank of six member states which form the Central African Economic and Monetary Union.*

*[3] Central Bank of Seychelles | COVID-19 (link).*

*[4] Reserve Bank of South Africa (link).*

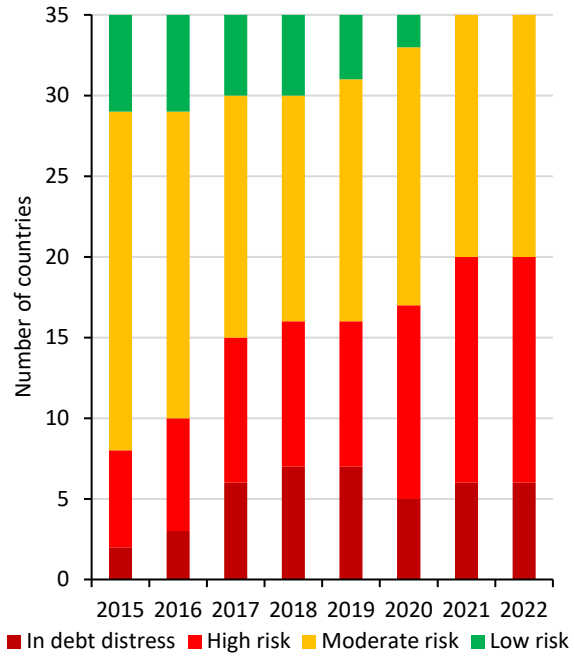
*Source: IMF Policy Tracker (link).*

## 4.3. Sovereign-banking nexus in Africa

29. **The sovereign debt developments during the last decade resulted in a deterioration of sovereign creditworthiness (Figure 8), in particular for low-income countries.** Rating agencies lowered the ratings of African countries on average by some two notches (from Ba3 to B2), of which roughly two-thirds occurred before the pandemic. This, however, does not capture the full extent of the deteriorating creditworthiness, since in Africa, only 31 countries out of 54 are assigned a credit rating by the three international CRAs, and of these, only a handful are rated investment grade. Indeed, according to the IMF (2022), half of low-income countries in Sub-Saharan Africa are now at

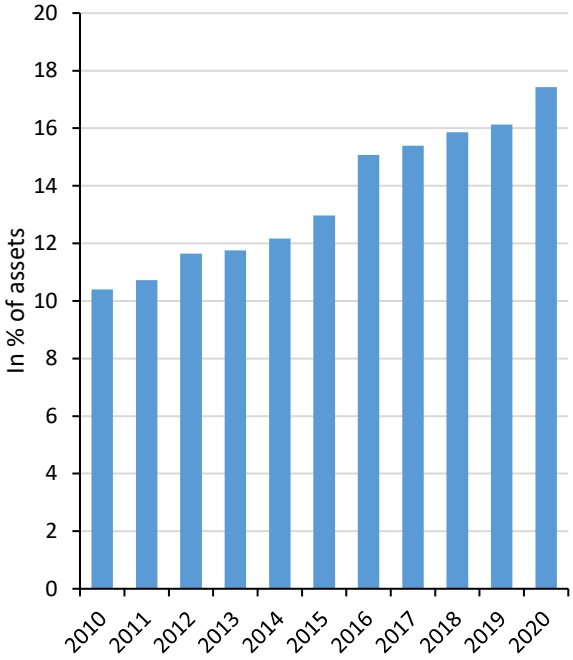
high risk of debt distress or even in debt distress, up from one out of six in 2014 (Figure 8). Three countries, Chad, Ethiopia and Zambia, requested restructuring of their debt under the Common Framework of the G20 in 2020, with the latter being in default since end-2020 and joining Sudan and Zimbabwe which have long been in debt distress. Recently several other countries are also facing challenges with servicing their debt.

***Figure 8. Debt risk status has been deteriorating gradually for low-income countries***




*Note: As per the joint IMF-WB Debt sustainability analysis (DSA) of PRGT (poverty reduction and growth trust) eligible LIC countries; 2022 refers to end-July; constant sample.*
*Source: IMF Sub-Saharan Africa REO (April 2022), and LIC DSA Comprehensive List 2022 July.*

***Figure 9. Banks' domestic sovereign debt average exposure***




*Note: Banks' domestic sovereign average debt exposure corresponds to claims on central government debt divided by total banking sector assets.*
*Source: IMF, Monetary and Financial Statistics, and EIB staff calculations.*

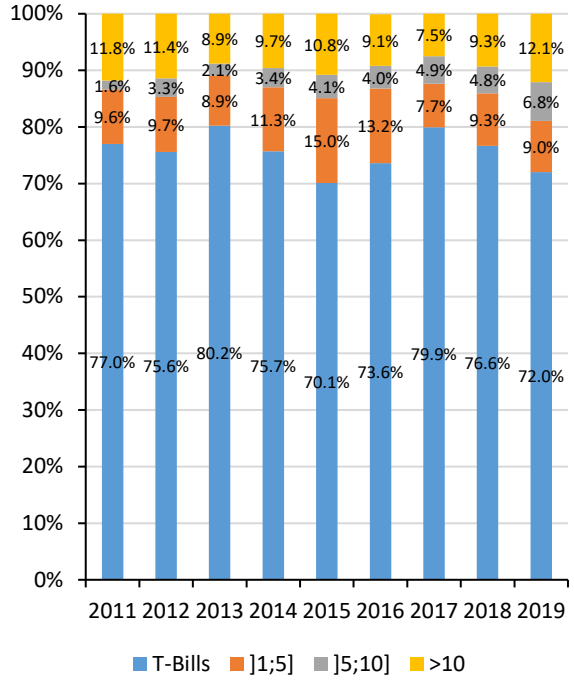
30. **Within this deteriorating context, domestic sovereign debt exposure of banks has also increased in Africa, from 10.4% to 17.4% of total banking sector assets in 2020 (Figure 9).** This increasing exposure was the result of additional government financing needs met mostly by domestic banks as foreign holders in local currency bond markets receded and the domestic investor base remained limited. With public debt at historically high levels and the sovereign credit outlook deteriorating in many countries, a deeper sovereign-bank nexus poses risks to macro-financial stability (see e.g. IMF (2022b)).

## 5. Reducing the impact of higher public debt levels

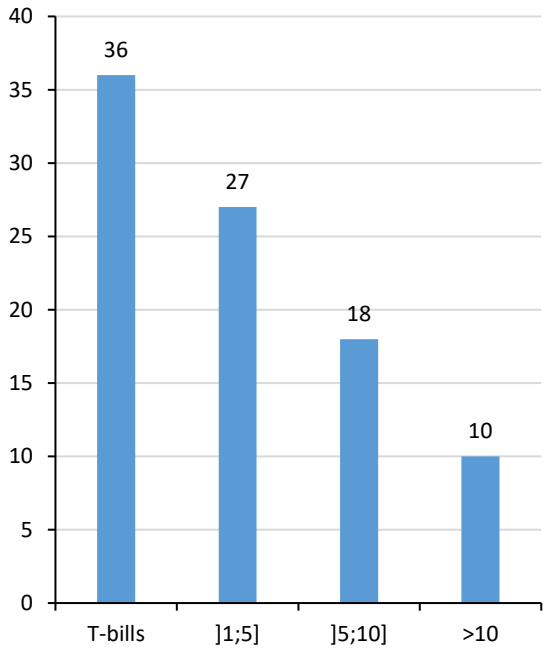
31. **Quality sovereign debt is vital for financing critical investments needed in Africa to achieve inclusive and sustainable development goals.** Increasing debt service obligations, shorter debt maturities (Figure 10), and reliance on external non-concessional market financing has exposed countries to refinancing, rollover, and default risks. The adequate management of debt cannot be viewed in isolation of the broader economic governance context of African Countries. The sustainability of debt is highly correlated to a country's ability to manage public expenditures, foster structural transformation that engenders growth, and mobilize domestic resources. Thus, governance is a major factor to understand the root cause of the debt management issues in Africa and proffer pragmatic approach for tackling them. Governance reforms that block leakages in public finances and improve quality of institutions are key in helping African countries manage debt sustainability.

***Figure 10. Maturity composition of African local currency bond markets***

*A. Original maturity at issuance*




*B. Number of African countries issuing at these maturities in 2019*




*Source: African Development Bank LCBM database.*

32. **Low domestic resource mobilization has widened the gap between government expenditures and revenues, increasing the size of deficit financing and debt distress in many African countries.** It is commonly accepted that weaknesses in revenue mobilization imply that revenues have been consistently below spending for most countries and the process of closing the financing gap has helped to balloon debt in the continent. Government tax and non-tax revenues, which were already very low at 20% of GDP before the pandemic, relative to other regions such as Asia, Latin America and the Caribbean where it was about 27% of GDP, might contract further because of the pandemic.

33. **Low Income Countries and several Middle-Income Countries (MICs), especially those in transition and fragile situations, are facing a deterioration in health and economic conditions.** These

twin challenges will have to be addressed against the backdrop of already high debt burdens which many of these countries are servicing. The twin shock of COVID-19 and the conflict in Ukraine, exposed several economies to a fragile situation where all scarce resources in LICs are being reallocated towards protecting lives and livelihoods. However, with little-to-no room for diversion of scarce resources towards more pressing social and economic needs, the situation is dire, creating a vicious cycle, including driving poor people further deep into poverty.

34. **Over the longer-term, fiscal consolidation is essential to maintain debt sustainability.** The recent shocks justify a deterioration in the fiscal position to support the most vulnerable people and support the domestic economy. However, when the recovery is robustly under way, fiscal consolidation is required in order to put public finances on a sustainable path. Unfortunately, history has shown that there is often a delay as for various reasons cutting expenditure, including subsidies, is often postponed. Besides adding to the existing debt stock, a prolonged period of large deficits also pushes up the costs of sovereign debt, and to the extent that it is a benchmark interest rate, also the cost of private debt. At the same time, it absorbs funding that could potentially be more effectively used by the private sector. Timely fiscal consolidation, although politically unpleasant, would thus benefit the economy at large.

## 5.1. Historical remedial actions (temporarily) supporting debt sustainability

35. **The HIPC initiative in 1996 aimed to help developing countries manage their debt with a view to achieving sustainability through debt relief.** With the Enhanced HIPC in 1999, more countries were admitted as eligible, and the financial resources provided for interim debt relief before countries reached the completion point were increased. In addition to the traditional institutional participants, namely the IMF and the World Bank, other official and commercial creditors participated in the HIPC initiative.

36. **The Multilateral Debt Relief Initiative (MDRI) deployed in 2005 is an initiative supplementary to HIPC to fully cancel eligible debt owed to multilateral institutions.** The three leading institutions are the IMF, the International Development Association (IDA) of the World Bank, and the African Development Fund (ADF), and as part of the same agreement substantial debt relief has been provided by other creditors such as the Paris Club members and the European Investment Bank. The target beneficiaries of this initiative are countries that have reached, or will eventually reach, the enhanced HIPC completion point.

37. **While both HIPC and MDRI delivered significant relief to Africa's debt situation, many countries have again reached high public debt levels.** The initiatives delivered a total of USD 76 billion in debt relief to all HIPC countries (IMF, 2019), for which African countries are in the majority (31 out of 37). The debt stocks of the participating countries were estimated to have been reduced by more than 95% due to these initiatives (World Bank, 2014). Similarly, the debt servicing costs were estimated to have fallen from 22% of revenues to 7%. However, during the last decade, public debt of many countries has doubled as share of GDP (Figure 1), causing a marked deterioration in debt sustainability (Figure 8).

38. **Recently, the World Bank and IMF agreed with the G20 countries to deploy the Debt Service Suspension Initiative (DSSI) as a response to the pandemic.** Until it expired at end-2021, official bilateral creditors agreed to suspend almost USD 13 billion of debt service payments for the 48

participating debtor countries. Under the DSSI, borrowers had to increase debt transparency, commit to be guided by the World Bank non-concessional borrowing policies and IMF programs, and target freed-up resources to increase spending on health, social and economic initiatives to mitigate the effects of the pandemic. However, the impact of the DSSI was relatively limited because it could not enforce participation of the private sector, which accounts for the largest share of Africa's public debt.

## 5.2. Role of governments in managing sovereign debt

39. **Debt is essential to finance Africa's sustainable, inclusive, and green growth strategy post-COVID-19.** Debt of itself is not a problem, but the quality of the investments made with the debt, the terms of the debt contract and the repayment profile are the important considerations that matter when assessing the quality of debt. When debt carried by governments is used to finance growth-enhancing investments, it helps to build capital that supports the process of accelerated growth and pays for the debt in the future. Similarly, conflicts and terrorism in some countries have increased security-related expenditures and contributed to rising debt levels in the continent. Without adequate protection of lives and property in the continent, Africa's competitiveness, and attractiveness as a centre for business opportunities would be undermined. Security is a global and regional public good with cross-border implications. There is a need for governments to continue mitigating the security challenges in fragile countries and providing the appropriate environment that is conducive for growth.

40. **There is an acute need for governments to support strengthening and deepening of domestic capital markets in African countries.** This will be achieved by providing the essential infrastructure to drive the markets, develop secondary market liquidity, diversify the investor base, and provide the technical and regulatory infrastructure. To this end, governments should continue engaging with local and international stakeholders to mobilize the necessary support needed for the development of the ecosystem of domestic capital markets by helping to put in place an enabling regulatory framework and capacity building for non-bank financial institutions (pension funds, sovereign funds, life insurance, rating agencies, credit bureaus, local currency bonds, etc.).

41. **Governments should undertake bold governance reforms to strengthen countries' capacity to manage public finances and debt productively and transparently.** To get to the root of the debt sustainability problem in Africa, there is a need to systematically pursue policy reforms. Growth-friendly policies that focus on economic and revenue diversification, accelerating digitalization, and promoting free and fair competition, debt transparency and public accountability systems would also help African countries to address their fiscal and debt distress and rebuild their economies towards the attainment of a green, inclusive, and resilient development path post COVID-19. In essence, the link between (lower) debt, governance and growth must be strengthened.

42. **Debt transparency has become crucial to avoid incidents where financial commitments and contingent liabilities are not publicly announced when committed.** To guard against such hidden debt, disclosure should be centralized for loan covenants in all sovereign, sub-sovereign, and state-owned agreements and exposures. This would apply not only to covenants and payment terms or schedules, but to collateral or other secured pledges. It will also be important to enhance the collection of debt data, and to make information on debt available and publicly accessible through regular reporting and real-time information sharing, including about the implicit guarantees and

contingent liabilities of state-owned enterprises. Investments should be made in digitization of the financial systems including, but not limited to, the modernisation of debt information management systems.

43. **Financial markets' confidence in the sustainability of a country debt, has an immediate implication on the cost of borrowing.** This change in risk perception will be translated to a higher interest rate to compensate for the increased default risk. Higher interest rates for the sovereign, in turn, get transmitted to the private sector as government bonds are generally considered as a benchmark and lower bound for interest rates. It implies that banks became less motivated to invest in long term private sector projects. The growing debt-financing burden faced by African governments may have put downward pressure on bank resources, which are then largely reallocated to finance government Treasury bills and bonds to the detriment of support for long-term private sector investment.

44. **In a nutshell, African governments need to control their excessive appetite for debt by eliminating large budget deficit positions due to high expenditure levels.** Reduced government appetite for debt will give room for institutional investors to widen their range of possible assets they can hold in their portfolios and not limit their investment choices to sovereign debt instruments alone. Such actions can, in turn contribute to orderly issuance of government securities in a manner which does not necessarily crowd out corporate issuances. Proper coordination between Government Debt Management Offices and stock exchanges will enable government issuances to complement corporate issuances, especially in the formulation of a proper yield curve. Government fiscal actions can also be complemented with appropriate monetary policy actions. Regulations and rules, requiring institutional investors to invest a certain percentage of their assets under management in government securities also need to be revisited.

### Box 2: Why do banks and institutional investors hold public paper?

45. **Low risks and competitive yields attract banks and institutional investor portfolios.** Generally, governments sovereign bonds are in almost all instances regarded as "risk-free" assets on account of the governments' almost guaranteed ability to service local currency debt through taxes and other income sources. An oversupply of competitively priced government bonds on the local debt capital markets tends to 'distract' investors from investigating the possibility of investing in relatively higher risk corporate bond issuances. Faced with a more than adequate supply of government bonds, the decision of whether to invest (or not) in relatively riskier corporate bonds becomes a peripheral decision, not a major consideration for most of Africa's institutional investors.

46. **Assessing the creditworthiness of sovereigns is often easier than for private sector borrowers, due to limited and lagging information about the latter.** In the absence of rating culture or a credible independent credit risk ratings and full disclosure requirements for private sector entities, investors place considerable dependence on the accounting and credit information received from issuers. The correctness and of such information is usually difficult to ascertain due to information asymmetry challenges and heightens the riskiness of investing in corporate bonds. Risk-averse institutional investors in particular are thus inclined to opt for sovereign bonds.

47. **An abundant supply of sovereign bonds in most African capital markets has resulted**

**in a very dominant sovereign bond market**, heavily overshadowing any corporate bond market activity. In a recent AfDB survey in 2021 on African capital markets, in almost African capital markets observed, corporate debt markets are only a small fraction of the government securities market. For example, as at end 2020, countries such as Nigeria had a corporate bond to sovereign bond market capitalization ratio of 2.7% and Kenya, had 0.5%.

48. **Government bonds are generally more liquid than corporate debt assets making it more attractive for institutional investors.** In several African countries, central banks value government bonds, as highly liquid assets, easily convertible into cash assets – either through trades on the interbank markets or through the central bank's repo windows which accept government bonds as repo qualifying assets. In contrast, most African capital markets, secondary markets for corporate bonds are simply non-existent, with investors being forced to hold their corporate bond assets to maturity. Liquidity management are very important to most investors, including institutional investors and banks as well. This then leads to a general preference, by most investors for government bonds.

49. **In majority of African countries, banking regulators give low risk asset weighting to government bonds, with short tenured government paper considered as near cash.** Corporate bonds, on the hand, especially unrated or lowly rated corporate bonds are given a 100% risk weighting, thereby consuming a much higher risk capital figure for regulated financial institutions. This leads banks, who are important holders of government debt securities, to prefer holding government bonds. Institutional investors are also, in certain African countries permitted to only invest in highly rated assets – which invariably are government assets. In some instances, they are required to invest a certain portion of their Assets Under Management in government assets. All these regulatory requirements and limitations lead institutional investors to prefer sovereign bonds as opposed to corporate bonds, thereby crowding-out the private sector.

## 5.3. Role of development institutions

50. **Domestic and international development institutions (including the IMF and the World Bank) have a crucial role in addressing the systematic challenges in developing sovereign debt markets in Africa.** Areas where support can make an important difference include governance and policy reform support; capacity building on debt management; promoting sovereign and non-sovereign debt markets; supporting domestic debt capital and financial markets; catalysing resource mobilization (domestic and foreign) for government and private sector; joint international initiatives such as DSSI or HIPC; and interventions to broaden the investor base.

51. **Technical assistance is important as capacity building is capital intensive.** Development Finance Institutions (DFIs) can mobilize resources to provide technical assistance to their member countries to help develop sound and robust debt management practices while improving tax collection capacity. Debt Management related activities to be supported include but are not limited to: (i) shaping debt management units with effective capacity and expertise to analyse vulnerability; (ii) enhancing the supervisory framework; and (iii) boosting capacities on products development and marketing.

52. **In supporting affordable financing solutions through capital markets development, DFIs can:**

i. stimulate the supply of institutional capital to the real sector by crowding in and capacitating institutional investors.

ii. help member countries leverage and better intermediate the growing pools of institutional investors assets under management to better finance both public and private sectors; and

iii. assist their member countries in developing relevant ESG projects and frameworks (green, social, sustainable) on one hand and assist both public and private entities in the issuance of actual ESG assets both in term of advisory and investment.

iv. structure lending operations to support capital markets development (bond issuance, innovative capital markets structures, etc.).

# 6. Conclusion and implications

53. **The increase in public debt levels across Africa due to COVID-19 makes crowding out effect more likely to occur.** According to SOCO index, crowding out reached a high level in 2021, being specially severe in Ghana, Rwanda, Uganda, Benin, Cape Verde, Kenya and Sierra Leone. The COVID-19 crisis boosted the supply of public debt, reflecting strong government financing needs. With the economic recovery underway, credit demand by the private sector, which was subdued in 2020, picked up in 2021 and is increasingly competing with government securities for funding. Credit to the private sector has continued to rise (in nominal terms) in most countries, but is often trailing nominal growth, indicating increased tightness in the availability of credit. The increased banking-sovereign nexus also poses systemic risks, as banks are more and more exposed to sovereigns at a time that their creditworthiness is under pressure. In the worst case, government arrears could unleash a banking crisis while the government does not have the means to finance a bail-out of the failing banks (Bosio et al., 2021). Hence, the overall benefits of avoiding crowding out to become more prevalent go beyond supporting private sector activity.

54. **Due to COVID-19, African banks rebalanced their asset portfolio in 2020 and 2021 towards safer assets without, however, causing a credit crunch.** This was made possible by the timely intervention of African monetary authorities in easing financing conditions to the economy and avoiding a credit crunch in the face of the pandemic shock. In many African countries, the swift reduction in interest rates and the forbearance and liquidity measures introduced by the authorities averted a sharp reduction of lending to the economy in the face of a slump in economic growth. These measures helped to contain a surge in the level of nonperforming loans (NPLs) in the banking sector, which tends to be structurally high, particularly in commodity producers and fragile countries. As soon as these forbearance measures will be phased out, however, high and rising NPLs may resurface, thus limiting the ability of the banking sector to provide new credit and sustain the economy.

55. **The crowding out of private lending by public borrowing can be expected to remain elevated**. The recovery of African economies from COVID-19 was interrupted by Russia's invasion in of Ukraine. Its resumption will increase businesses' demand for credit. An improving fiscal balance would reduce new funding needs, but debt-to-GDP ratios will remain high as they are only expected to fall by about 1.5 percentage point per year until 2025 according to the IMF. The supply of government securities will thus remain at the current high levels, with estimates suggesting that net funding needs will be almost twice the pre-pandemic level (Moody's, 2021). At the same time, African countries face increasing difficulties accessing external financing, while the growing trend of foreign investors buying

local-currency denominated paper may be reversed in the coming years. Most of the sovereign debt will thus remain on the balance sheets of bank, which in turn may continue to favour public debt until the recovery is well established. Indeed, the SOCO index confirms that the supply of public debt and banks' lending decisions will continue to contribute to crowding out in 2022.

56. **Enhancing debt management capacity and transparency will reduce debt vulnerabilities and contain the private sector crowding-out effect.** Poor and inadequate public debt management contributes to debt sustainability issues. In addition to supporting economic recovery and building resilience in the aftermath of the COVID–19 pandemic, many African countries should place priority on addressing the rising public debt burden, reducing leakages to create a more effective public sector, and promoting an environment that drives investments and private sector growth. The effective management of public resources —including control of fiscal deficits and overall debt management— is important for macroeconomic stability and the establishment of the conditions required for structural transformation. To enhance debt management, specific attention should be given to strengthening the capability for formulating and implementing debt policies and medium-term debt strategies. Other targeted interventions can include strengthening the organizational setup of debt management offices, including the training of debt management staff, and establishing frameworks to ensure comprehensive risk management, accountability and transparency of debt and managing the contingent liabilities of SOEs and associated risks. Finally, independent fiscal institutions should be created to advise governments on debt matters, and independent national auditing bodies (supreme audit institutions) should be promoted to perform regular financial and performance audits of public debt. Specific efforts are needed to deepen capital markets. Domestic and international development finance institutions can provide important support through their catalysing role in directing financing towards investments with high social and economic returns, supporting capital market development and providing technical assistance.

# Appendix A. Definitions of Indicators

**The SOCO index captures the supply of public debt, the demand for private credit and banks' lending decisions.** Each of these sub-indices consists of four indicators (Figure 2) which are constructed according to the definitions in Table 2**.** The choice of indicators was guided by empirical findings in the literature on the key determinants of crowding out (see Schmidt and Zwart (2018)). The selected indicators capture either cross-country or country-specific elements so that the SOCO index allows both for a comparison across countries and over time. General government gross debt, GDP and inflation are from the latest IMF World Economic Outlook (April 2022). When computing expected GDP, values from previous IMF World Economic Outlook editions are used. External debt stocks, general government sector (PPG) are taken from the World Bank International Debt Statistics. Real yields on T-bills are from the AfDB's African Financial Markets Initiative (AFMI) database and appended by data from central bank websites when missing; the African Infrastructure Development Index is from the AfDB's Open Data for Africa data portal; balance sheets data are from the IMF's Monetary and Financial Statistics, while lending rates are from central bank websites**.**

***Table 2. Definitions of Indicators***

| **Supply of public debt** | | | |
|---|---|---|---|
| **Indicator** | **Capturing** | **Formula** | **Intuition - Crowding Out** |
| Outstanding local-currency-denominated public debt | Cross-country | $\frac{Public\ debt,\ LC_t}{GDP,\ current\ prices_t}$ | ↑ |
| Growth of local-currency denominated public debt | Country-specific | $\frac{Public\ debt,\ LC_t\ -\ Public\ debt,\ LC_{t-1}}{GDP,\ current\ prices_{t-1}}$ | ↑ |
| Change in access to external debt | Country-specific | $\frac{Public\ debt,\ FC,\ LC_t}{Public\ debt,\ FC,\ LC_{t-1}} - \frac{Public\ debt,\ LC_t}{Public\ debt,\ LC_{t-1}}$ | ↓ |
| Real yield on T-bills | Cross-country | $i_t^{T-bill} - (\frac{i_t^{inflation} + i_{t+1}^{inflation}}{2})$ | ↑ |
| **Demand for private credit** | | | |
| GDP growth | Cross-country | $\frac{GDP,\ constant\ prices_t - GDP,\ constant\ prices_{t-1}}{GDP,\ constant\ prices_{t-1}}$ | ↑ |
| Expected GDP growth | Cross-country | $\frac{GDP,\ constant\ prices_{t+1} - GDP,\ constant\ prices_t}{GDP,\ constant\ prices_t}$ | ↑ |
| Quality of infrastructure | Cross-country | $Africa\ Infrastructure\ Development\ Index_t$ | ↑ |

| | | | |
|---|---|---|---|
| Change in quality of infrastructure | Country-specific | $Africa\ Infrastructure\ Development\ Index_t - Africa\ Infrastructure\ Development\ Index_{t-1}$ | ↑ |
| **Banks' lending decisions** | | | |
| Financial sector development | Cross-country | $\frac{Banks'\ claims\ on\ private\ sector_t}{GDP,\ current\ prices_t}$ | ↓ |
| Change in balance sheet composition | Country-specific | $\frac{Claims\ on\ private\ sector_t}{Total\ assets_t} - \frac{Claims\ on\ private\ sector_{t-1}}{Total\ assets_{t-1}}$ | ↓ |
| Growth of balance sheet size | Country-specific | $\frac{Total\ assets_t - Total\ assets_{t-1}}{GDP,\ current\ prices_{t-1}}$ | ↓ |
| Interest rate margin | Cross-country | $i_t^{lending\ rate} - i_t^{T-bill}$ | ↑ |

**Indicators take account of changes in exchange rates, inflation and, in case of ratios, denominators.** The change in access to external debt is calculated such that changes in the exchange rate do not affect the value of the indicator. To calculate the real yield on the (one year) T-bill, the average of past and future inflation is used, as half of the maturity period is in the current year and half in the next year. The indicators for banks' balance sheets are structured such that inflation is filtered out. The lending rate is the annual average of the short-term lending rate to businesses, or the closest publicly available alternative.

**The SOCO index is designed to provide an assessment of the relative extent of crowding out.** To evaluate developments in the last few years, the SOCO index is calibrated over a long period, namely 2004-13, which captures both episodes of rapid economic expansion and slowdown. For each indicator, the value is transformed into a score from 0 to 1 based on the quintiles of the 2004-13 data in such a way that higher scores are associated with a higher extent of crowding out. Hence, the index, as the unweighted average of these indicators, assesses the relative extent of crowding out compared to the calibration period but does not provide an absolute assessment of the extent.

**The transformation of an indicator depends on whether it captures primarily developments across countries or within a single country.** For cross-country indicators all data is pooled and the quintiles are identical for all countries; for country-specific indicators each country has different quintiles as they are based on the data of each country. Using quintiles ensures that for countries with complete data, no threshold is uniquely associated with a single observation, which improves robustness. For indicators for which less than five data points exist for the period 2004-13, the average of all countries' quintiles is used. In case of a positive correlation with crowding out, values below the first quintile are attributed a score of 0, those below the second but above the first quintile are assigned a score of 0.25, and so on until a score of 1 for the highest quintile. In case of a negative correlation, the scores are assigned in reverse order. An exception is the difference in the AIDI, as based on the three observations available before 2014 the quintiles cannot be constructed. Hence, the mean is used as a

threshold and values below the mean are assigned a score of 0.25 and those equal or above a score of 0.75.

**Missing data is patched where necessary, but for 13 countries there is not sufficient data to construct the index.** Missing values before 2013 are left blank. From 2013 onwards they are approximated by the first or last available value, or the average if values for the preceding and subsequent year exist (if both the level and growth rate are needed, the growth rate is proxied, and the level is subsequently derived). For foreign currency-denominated public debt, claims on private sector, assets, lending and T-bill rates these approximations are performed mainly on the raw data; whilst for the other indicators, the approximation is done at the last step of their derivation.

**In comparison to the index in Schmidt and Zwart (2018), some changes are made concerning the selection of variables and formulas.** The Doing Business indicator is replaced by the African Infrastructure Development Index to account for infrastructure developments in Africa, which are a strong indicator of business opportunities. Growth indicators in percent of GDP were adapted such that growth rates are computed taking the GDP of the previous year into account. This prevents the overestimation of indicators' growth, given the large GDP swings due to the pandemic. A higher interest rate margin is now raising (instead of depressing) the index as it is considered to be set by the banks. Finally, expected GDP growth rates are computed taking GDP values of single end-of-year editions of the IMF's World Economic Outlook (WEO) to mirror values' expectations at the point in time the data is released.

**The 95%-confidence interval of the index is derived in order to better gauge the relevance of changes.** This interval is derived from simulations as follows:

- **Derivation of the standard deviation of each sub-index for a single country.** To do so, for each sub-index the average correlation between the original variables is calculated for the period 2004-13 (0, 0.04 and 0.17 respectively). For each sub-index, four random variables (representing the variables), each taking values 0, 0.25, …, 1 with 20% probability, are constructed such that the respective pair-wise correlations equal the average of the respective sub-index. Each sub-index is then generated by taking the average of its four random variables. A simulation then yields the standard deviation of each sub-index.

- **Derivation of the standard deviation of the index for a single country.** For this, the correlations between the original three sub-indices are calculated. As data limitations do not allow for using 2004-13 (one missing variable would already disqualify a year-country observation), the period 2014-2021 (the period for which the SOCO index can be derived) is used. These correlations together with the standard deviations found in the first step are then used to generate three random variables reflecting the sub-indices, which can then be average to obtain the index for a single country. A simulation would then yield the standard deviation of the index for a single country (0.1).

- **Derivation of the standard deviation of the Africa-wide index.** If the index would be independent across the 41 covered countries, the standard deviation of the single country index could be adjusted by a factor √(1/41). However, clearly there are

commonalities between countries which cannot be averaged out, and hence the importance of the common effect needs to be established. This can be done via a decomposition of the sum of squares of the difference between the actual index and the mean value of 0.5. This yields that the common effect (averages of the index in each year) account for 18% of the total variance and the idiosyncratic effect for 82%. This in turn implies that the index relies for about 32% on the common component ($0.32^2/(0.32^2 + 0.68^2) = 0.18$). The standard deviation of a single country can thus be adjusted by a factor $\sqrt{(0.18 + 0.82/41)}$, which yields a value of 0.044 for the standard deviation of the index. In Figure 2 in the main text, this is multiplied by a factor 2 to derive the approximate 95%-confidence band.

## Appendix B. The SOCO index over time by country

| Country | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|
| Algeria | 0.46 | 0.48 | 0.44 | 0.44 | 0.56 | 0.58 | 0.46 | 0.54 | 0.52 |
| Angola | 0.63 | 0.44 | 0.40 | 0.46 | 0.58 | 0.40 | 0.52 | 0.33 | 0.35 |
| Benin | 0.54 | 0.56 | 0.52 | 0.60 | 0.44 | 0.54 | 0.58 | 0.65 | 0.65 |
| Botswana | 0.58 | 0.42 | 0.54 | 0.54 | 0.46 | 0.52 | 0.56 | 0.60 | 0.60 |
| Burkina Faso | 0.40 | 0.52 | 0.50 | 0.56 | 0.58 | 0.56 | 0.48 | 0.63 | 0.58 |
| Burundi | 0.54 | 0.54 | 0.58 | 0.58 | 0.54 | 0.46 | 0.50 | 0.50 | 0.54 |
| Cameroon | 0.54 | 0.67 | 0.46 | 0.60 | 0.44 | 0.48 | 0.46 | 0.52 | 0.56 |
| Cape Verde | 0.56 | 0.65 | 0.58 | 0.63 | 0.58 | 0.60 | 0.60 | 0.65 | 0.63 |
| Central African Rep. | 0.50 | 0.56 | 0.48 | 0.56 | 0.46 | 0.52 | 0.42 | 0.46 | 0.46 |
| Chad | 0.56 | 0.69 | 0.50 | 0.46 | 0.58 | 0.63 | 0.48 | 0.52 | 0.44 |
| Comoros | 0.58 | 0.50 | 0.29 | 0.46 | 0.46 | 0.42 | 0.54 | 0.58 | 0.63 |
| Congo, Dem. Rep. of | 0.67 | 0.67 | 0.44 | 0.44 | 0.50 | 0.42 | 0.42 | 0.56 | 0.54 |
| Congo, Rep. of | 0.60 | 0.65 | 0.54 | 0.58 | 0.60 | 0.56 | 0.54 | 0.42 | 0.48 |
| Egypt | 0.54 | 0.48 | 0.38 | 0.38 | 0.40 | 0.48 | 0.42 | 0.35 | 0.46 |
| Eritrea | 0.56 | 0.42 | 0.38 | 0.29 | 0.38 | 0.31 | 0.42 | 0.42 | 0.40 |
| Eswatini | 0.35 | 0.52 | 0.35 | 0.54 | 0.52 | 0.60 | 0.48 | 0.44 | 0.46 |
| Gabon | 0.65 | 0.69 | 0.69 | 0.54 | 0.50 | 0.56 | 0.50 | 0.50 | 0.48 |
| Gambia | 0.71 | 0.71 | 0.58 | 0.67 | 0.60 | 0.56 | 0.52 | 0.60 | 0.56 |
| Ghana | 0.54 | 0.54 | 0.65 | 0.88 | 0.90 | 0.67 | 0.67 | 0.73 | 0.73 |
| Guinea-Bissau | 0.56 | 0.60 | 0.60 | 0.38 | 0.44 | 0.48 | 0.44 | 0.48 | 0.58 |
| Ivory Coast | 0.63 | 0.42 | 0.60 | 0.54 | 0.52 | 0.50 | 0.58 | 0.56 | 0.63 |
| Kenya | 0.44 | 0.54 | 0.65 | 0.58 | 0.63 | 0.54 | 0.52 | 0.65 | 0.65 |
| Lesotho | 0.54 | 0.56 | 0.48 | 0.44 | 0.63 | 0.42 | 0.50 | 0.58 | 0.58 |
| Madagascar | 0.50 | 0.58 | 0.52 | 0.44 | 0.52 | 0.42 | 0.52 | 0.48 | 0.58 |
| Mali | 0.42 | 0.50 | 0.56 | 0.58 | 0.54 | 0.56 | 0.54 | 0.50 | 0.58 |
| Mauritania | 0.67 | 0.63 | 0.52 | 0.48 | 0.58 | 0.54 | 0.40 | 0.40 | 0.42 |
| Mauritius | 0.63 | 0.60 | 0.56 | 0.54 | 0.63 | 0.52 | 0.52 | 0.56 | 0.60 |
| Morocco | 0.54 | 0.60 | 0.46 | 0.54 | 0.56 | 0.40 | 0.48 | 0.60 | 0.54 |
| Mozambique | 0.65 | 0.56 | 0.46 | 0.56 | 0.56 | 0.52 | 0.54 | 0.40 | 0.60 |
| Niger | 0.56 | 0.46 | 0.44 | 0.56 | 0.58 | 0.46 | 0.52 | 0.44 | 0.60 |
| Nigeria | 0.60 | 0.63 | 0.40 | 0.56 | 0.60 | 0.56 | 0.44 | 0.56 | 0.60 |
| Rwanda | 0.60 | 0.56 | 0.60 | 0.60 | 0.60 | 0.60 | 0.56 | 0.67 | 0.71 |
| Sao Tome & Principe | 0.54 | 0.67 | 0.63 | 0.52 | 0.65 | 0.44 | 0.60 | 0.42 | 0.56 |
| Senegal | 0.52 | 0.52 | 0.46 | 0.60 | 0.40 | 0.40 | 0.48 | 0.60 | 0.56 |
| Sierra Leone | 0.75 | 0.65 | 0.65 | 0.69 | 0.58 | 0.65 | 0.58 | 0.65 | 0.67 |
| South Africa | 0.50 | 0.54 | 0.42 | 0.54 | 0.52 | 0.52 | 0.52 | 0.50 | 0.50 |
| Tanzania | 0.65 | 0.46 | 0.63 | 0.63 | 0.60 | 0.63 | 0.58 | 0.60 | 0.63 |
| Togo | 0.54 | 0.46 | 0.46 | 0.54 | 0.48 | 0.44 | 0.42 | 0.54 | 0.54 |
| Tunisia | 0.52 | 0.48 | 0.31 | 0.46 | 0.44 | 0.44 | 0.52 | 0.52 | 0.48 |
| Uganda | 0.75 | 0.60 | 0.56 | 0.56 | 0.67 | 0.73 | 0.54 | 0.67 | 0.69 |
| Zambia | 0.65 | 0.50 | 0.65 | 0.71 | 0.65 | 0.69 | 0.56 | 0.56 | 0.63 |
| Average | 0.57 | 0.56 | 0.51 | 0.54 | 0.55 | 0.52 | 0.51 | 0.54 | 0.56 |

# References


Baldini, A., J. Benes, A. Berg, M.C. Dao and R.A. Portillo (2015), "Monetary Policy in LICs During the Crisis. Pacific Economic Review", 20: 149-192. https://doi.org/10.1111/1468-0106.12098

Bester, H., and M. Hellwig (1987), "Moral Hazard and Equilibrium Credit Rationing: An Overview of the Issues," in Gunter Bamberg and Klaus Spremann, eds., Agency Theory, Information and Incentives. Berlin: Springer-Verlag.

Betz F., F. Ravasan and C. Weiss, 2019, "Structural and cyclical determinants of access to finance: Evidence from Egypt". EIB. https://doi.org/10.2867/066706

Bosio E., R. Ramalho & C. Reinhart (2021), "The invisible burden: How arreards could unleash a banking crisis", VoxEu blogpost.

F. de O. Schmidt, V. & S. Zwart (2018), "Ready for the Recovery? How Crowding Out by Public Debt Affects Lending to the Private Sector across Africa", in "Banking in Africa: Delivering on Financial Inclusion, Supporting Financial Stability", EIB.

International Monetary Fund (2017), "Regional Economic Outlook, Sub-Saharan Africa: Fiscal Adjustment and Economic Diversification. October 2017".

International Monetary Fund (2019), "Heavily Indebted Poor Countries (HIPC) Initiative and Multilateral Debt Relief Initiative (MDRI)—Statistical Update". IMF Policy Paper.

International Monetary Fund (2020), "The Evolution of Public Debt Vulnerabilities In Lower Income Economies". IMF Policy Paper No. 2020/003.

International Monetary Fund (2021), "2021 Article IV Consultation—press release; staff report; and statement by the executive director for Ghana", IMF Country Report No. 21/165.

International Monetary Fund (2022a), "Regional Economic Outlook, Sub-Saharan Africa: A New Shock and Little Room for Manoeuvre". April 2022.

International Monetary Fund (2022b). Global Financial Stability Report— Chapter 2: "The Sovereign-Bank Nexus in Emerging Markets: A Risky Embrace". Washington, DC, April.

Moody's (2021), "Varied availability of domestic funding sources in Africa drives liquidity risks".

PwC (2021), "The Africa Business Agenda 2021".

South African Reserve Bank (2021), "Financial stability review. First edition 2021". SARB.

Smith, G. (2021), Where Credit is Due: How Africa's Debt Can Be a Benefit, Not a Burden. Hurst Publishers.

Stiglitz, J. and A. Weiss (1981), "Credit Rationing in Markets with Imperfect Information," American Economic Review, Vol. 73, No. 5, pp. 393–410.

Williamson, S., (1987), "Costly Monitoring, Loan Contracts, and Equilibrium Credit Rationing," Quarterly Journal of Economics, Vol. 102, No. 1, pp. 135–145.

World Bank (2014), "Heavily Indebted Poor Countries (HIPC) Initiative and Multilateral Debt Relief Initiative (MDRI)". Presentation to the Annual Meetings Fall 2014.

**ECONOMICS** – REGIONAL STUDIES

# Is crowding out of private sector credit inhibiting Africa's growth?


**Economics Department**
**economics@eib.org**
**www.eib.org/economics**

**European Investment Bank**
98-100, boulevard Konrad Adenauer
L-2950 Luxembourg
+352 4379-1
**www.eib.org – info@eib.org**



PDF: ISBN 978-92-861-5379-2