



SUDAN

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STAFF REPORT FOR THE 2019 ARTICLE IV CONSULTATION— DEBT SUSTAINABILITY ANALYSIS

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<i>Sudan</i> <i>Joint Bank-Fund Debt Sustainability Analysis</i>	
Risk of external debt distress	<i>In debt distress</i>
Overall risk of debt distress	<i>In debt distress</i>
Granularity in the risk rating	<i>Debt is unsustainable</i>
Application of judgment	<i>No</i>

This debt sustainability analysis (DSA) confirms that Sudan continues to be in debt distress. Both public and external debt ratios remain high, and the bulk of external debt is in arrears. Consistent with the results of past DSAs, Sudan's external debt is assessed to be unsustainable. All external debt indicators breach their indicative thresholds under the baseline scenario, and stay above the thresholds throughout the time horizon of the analysis. It is therefore critical for Sudan to undertake sound economic policies, including a prudent borrowing strategy, and to continue garnering support for debt relief.

BACKGROUND AND RECENT DEVELOPMENTS

1. Sudan's economy has never fully adjusted to the secession of South Sudan in 2011, which resulted in a sharp decline in its oil exports and fiscal revenues. Sudan lost about 75 percent of oil production, 66 percent of exports, and half of fiscal revenues after the secession.¹ Despite the U.S. revocation of commercial sanctions in October 2017, Sudan remains on the U.S. list of state sponsors of terrorism, (SSTL), which hinders external investment, progress toward HIPC debt relief and the clearance of large arrears, including to the Fund and the World Bank. The economy is shrinking, fiscal and external imbalances are large, inflation is high, the currency is overvalued, and competitiveness is weak. The humanitarian situation is dire with large numbers of internally displaced people and refugees. The new civilian-led government have shown willingness to reform and stabilize the shrinking economy and re-engage Sudan with the international community, but the social situation remains fragile.

2. Economic performance deteriorated in 2019. The economy contracted by 2.5 percent in 2019 after contracting by 2.2 percent in 2018. Inflation rose significantly after currency devaluation and reached 73 percent in end-2018. Following a decline in January 2019 due to base effects, inflation has continued to rise, reaching 60 percent in November 2019, reflecting loose fiscal and monetary policies and exchange rate depreciation. The fiscal deficit continued widening in 2019 to 10.8 percent of GDP, mainly financed through monetization.² The external current account deficit (cash basis) remained large at 7.8 percent of GDP in 2019. International reserves however increased to \$1.4 billion (2 months of imports) in October 2019 due to support from Gulf countries.

3. Prospects for debt relief. Sudan has yet to meet all the requirements for reaching the decision point and qualify for HIPC debt relief. The normalization of relations with external creditors, including multilateral institutions and bilateral creditors, is a key precondition for debt relief. The Sudanese authorities have requested a Staff Monitored Program (SMP) with the IMF which would be contingent on the finalization of the authorities' reform package and on sufficient external financing assurances from donors. Outreach to the donor community to raise the needed funds has intensified as has the dialogue with creditors to garner support for debt relief. In addition, given the significant debt statistic gaps, IFIs and private sector representatives are working with the authorities to reconcile external debt data.

¹ Sudan and South Sudan also reached the so-called "zero option" agreement in September 2012, whereby Sudan would retain all external liabilities after the secession of South Sudan, provided that the international community gave firm commitments to the delivery of debt relief within two years. Absent such a commitment, Sudan's external debt would be apportioned with South Sudan based on a formula to be determined. The two parties have agreed to extend this agreement on several occasions.

² The difference between the on-budget and true fiscal deficits is the implicit subsidies not reported in the budget but financed through monetization by the central bank.

STRUCTURE OF DEBT

4. Sudan's debt data quality and coverage remain limited.³ Historical debt data were provided by the Sudanese authorities, complemented by information obtained during the 2011 external debt reconciliation exercise, as well as Fund and World Bank staffs' estimates. The External Debt Unit at the CBOS produces comprehensive quarterly and annual report on external debt and data are collected by using primary information from both the MOFEP and the lenders, but they are not always verified with actual cash flows in the corresponding bank accounts. The external debt reports are not consistent with other related fiscal report as well. There are considerable information gaps between the IMF maintained dataset and the external debt report, mostly due to difficulties in obtaining data on the terms of the loans and breakdown of existing debt. In case of data discrepancies projections were based on a prudential approach, to avoid underestimation of debt. Debt data covers mainly central government, as state and local government are not allowed to borrow according to the Constitution, while other public entities in general government are still not captured in the debt coverage. Letter of guarantees (LG) are issued by the central bank on request of the Ministry of Finance and Economic Development (MOFEP) as a hybrid financing instrument used mainly to fund development projects. However reporting issues of LGs were identified by the IMF technical assistance (TA) mission, where the central government budget recorded the full amount of LG as debt when they were issued only as commitment.⁴ External debt is defined based on currency.

Subsectors of the public sector	Check box
1 Central government	X
2 State and local government	X
3 Other elements in the general government	
4 o/w: Social security fund	
5 o/w: Extra budgetary funds (EBFs)	
6 Guarantees (to other entities in the public and private sector, including to SOEs)	X
7 Central bank (borrowed on behalf of the government)	
8 Non-guaranteed SOE debt	

1 The country's coverage of public debt	The central, state, and local governments, government-guaranteed debt		
	Default	Used for the analysis	Reasons for deviations from the default settings
2 Other elements of the general government not captured in 1.	0 percent of GDP	0	
3 SoE's debt (guaranteed and not guaranteed by the government) 1/	0 percent of GDP	0	
4 PPP	35 percent of PPP stock	0	
5 Financial market (the default value of 5 percent of GDP is the minimum value)	5 percent of GDP	5	
Total (2+3+4+5) (in percent of GDP)		5,0	

1/ The default shock of 2% of GDP will be triggered for countries whose government-guaranteed debt is not fully captured under the country's public debt definition (1.). If it is already included in the government debt (1.) and risks associated with SoE's debt not guaranteed by the

5. Sudan's PPG external debt remains very high. External debt amounts to about \$55 billion, or 193 percent of GDP at end-2019, rising from 176 percent of GDP in 2018 due to large currency depreciation from SDG45/\$ to SDG72/\$ on a weighted average basis.

³ External debt data were partially updated in December 2019 during the Article IV consultation mission.

⁴ The breakdown of individual components is not available.

6. The structure of external debt has been stable over the last decade (Figures 1 and 2).

About 85 percent of the external debt was in arrears in 2019. The bulk is public and publicly guaranteed (PPG) debt (\$54.6 billion, of which 85 percent are in arrears), mainly owed to bilateral creditors and roughly equally divided between Paris Club (\$20.5 billion) and non-Paris Club (\$20.8 billion) credit. About \$1.8 billion is private debt owed to suppliers. The principal of PPG in arrears is about \$10.9 billion, and the rest are interests in arrears.

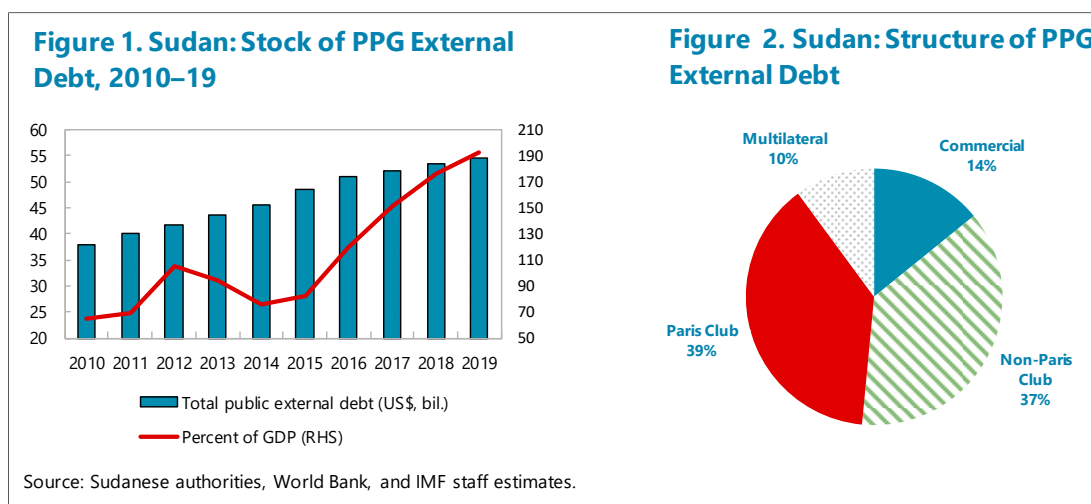


Figure 3. Sudan: Structure of Public and Publicly Guaranteed External Debt

	2010		2019	
	In US\$ million	In percent	In US\$ million	In percent
Total PPG	37,927.00	100	54,560.09	100
Multilateral	5,196.00	13.7	5,467.50	10.0
Bilateral	27,762.56	73.2	41,258.60	75.6
Paris	13,957.14	36.8	20,550.10	37.7
Non-Paris	13,805.43	36.4	20,158.50	36.9
Commercial	4,968.44	13.1	7,833.90	14.4

Source: Sudanese authorities; and IMF staff estimates.

7. Sudan's total public debt reached 211.7 percent of GDP by end-2019. The bulk of the public debt is external debt. Domestic debt only accounts for 10 percent of GDP. Total external debt will continue to dominate public debt in Sudan. Despite very limited access to new external financing, the total debt burden continues to grow at a very high rate due to the continued depreciation of the SDG and to rising outstanding interest and fee payments and charges maturing on the existing debt in arrears.

Debt Carrying Capacity

8. Sudan's debt carrying capacity remains weak even after the introduction of a composite indicator in the new LIC-DSF to replace the World Bank CPIA scores.⁵

The Sudan's Composite Indicator (CI) index, has been calculated based on the October 2019 WEO and the World Bank's 2018 CPIA, is 1.882, indicating that the country's debt-carrying capacity is weak in the revised LIC-DSA framework. Corresponding thresholds changes are noted in the text table. PV of debt-to-exports threshold was increased compared to the previous DSF, from 100 to 140 percent. Debt service-to-export and to-revenue thresholds were lowered respectively from 15 to 10 percent and from 18 to 14 percent. Total public debt benchmark has been reduced from 38 percent to 35 percent of GDP.

Sudan: Debt Carrying Capacity and Thresholds		
Debt Carrying Capacity		
Final	based on current vintage	based on previous vintage
Weak	Weak 1.88	Weak 1.87
Applicable Thresholds and Benchmark		
External debt burden thresholds		
PV of debt in % of:		
Exports	140	100
GDP	30	30
Debt service in % of		
Exports	10	15
Revenue	14	18
Total public debt benchmark		
PV of total public debt in percent of GDP		
	35	38

DEBT SUSTAINABILITY ANALYSIS

A. Underlying Assumptions

9. The macroeconomic assumptions underlying this DSA have been updated based on developments in 2019 (Box 1). The baseline scenario assumes a deteriorating fiscal deficit mainly due to weak revenue mobilization, continue depreciation of the exchange rate and ballooning fuel subsidies. As in the past, this DSA does not assume arrears clearance, possible external debt relief, or debt apportionment between Sudan and South Sudan in its baseline or alternative scenarios.

⁵ The CI captures the impact of the different factors through a weighted average of the country's real GDP growth, remittances, international reserves, and world growth and the CPIA score. The details on the methodology can be found in the new LIC-DSF guidance note: <https://www.imf.org/en/Publications/Policy-Papers/Issues/2018/02/14/pp122617guidance-note-on-lic-dsf>

Box 1. Macroeconomic Assumptions 2019–39

Natural resources. Oil is increasingly less important for the Sudan economy. Production is at 72 thousand barrels/day in 2019, showing a continued decline. Ageing oil fields along with moderate exploration keep oil production flat over the medium term. Price projections are guided by the IMF's latest World Economic Outlook (WEO). The price of Sudan's crude oil is projected to average \$60/barrel in the medium term. The limited production results in increasing imports of crude oil and corresponding higher costs of fuel subsidies also due to the fuel import exchange rate being fixed at SDG 6.7/\$ (the official exchange rate is currently at SDG 45/\$ and the dominant parallel market at SDG 85/\$ in December 2019).

Real sector. Real GDP growth rate is expected to contract by 2.5 percent in 2019 driven by weak competitiveness, poor business environment and the results of social turmoil. Real growth is expected to further contract by 1.2 and 0.6 percent in 2020 and 2021, respectively. Absent reforms, growth will turn positive only after 2021, reaching 1.5 percent in 2025, and remaining subdued in the longer term. The projections mainly reflect the baseline scenario assumptions, in which no active policy measures will be taken as the new civilian government is still working on a comprehensive reform plan. With an overvalued exchange rate, weak business environment, loose fiscal policies financed by money creation, macro imbalances will continue to widen, further compromising growth prospects. Inflation is projected to increase from about 51 percent in 2019 to about 86 percent in 2025. The nominal exchange rate will continue to depreciate dramatically.

Fiscal sector. The baseline fiscal deficit is projected to deteriorate over the medium term to 18.6 percent in 2025, reflecting a combination of revenue losses arising from the substantial use of the overvalued official exchange rate for government transactions and tariff collection, dwindling revenues, and rising fuel subsidy spending. Over the longer run and through 2039, the primary deficit is expected to stabilize at about 18.8 percent of GDP. Under these assumptions, the domestic debt-to-GDP ratio is projected to continue to rise and debt to remain unsustainable.

External sector. The current account deficit is expected to remain elevated over the medium term, at about 5.2 percent of GDP by end-2025, reflecting the effects of the large fiscal deficit and overvalued exchange rate. In the long run, imports are expected to contract and the trade balance to slowly improve in absolute terms, even if it is projected to remain elevated. The deficit will be financed by foreign direct investment and modest external debt accumulation.

External debt. Reflecting continued limited access to international finance and a deteriorating debt service capacity, disbursements of new loans are expected to continue to be limited, at about 0.12 percent of GDP during 2019–39. In line with the latest newly contracted debt, the share of new concessional loans is assumed at around one-third. It is assumed that Sudan will continue not to service obligations arising from the stock of arrears. Consequently, the effective interest rate is declining because the interest payment decrease overtime while the stock of debt continues to grow. In addition, the projected financing gaps are added to the external debt stock.

Financing assumption. Given the large external arrears and limited depth in domestic financial market, staff assumes that the bulk of government's financing comes from the central bank's direct monetization in the medium term, while financing from other domestic creditors will increase in the longer term. Staff also applied the latest available market interest rate (which in real terms is negative) on government bonds in the projections as commercial banks have limited investment options and investing in government bonds will help reduce losses relative to holding cash.

B. External Debt Sustainability

10. Sudan's external debt stock remains unsustainable under the baseline scenario (Figure 1 and Table 1). All PPG external debt indicators continue to breach their indicative thresholds throughout the 20-year projection period. The present value (PV) of PPG external debt is at about 163.4 percent of GDP at end-2019—more than threefold the 30 percent threshold for weak policy performers—and is projected to stay above the threshold through the projection period.⁶ Similarly, in 2019, the PV of debt-to-exports is about 1193.3 percent, well above the respective threshold. Debt service to exports and debt service to revenue will continue to increase steadily over the long term. In particular, debt service will increase by \$512 million due to the scheduled interest payment to Saudi Arabia and U.A.E in 2022. Under the reform scenario the debt path improves but remains unsustainable without debt relief.

11. Sudan's external debt outlook is vulnerable to a range of shocks (Figure 1 and Table 3). The PV of debt-to-GDP is most vulnerable to combined shock, while the PV of debt-to-exports and debt service-to-exports ratios are most vulnerable to an export shock. In the combined shock scenario, key variables including real GDP growth, primary balance, exports, other flows are adjusted by 0.5 standard deviation from their historical averages and exchange rate depreciates by 51 percent, the PV of debt-to-GDP ratio would increase from 163 percent to 196 percent.

C. Overall Risk of Public Debt Distress

12. Public debt remains unsustainable and the public DSA continues to mirror the trends and results of the external DSA (Figure 2 and Table 2). Sudan has a full Islamic banking system, where profit margins (i.e. the traditional interest rate) are set based on the underlying project's return and it remains at 12-15 percent even after inflation rose to about 70 percent in 2019. Even though, the debt ratios remain at relatively high levels in the long term. The present value of public debt is about 212.9 percent of GDP at end of 2019 and will remain above the threshold through the projection period reaching 420 percent of GDP by 2039. Similarly, the PV of public debt to revenue will increase from its current already very high level of 2718.7 percent by end of 2019 to an extreme level of about 9465.9 percent by 2039. The rapidly rising historical scenario is in large part due to the structural break caused by the separation of South Sudan which led to negative historical averages.

13. The public DSA bound tests show that public debt path is most vulnerable to real GDP growth. (Table 4).

14. There is a significant difference in the projections in the current DSA compared to the previous DSA (Figure 3 and Table 4). The main driver of the difference is due to the large depreciation of parallel market exchange rate and mounting inflation. Additionally, reduced fiscal space further compressed debt repayment capacity which contributed to increased arrears and worsening debt carrying capacity. It is to be expected that being the DSA 2013 compiled with the older model could have also impacted some discrepancies in the results of the analysis.

⁶ Ratios in terms of GDP are calculated using a weighed exchange rate between the official and the parallel market rate.

15. The realism tools highlight the magnitude of the fiscal adjustment and uncertainty around the baseline (Figure 4). The realism tool shows any adjustment that is greater than 2.5 percent of GDP over a 3-year period in the top quartile of adjustments within the sample. A significant large fiscal adjustment of 4 percent of GDP may be needed to stay within financing constraints and enhance confidence during the reform episode. While the magnitude of the fiscal adjustment is large, the authorities will have to implement a similarly large fiscal adjustment as part of the policy reform package. The large fiscal consolidation might create a temporary drag on growth, but on the other hand continued monetization of the costs deriving from huge implicit fuel subsidies by the central bank also led to severe decline in growth. The large residual highlights the difficulty in capturing the multiple distortions currently affecting the Sudanese economy, especially the multiple currency practices and continued depreciation of the parallel market exchange rate and the poor quality and timeliness of data, especially related to fiscal and balance of payment accounts. The authorities' published national account is outdated with a base year of 1981/82, and data on investment and consumption lack of accuracy. Therefore, staff is not able to provide a proper analysis of contribution of investment to real GDP and its developments.

CONCLUSIONS

16. Sudan's external debt remains in distress and unsustainable. The normalization of relations with external creditors, including multilateral institutions and bilateral creditors, is a key precondition for debt relief. The results of this DSA are broadly unchanged from previous DSAs, as no major policy correction has been undertaken and no debt relief has been granted to Sudan. The economy continues to shrink, fiscal and external imbalances widen, inflation is high, the currency is overvalued, and competitiveness is weak. Under these conditions it is impossible for Sudan to service its disproportionate debt. In addition, the debt burden increases over time as the amounts needed to close projected financing gaps are added to the outstanding debt stocks. In the long term, all public and public-guaranteed external debt burden ratios remain well above their respective indicative thresholds. Public debt remains unsustainable, driven mostly by external debt dynamics.

17. Further efforts are needed for Sudan to obtain much-needed debt relief and regain access to external financing. Sudan needs to: (i) continue to step up outreach efforts to its creditors to garner broad support for debt relief; (ii) continue to cooperate with the IMF on economic policies and payments with a view to establishing a track record of sound macro policies; (iii) renew the commitment to develop a full-fledged PRSP; and (iii) minimize new borrowing on non-concessional terms, since it further increases the future debt burden, and instead secure foreign support on highly concessional terms to finance necessary development and infrastructure expenditures. Furthermore, the major shortcomings in macroeconomic data, in terms of quality and timeliness, need to be addressed as they impair economic analysis and creates uncertainty on the potential reform outcome.

18. Authorities' views. The authorities concurred with staff that absent reforms, debt restructuring and access to debt relief, the current economic prospects appear bleak and debt will remain unsustainable. They are engaged in designing a reform plan which will address the main sources of imbalances and boost inclusive growth, including: liberalization of the exchange rate, revenue measures

and phasing out of fuel subsidies, accompanied by an expansion of social safety nets to mitigate the impact of adjustment on vulnerable groups and measures to fight corruption, improve governance and the business environment. The authorities continue to engage with creditors and are intensifying outreach efforts to the donors' community to pave the way toward debt relief. They have been petitioning key donors for the de-listing of Sudan from the SSTL and have requested an IMF Staff Monitored Program to help reestablish macroeconomic stability and create conditions for stronger, broad-based economic growth.

Table 1. Sudan: External Debt Sustainability Framework, Baseline Scenario, 2016-2039
(In percent of GDP, unless otherwise indicated)

	Actual		Projections							Average 8/		Definition of external/domestic debt	Currency-based
	2018	2019	2020	2021	2022	2023	2024	2029	2039	Historical	Projections		
External debt (nominal) 1/	180.8	198.2	204.3	211.3	209.7	209.8	211.7	221.0	240.1	102.8	211.9	Is there a material difference between the two criteria?	No
of which: public and publicly guaranteed (PPG)	176.0	193.0	199.2	206.1	204.5	204.6	206.4	215.3	232.9	99.9	206.5		
Change in external debt	26.3	17.4	6.2	7.0	-1.6	0.1	1.8	1.9	1.8				
Identified net debt-creating flows	58.9	19.9	19.0	16.9	16.4	12.5	10.6	6.5	3.8	19.4	12.2		
Non-interest current account deficit	12.7	11.7	13.1	12.0	12.3	10.8	10.0	5.5	1.7	8.2	9.6		
Deficit in balance of goods and services	9.0	10.3	13.1	12.1	11.9	10.6	10.1	7.5	1.7	3.1	10.1		
Exports	13.9	13.7	13.4	14.7	14.9	15.7	16.0	18.0	23.0				
Imports	23.0	24.0	26.5	26.8	26.8	26.3	26.1	25.6	24.6				
Net current transfers (negative = inflow)	-1.0	-2.9	-2.3	-2.3	-1.7	-1.9	-2.0	-3.1	-7.0	-2.1	-2.4		
of which: official	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Other current account flows (negative = net inflow)	4.8	4.3	2.2	2.1	2.2	2.1	1.9	1.0	7.1	7.2	1.9		
Net FDI (negative = inflow)	3.2	3.0	3.4	3.4	3.4	3.4	3.5	4.1	5.6	2.9	3.6		
Endogenous debt dynamics 2/	43.0	5.1	2.5	1.5	0.6	-1.7	-2.9	-3.1	-3.5				
Contribution from nominal interest rate	0.3	0.3	0.2	0.2	1.4	0.7	0.2	0.1	0.0				
Contribution from real GDP growth	-4.5	4.9	2.3	1.3	-0.8	-2.3	-3.0	-3.2	-3.5				
Contribution from price and exchange rate changes	38.2	...	...	...	...	...	...	...	...
Residual 3/	-32.6	-2.5	-12.8	-9.9	-18.0	-12.4	-8.7	-4.6	-2.0	-6.5	-8.6		
of which: exceptional financing	-4.4	-4.7	-4.6	-4.5	-4.5	-4.4	-4.3	-4.1	-3.6				
Sustainability indicators													
PV of PPG external debt-to-GDP ratio	149.1	163.4	163.0	164.7	160.4	158.9	159.7	166.6	180.1				
PV of PPG external debt-to-exports ratio	1071.2	1193.3	1216.1	1123.5	1073.4	1010.2	996.1	923.2	783.8				
PPG debt service-to-exports ratio	9.1	9.5	9.2	8.3	44.9	21.9	6.1	3.4	0.4				
PPG debt service-to-revenue ratio	14.5	17.7	19.6	21.9	133.0	71.6	20.8	13.9	2.1				
Gross external financing need (Million of U.S. dollars)	6164.0	5386.9	6116.7	5833.8	8000.6	6393.2	5322.1	4003.9	3259.6				
Key macroeconomic assumptions													
Real GDP growth (in percent)	-2.3	-2.5	-1.2	-0.6	0.4	1.1	1.5	1.5	1.5	-0.8	0.5		
GDP deflator in US dollar terms (change in percent)	-19.8	-3.9	4.0	2.1	1.2	0.6	0.3	-0.2	-0.2	-3.9	0.3		
Effective interest rate (percent) 4/	0.1	0.1	0.1	0.1	0.7	0.3	0.1	0.0	0.0	0.3	0.2		
Growth of exports of G&S (US dollar terms, in percent)	-15.1	-7.9	0.6	10.9	3.6	7.1	3.7	3.7	3.7	-4.7	3.3		
Growth of imports of G&S (US dollar terms, in percent)	0.2	-2.1	13.7	2.5	1.7	-0.1	0.9	0.9	0.9	0.3	1.9		
Grant element of new public sector borrowing (in percent)	...	39.6	39.6	39.6	39.6	39.6	39.6	39.6	39.6	...	39.6		
Government revenues (excluding grants, in percent of GDP)	8.7	7.4	6.3	5.5	5.0	4.8	4.7	4.5	4.4	10.4	5.1		
Aid flows (in Million of US dollars) 5/	102.2	157.3	56.7	33.7	19.5	11.3	6.8	2.4	1.5	...	...
Grant-equivalent financing (in percent of GDP) 6/	...	0.5	0.2	0.1	0.1	0.0	0.0	0.0	0.0	...	0.1		
Grant-equivalent financing (in percent of external financing) 6/	...	99.2	97.9	96.5	94.1	90.0	83.8	61.4	44.7	...	81.8		
Nominal GDP (Million of US dollars)	35,891	33,609	34,543	35,042	35,609	36,245	36,878	39,286	44,366				
Nominal dollar GDP growth	-21.7	-6.4	2.8	1.4	1.6	1.8	1.7	1.2	1.2	-4.5	0.9		
Memorandum items:													
PV of external debt 7/	153.9	168.6	168.2	169.9	165.6	164.1	164.9	172.3	187.3				
In percent of exports	1105.5	1231.3	1254.7	1159.0	1108.4	1043.6	1029.1	954.7	815.1				
Total external debt service-to-exports ratio	9.1	9.5	9.2	8.3	44.9	21.9	6.1	3.4	0.4				
PV of PPG external debt (in Million of US dollars)	53508.9	54903.9	56305.9	57700.6	57123.5	57582.5	58876.9	65439.5	79900.1				
(Pvt-Pvt-1)/GDPT-1 (in percent)	3.9	4.2	4.0	-1.6	1.3	3.6	3.5	3.4	3.4				
Non-interest current account deficit that stabilizes debt ratio	-13.6	-5.7	6.9	5.0	13.9	10.7	8.1	3.6	-0.1				

Sources: Country authorities; and staff estimates and projections.

1/ Includes both public and private sector external debt.

2/ Derived as $[r - g - p(1+g)] / (1+g+p+gp)$ times previous period debt ratio, with r = nominal interest rate; g = real GDP growth rate, and p = growth rate of GDP deflator in U.S. dollar terms.

3/ Includes exceptional financing (i.e., changes in arrears and debt relief); changes in gross foreign assets; and valuation adjustments. For projections also includes contribution from price and exchange rate changes.

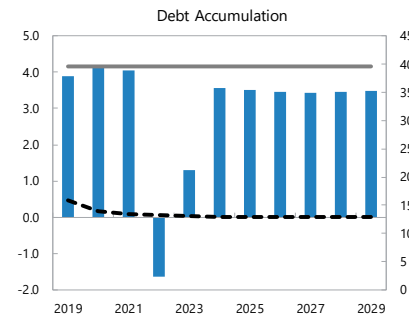
4/ Current-year interest payments divided by previous period debt stock.

5/ Defined as grants, concessional loans, and debt relief.

6/ Grant-equivalent financing includes grants provided directly to the government and through new borrowing (difference between the face value and the PV of new debt).

7/ Assumes that PV of private sector debt is equivalent to its face value.

8/ Historical averages are generally derived over the past 10 years, subject to data availability, whereas projections averages are over the first year of projection and the next 10 years.



■ Rate of Debt Accumulation
 - - - Grant-equivalent financing (% of GDP)
 — Grant element of new borrowing (% right scale)

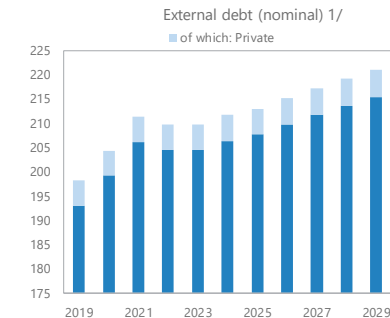


Table 2. Sudan: Public Sector Debt Sustainability Framework, Baseline Scenario, 2016-2039

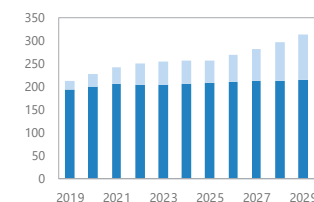
(In percent of GDP, unless otherwise indicated)

	Actual			Projections							Average 6/		
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2029	2039	Historical	Projections
Public sector debt 1/	127.9	159.6	185.6	211.7	227.6	242.5	251.4	254.7	256.0	312.8	418.3	109.7	260.1
of which: external debt	118.8	150.8	176.0	193.0	199.2	206.1	204.5	204.6	206.4	215.3	232.9	99.9	206.5
Change in public sector debt	35.7	31.7	26.0	26.1	15.9	14.8	8.9	3.3	1.3	15.0	7.7		
Identified debt-creating flows	33.5	33.2	26.0	20.8	10.7	9.6	5.3	-1.1	-3.8	10.1	3.2	11.0	6.7
Primary deficit	4.1	6.0	7.6	10.7	14.7	16.8	17.6	18.2	18.5	18.8	18.8	3.9	17.3
Revenue and grants	7.0	7.2	8.9	7.8	6.4	5.6	5.1	4.8	4.7	4.5	4.4	10.7	5.2
of which: grants	0.3	0.2	0.2	0.5	0.2	0.1	0.1	0.0	0.0	0.0	0.0		
Primary (noninterest) expenditure	11.1	13.2	16.5	18.5	21.1	22.4	22.7	23.1	23.2	23.2	23.2	14.7	22.5
Automatic debt dynamics	29.4	27.2	18.4	10.1	-3.9	-7.2	-12.3	-19.4	-22.4	-8.6	-15.6		
Contribution from interest rate/growth differential	-4.8	-4.4	-3.1	-1.2	-7.2	-12.5	-16.7	-23.8	-26.8	-13.3	-20.6		
of which: contribution from average real interest rate	-1.8	-3.5	-6.8	-6.0	-9.7	-14.0	-15.8	-21.0	-23.1	-8.9	-14.7		
of which: contribution from real GDP growth	-3.1	-0.9	3.7	4.8	2.5	1.4	-0.9	-2.8	-3.7	-4.3	-5.9		
Contribution from real exchange rate depreciation	34.3	31.6	21.4	...	...	...	...	...	...	...	...
Other identified debt-creating flows	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Privatization receipts (negative)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Recognition of contingent liabilities (e.g., bank recapitalization)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Debt relief (HIPC and other)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Other debt creating or reducing flow (please specify)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Residual	2.2	-1.4	0.0	16.6	8.5	10.6	8.0	8.9	9.5	9.5	9.5	1.7	10.0
Sustainability indicators													
PV of public debt-to-GDP ratio 2/	...	...	186.1	212.9	229.6	245.2	253.2	256.3	257.7	315.2	420.7		
PV of public debt-to-revenue and grants ratio	...	...	2100.1	2718.7	3563.1	4350.0	4965.6	5298.9	5496.5	7049.8	9465.9		
Debt service-to-revenue and grants ratio 3/	17.4	20.4	17.1	18.8	43.2	72.4	203.2	167.5	128.6	375.6	1030.9		
Gross financing need 4/	5.3	7.4	9.2	12.1	17.5	20.8	28.0	26.3	24.6	35.6	64.6		
Key macroeconomic and fiscal assumptions													
Real GDP growth (in percent)	3.5	0.7	-2.3	-2.5	-1.2	-0.6	0.4	1.1	1.5	1.5	1.5	-0.8	0.5
Average nominal interest rate on external debt (in percent)	0.2	0.2	0.2	0.2	0.2	0.1	0.9	0.4	0.1	0.0	0.0	0.4	0.2
Average real interest rate on domestic debt (in percent)	-12.3	-17.2	-38.2	-32.8	-33.7	-35.9	-37.7	-38.6	-39.1	-5.9	-5.8	-14.4	-27.4
Real exchange rate depreciation (in percent, + indicates depreciation)	43.2	27.2	14.2	...	...	...	...	...	...	...	...	9.4	...
Inflation rate (GDP deflator, in percent)	20.7	28.9	68.9	52.2	67.0	74.5	80.0	83.0	84.7	19.7	19.7	28.3	57.8
Growth of real primary spending (deflated by GDP deflator, in percent)	-0.3	19.4	22.4	9.3	12.9	5.4	1.7	2.8	2.2	1.5	1.5	-1.5	3.8
Primary deficit that stabilizes the debt-to-GDP ratio 5/	-31.7	-25.8	-18.3	-15.4	-1.3	1.9	8.7	14.9	17.3	3.7	11.1	-25.3	5.7
PV of contingent liabilities (not included in public sector debt)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		

Definition of external/domestic debt	Currency-based
Is there a material difference between the two criteria?	No

Public sector debt 1/

■ of which: local-currency denominated
■ of which: foreign-currency denominated



Sources: Country authorities; and staff estimates and projections.

1/ Coverage of debt: The central, state, and local governments, government-guaranteed debt. Definition of external debt is Currency-based.

2/ The underlying PV of external debt-to-GDP ratio under the public DSA differs from the external DSA with the size of differences depending on exchange rates projections.

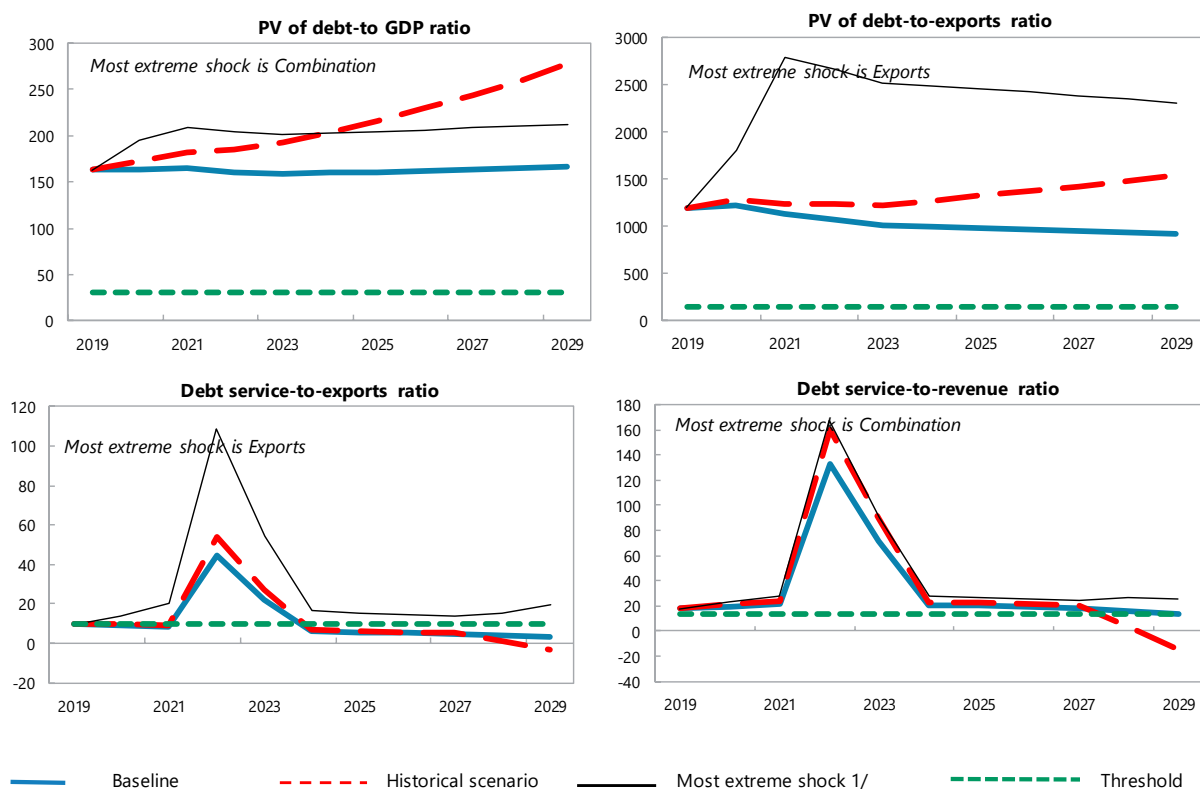
3/ Debt service is defined as the sum of interest and amortization of medium and long-term, and short-term debt.

4/ Gross financing need is defined as the primary deficit plus debt service plus the stock of short-term debt at the end of the last period and other debt creating/reducing flows.

5/ Defined as a primary deficit minus a change in the public debt-to-GDP ratio (-): a primary surplus, which would stabilize the debt ratio only in the year in question.

6/ Historical averages are generally derived over the past 10 years, subject to data availability, whereas projections averages are over the first year of projection and the next 10 years.

Figure 4. Sudan: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2019–2029



Customization of Default Settings		
	Size	Interactions
Standardized Tests		Yes
Tailored Tests		
Combined CLs	No	
Natural Disasters	n.a.	n.a.
Commodity Prices ^{2/}	No	No
Market Financing	n.a.	n.a.

Note: "Yes" indicates any change to the size or interactions of the default settings for the stress tests. "n.a." indicates that the stress test does not apply.

Borrowing Assumptions for Stress Tests*		
	Default	User defined
Shares of marginal debt		
External PPG MLT debt	100%	
Terms of marginal debt		
Avg. nominal interest rate on new borrowing in USD	1.1%	1.1%
USD Discount rate	5.0%	5.0%
Avg. maturity (incl. grace period)	22	22
Avg. grace period	7	7

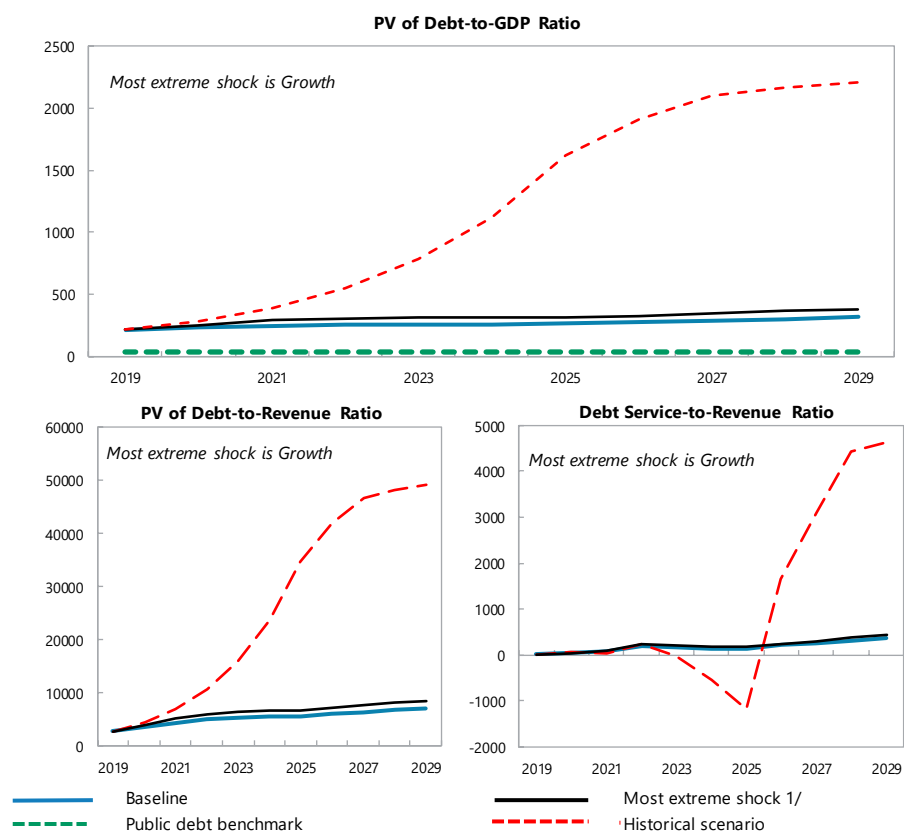
* Note: All the additional financing needs generated by the shocks under the stress tests are assumed to be covered by PPG external MLT debt in the external DSA. Default terms of marginal debt are based on baseline 10-year projections.

Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in or before 2029. Stress tests with one-off breaches are also presented (if any), while these one-off breaches are deemed away for mechanical signals. When a stress test with a one-off breach happens to be the most extreme shock even after disregarding the one-off breach, only that stress test (with a one-off breach) would be presented.

2/ The magnitude of shocks used for the commodity price shock stress test are based on the commodity prices outlook prepared by the IMF research department.

Figure 5. Sudan: Indicators of Public Debt under Alternative Scenario, 2019–2039
(In percent)



Borrowing Assumptions for Stress Tests*	Default	User defined
Shares of marginal debt		
External PPG medium and long-term	0%	0%
Domestic medium and long-term	93%	93%
Domestic short-term	7%	7%
Terms of marginal debt		
External MLT debt		
Avg. nominal interest rate on new borrowing in USD	1.1%	1.1%
Avg. maturity (incl. grace period)	22	22
Avg. grace period	7	7
Domestic MLT debt		
Avg. real interest rate on new borrowing	-45.2%	-45.2%
Avg. maturity (incl. grace period)	25	25
Avg. grace period	0	0
Domestic short-term debt		
Avg. real interest rate	-42.8%	-42.8%

* Note: The public DSA allows for domestic financing to cover the additional financing needs generated by the shocks under the stress tests in the public DSA. Default terms of marginal debt are based on baseline 10-year projections.

Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in or before 2029. The stress test with a one-off breach is also presented (if any), while the one-off breach is deemed away for mechanical signals. When a stress test with a one-off breach happens to be the most extreme shock even after disregarding the one-off breach, only that stress test (with a one-off breach) would be presented.

Table 3. Sudan: Sensitivity Analysis for Key Indicators of Public and publicly Guaranteed External Debt, 2019–2029
(In Percent)

	Projections 1/										
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
PV of debt-to-GDP ratio											
Baseline	163	163	165	160	159	160	160	162	164	165	167
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2019-2029 2/	163	172	181	185	193	204	216	230	244	260	277
B. Bound Tests											
B1. Real GDP growth	163	181	203	197	195	196	197	199	201	203	205
B2. Primary balance	163	163	165	160	159	160	160	162	164	165	167
B3. Exports	163	172	183	179	177	178	179	182	184	185	186
B4. Other flows 3/	163	164	167	163	161	162	163	165	166	168	169
B5. Depreciation	163	181	183	179	177	178	179	181	183	184	186
B6. Combination of B1-B5	163	196	209	204	202	203	204	206	208	210	212
C. Tailored Tests											
C1. Combined contingent liabilities	163	163	165	160	159	160	160	162	164	165	167
C2. Natural disaster	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
C3. Commodity price	163	163	165	160	159	160	160	162	164	165	167
C4. Market Financing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Threshold	30	30	30	30	30	30	30	30	30	30	30
PV of debt-to-exports ratio											
Baseline	1193	1216	1124	1073	1010	996	982	967	952	938	923
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2019-2029 2/	1193	1283	1238	1239	1228	1274	1324	1369	1418	1474	1536
B. Bound Tests											
B1. Real GDP growth	1193	1216	1124	1073	1010	996	982	967	952	938	923
B2. Primary balance	1193	1216	1124	1073	1010	996	982	967	952	938	923
B3. Exports	1193	1813	2793	2675	2522	2489	2455	2421	2387	2350	2306
B4. Other flows 3/	1193	1224	1138	1088	1024	1010	996	981	966	951	936
B5. Depreciation	1193	1216	1130	1080	1017	1003	988	974	959	944	929
B6. Combination of B1-B5	1193	1510	1142	1815	1710	1686	1663	1638	1614	1588	1562
C. Tailored Tests											
C1. Combined contingent liabilities	1193	1216	1124	1073	1010	996	982	967	952	938	923
C2. Natural disaster	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
C3. Commodity price	1193	1216	1124	1073	1010	996	982	967	952	938	923
C4. Market Financing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Threshold	140	140	140	140	140	140	140	140	140	140	140
Debt service-to-exports ratio											
Baseline	10	9	8	45	22	6	6	5	5	4	3
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2019-2029 2/	10	10	9	54	27	7	6	6	5	1	-4
B. Bound Tests											
B1. Real GDP growth	10	9	8	45	22	6	6	5	5	4	3
B2. Primary balance	10	9	8	45	22	6	6	5	5	4	3
B3. Exports	10	13	20	109	54	16	15	14	13	15	20
B4. Other flows 3/	10	9	8	45	22	6	6	5	5	5	5
B5. Depreciation	10	9	8	45	22	6	6	5	5	4	4
B6. Combination of B1-B5	10	11	14	75	37	11	10	9	9	9	9
C. Tailored Tests											
C1. Combined contingent liabilities	10	9	8	45	22	6	6	5	5	4	3
C2. Natural disaster	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
C3. Commodity price	10	9	8	45	22	6	6	5	5	4	3
C4. Market Financing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Threshold	10	10	10	10	10	10	10	10	10	10	10
Debt service-to-revenue ratio											
Baseline	18	20	22	133	72	21	20	19	19	16	14
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2019-2029 2/	18	21	24	160	89	23	22	21	21	3	-14
B. Bound Tests											
B1. Real GDP growth	18	22	27	164	88	26	25	24	23	20	17
B2. Primary balance	18	20	22	133	72	21	20	19	19	16	14
B3. Exports	18	20	24	144	79	25	24	24	23	27	36
B4. Other flows 3/	18	20	22	134	72	22	21	20	19	19	19
B5. Depreciation	18	22	24	148	80	23	23	22	21	19	18
B6. Combination of B1-B5	18	23	28	167	91	27	26	26	25	27	26
C. Tailored Tests											
C1. Combined contingent liabilities	18	20	22	133	72	21	20	19	19	16	14
C2. Natural disaster	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
C3. Commodity price	18	20	22	133	72	21	20	19	19	16	14
C4. Market Financing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Threshold	14	14	14	14	14	14	14	14	14	14	14

Sources: Country authorities; and staff estimates and projections.

1/ A bold value indicates a breach of the threshold.

2/ Variables include real GDP growth, GDP deflator (in U.S. dollar terms), non-interest current account in percent of GDP, and non-debt creating flows.

3/ Includes official and private transfers and FDI.

Table 4. Sudan: Public Sector Debt Sustainability Framework, Baseline Scenario, 2019–2039
(In percent)

	Projections 1/										
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
PV of Debt-to-GDP Ratio											
Baseline	213	230	245	253	256	258	259	271	284	300	315
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2019-2029 2/	213	283	392	551	781	1120	1622	1907	2103	2169	2208
B. Bound Tests											
B1. Real GDP growth	213	252	294	304	308	310	312	326	341	361	379
B2. Primary balance	213	232	250	257	259	260	260	272	284	300	315
B3. Exports	213	233	255	264	267	269	270	282	296	312	327
B4. Other flows 3/	213	231	248	256	259	261	262	274	287	303	318
B5. Depreciation	213	212	224	230	232	232	232	241	251	263	274
B6. Combination of B1-B5	213	190	210	214	216	216	217	227	238	251	264
C. Tailored Tests											
C1. Combined contingent liabilities	213	235	249	256	258	259	260	271	284	300	315
C2. Natural disaster	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
C3. Commodity price	213	232	260	277	288	294	297	309	324	341	357
C4. Market Financing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Public debt benchmark	35	35	35	35	35	35	35	35	35	35	35
PV of Debt-to-Revenue Ratio											
Baseline	2,719	3,563	4,350	4,966	5,299	5,496	5,612	5,987	6,340	6,708	7,050
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2019-2029 2/	2,719	4,353	6,870	10,653	15,915	23,565	34,769	41,804	46,616	48,194	49,148
B. Bound Tests											
B1. Real GDP growth	2,719	3,895	5,202	5,956	6,369	6,615	6,759	7,207	7,626	8,061	8,466
B2. Primary balance	2,719	3,603	4,430	5,032	5,351	5,537	5,642	6,008	6,354	6,716	7,055
B3. Exports	2,719	3,613	4,526	5,168	5,519	5,731	5,856	6,245	6,609	6,978	7,306
B4. Other flows 3/	2,719	3,583	4,397	5,020	5,358	5,559	5,677	6,056	6,412	6,779	7,117
B5. Depreciation	2,719	3,309	3,994	4,516	4,793	4,955	5,042	5,333	5,600	5,872	6,125
B6. Combination of B1-B5	2,719	2,970	3,744	4,207	4,460	4,612	4,701	5,013	5,311	5,621	5,910
C. Tailored Tests											
C1. Combined contingent liabilities	2,719	3,641	4,416	5,020	5,342	5,529	5,637	6,004	6,351	6,715	7,054
C2. Natural disaster	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
C3. Commodity price	2,719	3,594	4,603	5,438	5,944	6,259	6,437	6,845	7,226	7,622	7,993
C4. Market Financing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Debt Service-to-Revenue Ratio											
Baseline	19	43	72	203	167	129	127	210	261	322	376
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2019-2029 2/	19	56	42	226	(22)	(534)	(1,173)	1,651	3,109	4,428	4,644
B. Bound Tests											
B1. Real GDP growth	19	47	89	250	211	167	167	251	306	375	439
B2. Primary balance	19	43	83	225	184	142	138	210	259	320	374
B3. Exports	19	43	73	206	170	132	130	213	264	331	396
B4. Other flows 3/	19	43	73	204	168	129	128	211	261	325	381
B5. Depreciation	19	36	60	181	143	104	103	169	209	255	294
B6. Combination of B1-B5	19	35	68	190	151	113	110	176	218	270	315
C. Tailored Tests											
C1. Combined contingent liabilities	19	43	93	220	181	139	136	210	259	320	374
C2. Natural disaster	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
C3. Commodity price	19	43	84	243	221	188	191	236	277	330	392
C4. Market Financing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

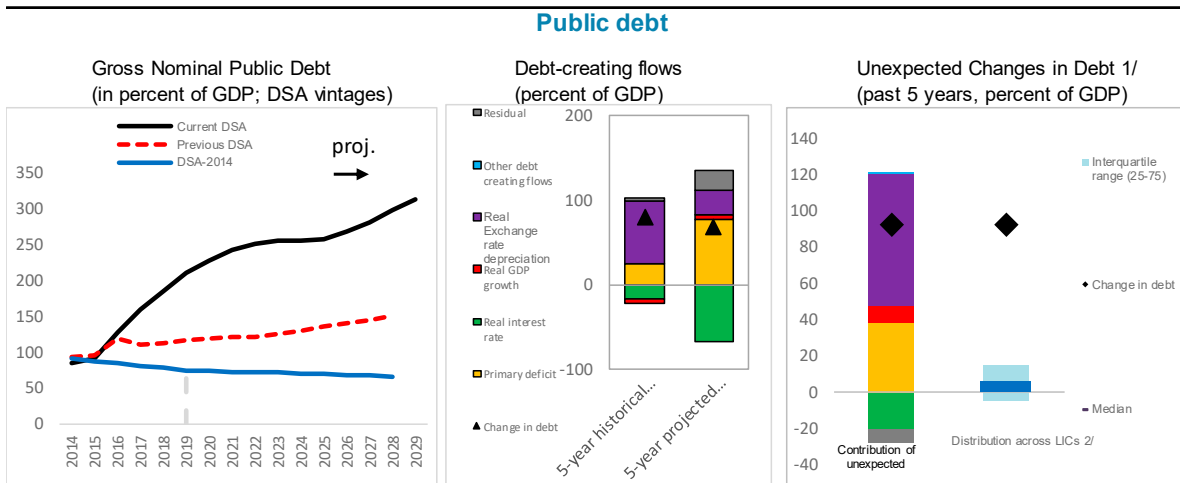
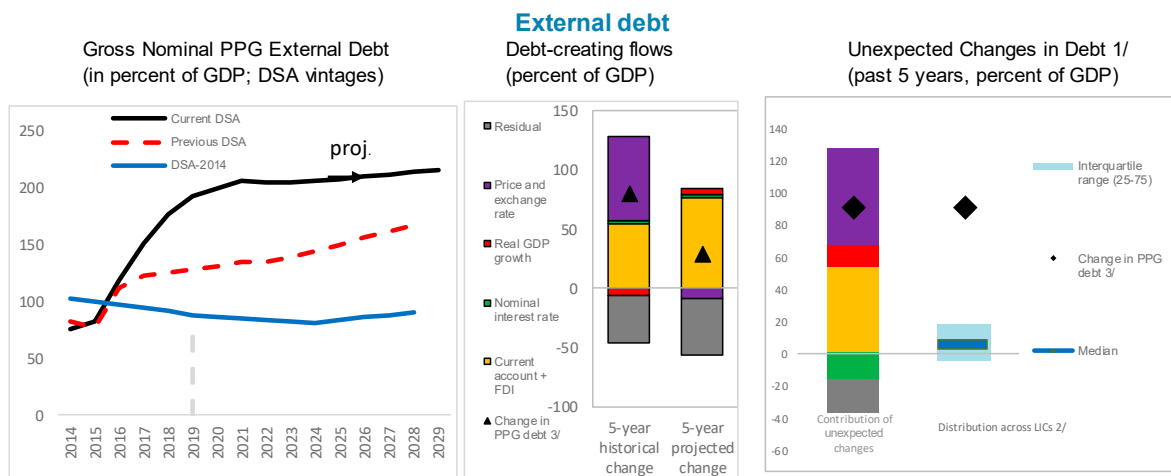
Sources: Country authorities; and staff estimates and projections.

1/ A bold value indicates a breach of the benchmark.

2/ Variables include real GDP growth, GDP deflator and primary deficit in percent of GDP.

3/ Includes official and private transfers and FDI.

Figure 6. Sudan: Driver of Debt Dynamics – Baseline Scenario



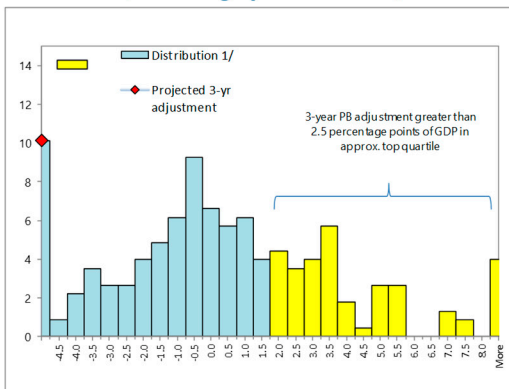
1/ Difference between anticipated and actual contributions on debt ratios.

2/ Distribution across LICs for which LIC DSAs were produced.

3/ Given the relatively low private external debt for average low-income countries, a ppt change in PPG external debt should be largely explained by the drivers of the external debt dynamics equation.

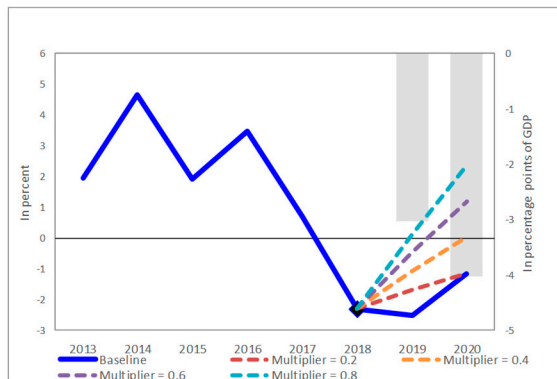
Figure 7. Sudan: Realism Tools

3-Year Adjustment in Primary Balance
(Percentage points of GDP)



1/ Data cover Fund-supported programs for LICs (excluding emergency financing) approved since 1990. The size of 3-year adjustment from program inception is found on the horizontal axis; the percent of sample is found on the vertical axis.

Fiscal Adjustment and Possible Growth Paths 1/



1/ Bars refer to annual projected fiscal adjustment (right-hand side scale) and lines show possible real GDP growth paths under different fiscal multipliers (left-hand side scale).