



SUDAN

STAFF REPORT FOR THE 2012 ARTICLE IV CONSULTATION—DEBT SUSTAINABILITY ANALYSIS

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Approved By
**Adnan Mazarei and
Christian Mumssen (IMF)
and Jeffrey D. Lewis (IDA)**

Prepared by the staffs of the International Monetary Fund (IMF) and the International Development Association (IDA)

The 2012 debt sustainability analysis (DSA) confirms that Sudan continues to be in debt distress.¹ External and domestic debt ratios have continued to worsen owing to further accumulation of new external arrears, increased domestic borrowing and the permanent deterioration of macroeconomic fundamentals after the secession of South Sudan in July 2011. Debt dynamics under the baseline scenario are projected to remain unfavorable—with all debt ratios but one breaching their indicative thresholds even through the long term. It will thus be critical for Sudan to follow sound economic policies consistent with a prudent borrowing strategy, and to garner support for debt relief.

¹ The DSA was prepared jointly by IMF and World Bank staffs and discussed with the authorities. It uses the joint Fund-Bank Low-Income Country (LIC) Debt Sustainability Framework (DSF). Sudan's fiscal year runs from January 1 to December 31.

BACKGROUND

1. 2011 marks a watershed for Sudan. The secession of South Sudan has translated into a sharp contraction of Sudan's revenue and export base, exacerbating an already difficult economic situation. This permanent shock is severely affecting Sudan's macroeconomic outlook, sharply reducing its debt servicing capacity. Prior to South Sudan's secession, the two countries have reached an agreement on the so-called zero option, under which Sudan would retain all the external liabilities after the secession of South Sudan, provided that (i) South Sudan joined Sudan in outreach efforts for debt relief for Sudan, and (ii) the international community gave firm commitments to the delivery of debt relief within two years from the secession. Absent such a commitment by July 2013, Sudan's external debt would be apportioned based on a formula to be determined. Agreement on any debt apportionment, however, would likely require a consensus view from Sudan's entire pool of creditors, which spans multilateral, Paris Club bilateral, non-Paris Club bilateral, and commercial lenders. This would require extensive negotiations and may prove to be very difficult.

2. Sudan is potentially eligible for debt relief under different initiatives—including the Heavily Indebted Poor Countries Initiative (HIPC) Initiative, since it is included in the list of ring-fenced countries. Sudan has made good progress toward finalizing the technical work required to advance towards the decision point of the HIPC Initiative. The government has taken three important steps: (i) it has reconciled over 90 percent of the end-2010 external debt stock in collaboration with creditors; (ii) Parliament has approved an ambitious interim-PRSP in June 2012; and (iii) Sudan has implemented 13 Staff-Monitored Programs (SMPs) with the Fund since 1997, establishing a sound track record of cooperation on economic policies and payments. Furthermore, Sudan has indicated its desire to continue demonstrating a strong commitment to cooperation with the Fund on policies and the payment of arrears, also formally in the framework of a new SMP (for which negotiations could start later this year). Meanwhile, the government is collaborating with the World Bank on an Interim Strategy Note, which would determine the development objectives for the next two years.

3. Re-engagement with key development partners is a necessary step towards a comprehensive arrears clearance and debt relief strategy. This is important because even after traditional debt relief according to Paris Club Naples Terms,² HIPC Initiative and debt relief under the Multilateral Debt Relief Initiative (MDRI) on remaining eligible debt of IDA and the African Development Fund (AfDF),³ Sudan will likely be left with a sizeable stock of external debt. This debt will either need to be

² Paris Club members provide a reduction of pre-cutoff date bilateral non-official development assistance and commercial debt up to 67 percent in present value terms. Other non-multilateral creditors generally join with comparable actions.

³ MDRI is provided by the IDA, AfDF, and IMF at the HIPC Initiative's completion point. Eligible for MDRI assistance are debt obligations contracted before end-December 2003 for IDA and end-December 2004 for the IMF and AfDB that are still outstanding at the HIPC Initiative's completion point date. All of Sudan's current debt to IDA and the AfDF qualifies for MDRI since it has been contracted prior to the cut-off date.

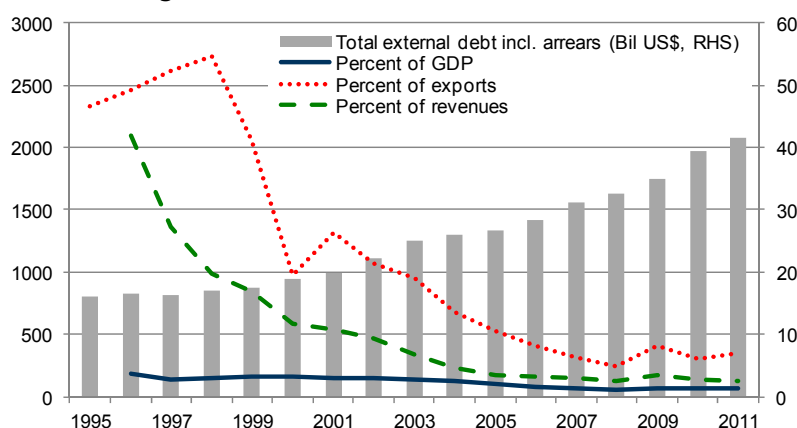
serviced or addressed through further debt relief (MDRI-like⁴ or beyond-HIPC debt relief).⁵ It thus remains critical to secure comprehensive support from the international community for debt relief. The qualification for debt relief will be announced at the appropriate time.

STRUCTURE OF DEBT

EXTERNAL DEBT

4. **At end-2011, Sudan's stock of external debt amounted to about US\$41.5 billion in nominal terms (65 percent of GDP), of which 84 percent was in arrears** (Figure 1 and Table 4). The structure of external debt had not changed since the early 2000s. The bulk of the external debt is public and publicly guaranteed (PPG) (adding to US\$39.9 billion, with 87 percent in arrears). From this total, Sudan owns 73 percent to bilateral creditors (roughly equally divided between Paris and non-Paris Club creditors) and 13 percent to multilateral and commercial creditors. Private external debt to suppliers amounted to US\$1.6 billion.

Figure 1. Stock of External Debt, 2000–11



Source: Sudanese authorities, World Bank and IMF staff estimates.

5. **The present value (PV) of Sudan's total external PPG debt at end-2011 stood at US\$71 billion**, or the equivalent of 112 percent of GDP, 605 percent of exports and 625 percent of revenues (Table 4). Note that the 2012 deterioration of almost all external debt indicator ratios is a denominator effect, reflecting the sharp drop in GDP, exports and government revenues as a result of the secession, as well as the substantial currency depreciation.⁶

⁴ None of Sudan's debt to the Fund would be eligible for MDRI debt relief. However, following the approach developed for Liberia's debt relief, "MDRI-like" debt relief could be provided if the necessary financing is secured at the appropriate time."

⁵ Paris Club members can provide debt relief on a voluntary basis.

⁶ The official rate was depreciated by 66 percent at end-June alone, which explains the large residual BOP financing in 2012 (also see footnote 3 in Table 4).

6. The core of Sudan’s debt strategy was to keep new nonconcessional external borrowing under the US\$700 million ceiling in line with the last SMP. In 2010 and 2011, Sudan indeed only contracted US\$419 and US\$857 million of new PPG loans, of which 64 and 77 percent, respectively, were nonconcessional. New debt was mainly directed to projects in the agriculture, services and energy sector (Table 1) and mainly provided by either multilateral or non-Paris Club creditors (Table 2). There has not been any new private external debt in decades.

Table 1. Use of New Debt (in percent)

| | 2010 | 2011 |
|-------------|------|------|
| Agriculture | 47.9 | 35.8 |
| Services | 39.0 | 8.6 |
| Energy | 12.6 | 55.6 |
| Health | 0.6 | - |

Source: Sudanese authorities.

Table 2. Creditors of New Debt (in percent)

| | 2010 | 2011 |
|----------------|-------|------|
| Multilateral | - | 82.0 |
| Bilateral | 100.0 | 18.0 |
| Paris Club | - | - |
| Non-Paris Club | 100.0 | 18.0 |
| Commercial | - | - |

Source: Sudanese authorities.

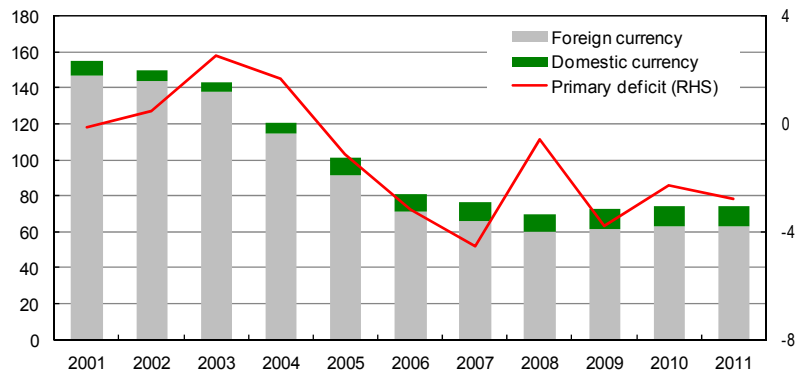
7. Repayments on outstanding debt continued to a few selected creditors giving new loans, leading to a further accumulation of external arrears. For some time now, debt repayment has been partial even in the case of creditors providing new loans. In 2010 and 2011, Sudan’s total actual PPG debt service amounted to US\$395 and 288 million, respectively, which only partially covered total due PPG debt service of US\$2.2 and 2.1 billion (including late interest and penalties on arrears). The PPG disbursements amounted to US\$575 and 606 million, respectively, and no private external debt was serviced.

DOMESTIC PUBLIC DEBT

8. Domestic public debt is relatively small (11.5 percent of GDP at end-2011), but has been increasing. It increased from SDG 2.1 billion in 2000 to SDG 6.3 billion in 2005 and SDG 19.8 billion in 2011, mainly due to primary deficits continuously financed by domestic resources. In 2011, about 66 percent of domestic debt arose from medium-term obligations, while long- and short-term debt accounted for 19 and 15 percent of total, respectively.

TOTAL PUBLIC DEBT

9. All in all, total public debt continued to increase in recent years. It reached SDG137 billion (74 percent of GDP) at end-2011, from SDG65 billion in 2005, and SDG49 billion in 2000 (Figure 2). This increase in total public debt was mainly the result of an increase in the stock of debt denominated in foreign currency, including a devaluation effect. Hence, at end-2011, the PV of public sector debt-to-GDP ratio stood at 124 percent of GDP (Table 6).

Figure 2. Stock of Public Debt, 2001–11 (In percent of GDP)

Source: Sudanese authorities, World Bank and IMF staff estimates.

UNDERLYING ASSUMPTIONS

10. This DSA reflects the secession-induced reduction of Sudan’s economic potential, whilst extrapolating the current debt dynamics (Box 1). Data underlying this DSA was provided by the Sudanese authorities or estimated and projected by Fund and World Bank staffs. The external debt data for 2010 and onwards were reconciled with information obtained during the 2011 debt reconciliation exercise. This DSA refrains from presenting alternative scenarios based on speculations about the magnitude of possible external debt relief (which are crucially dependent on export prospects that are currently very volatile) or apportionment settlement between Sudan and South Sudan.

11. The macroeconomic and debt outlooks underlying this DSA differ widely from the previous DSA. This difference is mainly on account of: (i) substantially deteriorated post-secession fundamentals; (ii) natural resource projections accounting for the post-secession oil potential and the sharp increase of gold exploitation; (iii) updated debt evolution based on the reconciled end-2010 debt stock; and (iv) assumption of Sudan remaining current on debt service falling due on disbursed outstanding debt (DOD), and not on the creditors that still disburse only. Ample exploration studies on the country’s mineral deposits are currently under way that might change the natural resource outlook in future DSAs.

Box 1. Macroeconomic Assumptions 2012–32

Natural resources. With the secession-induced loss of $\frac{3}{4}$ of oil production, the oil sector's dominance of the Sudanese economy abated significantly. Oil now accounts for only 3 to 5 percent of GDP, 20 to 25 percent of government revenue, and 35 to 40 percent of exports. At the same time, there has been an increase in gold production, with gold exports having tripled since 2009.

- The *production* outlook is informed by discussions with the Ministries of Oil and Mining. As for oil, owing to waning mature fields (higher quality Nile blend) and other technical production problems, 2012 production is expected to sharply decline by 60 percent to 117 to 120 thousand barrels per day (bpd). Enhanced recovery in existing fields and further exploration will likely help production to increase again starting in 2013, with a peak expected in 2020 at near 240 thousand bpd, before a gradual decline to about 144 thousand bpd begins in 2030. Meanwhile, annual production of gold is projected to increase by 3 percent per year until 2020 and to decline by 3 percent after 2026.

- The *price* outlook is guided by the IMF's latest World Economic Outlook (WEO) figures for the medium term and the World Bank's Commodity Market Review for the longer term. Overall, prices are expected to remain stable and average around US\$83 per barrel for Sudanese crude over the medium term before settling to around US\$79 per barrel in the longer term.

Real sector. The real GDP growth rate is expected to gradually increase to 4.2 percent until 2017 and then to average 4.6 percent over 2018–32. Given the smaller post-secession oil sector, real GDP growth will mainly reflect non-oil GDP growth in the presence of renewed macroeconomic stabilization, new attempts at structural reform and finance-constrained low infrastructure investments. Inflation, as measured by the GDP deflator, is projected to grow in line with CPI inflation over the long term, implying stable terms of trade. After averaging 13.6 percent over the medium term, inflation will gradually come down to 6 percent by 2032.

Fiscal sector and domestic debt. The projected fiscal deficit averages 2.3 percent of GDP during the period 2012–17, reflecting a combination of factors, including: (i) some improvements in tax revenue collection; (ii) a progressive increase in oil revenues; (iii) the continuation of current public wage and employment policies; (iv) a gradual phasing out of fuel subsidies; (v) slight decrease of current spending shares on transfers to states; and (vi) rising capital expenditure outlays. During 2018–32, the fiscal deficit is expected to average some 2.6 percent of GDP, reflecting (i) a gradual increase in tax revenues, against the backdrop of decreasing oil revenues, (ii) the continuation of current expenditure policies, and (iii) increasing interest payments. Owing to continued limited access to international financing, the projected budget deficit will be financed mostly domestically, assuming no further accumulation of arrears.

External sector and financing. The balance of payments is expected to benefit of export growth until 2020 and then to gradually contract, mainly on account of a continued dominance of natural resource exports and limited prospects for the development of other exports, and the maintenance of limited foreign direct investment, aid inflows and access to international financing. These assumptions lead to a decline over time in the current account deficit (incl. official transfers), a contraction in the reserves coverage, and an import coverage averaging 3.1 percent of GDP or 2 months of imports over 2018–32.

External debt. Reflecting continued limited access to international finance and a deteriorating debt service capacity, disbursements of new loans are projected at about 1.3 percent of GDP during 2012–17, and 1.2 percent during 2018–32. In line with the recent portfolio of new contracted debt, the share of new concessional loans is kept at around one third. Starting in 2012, Sudan is assumed to remain current on scheduled debt service on disbursed outstanding debt (including new borrowing), but continue to fail to service obligations arising from the stock of arrears (i.e., late interest and penalties as well as arrears themselves).

EXTERNAL SECTOR DSA

BASELINE SCENARIO

12. In the baseline scenario, the outcome for the main debt ratios continues to show a sustained breach of indicative thresholds for poor performers⁷ well into 2032—even substantially worse than in the 2010 DSA (Figure 3, Tables 3 and 4). This worsening of the debt ratios is due mainly to the secession-induced deterioration in fundamentals and to the more complete external debt portfolio compiled at the 2011 reconciliation exercise. Going forward after a denominator-driven deterioration in 2012, external debt indicators persist at very high levels primarily because of the growing stock of arrears rather than because of new debt. In the long term, all external debt indicator ratios (except those relating to collapsing exports) exhibit a declining trend (Figure 1). They remain nevertheless well above the policy-dependent debt burden thresholds. The only exception is the debt service-to-revenue ratio which shows some improvement towards the end of the projected period. This improvement must be interpreted with caution, however, since the DSA does not assume any external arrears clearance strategy and timeline.

TABLE 3. SUMMARY OF DEBT BURDEN THRESHOLDS FOR EXTERNAL PUBLIC DEBT 1/

| | <i>Indicative threshold</i> | 2012 | 2022 | 2032 |
|--------------------------|---------------------------------|------|------|------|
| PV of debt-to GDP | 30 | 170 | 114 | 75 |
| PV of debt-to-exports | 100 | 1567 | 1046 | 1432 |
| PV of debt-to-revenues | 200 | 1468 | 1011 | 657 |
| Debt service-to-exports | 15 | 37 | 23 | 36 |
| Debt service-to-revenues | 18 | 35 | 22 | 16 |

Source: IMF staff calculations and estimates.

1/ Threshold over which countries considered as weak policy performers (i.e. countries with a CPIA \leq 3.25) would have at least a 25 percent chance of having a prolonged debt distress episode in the coming year.

⁷ According to the World Bank Country Policy and Institutions Assessment (CPIA), Sudan is classified as a country with poor quality of policies and institutions. Its average CPIA rating for 2009–11 is 2.42 on a scale from 1 to 6 and below the operational cutoff of 3.25 for medium performers.

ALTERNATIVE SCENARIO AND BOUND TESTS

13. The alternative scenario⁸ and standard stress tests to the baseline scenario confirm the robustness of the baseline scenario and thus of the debt distress rating for Sudan. More specifically, the findings are:

- The *alternative scenario* (Table 5, Scenario A1) is a financing scenario that points to Sudan's external debt not being very vulnerable to new public loan terms (i.e. a 2 percentage points higher interest rate). Relative to the baseline, all debt burden indicators would only marginally deteriorate. The reason is that Sudan's debt dynamics are driven more by the massive stock of arrears than the burden of contracting new debt.
- The *bound tests* (Table 5, Scenarios B1 to B6) corroborate Sudan's vulnerability to a range of unexpected external shocks. The PV of debt-to-GDP, PV of debt-to-revenue and debt service-to-revenue ratios turn out to be most vulnerable to a One-time depreciation shock than the PV of debt-to-exports and debt service-to-exports ratio to an exports shock.

PUBLIC SECTOR DSA

BASELINE SCENARIO

14. In the baseline scenario, debt stock and service indicators under the total public DSA mirror those under the external DSA (Figure 4 and Table 6).⁹ In 2012, owing to the sharp currency depreciation, the PV of public sector debt-to-GDP ratio jumps to a relatively high level at over 180 percent, before declining over the medium term to reach about 156 percent in 2017. These results are due to the projected strengthening in real GDP growth and the reduction in the fiscal deficit envisaged in the 2013–17 projections. The debt service-to-revenue ratio is projected to only decline from 42 to 36 percent between 2012 and the end of the projection horizon.

ALTERNATIVE SCENARIO AND BOUND TESTS

15. The alternative scenario and standard stress tests to the baseline scenario support the robustness of the baseline scenario. In particular:

- The *alternative scenarios* (Table 7, Scenarios A1-A3) highlight that Sudan's public debt sustainability depends on improving its fiscal soundness and growth potential, particularly in the

⁸ This DSA does not show the historical scenario, in which the main variables that determine debt dynamics (namely, real GDP growth; inflation, measured by changes in the U.S. dollar GDP deflator; the non-interest external current account in percent of GDP; and non-debt-creating flows in percent of GDP) are usually assumed to remain at their 10-year historical averages. The reason is that secession-induced structural breaks in the time series undermine the validity of the historical scenario.

⁹ The 2012 level of the public debt stock indicators (PV of debt-to-GDP and PV of debt-to-revenue) is substantially higher than those reported last year. This upward jump reflects adverse developments in both external debt (the buildup in external arrears and the contraction of new external loans)—and domestic debt and the further accumulation of sizeable domestic arrears in 2012.

non-oil economy. The no reform scenario (A2), where the primary balance is projected to remain unchanged from the relatively high 2012 level, points to the vulnerability of Sudan's public debt trajectory to large fiscal imbalances. The PV of debt-to-GDP and debt service-to-revenue ratios for 2032 would be 89 and 34 percent, respectively. However, a permanently lower GDP growth (A3) would bring even more diversion from the baseline, leaving the PV of debt-to-GDP and debt service-to-revenue ratios for 2032 at over 120 and 50 percent, respectively.

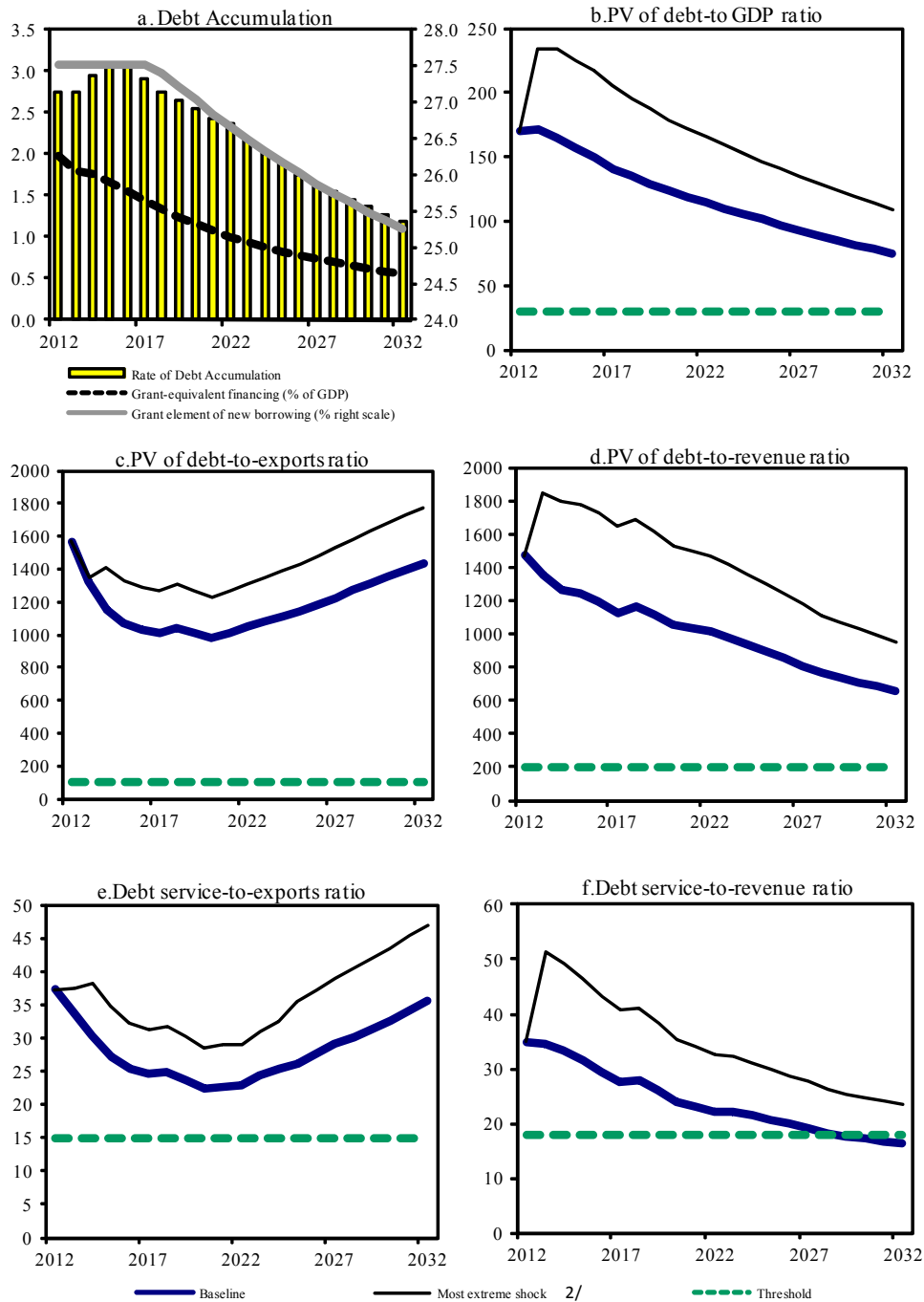
- The *bound tests* (Table 7, Scenarios B1-B5) point to a one-time 30 percent real depreciation in 2013 (B4) giving rise to the worst scenario for all three debt indicators. The PV of debt-to-GDP and the PV of debt-to-revenue would be almost 130 and over 1100 percent in 2032. The debt service-to-revenue ratio would increase to 56 percent in 2032.

CONCLUSION

16. Sudan remains in debt distress. All external debt burden ratios remain well above the indicative thresholds (except for the debt service-to-revenue ratio at the end of the projection horizon) during the projection period. In addition, the overall public sector debt dynamics remain unsustainable in light of the current size and projected dynamics of the domestic debt stock. Even after traditional and HIPC Initiative assistance, Sudan is likely to be left with a sizeable external debt, which will either need to be serviced or addressed through further assistance (such as Paris Club "beyond HIPC" bilateral debt relief, Multilateral Debt Relief Initiative (MDRI) or MDRI-like debt relief). The risk rating therefore remains unchanged with respect to the previous 2010 DSA.

17. Prudent public debt and macro policies, especially under a successor SMP, are critical to secure access to possible debt relief under the Enhanced HIPC Initiative and MDRI. Sudan's debt strategy should continue to focus on avoiding reliance on nonconcessional borrowing, securing external support on highly concessional terms, and increasing the grant element of external borrowing received to finance necessary development and infrastructure expenditures. Recourse to non-concessional borrowing further increases the future debt burden, undermining debt sustainability even after possible debt relief. To effectively address the vulnerabilities highlighted in the DSA, Sudan should focus on strengthening its external and fiscal stance and on providing a more stable political and business environment.

Figure 3. Sudan: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2012-32 1/2/



Sources: Country authorities; and staff estimates and projections.

1/ The secession-induced structural breaks in the time series undermine the historical scenario, which is therefore omitted from the figures.

2/ The most extreme stress test is the test that yields the highest ratio in 2022. In figure b. it corresponds to a One-time depreciation shock; in c. to a Exports shock; in d. to a One-time depreciation shock; in e. to a Exports shock and in figure f. to a One-time depreciation shock.

Table 4. Sudan: External Debt Sustainability Framework, Baseline Scenario, 2009-32 1/
(In percent of GDP, unless otherwise indicated)

| | Actual | | | Historical Average | Standard Deviation | Projections | | | | | | 2012-2017 | | 2018-2032 | |
|---|-------------|-------------|--------------|-----------------------|-----------------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------|------|--------------|-------------|
| | 2009 | 2010 | 2011 | | | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | Average | 2022 | 2032 | Average |
| External debt (nominal) 1/ | 64.3 | 65.4 | 65.0 | | | 100.9 | 104.4 | 102.6 | 100.4 | 97.4 | 93.2 | | | 82.7 | 62.1 |
| o/w public and publicly guaranteed (PPG) | 61.4 | 63.0 | 62.5 | | | 97.8 | 100.9 | 99.2 | 97.0 | 94.2 | 90.2 | | | 80.2 | 60.3 |
| Change in external debt | 1.5 | 1.1 | -0.4 | | | 35.9 | 3.5 | -1.8 | -2.3 | -3.0 | -4.2 | | | -1.7 | -2.0 |
| Identified net debt-creating flows | 6.5 | -14.3 | -2.6 | | | 13.0 | 3.9 | -0.9 | -1.8 | -2.5 | -3.2 | | | -2.5 | -3.0 |
| Non-interest current account deficit | 6.7 | -0.5 | -2.2 | 1.3 | 3.2 | 4.1 | 2.8 | 1.9 | 1.9 | 1.9 | 1.9 | | | 1.8 | -0.2 |
| Deficit in balance of goods and services | 4.1 | -2.5 | -2.1 | | | 5.8 | 4.6 | 3.7 | 3.6 | 3.6 | 3.9 | | | 3.3 | 1.2 |
| Exports | 16.1 | 20.0 | 18.5 | | | 10.8 | 13.0 | 14.3 | 14.7 | 14.5 | 14.0 | | | 10.9 | 5.2 |
| Imports | 20.1 | 17.4 | 16.4 | | | 16.7 | 17.6 | 17.9 | 18.3 | 18.1 | 17.9 | | | 14.3 | 6.4 |
| Net current transfers (negative = inflow) | -1.9 | -3.3 | -1.7 | -3.6 | 2.0 | -2.3 | -2.5 | -2.6 | -2.6 | -2.6 | -2.8 | | | -2.3 | -1.7 |
| o/w official | -1.2 | -1.8 | -1.1 | | | -1.4 | -1.4 | -1.4 | -1.3 | -1.2 | -1.1 | | | -0.8 | -0.5 |
| Other current account flows (negative = net inflow) | 4.6 | 5.3 | 1.6 | | | 0.5 | 0.7 | 0.9 | 0.9 | 0.9 | 0.8 | | | 0.7 | 0.3 |
| Net FDI (negative = inflow) | -5.1 | -4.5 | -4.2 | -6.1 | 2.0 | -3.3 | -3.8 | -4.5 | -4.2 | -4.1 | -3.9 | | | -3.2 | -1.4 |
| Endogenous debt dynamics 2/ | 4.8 | -9.3 | 3.8 | | | 12.3 | 5.0 | 1.7 | 0.6 | -0.4 | -1.2 | | | -1.1 | -1.5 |
| Contribution from nominal interest rate | 3.4 | 2.6 | 2.9 | | | 3.3 | 4.3 | 3.8 | 3.5 | 3.3 | 3.0 | | | 2.3 | 1.4 |
| Contribution from real GDP growth | -2.1 | -1.8 | 2.2 | | | 8.9 | 0.7 | -2.1 | -3.0 | -3.7 | -4.2 | | | -3.4 | -2.9 |
| Contribution from price and exchange rate changes | 3.6 | -10.1 | -1.3 | | | ... | ... | ... | ... | ... | ... | | | ... | ... |
| Residual (3-4) 3/ | -5.0 | 15.4 | 2.3 | | | 22.9 | -0.5 | -0.9 | -0.5 | -0.5 | -1.0 | | | 0.8 | 1.0 |
| o/w exceptional financing | -3.9 | -7.4 | -2.8 | | | -3.0 | -3.3 | -3.3 | -3.1 | -2.9 | -2.7 | | | -2.0 | -1.1 |
| PV of external debt 4/ | ... | ... | 114.4 | | | 172.8 | 174.7 | 168.1 | 161.1 | 153.2 | 143.8 | | | 116.8 | 76.5 |
| In percent of exports | ... | ... | 618.7 | | | 1596.0 | 1347.7 | 1176.5 | 1095.2 | 1054.8 | 1027.2 | | | 1069.0 | 1466.9 |
| PV of PPG external debt | ... | ... | 111.9 | | | 169.7 | 171.2 | 164.7 | 157.8 | 150.0 | 140.8 | | | 114.3 | 74.6 |
| In percent of exports | ... | ... | 605.4 | | | 1567.2 | 1321.0 | 1152.4 | 1072.5 | 1032.9 | 1005.6 | | | 1046.3 | 1431.6 |
| In percent of government revenues | ... | ... | 624.5 | | | 1468.2 | 1353.9 | 1265.4 | 1240.1 | 1197.5 | 1127.0 | | | 1011.0 | 657.1 |
| Debt service-to-exports ratio (in percent) | 25.8 | 17.1 | 18.3 | | | 37.7 | 34.1 | 30.8 | 27.6 | 25.6 | 25.0 | | | 23.3 | 36.7 |
| PPG debt service-to-exports ratio (in percent) | 25.6 | 17.0 | 18.1 | | | 37.3 | 33.7 | 30.4 | 27.2 | 25.2 | 24.6 | | | 22.8 | 35.5 |
| PPG debt service-to-revenue ratio (in percent) | 24.9 | 18.2 | 18.7 | | | 34.9 | 34.6 | 33.3 | 31.5 | 29.3 | 27.6 | | | 22.0 | 16.3 |
| Total gross financing need (Billions of U.S. dollars) | 3.1 | -1.0 | -1.9 | | | 2.5 | 1.6 | 0.9 | 0.9 | 0.8 | 0.9 | | | 0.9 | 0.5 |
| Non-interest current account deficit that stabilizes debt ratio | 5.2 | -1.6 | -1.9 | | | -31.9 | -0.7 | 3.7 | 4.2 | 4.9 | 6.1 | | | 3.5 | 1.9 |
| Key macroeconomic assumptions | | | | | | | | | | | | | | | |
| Real GDP growth (in percent) | 3.2 | 3.5 | -3.3 | 5.4 | 4.2 | -11.1 | -0.6 | 2.1 | 3.0 | 3.9 | 4.7 | 0.3 | 4.3 | 4.7 | 4.6 |
| GDP deflator in US dollar terms (change in percent) | -5.4 | 18.6 | 2.0 | 11.5 | 8.4 | -9.4 | -8.0 | -0.2 | 2.3 | 2.1 | 2.9 | -1.7 | 1.6 | 1.4 | 1.6 |
| Effective interest rate (percent) 5/ | 5.2 | 5.0 | 4.4 | 5.0 | 0.4 | 4.1 | 3.9 | 3.7 | 3.6 | 3.5 | 3.4 | 3.7 | 2.9 | 2.3 | 2.7 |
| Growth of exports of G&S (US dollar terms, in percent) | -35.4 | 52.7 | -8.7 | 26.4 | 27.5 | -52.8 | 9.4 | 12.4 | 8.6 | 4.7 | 3.8 | -2.3 | -1.2 | -1.2 | -0.5 |
| Growth of imports of G&S (US dollar terms, in percent) | -0.5 | 6.4 | -7.5 | 22.4 | 26.6 | -17.9 | -3.7 | 4.1 | 7.6 | 4.8 | 6.5 | 0.3 | -0.5 | -2.0 | -0.8 |
| Grant element of new public sector borrowing (in percent) | ... | ... | ... | ... | ... | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 26.7 | 25.3 | 26.2 |
| Government revenues (excluding grants, in percent of GDP) | 16.5 | 18.6 | 17.9 | | | 11.6 | 12.6 | 13.0 | 12.7 | 12.5 | 12.5 | | | 11.3 | 11.4 |
| Aid flows (in Billions of US dollars) 7/ | 0.4 | 0.6 | 0.7 | | | 1.0 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | | | 0.8 | 0.6 |
| o/w Grants | 0.0 | 0.4 | 0.5 | | | 0.7 | 0.7 | 0.7 | 0.7 | 0.6 | 0.6 | | | 0.5 | 0.4 |
| o/w Concessional loans | 0.3 | 0.2 | 0.2 | | | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | | | 0.2 | 0.2 |
| Grant-equivalent financing (in percent of GDP) 8/ | ... | ... | ... | | | 2.0 | 1.8 | 1.8 | 1.7 | 1.6 | 1.4 | | | 1.0 | 0.6 |
| Grant-equivalent financing (in percent of external financing) 8/ | ... | ... | ... | | | 55.2 | 64.9 | 64.4 | 63.2 | 61.8 | 60.1 | | | 52.6 | 40.0 |
| <i>Memorandum items:</i> | | | | | | | | | | | | | | | |
| Nominal GDP (Billions of US dollars) | 52.8 | 64.8 | 64.0 | | | 51.5 | 47.1 | 48.0 | 50.6 | 53.7 | 57.9 | | | 79.0 | 143.2 |
| Nominal dollar GDP growth | -2.3 | 22.7 | -1.3 | | | -19.5 | -8.6 | 1.9 | 5.4 | 6.1 | 7.7 | | | -1.1 | 5.9 |
| PV of PPG external debt (in Billions of US dollars) | ... | ... | 71.3 | | | 73.1 | 74.5 | 75.9 | 77.4 | 78.9 | 80.5 | | | 88.9 | 105.3 |
| (PVI-PVI-1)/GDPt-1 (in percent) | ... | ... | ... | | | 2.8 | 2.7 | 3.0 | 3.1 | 3.1 | 2.9 | | | 2.9 | 2.4 |
| Gross workers' remittances (Billions of US dollars) | 2.3 | 2.2 | 1.4 | | | 1.5 | 1.6 | 1.8 | 1.9 | 2.1 | 2.4 | | | 2.7 | 3.2 |
| PV of PPG external debt (in percent of GDP + remittances) | ... | ... | 109.5 | | | 164.9 | 165.5 | 158.9 | 152.1 | 144.4 | 135.2 | | | 110.6 | 73.0 |
| PV of PPG external debt (in percent of exports + remittances) | ... | ... | 542.1 | | | 1239.3 | 1045.5 | 917.7 | 853.5 | 815.1 | 775.9 | | | 800.3 | 997.7 |
| Debt service of PPG external debt (in percent of exports + remittances) | ... | ... | 16.2 | | | 29.5 | 26.7 | 24.2 | 21.6 | 19.9 | 19.0 | | | 17.4 | 24.7 |

Sources: Country authorities; and staff estimates and projections.

1/ Includes both public and private sector external debt.

2/ Derived as $[r - g - \rho(1+g)] / (1+g+\rho+g)$ times previous period debt ratio, with r = nominal interest rate; g = real GDP growth rate, and ρ = 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/ Assumes that PV of private sector debt is equivalent to its face value.

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

6/ Historical averages and standard deviations are generally derived over the past 10 years, subject to data availability.

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

8/ 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).

Table 5. Sudan: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2012-32 1/
(In percent)

| | Projections | | | | | | | 2032 |
|--|-------------|------|------|------|------|------|-------------|------|
| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2022 | |
| PV of debt-to GDP ratio | | | | | | | | |
| Baseline | 170 | 171 | 165 | 158 | 150 | 141 | 114 | 75 |
| A. Alternative Scenarios | | | | | | | | |
| A1. New public sector loans on less favorable terms in 2012-2032 2/ | 170 | 158 | 159 | 154 | 148 | 141 | 115 | 78 |
| B. Bound Tests | | | | | | | | |
| B1. Real GDP growth at historical average minus one standard deviation in 2013-2014 | 170 | 155 | 156 | 151 | 145 | 137 | 111 | 73 |
| B2. Export value growth at historical average minus one standard deviation in 2013-2014 3/ | 170 | 158 | 160 | 155 | 149 | 141 | 114 | 74 |
| B3. US dollar GDP deflator at historical average minus one standard deviation in 2013-2014 | 170 | 141 | 136 | 131 | 126 | 119 | 96 | 63 |
| B4. Net non-debt creating flows at historical average minus one standard deviation in 2013-2014 4/ | 170 | 158 | 159 | 154 | 148 | 140 | 113 | 73 |
| B5. Combination of B1-B4 using one-half standard deviation shocks | 170 | 128 | 116 | 112 | 107 | 101 | 82 | 55 |
| B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/ | 170 | 234 | 233 | 226 | 217 | 205 | 166 | 108 |
| PV of debt-to-exports ratio | | | | | | | | |
| Baseline | 1567 | 1321 | 1152 | 1073 | 1033 | 1006 | 1046 | 1432 |
| A. Alternative Scenarios | | | | | | | | |
| A1. New public sector loans on less favorable terms in 2012-2032 2/ | 1567 | 1222 | 1110 | 1045 | 1020 | 1005 | 1056 | 1502 |
| B. Bound Tests | | | | | | | | |
| B1. Real GDP growth at historical average minus one standard deviation in 2013-2014 | 1567 | 1216 | 1101 | 1033 | 1005 | 987 | 1022 | 1402 |
| B2. Export value growth at historical average minus one standard deviation in 2013-2014 3/ | 1567 | 1353 | 1411 | 1324 | 1289 | 1267 | 1313 | 1778 |
| B3. US dollar GDP deflator at historical average minus one standard deviation in 2013-2014 | 1567 | 1216 | 1101 | 1033 | 1005 | 987 | 1022 | 1402 |
| B4. Net non-debt creating flows at historical average minus one standard deviation in 2013-2014 4/ | 1567 | 1220 | 1112 | 1043 | 1016 | 998 | 1033 | 1408 |
| B5. Combination of B1-B4 using one-half standard deviation shocks | 1567 | 1163 | 1032 | 968 | 942 | 925 | 954 | 1340 |
| B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/ | 1567 | 1216 | 1101 | 1033 | 1005 | 987 | 1022 | 1402 |
| PV of debt-to-revenue ratio | | | | | | | | |
| Baseline | 1468 | 1354 | 1265 | 1240 | 1198 | 1127 | 1011 | 657 |
| A. Alternative Scenarios | | | | | | | | |
| A1. New public sector loans on less favorable terms in 2012-2032 2/ | 1468 | 1253 | 1219 | 1208 | 1183 | 1126 | 1020 | 690 |
| B. Bound Tests | | | | | | | | |
| B1. Real GDP growth at historical average minus one standard deviation in 2013-2014 | 1468 | 1225 | 1199 | 1185 | 1156 | 1098 | 980 | 638 |
| B2. Export value growth at historical average minus one standard deviation in 2013-2014 3/ | 1468 | 1253 | 1233 | 1218 | 1189 | 1129 | 1009 | 649 |
| B3. US dollar GDP deflator at historical average minus one standard deviation in 2013-2014 | 1468 | 1111 | 1044 | 1031 | 1006 | 955 | 852 | 555 |
| B4. Net non-debt creating flows at historical average minus one standard deviation in 2013-2014 4/ | 1468 | 1250 | 1221 | 1206 | 1178 | 1118 | 998 | 646 |
| B5. Combination of B1-B4 using one-half standard deviation shocks | 1468 | 1012 | 888 | 876 | 855 | 811 | 722 | 481 |
| B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/ | 1468 | 1849 | 1794 | 1772 | 1730 | 1642 | 1465 | 955 |

Table 5. Sudan: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2012-32 (continued)
(In percent)

| | Projections | | | | | | | 2032 |
|--|-------------|------|------|------|------|------|-----------|------|
| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2022 | |
| Debt service-to-exports ratio | | | | | | | | |
| Baseline | 37 | 34 | 30 | 27 | 25 | 25 | 23 | 36 |
| A. Alternative Scenarios | | | | | | | | |
| 1/ A1. New public sector loans on less favorable terms in 2012-2032 2/ | 37 | 34 | 30 | 27 | 25 | 25 | 24 | 41 |
| B. Bound Tests | | | | | | | | |
| B1. Real GDP growth at historical average minus one standard deviation in 2013-2014 | 37 | 34 | 30 | 27 | 25 | 24 | 23 | 34 |
| B2. Export value growth at historical average minus one standard deviation in 2013-2014 3/ | 37 | 37 | 38 | 35 | 32 | 31 | 29 | 47 |
| B3. US dollar GDP deflator at historical average minus one standard deviation in 2013-2014 | 37 | 34 | 30 | 27 | 25 | 24 | 23 | 34 |
| B4. Net non-debt creating flows at historical average minus one standard deviation in 2013-2014 4/ | 37 | 34 | 30 | 27 | 25 | 25 | 23 | 36 |
| B5. Combination of B1-B4 using one-half standard deviation shocks | 37 | 33 | 29 | 26 | 24 | 23 | 21 | 29 |
| B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/ | 37 | 34 | 30 | 27 | 25 | 24 | 23 | 34 |
| Debt service-to-revenue ratio | | | | | | | | |
| Baseline | 35 | 35 | 33 | 31 | 29 | 28 | 22 | 16 |
| A. Alternative Scenarios | | | | | | | | |
| 1/ A1. New public sector loans on less favorable terms in 2012-2032 2/ | 35 | 35 | 33 | 31 | 29 | 28 | 23 | 19 |
| B. Bound Tests | | | | | | | | |
| B1. Real GDP growth at historical average minus one standard deviation in 2013-2014 | 35 | 34 | 33 | 31 | 29 | 27 | 22 | 16 |
| B2. Export value growth at historical average minus one standard deviation in 2013-2014 3/ | 35 | 35 | 33 | 32 | 30 | 28 | 22 | 17 |
| B3. US dollar GDP deflator at historical average minus one standard deviation in 2013-2014 | 35 | 31 | 29 | 27 | 25 | 24 | 19 | 14 |
| B4. Net non-debt creating flows at historical average minus one standard deviation in 2013-2014 4/ | 35 | 35 | 33 | 32 | 29 | 28 | 22 | 16 |
| B5. Combination of B1-B4 using one-half standard deviation shocks | 35 | 29 | 25 | 23 | 21 | 20 | 16 | 10 |
| B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/ | 35 | 51 | 49 | 46 | 43 | 41 | 32 | 23 |
| <i>Memorandum item:</i> | | | | | | | | |
| Grant element assumed on residual financing (i.e., financing required above baseline) 6/ | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |

Sources: Country authorities; and staff estimates and projections.

1/ The secession-induced structural breaks in the time series undermine the historical scenario, which is therefore omitted from the table.

2/ Assumes that the interest rate on new borrowing is by 2 percentage points higher than in the baseline, while grace and maturity periods are the same as in the baseline.

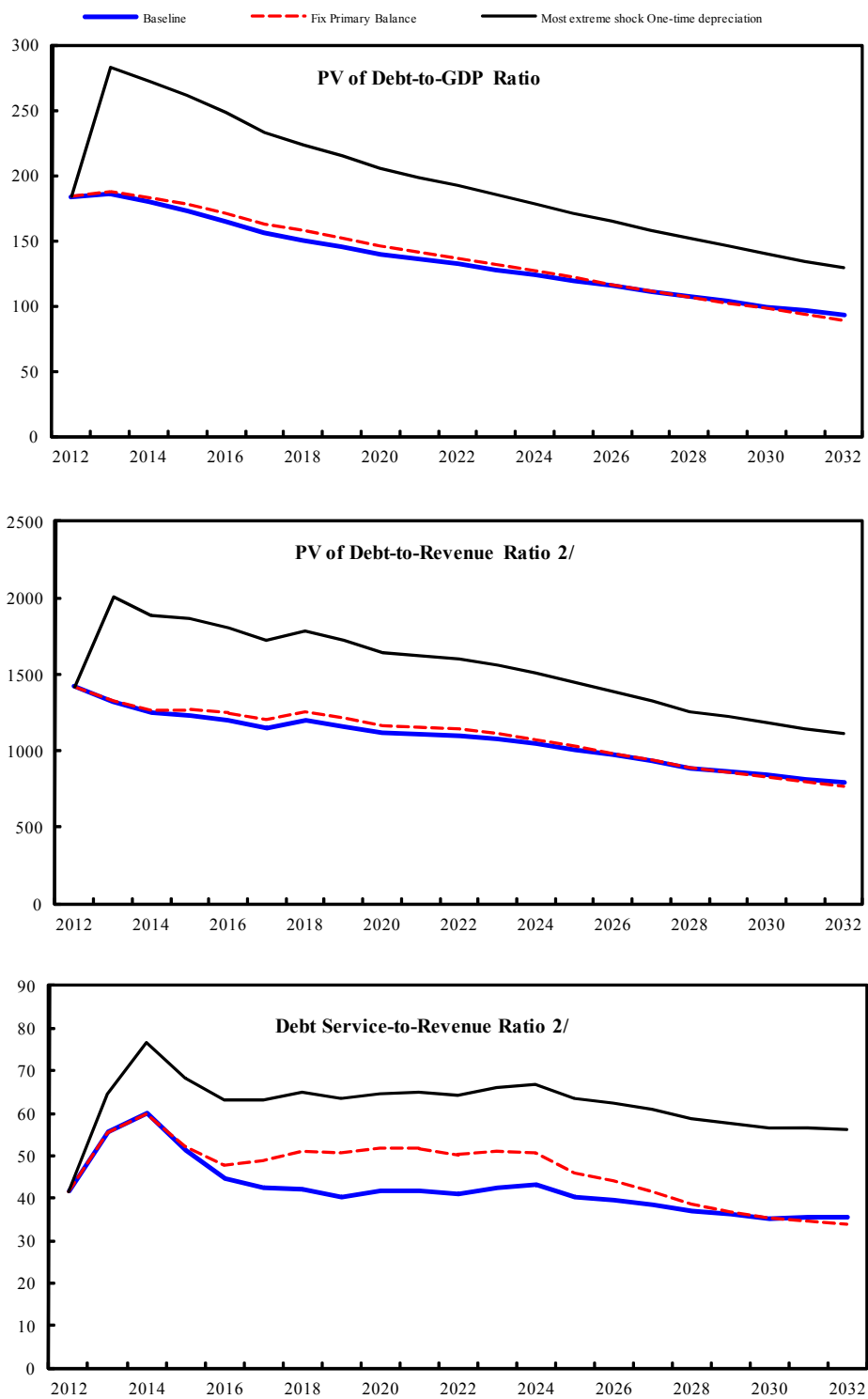
3/ Exports values are assumed to remain permanently at the lower level, but the current account as a share of GDP is assumed to return to its baseline level after the shock (implicitly assuming an offsetting adjustment in import levels).

4/ Includes official and private transfers and FDI.

5/ Depreciation is defined as percentage decline in dollar/local currency rate, such that it never exceeds 100 percent.

6/ Applies to all stress scenarios except for A1 (less favorable financing) in which the terms on all new financing are as specified in footnote 2.

Figure 4. Sudan: Indicators of Public Debt Under Alternative Scenarios, 2012-32 1/2/



Sources: Country authorities; and staff estimates and projections.

1/ The secession-induced structural breaks in the time series undermine the historical scenario, which is therefore omitted from the figures.

2/ The most extreme stress test is the test that yields the highest ratio in 2022.

3/ Revenues are defined inclusive of grants.

Table 6. Sudan: Public Sector Debt Sustainability Framework, Baseline Scenario, 2009-32
(In percent of GDP, unless otherwise indicated)

| | Actual | | | Average ^{5/} | Standard Deviation ^{5/} | Estimate | | | | | Projections | | | 2018-32 Average | |
|--|--------|-------|-------|-----------------------|-------------------------------------|----------|--------|--------|--------|--------|-------------|--------------------|--------|--------------------|------|
| | 2009 | 2010 | 2011 | | | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2012-17 Average | 2022 | | 2032 |
| Public sector debt 1/ | 72.5 | 74.0 | 74.1 | | | 111.8 | 115.6 | 113.9 | 111.8 | 109.0 | 105.0 | | 97.7 | 78.1 | |
| o/w foreign-currency denominated | 61.4 | 63.0 | 62.5 | | | 97.8 | 100.9 | 99.2 | 97.0 | 94.2 | 90.2 | | 80.2 | 60.3 | |
| Change in public sector debt | 3.1 | 1.5 | 0.1 | | | 37.7 | 3.9 | -1.7 | -2.2 | -2.7 | -4.0 | | -1.0 | -1.9 | |
| Identified debt-creating flows | 0.6 | -7.7 | -3.7 | | | 33.0 | 0.0 | -5.4 | -5.9 | -6.4 | -7.4 | | -3.4 | -2.2 | |
| Primary deficit | 0.1 | -3.3 | -2.5 | -3.5 | 2.3 | -0.6 | -1.8 | -2.8 | -2.9 | -2.6 | -2.5 | -2.2 | -0.5 | 0.8 | -0.2 |
| Revenue and grants | 16.5 | 19.3 | 18.7 | | | 12.9 | 14.1 | 14.4 | 14.0 | 13.7 | 13.6 | | 12.0 | 11.6 | |
| of which: grants | 0.0 | 0.7 | 0.8 | | | 1.4 | 1.4 | 1.4 | 1.3 | 1.2 | 1.1 | | 0.7 | 0.3 | |
| Primary (noninterest) expenditure | 16.7 | 16.0 | 16.2 | | | 12.4 | 12.3 | 11.6 | 11.2 | 11.1 | 11.0 | | 11.5 | 12.4 | |
| Automatic debt dynamics | 0.5 | -4.3 | -1.0 | | | 33.6 | 1.8 | -2.6 | -3.0 | -3.8 | -4.9 | | -3.0 | -3.0 | |
| Contribution from interest rate/growth differential | -1.3 | -10.1 | -5.5 | | | -4.4 | -14.1 | -10.6 | -9.3 | -7.5 | -6.9 | | -6.7 | -5.6 | |
| of which: contribution from average real interest rate | 0.9 | -7.7 | -8.1 | | | -13.7 | -14.8 | -8.3 | -6.0 | -3.3 | -2.1 | | -2.6 | -2.0 | |
| of which: contribution from real GDP growth | -2.2 | -2.4 | 2.5 | | | 9.2 | 0.7 | -2.3 | -3.4 | -4.2 | -4.9 | | -4.1 | -3.6 | |
| Contribution from real exchange rate depreciation | 1.8 | 5.8 | 4.6 | | | 38.0 | 15.9 | 8.0 | 6.3 | 3.7 | 2.0 | | ... | ... | |
| Other identified debt-creating flows | 0.0 | -0.2 | -0.2 | | | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Privatization receipts (negative) | 0.0 | -0.2 | -0.2 | | | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Recognition of implicit or contingent liabilities | 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 (specify, 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 | |
| Residual, including asset changes | 2.5 | 9.2 | 3.8 | | | 4.7 | 3.8 | 3.7 | 3.7 | 3.7 | 3.5 | | 2.5 | 0.3 | |
| Other Sustainability Indicators | | | | | | | | | | | | | | | |
| PV of public sector debt | ... | ... | 123.5 | | | 183.6 | 185.9 | 179.4 | 172.5 | 164.9 | 155.7 | | 131.8 | 92.5 | |
| o/w foreign-currency denominated | ... | ... | 111.9 | | | 169.7 | 171.2 | 164.7 | 157.8 | 150.0 | 140.8 | | 114.3 | 74.6 | |
| o/w external | ... | ... | 111.9 | | | 169.7 | 171.2 | 164.7 | 157.8 | 150.0 | 140.8 | | 114.3 | 74.6 | |
| PV of contingent liabilities (not included in public sector debt) | ... | ... | ... | | | ... | ... | ... | ... | ... | ... | | ... | ... | |
| Gross financing need 2/ | 7.9 | 2.8 | 3.9 | | | 5.8 | 7.2 | 7.1 | 5.6 | 4.8 | 4.6 | | 5.9 | 6.5 | |
| PV of public sector debt-to-revenue and grants ratio (in percent) | ... | ... | 660.8 | | | 1421.3 | 1321.4 | 1245.9 | 1230.6 | 1201.6 | 1147.1 | | 1099.9 | 795.0 | |
| PV of public sector debt-to-revenue ratio (in percent) | ... | ... | 689.2 | | | 1589.2 | 1470.1 | 1378.5 | 1355.7 | 1315.9 | 1246.3 | | 1165.6 | 814.2 | |
| o/w external 3/ | ... | ... | 624.5 | | | 1468.2 | 1353.9 | 1265.4 | 1240.1 | 1197.5 | 1127.0 | | 1011.0 | 657.1 | |
| Debt service-to-revenue and grants ratio (in percent) 4/ | 41.5 | 26.8 | 29.4 | | | 41.6 | 55.5 | 60.0 | 51.2 | 44.5 | 42.6 | | 40.9 | 35.6 | |
| Debt service-to-revenue ratio (in percent) 4/ | 41.6 | 27.7 | 30.7 | | | 46.5 | 61.7 | 66.4 | 56.4 | 48.8 | 46.2 | | 43.3 | 36.4 | |
| Primary deficit that stabilizes the debt-to-GDP ratio | -3.0 | -4.7 | -2.6 | | | -38.2 | -5.6 | -1.1 | -0.7 | 0.1 | 1.4 | | 0.5 | 2.7 | |
| Key macroeconomic and fiscal assumptions | | | | | | | | | | | | | | | |
| Real GDP growth (in percent) | 3.2 | 3.5 | -3.3 | 5.4 | 4.2 | -11.1 | -0.6 | 2.1 | 3.0 | 3.9 | 4.7 | 0.3 | 4.3 | 4.7 | 4.6 |
| Average nominal interest rate on forex debt (in percent) | 5.4 | 5.1 | 4.5 | 5.1 | 0.5 | 4.2 | 4.0 | 3.8 | 3.7 | 3.5 | 3.4 | 3.8 | 2.9 | 2.3 | 2.7 |
| Average real interest rate on domestic debt (in percent) | 5.3 | -6.5 | -4.8 | -2.2 | 4.3 | -13.4 | -8.1 | -2.5 | -0.3 | 1.2 | 2.5 | -3.4 | 0.7 | 0.9 | 0.6 |
| Real exchange rate depreciation (in percent, + indicates depreciation) | 3.1 | 11.1 | 7.9 | 0.5 | 7.5 | 65.1 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Inflation rate (GDP deflator, in percent) | 4.2 | 18.8 | 18.0 | 11.7 | 5.5 | 25.5 | 20.8 | 12.9 | 10.3 | 7.8 | 6.4 | 13.9 | 6.6 | 6.1 | 6.4 |
| Growth of real primary spending (deflated by GDP deflator, in percent) | -0.2 | 0.0 | 0.0 | 0.2 | 0.3 | -0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | 0.1 | 0.1 | 0.1 |
| Grant element of new external borrowing (in percent) | ... | ... | ... | ... | ... | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 26.7 | 25.3 | ... |

Sources: Country authorities; and staff estimates and projections.

1/ Indicate coverage of public sector, e.g., general government or nonfinancial public sector. Also whether net or gross debt is used.

2/ 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.

3/ Revenues excluding grants.

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

5/ Historical averages and standard deviations are generally derived over the past 10 years, subject to data availability.

Table 7. Sudan: Sensitivity Analysis for Key Indicators of Public Debt 2012-32

| | Projections | | | | | | | |
|---|-------------|------|------|------|------|------|------|------|
| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2022 | 2032 |
| PV of Debt-to-GDP Ratio | | | | | | | | |
| Baseline | 184 | 186 | 179 | 173 | 165 | 156 | 132 | 92 |
| A. Alternative scenarios | | | | | | | | |
| A1. Real GDP growth and primary balance are at historical averages | 184 | 174 | 162 | 151 | 142 | 132 | 100 | 51 |
| A2. Primary balance is unchanged from 2012 | 184 | 187 | 183 | 178 | 171 | 163 | 137 | 89 |
| A3. Permanently lower GDP growth 1/ | 184 | 188 | 183 | 178 | 172 | 164 | 148 | 122 |
| B. Bound tests | | | | | | | | |
| B1. Real GDP growth is at historical average minus one standard deviations in 2013-2014 | 184 | 183 | 178 | 171 | 163 | 154 | 130 | 91 |
| B2. Primary balance is at historical average minus one standard deviations in 2013-2014 | 184 | 187 | 182 | 174 | 166 | 157 | 132 | 93 |
| B3. Combination of B1-B2 using one half standard deviation shocks | 184 | 178 | 171 | 163 | 156 | 147 | 123 | 84 |
| B4. One-time 30 percent real depreciation in 2013 | 184 | 282 | 272 | 261 | 248 | 233 | 192 | 129 |
| B5. 10 percent of GDP increase in other debt-creating flows in 2013 | 184 | 196 | 188 | 180 | 171 | 161 | 134 | 93 |
| PV of Debt-to-Revenue Ratio 2/ | | | | | | | | |
| Baseline | 1421 | 1321 | 1246 | 1231 | 1202 | 1147 | 1100 | 795 |
| A. Alternative scenarios | | | | | | | | |
| A1. Real GDP growth and primary balance are at historical averages | 1421 | 1241 | 1131 | 1090 | 1043 | 983 | 845 | 437 |
| A2. Primary balance is unchanged from 2012 | 1421 | 1330 | 1269 | 1267 | 1248 | 1201 | 1142 | 767 |
| A3. Permanently lower GDP growth 1/ | 1421 | 1333 | 1269 | 1266 | 1250 | 1206 | 1230 | 1042 |
| B. Bound tests | | | | | | | | |
| B1. Real GDP growth is at historical average minus one standard deviations in 2013-2014 | 1421 | 1300 | 1235 | 1219 | 1190 | 1136 | 1087 | 784 |
| B2. Primary balance is at historical average minus one standard deviations in 2013-2014 | 1421 | 1326 | 1261 | 1244 | 1213 | 1157 | 1105 | 797 |
| B3. Combination of B1-B2 using one half standard deviation shocks | 1421 | 1273 | 1190 | 1171 | 1139 | 1084 | 1026 | 726 |
| B4. One-time 30 percent real depreciation in 2013 | 1421 | 2007 | 1888 | 1860 | 1809 | 1718 | 1600 | 1108 |
| B5. 10 percent of GDP increase in other debt-creating flows in 2013 | 1421 | 1393 | 1305 | 1283 | 1248 | 1187 | 1122 | 802 |
| Debt Service-to-Revenue Ratio 2/ | | | | | | | | |
| Baseline | 42 | 55 | 60 | 51 | 45 | 43 | 41 | 36 |
| A. Alternative scenarios | | | | | | | | |
| A1. Real GDP growth and primary balance are at historical averages | 42 | 53 | 56 | 44 | 37 | 34 | 24 | 0 |
| A2. Primary balance is unchanged from 2012 | 42 | 55 | 60 | 52 | 48 | 49 | 50 | 34 |
| A3. Permanently lower GDP growth 1/ | 42 | 56 | 61 | 53 | 46 | 45 | 48 | 56 |
| B. Bound tests | | | | | | | | |
| B1. Real GDP growth is at historical average minus one standard deviations in 2013-2014 | 42 | 55 | 60 | 51 | 44 | 42 | 40 | 34 |
| B2. Primary balance is at historical average minus one standard deviations in 2013-2014 | 42 | 55 | 60 | 52 | 47 | 45 | 42 | 36 |
| B3. Combination of B1-B2 using one half standard deviation shocks | 42 | 54 | 57 | 48 | 43 | 40 | 36 | 29 |
| B4. One-time 30 percent real depreciation in 2013 | 42 | 65 | 77 | 68 | 63 | 63 | 64 | 56 |
| B5. 10 percent of GDP increase in other debt-creating flows in 2013 | 42 | 55 | 59 | 65 | 57 | 57 | 45 | 37 |

Sources: Country authorities; and staff estimates and projections.

1/ Assumes that real GDP growth is at baseline minus one standard deviation divided by the square root of the length of the projection period.

2/ Revenues are defined inclusive of grants.