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DEMOCRATIC REPUBLIC OF SÃO TOMÉ AND PRÍNCIPE

Joint IMF-World Bank Debt Sustainability Analysis for Low-Income Country Framework Update[1]

Prepared by the staffs of the International Development Association and the International Monetary Fund

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1. **São Tomé and Príncipe has a high risk of debt distress even after debt relief under the HIPC Initiative and the Multilateral Debt Relief Initiative (MDRI)**. Upgrading the country's risk of debt distress classification in the future will hinge on the beginning of oil production. The results suggest that the attainment of debt relief at the HIPC completion point and MDRI debt relief brought about a substantial improvement in the country's debt outlook, though debt ratios will continue to be vulnerable to shocks until oil production starts in 2014.[2] The debt outlook remains vulnerable even under the baseline scenario, as indicated by a breach of debt thresholds prior to the production of oil. The risk of debt distress increases significantly under a scenario with no oil production and no fiscal adjustment. Reducing the risk of debt distress will therefore depend critically on maintaining sound fiscal policy consistent with a prudent borrowing strategy for the medium and long term as well as policies oriented to achieving broad-based long-run economic growth.

I. BACKGROUND

2. **The country reached the completion point under the enhanced HIPC Initiative in March 2007 and benefited from HIPC/MDRI debt relief**. The debt service-to-GDP ratio was about 3.2 percent of GDP in 2006 and is expected to decline to 0.7 percent in 2008—a result of both enhanced HIPC and MDRI debt relief. Debt relief under the MDRI, in

[1] This report updates the debt sustainability analysis (DSA) prepared for the HIPC Completion Point Document in February 2007 (CR/07/173). This LIC DSA incorporates revised debt repayment and disbursement schedule, macroeconomic projections and oil prospects.

[2] São Tomé and Príncipe is currently classified as a "Weak Performer" in IDA's Country Policy and Institutional Assessment (CPIA) index. Under the joint IDA/IMF debt sustainability framework the thresholds are: 30 percent for the NPV of debt-to-GDP ratio, 100 percent for NPV of debt-to-exports ratio, and 15 percent for the debt service-to-exports ratio.

particular, resulted in substantial debt service savings, reflecting the large share of debt to the IDA, AfDF, and IMF in the country's total debt before MDRI.

3. **São Tomé and Príncipe's medium- and long-term external debt at the end of 2007 is estimated at US $150 million in nominal terms, corresponding to a NPV of debt-to-export ratio of 119 percent**. The share of multilateral debt is 24 percent, of which about 39 percent is owed to the IDA, African Development Bank, and IMF. The share of official bilateral debt is about 76 percent, of which 31 percent is owed to Portugal. São Tomé and Príncipe is current with its obligations to multilateral creditors and has cleared most of its arrears with Paris Club creditors as part of a debt rescheduling agreement on Cologne terms (September 2005). The authorities have signed bilateral agreements with all its Paris Club creditors with the exception of Russia to implement the terms of the May 2007 Agreed Minute.[3] They are also reconciling debt records with other non-Paris Club creditors.[4]

Outstanding of external debt
(as of the end of 2007, in million US dollars)

Total	149.7
Multilateral creditors	35.5
IDA	9.7
African Development Bank	2.2
Arab Development Bank	2.5
IMF	2.0
Others	19.0
Bilateral creditors	114.2
Portugal	34.8
Angola	25.4
Others	54.0

II. Medium-Term Macroeconomic Framework

4. **The macroeconomic framework underlying the long-term sustainability outlook has been revised to take into account developments since the HIPC completion point**. The revisions include (i) a delay of the start of oil production by two years from 2012 to 2014, reflecting the result of recent oil exploration, (ii) a reduction of oil production level to 42 percent of the previous assumption, (iii) an upward revision of GDP data series and a downward revision of exports data series,[5] (iv) the inclusion of topping-up assistance into the baseline scenario, and (v) a revision of debt services and disbursement schedule reflecting the latest projections. The framework is in line with the government's medium-term program, which is supported by the PRGF arrangement (Box 1). São Tomé and Príncipe could start

[3] São Tomé and Príncipe and Russia have been working since the HIPC completion point to conclude bilateral agreement.

[4] Since São Tomé and Príncipe is still in the process of signing bilateral agreement with Paris Club creditors, the country has technical arrears to some of Paris Club creditors.

5 See IMF Country Report No. 07/267. Ratios in this document refer to new GDP and export data series.

producing oil in 2014 at the earliest. Development of the non-oil economy is expected mainly in the service sector, principally banking and tourism, and secondly in fishery and agriculture.

5. **Other baseline assumptions are mostly unchanged compared to the one performed at the time of the HIPC completion point** (Box 1). The baseline scenario assumes full delivery of debt relief under the HIPC Initiative (including topping up) and MDRI. GDP growth is expected to accelerate over the medium term to 8 percent and then slow gradually to 5 percent in the long term. Domestic investment would increase sharply in the medium term, largely on account of oil sector investment initiatives. The rise in the investment will require continuing reliance on foreign savings, although national savings are forecast to increase on account of higher private savings once stability and economic growth become firmly established.

6. **Inflation is expected to decline gradually to 6 percent by 2011 and over the long term level off at 4 percent, reflecting a balanced budget and the central bank's commitment to control inflation**. On fiscal policy, oil revenues are assumed to accrue in the National Oil Account (NOA) and be used to finance the government budget according to a permanent income rule established by the Oil Management Revenue Law. The permanent income generated by the NOA would cover all São Tomé and Príncipe's public budget needs in the long term.

7. **The external current account deficit is projected to remain in deficit until 2016, as a result of large imports related to the development of the oil sector and public investment, and revert to a surplus in 2017–23, as a result of oil exports**. In the long term, the external current account is projected to have a small deficit, which is to be financed by the permanent income generated by the NOA.

8. **Risks to the macro framework arise from a possible weakening of the fiscal consolidation effort, potential shortfalls in foreign assistance triggered by the expected oil boom, and lower or no oil production**. All scenarios assume no domestic public debt (no significant development of a domestic-based market for government debt is foreseen) and most of the scenarios assume external borrowing on concessional terms. In particular, the scenario of no oil production assumes no fiscal adjustment, as in DSA performed at the time of the HIPC completion point. This scenario also assumes less concessional terms for external borrowing, reflecting the worsening of the fiscal stance.

III. Fiscal Debt Sustainability Analysis

9. **In the baseline scenario, São Tomé and Príncipe's debt outlook shows a significant improvement after HIPC/MDRI debt relief, but remains vulnerable until oil production starts** (Figure 1 and Table 1). Both the NPV of debt-to-GDP and NPV of debt-to-revenue ratios remain low throughout the projection period. The debt service-to-revenue ratio is projected to remain below 10 percent, declining further once oil production starts.

10. **The sensitivity analysis shows that the debt indicators are particularly vulnerable to deterioration of the primary balance before oil production starts**. Under the most extreme stress test, which assumes that the primary balance is at historical average minus one standard deviation, all debt indicators increase substantially above the baseline scenario from 2009 (Figure 1 and Table 1).

11. **Under a scenario with no oil production and no fiscal adjustment, the public debt dynamics become explosive in São Tomé and Príncipe** (Figure 1 and Table 1). In this scenario, all debt indicators are projected to increase rapidly. Both the NPV of debt-to-GDP and the NPV of debt-to-revenue ratios are projected to increase substantially throughout the projection period, leading to an increasing debt service-to-revenue ratio.

Box 1. Baseline Macroeconomic Assumptions, 2008–26

- **Real non-oil GDP growth** is expected to reach 8 percent by 2013 with investments in the service sector and infrastructure in anticipation of the oil era and development of the tourism and fishery sectors. After oil production starts to decline from 2018, non-oil GDP growth should slow gradually to a sustainable 5 percent in the long term.

- **Oil production of one well is assumed to start in 2014.** The country's share in the oil output of the Joint Development Zone (JDZ), 15,000 barrels a day, at an average price of US$70 per barrel on average would yield US$380 million in annual exports for 20 years and would require total investment by São Tomé and Príncipe of US$1.2 billion. Preliminary staff estimates indicate that, on the assumption that only one of the six blocks auctioned in the JDZ with Nigeria is found to be commercially exploitable, oil production would still have a sizeable effect on São Tomé and Príncipe's economic prospects.

- **Inflation** is projected to fall gradually to 6 percent in 2011 and over the long term hold steady at 4 percent, reflecting a smaller budget deficit and the central bank's commitment to control inflation.

- **Fiscal policy** will be supportive of economic growth and poverty reduction. The domestic primary balance is expected to continue recording deficits of around 3-4 percent of GDP through 2014, reflecting large social and infrastructure expenditures.

- **The current account deficit (including grants)** is expected to average 35 percent of GDP for 2008–14 because of large investment-related imports. Between 2017 and 2023, the current account is projected to turn into a surplus as a result of oil exports. After 2024, it is expected to return to a deficit, which would be financed by the permanent income from the NOA.

- **External borrowing** on concessional terms is assumed to be about US$4 million a year, mainly from the African Development Bank and IDA.

IV. External Debt Sustainability Analysis

12. **The baseline scenario shows unfavorable external debt dynamics before oil production starts.** Debt relief under the HIPC Initiative and MDRI allows the debt ratios to improve substantially; however, some of the ratios exceed or rise close to the policy-dependent thresholds until oil production starts (Figure 2 and Table 2b). The NPV of debt-to-GDP ratio is projected to remain below the 30 percent policy-dependent debt-burden threshold throughout the projection period. However, the NPV of debt-to-exports ratio is projected to exceed the policy-dependent threshold before oil production starts. Then it falls sharply after 2014, when oil production starts. The debt service-to-exports ratio is also projected to rise close to the policy-dependent threshold in 2012-14 before declining sharply once oil production starts.[6]

13. **The sensitivity analysis shows that the debt indicators are particularly vulnerable to low export growth**. In the most extreme stress test, which assumes that export value grows at historical average minus one standard deviation, São Tomé and Príncipe's NPV of debt-to-exports ratio is projected to increase well above the policy-dependent thresholds from 20010 to 2014, then fall sharply after oil production starts in 2014 (Figure 2).

14. **In a scenario with no oil production and no fiscal adjustment, external debt vulnerability becomes acute in São Tomé and Príncipe** (Figure 2). In this scenario, all debt indicators are projected to increase rapidly. Both the NPV of debt-to-GDP and the NPV of debt-to-exports ratios are projected to remain above the policy-dependent threshold, leading to an ever increasing debt service-to-exports ratio in the absence of fiscal adjustment.

V. Conclusion

15. **São Tomé and Príncipe's risk of debt distress is high even after debt relief under the HIPC Initiative and MDRI.** Despite the significant reduction obtained under these two Initiatives, São Tomé and Príncipe's NPV of debt-to-exports ratio breaches its indicative threshold prior to the production of oil. São Tomé and Príncipe's external debt will remain vulnerable to shocks to exports and foreign grants, at least until oil production starts in 2014.[7] External debt vulnerability would be further exacerbated in the absence of sound macroeconomic policies and undue delays in oil production. These risks underline the need for prudent fiscal and debt management policies, continued reliance on concessional financing, and implementation of structural reforms essential to support broad-based long term economic growth.

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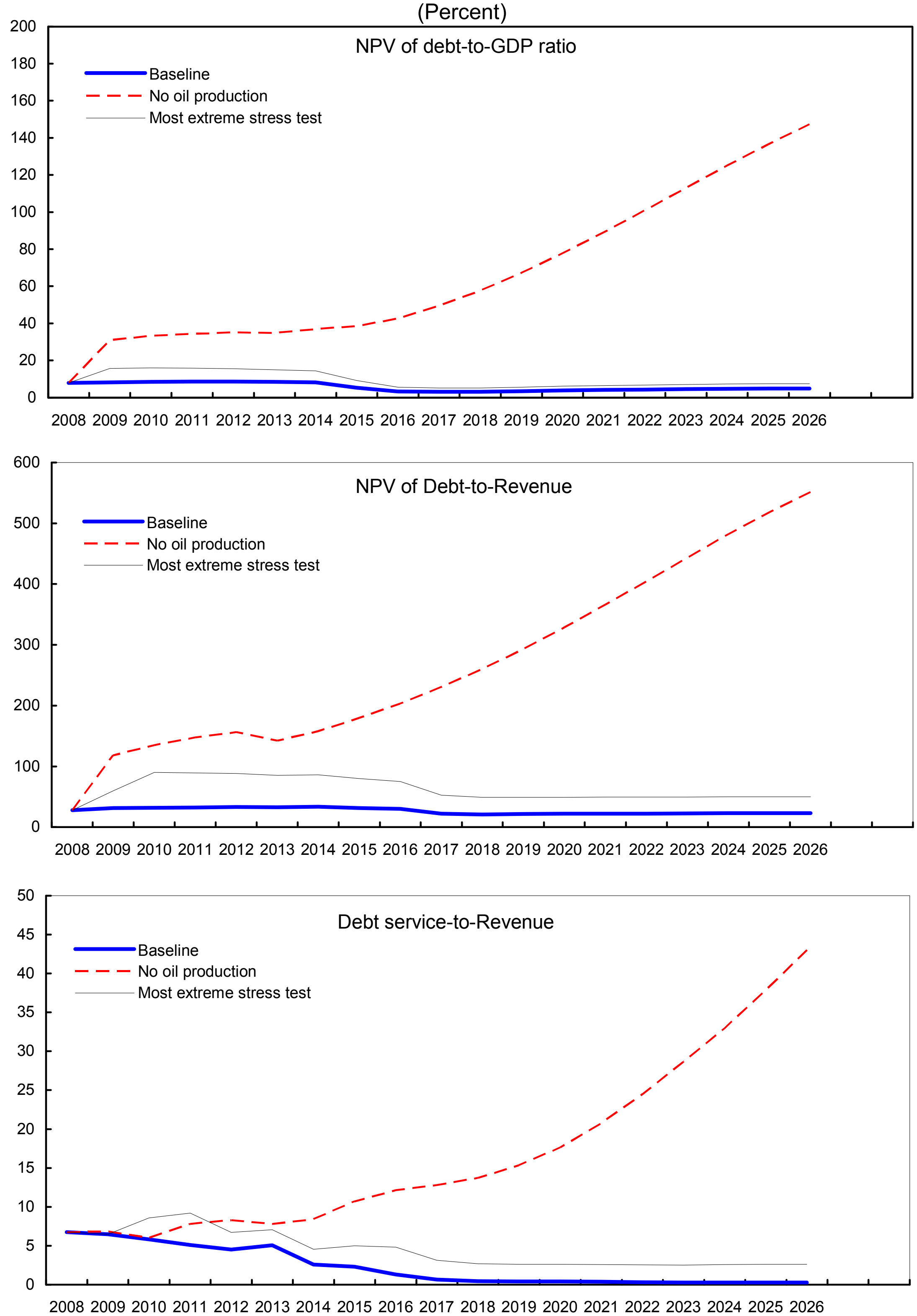
[6] The debt ratios of the LIC DSA may differ from the HIPC debt relief analysis as they use different methodologies. The LIC uses the same-year exports, while HIPC DSA uses a three-year backward average. The LIC DSA uses a fixed 5 percent discount rate, while the HIPC DSA uses currency-specific discount rates. Finally, the LIC DSA debt service projections use WEO exchange rates, while the HIPC DSA uses fixed exchange rates (end-2005).

[7] Scenario under the shocks to foreign grants are presented in "B4. Net non-debt creating flows at historical average minus one standard deviation" in Table 2b.

Figure 1. São Tomé and Príncipe: Indicators of Public Debt, 2008-26
(Percent)



Source: Staff projections.

Table 1a.São Tomé and Príncipe: Public Sector Debt Sustainability Framework, Baseline Scenario, 2007-2026
(In percent of GDP, unless otherwise indicated)

	Actual			Estimate	Projections								
	2007	Historical Average 5/	Standard Deviation 5/	2008	2009	2010	2011	2012	2013	2008-13 Average	2015	2018	2026
Public sector debt 1/	103.0			67.7	63.5	59.9	56.6	53.0	48.9		28.6	14.5	18.7
o/w foreign-currency denominated	103.0			67.7	63.5	59.9	56.6	53.0	48.9		28.6	14.5	18.7
Change in public sector debt	-159.8			-35.3	-4.2	-3.6	-3.3	-3.6	-4.0		-17.4	-0.2	0.0
Identified debt-creating flows	-34.4			-8.1	-2.7	-1.6	-1.3	-1.8	-1.9		-16.4	-4.0	-8.1
Primary deficit	9.9	11.7	2.7	2.9	4.8	3.7	3.7	3.4	3.1	3.6	2.0	-3.1	-7.2
Revenue and grants	28.8			28.8	26.1	26.5	26.8	26.1	25.8		16.9	14.9	21.2
of which : grants	9.7			11.8	9.1	9.5	9.7	9.8	10.0		5.6	2.6	2.8
Primary (noninterest) expenditure	38.7			31.8	30.9	30.2	30.4	29.6	28.9		18.9	11.8	14.0
Automatic debt dynamics	-42.0			-8.9	-6.5	-4.5	-4.2	-4.5	-4.4		-18.0	-0.6	-0.5
Contribution from interest rate/growth differential	-22.7			-6.2	-4.0	-3.7	-3.6	-4.2	-4.1		-18.1	-0.6	-0.5
of which : contribution from average real interest rate	-5.6			-0.1	0.0	0.0	-0.1	-0.2	-0.2		-0.5	-0.2	-0.3
of which : contribution from real GDP growth	-17.1			-6.2	-4.0	-3.7	-3.5	-4.0	-4.0		-17.7	-0.4	-0.2
Contribution from real exchange rate depreciation	-19.3			-2.7	-2.5	-0.8	-0.6	-0.3	-0.2		0.2	...	...
Other identified debt-creating flows	-2.3			-2.1	-1.0	-0.8	-0.8	-0.7	-0.7		-0.4	-0.2	-0.5
Privatization receipts (negative)	0.0			0.0	0.0	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
Debt relief (HIPC and other)	-2.3			-2.1	-1.0	-0.8	-0.8	-0.7	-0.7		-0.4	-0.2	-0.5
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
Residual, including asset changes	-159.8			-29.7	-3.2	-2.4	-2.4	-2.1	-2.1		-2.0	3.8	8.1
NPV of public sector debt	15.9			7.9	8.2	8.4	8.6	8.7	8.4		5.3	3.1	4.9
o/w foreign-currency denominated	15.9			7.9	8.2	8.4	8.6	8.7	8.4		5.3	3.1	4.9
o/w external	15.9			7.9	8.2	8.4	8.6	8.7	8.4		5.3	3.1	4.9
NPV of contingent liabilities (not included in public sector debt)	...			...	...	...	...	...	...		...	...	...
Gross financing need 2/	17.4			4.9	6.5	5.2	5.0	4.6	4.4		2.4	-3.1	-7.1
NPV of public sector debt-to-revenue ratio (in percent) 3/	55.2			27.5	31.3	31.6	32.0	33.1	32.6		31.2	20.8	23.0
o/w external	55.2			27.5	31.3	31.6	32.0	33.1	32.6		31.2	20.8	23.0
Debt service-to-revenue ratio (in percent) 3/ 4/	25.8			6.7	6.5	5.8	5.1	4.5	5.1		2.3	0.4	0.3
Primary deficit that stabilizes the debt-to-GDP ratio	169.7			38.3	9.0	7.3	7.0	7.0	7.1		19.4	-2.9	-7.2
Key macroeconomic and fiscal assumptions													
Real GDP growth (in percent)	6.0	7.0	2.3	6.0	6.0	6.0	6.0	7.5	8.0	6.6	61.5	2.7	0.8
Average nominal interest rate on forex debt (in percent)	0.6	0.9	0.5	1.5	1.9	1.9	1.7	1.6	1.6	1.7	0.1	0.2	0.1
Average real interest rate on domestic currency debt (in percent)	...	...	...	...	...	...	...	...	...		...	...	...
Real exchange rate depreciation (in percent, + indicates depreciation)	-6.9	-0.7	7.3	...	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	21.0	11.9	6.8	16.0	11.1	7.4	6.1	4.6	4.5	8.3	3.0	3.5	3.4
Growth of real primary spending (deflated by GDP deflator, in percent)	-14.0	5.3	19.1	-13.0	3.1	3.7	6.7	4.4	5.6	1.8	11.2	1.9	0.6

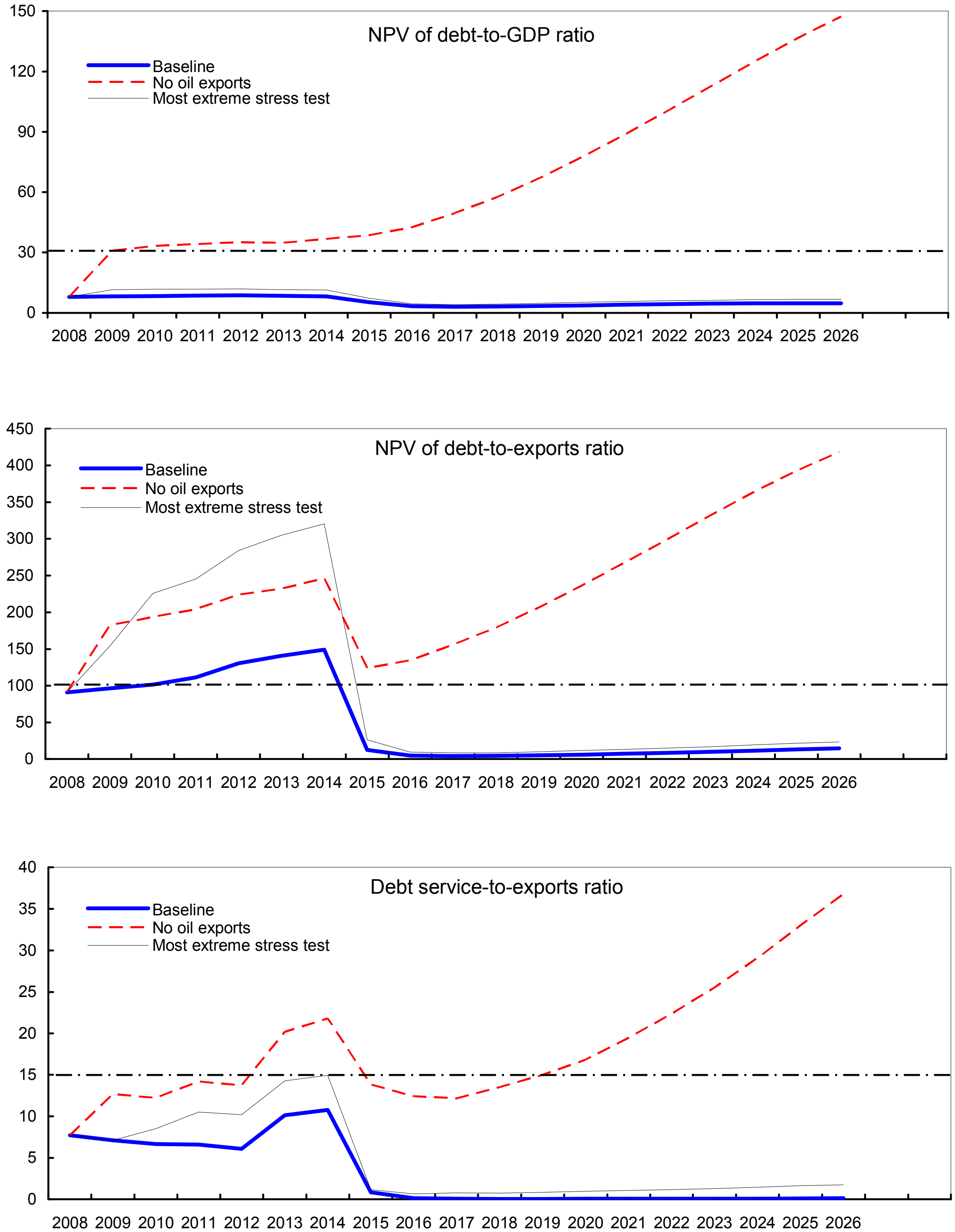
Sources: Country authorities; and Fund staff estimates and projections.
1/ [Indicate coverage of public sector, e.g., general government or nonfinancial public sector. Also whether net or gross debt is used.]
2/ Gross financing need is defined as the primary deficit plus debt service plus the stock of short-term debt at the end of the last period.
3/ Revenues including 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 period of 2002-07, subject to data availability.

Table 1b. São Tomé and Príncipe: Sensitivity Analysis for Key Indicators of Public Debt 2008-26
(Percent)

	Est.	Projections						
	2008	2009	2010	2011	2012	2015	2018	2026
				NPV of Debt-to-GDP Ratio				
Baseline	7.9	8.2	8.4	8.6	8.7	5.3	3.1	4.9
A. Alternative scenarios								
A1. No oil production	7.9	30.9	33.3	34.3	35.1	38.6	57.6	147.2
A2. Primary balance is unchanged from 2007	7.9	8.2	9.3	10.3	11.4	10.8	19.1	101.5
A3. Permanently lower GDP growth [1/]	7.9	8.2	8.4	8.7	8.8	5.5	3.3	5.4
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	7.9	8.3	8.8	8.9	9.1	5.5	3.3	5.1
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	7.9	15.5	23.8	23.6	22.9	13.4	7.3	10.5
B3. Combination of B1-B2 using one half standard deviation shocks	7.9	14.6	22.2	21.3	19.8	10.1	4.5	3.1
B4. One-time 30 percent real depreciation in 2009	7.9	12.1	12.8	13.3	13.7	8.5	5.0	7.8
B5. 10 percent of GDP increase in other debt-creating flows in 2009	7.9	15.8	16.0	15.8	15.5	9.2	5.1	7.5
				NPV of Debt-to-Revenue Ratio [2/]				
Baseline	27.5	31.3	31.6	32.0	33.1	31.2	20.8	23.0
A. Alternative scenarios								
A1. No oil production	27.5	118.0	135.0	147.2	156.5	179.7	259.9	551.1
A2. Primary balance is unchanged from 2009	27.5	31.4	35.0	38.6	43.8	63.7	128.0	480.1
A3. Permanently lower GDP growth [1/]	27.5	31.3	31.6	32.0	33.1	31.2	20.8	23.0
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	27.5	30.9	31.0	31.4	32.5	30.6	20.4	22.6
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	27.5	59.5	90.2	88.9	88.3	79.9	49.0	49.8
B3. Combination of B1-B2 using one half standard deviation shocks	27.5	55.3	81.2	77.0	73.5	57.6	29.2	14.2
B4. One-time 30 percent real depreciation in 2009	27.5	46.6	48.5	50.1	52.9	50.7	33.6	37.1
B5. 10 percent of GDP increase in other debt-creating flows in 2009	27.5	60.6	60.6	59.5	59.8	54.8	34.5	35.4
				Debt Service-to-Revenue Ratio [2/]				
Baseline	6.7	6.5	5.8	5.1	4.5	2.3	0.4	0.3
A. Alternative scenarios								
A1. No oil production	6.7	6.8	6.0	7.8	8.3	10.7	13.7	43.0
A2. Primary balance is unchanged from 2007	6.7	6.5	5.8	5.4	5.0	3.4	5.4	26.8
A3. Permanently lower GDP growth [1/]	6.7	6.5	5.8	5.1	4.5	2.3	0.4	0.3
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	6.7	6.5	5.8	5.1	4.5	2.3	0.4	0.3
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	6.7	6.5	8.6	9.2	6.7	5.0	2.7	2.6
B3. Combination of B1-B2 using one half standard deviation shocks	6.7	6.5	8.2	8.6	6.0	3.9	1.6	0.2
B4. One-time 30 percent real depreciation in 2009	6.7	7.5	7.8	6.8	6.2	2.6	0.7	0.6
B5. 10 percent of GDP increase in other debt-creating flows in 2009	6.7	6.5	8.7	6.2	5.5	4.1	1.5	1.4

Sources: Country authorities; and Fund staff estimates and projections.
[1/] Assumes that real GDP growth is at baseline minus one standard deviation divided by the square root of 20 (i.e., the length of the projection period).
[2/] Revenues are defined inclusive of grants.

Fig. 2. São Tomé and Príncipe: Indicators of External Debt, 2008–26
(Percent)



Source: World bank and IMF staff projections.

Table 2a. São Tomé and Príncipe: External Debt Sustainability Framework, Baseline Scenario, 2007-2026 1/
(Percent of GDP, unless otherwise indicated)

	Actual	Historical	Standard	Projections									
	2007	Average 6/	Deviation 6/	Est. 2008	2009	2010	2011	2012	2013	2009-13 Average	2015	2018	2026
External debt (nominal) 1/	**103.0**			**67.7**	**63.5**	**59.9**	**56.6**	**53.0**	**48.9**		**28.6**	**14.5**	**18.7**
Of which: public and publicly guaranteed (PPG)	103.0			67.7	63.5	59.9	56.6	53.0	48.9		28.6	14.5	18.7
Change in external debt	-159.8			-35.3	-4.2	-3.6	-3.3	-3.6	-4.0		-17.4	-0.2	0.0
Identified net debt-creating flows	-42.1			-1.9	-1.9	-1.7	-1.3	-5.5	-7.8		-1.3	-40.0	0.4
Non-interest current account deficit	**29.7**	**18.9**	**13.0**	**31.5**	**32.2**	**33.6**	**31.5**	**31.9**	**31.9**		**77.2**	**-27.0**	**7.9**
Deficit in balance of goods and services	57.7			58.1	55.6	55.8	52.3	51.5	50.9		58.2	-49.7	0.8
Exports	7.6			8.7	8.5	8.3	7.7	6.6	6.0		43.2	73.7	33.2
Imports	65.3			66.8	64.1	64.1	60.0	58.2	56.9		101.4	23.9	34.0
Net current transfers (negative = inflow)	-23.3	-24.0	4.0	-21.8	-18.3	-18.1	-17.4	-16.6	-16.1		-9.1	-4.3	-4.8
Other current account flows (negative = net inflow)	-4.7			-4.8	-5.1	-4.1	-3.5	-3.1	-2.9		28.1	27.1	12.0
Net FDI (negative = inflow)	**-34.1**	**-15.2**	**13.3**	**-24.3**	**-30.5**	**-31.9**	**-29.5**	**-33.5**	**-35.9**		**-61.3**	**-12.7**	**-7.4**
Endogenous debt dynamics 2/	**-37.7**			-9.1	**-3.6**	**-3.4**	**-3.2**	**-3.8**	**-3.8**		**-17.2**	**-0.4**	**-0.1**
Contribution from nominal interest rate	0.5			0.1	0.1	0.1	0.1	0.0	0.0		0.0	0.0	0.0
Contribution from real GDP growth	-13.5			-5.6	-3.7	-3.5	-3.3	-3.9	-3.8		-17.2	-0.4	-0.2
Contribution from price and exchange rate changes	-24.7			-3.6	…	…	…	…	…		…	…	…
Residual (3-4) 3/ 4/	**-117.6**			**-33.4**	**-2.3**	**-1.9**	**-2.0**	**1.9**	**3.7**		**-16.0**	**39.8**	**-0.4**
NPV of external debt	15.9			7.9	8.2	8.4	8.6	8.7	8.4		5.3	3.1	4.9
(Percent of exports)	210.0			90.9	96.3	101.6	111.1	130.4	140.8		12.2	4.2	14.7
NPV of PPG external debt	**15.9**			**7.9**	**8.2**	**8.4**	**8.6**	**8.7**	**8.4**		**5.3**	**3.1**	**4.9**
In percent of exports	210.0			90.9	96.3	101.6	111.1	130.4	140.8		12.2	4.2	14.7
Debt service-to-exports ratio (percent)	29.8			7.7	7.1	6.7	6.6	6.1	10.1		0.8	0.1	0.1
PPG debt service-to-exports ratio (percent)	29.8			7.7	7.1	6.7	6.6	6.1	10.1		0.8	0.1	0.1
Non-interest current account deficit that stabilizes debt ratio	189.5			66.8	36.4	37.2	34.8	35.5	35.9		94.6	-26.8	7.9
Key macroeconomic assumptions													
Real GDP growth (percent)	6.0	7.0	2.3	6.0	6.0	6.0	6.0	7.5	8.0	6.7	61.5	2.7	0.8
GDP deflator in US dollar terms (percent change)	10.4	4.1	3.6	3.6	3.4	2.7	2.5	2.0	2.4	2.6	1.6	1.8	1.7
Effective interest rate (percent) 5/	0.2	0.8	0.4	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
Growth of exports of goods and services (U.S. dollar terms, percent)	-31.8	-4.9	16.3	26.9	6.4	5.9	1.3	-5.4	-0.6	1.5	1184.6	2.3	-7.6
Growth of imports of goods and services (U.S. dollar terms, percent)	-7.4	15.4	27.3	12.5	5.1	8.9	1.7	6.3	8.2	6.0	119.3	-39.9	5.0
Grant element of new public sector borrowing (including IMF; percent)	...	...	...	...	48.0	48.0	40.5	40.5	40.5	43.5	40.5	40.5	40.5
Grant element of new public sector borrowing (excluding IMF; percent)	...	...	...	...	48.0	47.8	47.8	47.8	47.8	47.9	47.8	47.8	47.8
Memorandum item:													
Nominal GDP (billions of U.S. dollars)	0.1			0.2	0.2	0.2	0.2	0.2	0.3		0.4	1.0	0.9

Source: World Bank and IMF staff projections.

1/ External public debt only.
2/ Derived as [r - g - r(1+g)]/(1+g+r+gr) times previous period debt ratio, with r = nominal interest rate; g = real GDP growth rate, and r = 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/ Includes deposits and withdrawals from the National Oil Account.
5/ Current-year interest payments divided by previous period debt stock.
6/ Historical averages and standard deviations for the 2002-07 period.

Table 2b. São Tomé and Príncipe: Sensitivity Analyses for Key Indicators of Public and Publicly Guaranteed External Debt, 2008-2026
(Percent)

	Est.	Projections					
	2008	2009	2010	2011	2012	2015	2026
				NPV of debt-to-GDP ratio 1/			
Baseline	7.9	8.2	8.4	8.6	8.7	5.3	4.9
A. Alternative Scenarios							
A1. No oil exports 2/	7.9	30.9	33.3	34.3	35.1	38.6	147.2
A2. New public sector loans on less favorable terms in 2009-26 3/	7.9	8.2	8.4	10.0	10.0	6.1	5.7
B. Bound Tests							
B1. Real GDP growth at historical average minus one standard deviation in 2009-10	7.9	8.3	8.8	8.9	9.1	5.5	5.1
B2. Export value growth at historical average minus one standard deviation in 2009-10 4/	7.9	9.4	9.5	9.7	9.7	5.8	4.0
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-10	7.9	8.4	8.8	9.0	9.1	5.6	5.2
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-10 5/	7.9	8.4	8.9	9.1	9.2	5.6	5.1
B5. Combination of B1-B4 using one-half standard deviation shocks	7.9	8.4	8.8	9.0	9.1	5.5	5.0
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 6/	7.9	11.5	11.8	11.8	11.9	7.3	6.8
				NPV of debt-to-export ratio			
Baseline	90.9	96.3	101.6	111.1	130.4	12.2	14.7
A. Alternative Scenarios							
A1. No oil exports 2/	90.9	182.4	193.5	204.1	224.0	123.8	418.0
A2. New public sector loans on less favorable terms in 2009-26 3/	90.9	96.3	101.3	129.7	150.6	14.1	17.0
B. Bound Tests							
B1. Real GDP growth at historical average minus one standard deviation in 2009-10	90.9	98.3	101.4	110.9	130.1	12.2	14.7
B2. Export value growth at historical average minus one standard deviation in 2009-10 4/	90.9	154.3	225.6	245.2	284.3	26.1	23.2
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-10	90.9	99.0	101.3	110.8	130.1	12.2	14.7
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-10 5/	90.9	99.4	108.0	117.8	137.9	12.9	15.5
B5. Combination of B1-B4 using one-half standard deviation shocks	90.9	119.4	156.2	171.6	201.2	18.8	22.1
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 6/	90.9	135.6	101.6	108.6	127.6	12.0	14.6
				Debt service-to-exports ratio			
Baseline	7.7	7.1	6.7	6.6	6.1	0.8	0.1
A. Alternative Scenarios							
A1. No oil exports 2/	7.7	12.7	12.2	14.2	13.8	13.9	36.8
A2. New public sector loans on less favorable terms in 2009-26 3/	7.7	7.0	6.7	6.9	6.2	0.7	0.1
B. Bound Tests							
B1. Real GDP growth at historical average minus one standard deviation in 2009-10	7.7	7.3	6.7	6.6	6.1	0.8	0.1
B2. Export value growth at historical average minus one standard deviation in 2009-10 4/	7.7	10.0	13.3	13.8	13.4	1.8	0.9
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-10	7.7	7.4	6.7	6.6	6.1	0.8	0.1
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-10 5/	7.7	7.1	8.5	10.5	10.2	1.2	1.8
B5. Combination of B1-B4 using one-half standard deviation shocks	7.7	8.9	10.1	10.0	9.5	1.3	0.3
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 6/	7.7	10.0	6.6	6.6	6.0	0.8	0.1
Memorandum item:							
Grant element assumed on residual financing (i.e., financing required above baseline) 7/	53.5	51.2	49.4	47.5	45.5	38.9	31.6

Source: World Bank and IMF staff projections.

1/ By the year 2023 real GDP growth slows down significantly due to the projected decline in petroleum production.
2/ Variables include real GDP growth, growth of GDP deflator (U.S. dollar terms), non-interest current account in percent of GDP, and non-debt creating flows.

3/ 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.
4/ 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).
5/ Includes official and private transfers and FDI.
6/ Depreciation is defined as percentage decline in dollar/local currency rate, such that it never exceeds 100 percent.
7/ Based on historical level of concessionality. Applies to all stress scenarios except for A2 (less favorable financing) in which the terms on all new financing are as specified in footnote 2.