INTERNATIONAL DEVELOPMENT ASSOCIATION
INTERNATIONAL MONETARY FUND

DEMOCRATIC REPUBLIC OF SÃO TOMÉ AND PRÍNCIPE

Joint Bank-Fund Debt Sustainability Analysis[1]

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

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***São Tomé and Príncipe's risk of debt distress is high**.[2] Compared to the previous DSA, the overall assessment of debt distress is unchanged. Under the baseline scenario, the debt burden prior to the oil era continues to be very heavy. The present value of debt to exports ratio remains in breach of the indicative threshold, and the present value of debt to GDP ratio will surpass its threshold from 2011 until oil comes on stream. These indicators deteriorate significantly under more adverse borrowing terms, weaker-than expected export performance, or a combination growth and fiscal shock. Uncertainties surrounding the outlook for oil production underscore the importance of reversing the recent deterioration of the fiscal position. Under a nonoil scenario, reaching a sustainable debt level would require an additional fiscal adjustment equivalent to 2.3 percent of GDP per year over the projection horizon. This also calls for (i) improving public financial and debt management; (ii) financing solely on the basis of grants and highly concessional borrowing; and (iii) developing a comprehensive strategy to reduce the cost of doing business, attract investment, and broaden the export base.*

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[1] The DSA was prepared by World Bank and IMF staffs in collaboration with the Saotomean authorities. The analysis updates the previous Joint DSA dated February 18, 2009 (EBS/09/21 Supp. 1). The DSA follows the IMF and World Bank Staff Guidance Note on the Application of the Joint Fund-Bank Debt Sustainability Framework for Low-Income Countries (January 22, 2010).

[2] São Tomé and Príncipe is classified as a "Weak Performer" according to the three-year average of IDA's Country Policy and Institutional Assessment (CPIA) index (2.96). Under the joint IDA/IMF debt sustainability framework, the thresholds for "Weak Performer" are: 30 percent for the present value of debt-to-GDP ratio, 100 percent for present value of debt-to-exports ratio, 15 percent for the debt service-to-exports ratio, 200 percent for present value of debt-to-revenue ratio, and 25 percent of debt service-to-revenue ratio excluding grants.

I. BACKGROUND

1. **São Tomé and Príncipe (STP) reached the completion point under the enhanced HIPC Initiative in March 2007, received topping-up assistance in December 2007, and benefited from HIPC/MDRI debt relief**. As a result, the debt service-to-exports ratio declined to 12.9 percent in 2010 from 24.5 percent in 2007 (Table 2a). MDRI, in particular, brought substantial debt service savings, since 54 percent of total debt before the HIPC completion point was with IDA, AfDF, and IMF. Debt relief from Paris Club members also helped improve the country's debt profile as it represented 14 percent of total debt before the completion point.

2. **STP's medium- and long-term external debt was estimated at $124.9 million in nominal terms as of May 2010 (Table 1).** Total public sector debt is only composed of debt contracted or guaranteed by the central government, and there is currently no SOE debt. The debt burden has increased from $107 million at the end of 2008, but remains significantly below the pre-debt relief high of $360 million at the end of 2006. Debt composition has shifted after the HIPC completion point. The share of multilateral debt declined from nearly 59 percent before the completion point to 30 percent. At the end of 2009, Angola was the country's main bilateral creditor, accounting for approximately 28 percent of outstanding external debt. The main multilateral creditor is the IDA.

Table 1. Estimated outstanding external debt (as of May 2010) 1/

	Million USD	Share
Multilateral Creditors	37	30%
IDA	13.7	11%
African Development Bank	2.2	2%
Arab Bank for Economic Development in Africa (BADEA)	4.2	3%
IMF	4.4	4%
OPEC	4.7	4%
Others	7.8	6%
Bilateral Creditors	87.9	70%
Angola	35.4	28%
Brazil	5	4%
China	17.1	14%
Nigeria	10	8%
Portugal	10.3	8%
Others	10.1	8%
Total	124.9	

Sources: Country authorities and IMF staff estimates
1/ Debt to other bilateral creditors includes debt in dispute.

3. **To implement the terms of the May 2007 Agreed Minute, the authorities signed bilateral agreements with all its Paris Club creditors, except Russia, with whom agreement has been reached but the bilateral agreement has not been signed yet.**[3] In July 2008, STP received debt relief from Portugal, its main non-Paris Club creditor at the time. Efforts are underway to conclude additional debt relief with the rest of non-Paris club creditors, initially focusing on Angola, the current largest creditor.[4]

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[3] The signing of the agreement has been delayed due to the Russian authorities' request that an official signing ceremony take place in Moscow.

[4] It is assumed that bilateral creditors with which STP is engaged in negotiations will provide debt relief on terms comparable to those of the Paris Club. Currently, the country does not service bilateral debt under negotiation and has accumulated technical arrears in the amount of $52.6 million.

II. Underlying Assumptions

4. **The medium-term macroeconomic framework foresees a subdued recovery from the global economic crisis, with annual output growth projected to return slowly to 6 percent (the historic norm) by 2012** (Box 1). The main drivers of growth are expected to be construction, tourism, and agriculture. These growth areas are supported by the public investment program, which will continue to focus on investments in transportation and telecommunication, public administration, and health. The DSA assumes continued macroeconomic stability over the medium-term.

5. **The fiscal outturn for 2009 was weaker than expected, calling for a substantial near-term fiscal adjustment to return to fiscal sustainability.** In 2009, the domestic primary deficit rose to 8.2 percent of GDP, largely due to underperformance on revenue and excess current expenditure. In 2010, measures to return to fiscal sustainability include cutting discretionary spending, tighter expenditure controls, and consolidating current revenue mobilization reforms. In the medium term, the domestic primary deficit will be wider relative to the previous forecast, financed through a faster draw down of the privatization account and additional concessional borrowing. Revenues will experience a boost in 2011 due to an expected oil signature bonus (equivalent to 12 percent of GDP). Ongoing efforts to boost domestic revenues include measures to broaden the tax base and strengthen the enforcement of tax laws.

6. **The current DSA assumes the same level of external financing as under the previous Joint DSA, but assumes higher loan concessionality.** The DSA assumes that the average grant element of new disbursements is 50 percent through the medium term, in line with the current IMF program, but the grant element would fall thereafter to 35 percent reflecting increasing capacity to borrow on less concessional terms. No financing from future privatization operations, no commercial loans, no domestic borrowing, and no short-term loans are assumed throughout the period.

7. **The baseline scenario retains the same petroleum assumptions applied under the previous Joint DSA.** A production and export of 13,000 barrels per day is assumed to commence in 2015 in the Joint Development Zone (JDZ) shared with Nigeria. This is expected to yield $349 million in exports earning on average, 40 percent of which ($197 million) will belong to São Tomé and Príncipe. In accordance with the Oil Revenue Management Law (ORML), these petroleum revenues will be accumulated in a National Oil Account (NOA) from which resources will finance the annual budget.

8. **The main risk to the macroeconomic framework arises from uncertainty about the prospects for oil.** For illustrative purposes, the DSA expands the analysis under the alternative non-oil scenario to assess the adjustment that would be needed to achieve a

sustainable debt outlook. The details of the alternative medium- to long-term assumptions are described in Box 2.

Box 1. Baseline Macroeconomic Assumptions
(Oil exports projected from 2015)

Real GDP growth: The rebound in output growth is expected to be subdued, rising from 4 percent in 2009 toward the historical trend of 6 percent in 2012, consistent with a slow pickup in public investment. Growth surges to over 20 percent of GDP as oil production commences, and then gradually declines to around 5 percent per year at the end of the projection horizon.

Inflation: Average annual inflation is projected to steadily decline from 17 percent in 2009, to 5 percent in 2012, and further to around 3 percent by 2014. The path reflects fiscal tightening and the recently introduced peg of the dobra against the euro, which went into effect in January 2010. It is assumed to remain at that level over the longer-term.

Current account balance: Initially, the non-interest current account deficit is expected to rise due to an increase in imports associated with oil-related investment projects. Once oil exports start, the current account deficit will decline sharply, but deteriorate over the longer-term as oil production levels off and the non-oil economy becomes the key driver of growth.

Government balance: The domestic primary deficit is projected to reduce to 4.7 percent of GDP in 2010 and continue to decline in the medium-term, in line with the aim of mobilizing sufficient revenues to cover recurrent spending. Once oil production starts, the overall fiscal balance will average around 6 percent of GDP over the longer-term, while the non-oil domestic primary deficit will fall gradually over time to 2 percent of GDP.

Financing Flows: In the medium term, STP is projected to receive an average of 13 percent of GDP in grants a year, and contract highly concessional loans amounting to 8 percent of GDP per year to finance investment. FDI is projected to average 13 percent of GDP per annum, reflecting investment in tourism and a large oil signature bonus in 2011. In the oil era, FDI increases substantially to finance oil-related capital investments, and both grants and concessional assistance decline substantially over time as oil income becomes available to finance development needs.

Domestic Borrowing: No domestic borrowing is envisaged.

III. External Debt Sustainability Analysis[5]

A. Baseline

9. **The baseline scenario indicates a deterioration of the pre-oil debt outlook relative to the previous DSA**. The forecasted 2009 GDP growth slowdown had a larger-than-expected impact on tax revenue, which contributed to the widening of the primary deficit. Furthermore, shortfalls in grants prompted the authorities to contract highly concessional financing totaling $29 million from various sources.[6] Going forward, the projection of a less favorable medium-term outlook implies weaker domestic revenue prospects, which will be partly offset by further highly concessional borrowing during 2010-11 on the order of 8.3 percent of GDP in present value terms to finance the public investment program.[7] This new borrowing will drive the PV of the debt-to-GDP ratio above the policy-dependent threshold in 2011, remaining in breach until oil comes on stream. Also, due to the very small export base, the PV of debt-to-exports ratio will remain in breach of its policy-dependent threshold and debt service-to-exports are rather sizeable and close to the threshold over the medium term. The external debt indicators improve dramatically with oil.

Table 2. Sao Tome and Principe Debt Indicators, end 2009

	Projected 1/	Actual
External Debt (nominal)	35.6	46.0
PV of eexternal debt	14.1	18.9
In % of exports	126.4	174.7
In % of government revenues	74.2	111.0

1/ As projected under previous DSA, EBS/10/22; Supp. 1

B. Stress Tests and Alternative Scenarios

10. **Stress tests show that the country remains vulnerable to shocks in the pre-oil era, particularly less favorable borrowing terms, weaker-than-expected export growth, and a combination of a growth shock and a fiscal deterioration.** Oil would provide a buffer against shocks, although a deterioration of borrowing terms would lead to a sustained breach of the debt-to-GDP ratio, peaking at 45 percent of GDP in 2014. The country’s debt service-

[5] See Figure 1 and Tables 2a and 2b for the external debt sustainability analysis.

[6] During 2009, highly concessional financing sources included Angola ($10 million), Brazil ($5 million), and Portugal ($10.3 million).

[7] Disbursements are expected from Nigeria ($10 million), Portugal ($13 million), and a range of multilateral institutions (totaling $6 million).

to-exports ratio would remain contained under this scenario, rising to just 14 percent, as grace periods for highly concessional borrowing early in the period expire.[8]

11. **In view of the uncertainty about oil prospects, the updated DSA includes an alternative non-oil scenario (see Box 2).**[9] Under a non-oil scenario and in the absence of policy adjustment, fiscal deficits would be financed through highly concessional borrowing. Breaches would occur throughout the projection period, as the debt-to-GDP ratio steadily climbs to 68 percent, and the debt-to-exports ratio to 514 percent. An adjustment to correct the debt-to-exports ratio is difficult given the narrow export base. However, redressing the breach of the debt-to-GDP threshold over the longer-term would require a sustained fiscal adjustment equivalent to 2.3 percent of GDP, as this would reduce the borrowing requirement. Under that scenario, the breach of the debt-to-GDP ratio would peak at 32.3 percent in 2012, and fall back below the threshold by 2018.

Box 2. Macroeconomic Assumptions under the Alternative Non-Oil Scenario with Adjustment

Real GDP growth: Over the long-term, strong macroeconomic policies, measures to enhance the business climate, and successful implementation of a tourism development strategy would sustain growth at around 5.5 to 6 percent of GDP over the projection horizon. Investment will be supported by grant inflows, which will remain around historical levels (13 percent of GDP) in the absence of oil.

Current account balance: The projected non-interest current account deficit would decline from around 35 percent of GDP to a medium-term level of 30 percent, reflecting a decline in imports.

Government balance: Relative to a non-oil scenario without any fiscal response, a sustainable debt path requires a fiscal adjustment on average of 2.3 percent of GDP per year over the projection horizon. To minimize the impact on growth, the adjustment would come through measures to enhance revenue mobilization (i.e. broaden the tax base by consolidating tax revenue reforms) and reduce non-essential current expenditures, including a better prioritization of capital expenditure and a reduction of debt service and transfers.

Financing Flows: Concessional borrowing would decline from unsustainably high levels in 2009-10 of around 14 percent of GDP to the historical norm of 3 percent of GDP, beginning with a sharp reduction in 2011. All borrowing through the long-term will occur on highly concessional terms. Grant financing is expected to remain around historical norms, but additional grant mobilization could mitigate the impact of lower borrowing for capital investment. FDI flows will subside toward 5 percent of GDP, consistent with the average for Sub-Saharan African countries. [10]

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[8] The historical alternative scenario has been omitted from Figure 1 due to recent structural breaks in STP's macroeconomic indicators associated with oil bonuses and privatization receipts. The results of the historical scenario appear in Table 2b for illustrative purposes.

[9] STP is vulnerable to a 'high investment, long growth scenario' under the baseline assumption. The non-oil alternative scenario captures this risk by modeling lower long-term growth than under the baseline.

[10] This scenario continues to assume receipt of an oil signature bonus in 2011 of $26 million, reflecting continuing interest in exploration efforts.

IV. FISCAL DEBT SUSTAINABILITY ANALYSIS [11]

12. **The public debt stress tests show that debt indicators are more vulnerable to the deterioration of primary balances than to economic growth.** As under the external historical scenario, the historical scenario for the fiscal debt sustainability analysis is also based on fiscal indicators for the last four years. Under such conditions, the debt outlook worsens markedly. STP is not projected to issue domestic debt in the baseline scenario. The fiscal and external DSA produce similar conclusions because the government is the main borrower among domestic residents.

V. CONCLUSIONS AND THE AUTHORITIES' VIEWS

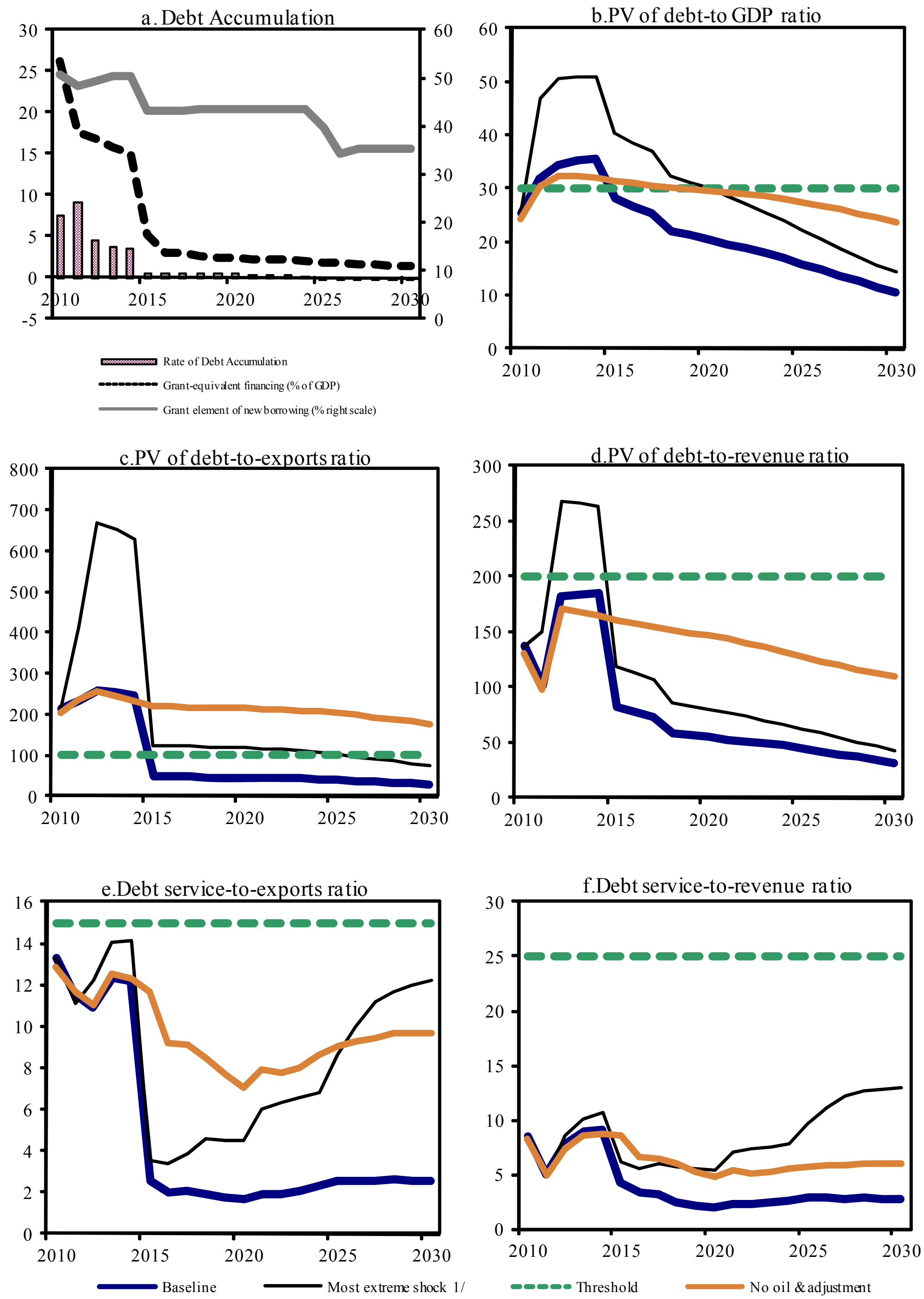
13. **The DSA confirms the previous DSA conclusion that classified São Tomé and Príncipe at a high risk of debt distress.** The authorities will need to monitor the adequacy of fiscal adjustment under a non-oil scenario to ensure that long-term debt sustainability is not compromised. In this context, the DSA underlines the need for measures to mitigate risks:

- strengthen the fiscal position such that recurrent expenditures are covered by domestic resources;
- accelerate reforms to improve policy and institutional performance to enhance the growth potential of the country;
- ensure favorable financing terms from creditors in the form of grants or highly concessional borrowing; and
- develop a comprehensive strategy to reduce the cost of doing business and attract investment that can broaden the export base.

14. **The authorities broadly agreed with the key macroeconomic assumptions and the analysis underpinning the joint debt sustainability analysis**. The authorities remain guardedly optimistic about the prospects for future oil exploitation, but welcomed the discussion of a non-oil scenario. While acknowledging that STP remains at risk of falling back into debt distress, they stressed that supporting growth and diversification required mobilizing sufficient resources to implement the public investment program, which may require highly-concessional borrowing to the extent that other financing is not available. The authorities also expressed interest in additional technical assistance to improve debt management capacity, in line with the DEMPA recommendations carried out by the Bank.

[11] See Figure 2 and Tables 3a and 3b for the fiscal debt sustainability analysis.

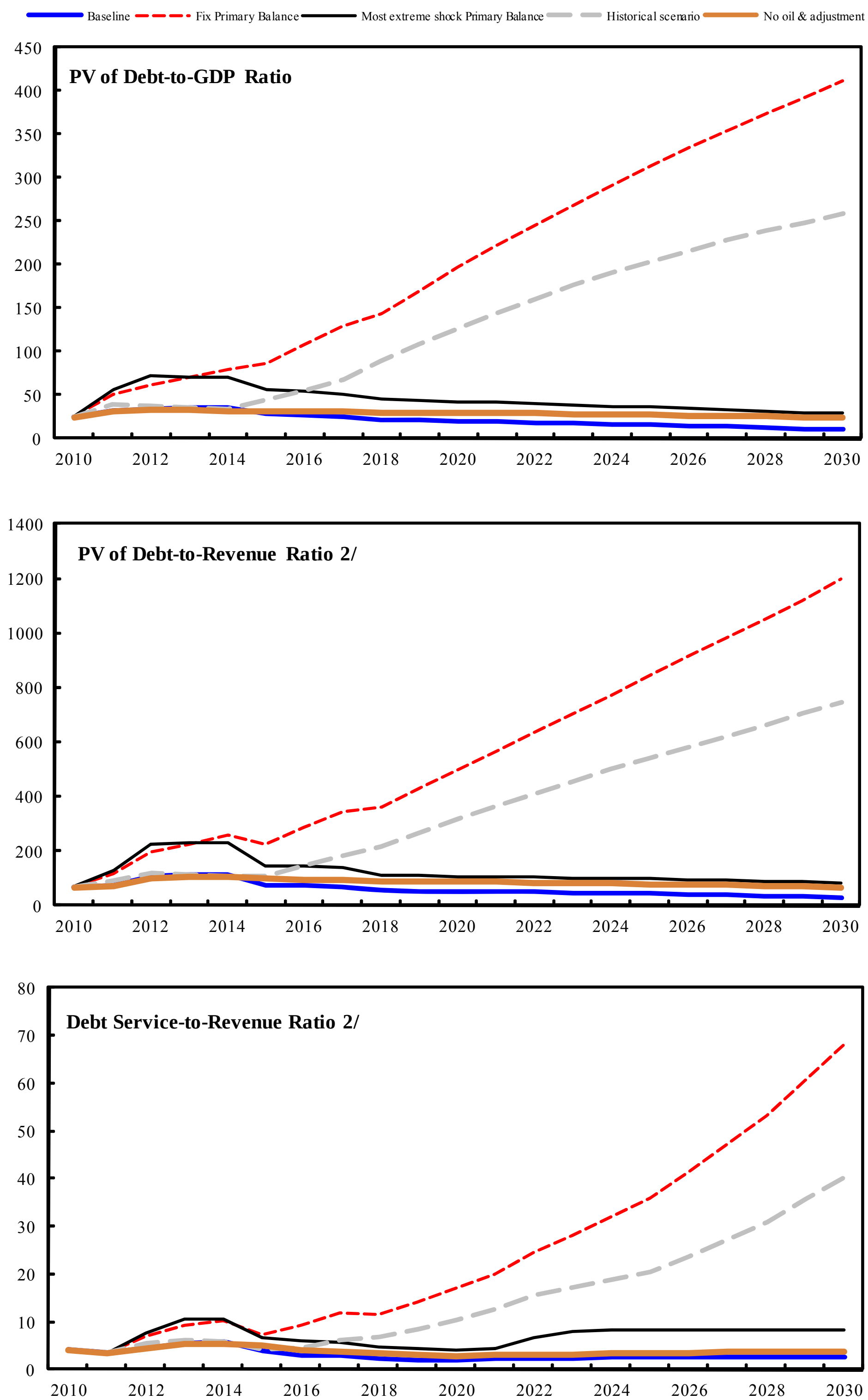
Figure 1. Sao Tome and Principe: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2010-2030 1/



Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2020. In figure b. it corresponds to a Non-debt flows shock; in c. to a Exports shock; in d. to a Non-debt flows shock; in e. to a Terms shock and in figure f. to a Terms shock

Figure 2. Sao Tome and Principe: Indicators of Public Debt Under Alternative Scenarios, 2010-2030 1/



Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2020.

2/ Revenues are defined inclusive of grants.

Table 2a. São Tomé and Príncipe: External Debt Sustainability Framework, Baseline Scenario, 2007-2030 1/
(In percent of GDP, unless otherwise indicated)

	Actual			Historical Average	0 Standard 0 Deviation	Projections									
	2007	2008	2009			2010	2011	2012	2013	2014	2015	2010-2015 Average	2020	2030	2016-2030 Average
External debt (nominal) 1/	**108.5**	**65.6**	**46.0**			**56.8**	**60.0**	**64.2**	**65.5**	**66.2**	**51.2**		**34.2**	**15.5**	
o/w public and publicly guaranteed (PPG)	108.5	65.6	46.0			56.8	60.0	64.2	65.5	66.2	51.2		34.2	15.5	
Change in external debt	-191.8	-42.9	-19.6			10.8	3.2	4.2	1.3	0.7	-15.0		-2.0	-1.6	
Identified net debt-creating flows	-59.6	-12.3	15.2			18.5	11.5	21.1	20.2	19.5	-14.1		-7.2	-3.0	
Non-interest current account deficit	**17.5**	**37.0**	**27.6**	**14.4**	**19.2**	**31.2**	**36.1**	**32.6**	**31.3**	**30.0**	**34.2**		**13.9**	**14.4**	16.5
Deficit in balance of goods and services	53.9	54.4	46.7			54.4	53.7	49.8	47.6	45.3	12.6		5.1	13.9	
Exports	9.2	11.4	10.8			11.8	13.6	13.3	13.8	14.5	58.1		45.0	35.3	
Imports	63.1	65.8	57.5			66.2	67.4	63.1	61.4	59.8	70.6		50.2	49.3	
Net current transfers (negative = inflow)	-12.0	-15.0	-17.8	-21.2	5.4	-22.1	-16.6	-15.7	-14.8	-13.9	-6.8		-3.2	-2.1	-2.9
o/w official	-10.7	-13.3	-16.2			-20.5	-15.1	-14.4	-13.4	-12.7	-5.8		-2.5	-1.6	
Other current account flows (negative = net inflow)	-24.3	-2.4	-1.3			-1.1	-1.0	-1.5	-1.5	-1.4	28.4		12.0	2.6	
Net FDI (negative = inflow)	**-36.2**	**-31.0**	**-7.2**	**-16.5**	**16.6**	**-10.3**	**-21.4**	**-8.3**	**-7.6**	**-7.0**	**-34.4**		**-19.5**	**-16.8**	-20.3
Endogenous debt dynamics 2/	**-40.9**	**-18.3**	**-5.2**			**-2.3**	**-3.2**	**-3.2**	**-3.5**	**-3.5**	**-13.9**		**-1.6**	**-0.7**	
Contribution from nominal interest rate	0.5	0.1	0.2			-0.2	-0.2	0.0	0.1	0.1	0.1		0.1	0.1	
Contribution from real GDP growth	-15.5	-5.2	-2.4			-2.0	-3.0	-3.2	-3.6	-3.6	-14.1		-1.7	-0.8	
Contribution from price and exchange rate changes	-25.9	-13.2	-3.0			…	…	…	…	…	…		…	…	
Residual (3-4) 3/	**-132.2**	**-30.5**	**-34.9**			**-7.7**	**-8.3**	**-16.9**	**-18.8**	**-18.8**	**-0.9**		**5.2**	**1.5**	
o/w exceptional financing	-111.9	-19.9	-27.7			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
PV of external debt 4/	...	...	19.6			25.3	31.8	34.4	35.2	35.7	28.0		20.5	10.6	
In percent of exports	...	...	181.1			213.7	233.8	259.2	254.3	246.1	48.2		45.5	29.9	
PV of PPG external debt	**...**	**...**	**19.6**			**25.3**	**31.8**	**34.4**	**35.2**	**35.7**	**28.0**		**20.5**	**10.6**	
In percent of exports	**...**	**...**	**181.1**			**213.7**	**233.8**	**259.2**	**254.3**	**246.1**	**48.2**		**45.5**	**29.9**	
In percent of government revenues	**...**	**...**	**115.1**			**136.6**	**101.8**	**181.4**	**183.6**	**184.4**	**82.5**		**54.5**	**31.9**	
Debt service-to-exports ratio (in percent)	**24.5**	**5.5**	**7.9**			**13.3**	**11.5**	**10.9**	**12.3**	**12.2**	**2.5**		**1.7**	**2.6**	
PPG debt service-to-exports ratio (in percent)	**24.5**	**5.5**	**7.9**			**13.3**	**11.5**	**10.9**	**12.3**	**12.2**	**2.5**		**1.7**	**2.6**	
PPG debt service-to-revenue ratio (in percent)	**5.6**	**3.6**	**5.0**			**8.5**	**5.0**	**7.7**	**8.9**	**9.1**	**4.3**		**2.0**	**2.7**	
Total gross financing need (Billions of U.S. dollars)	0.0	0.0	0.0			0.0	0.0	0.1	0.1	0.1	0.0		0.0	0.0	
Non-interest current account deficit that stabilizes debt ratio	209.3	79.8	47.2			20.3	32.9	28.4	30.0	29.3	49.2		15.9	16.0	
Key macroeconomic assumptions															
Real GDP growth (in percent)	6.0	5.8	4.0	5.5	2.9	4.5	5.5	6.0	6.0	6.0	27.3	9.2	5.1	4.7	5.8
GDP deflator in US dollar terms (change in percent)	9.4	13.9	4.7	3.8	5.1	-3.0	-1.3	6.7	1.5	1.6	1.0	1.1	1.2	1.2	1.2
Effective interest rate (percent) 5/	0.2	0.1	0.3	0.7	0.4	-0.5	-0.3	0.0	0.2	0.2	0.3	0.0	0.3	0.4	0.4
Growth of exports of G&S (US dollar terms, in percent)	-22.0	49.7	3.1	3.3	25.6	10.9	19.8	10.1	12.2	12.9	414.9	80.2	3.4	3.8	3.5
Growth of imports of G&S (US dollar terms, in percent)	4.0	25.7	-4.8	11.5	14.7	16.7	6.0	6.0	4.7	5.0	51.8	15.0	5.8	6.5	4.6
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	50.6	48.5	49.4	50.3	50.3	43.3	48.7	43.5	35.4	40.5
Government revenues (excluding grants, in percent of GDP)	40.1	17.7	17.0			18.5	31.3	18.9	19.2	19.4	33.9		37.6	33.1	35.6
Aid flows (in Billions of US dollars) 7/	0.0	0.0	0.1			0.064	0.040	0.043	0.044	0.049	0.020		0.014	0.014	
o/w Grants	0.0	0.0	0.0			0.035	0.026	0.029	0.029	0.030	0.016		0.010	0.012	
o/w Concessional loans	0.0	0.0	0.0			0.029	0.013	0.015	0.015	0.019	0.004		0.004	0.002	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			26.2	17.6	16.8	15.7	15.0	5.2		2.3	1.3	2.1
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			76.4	78.5	79.9	80.5	80.5	88.6		84.0	90.1	86.4
Memorandum items:															
Nominal GDP (Billions of US dollars)	0.1	0.2	0.2			0.2	0.2	0.2	0.2	0.3	0.3		0.5	0.9	
Nominal dollar GDP growth	16.0	20.5	8.9			1.3	4.2	13.1	7.5	7.7	28.6	10.4	6.4	5.9	7.0
PV of PPG external debt (in Billions of US dollars)			0.036			0.050	0.068	0.077	0.085	0.094	0.095		0.1	0.1	
(PVt-PVt-1)/GDPt-1 (in percent)						**7.4**	**9.2**	4.5	3.6	3.4	0.4	4.8	0.5	-0.3	0.1
Gross remittances (Billions of US dollars)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
PV of PPG external debt (in percent of GDP + remittances)	...	...	19.3			24.9	31.3	33.9	34.7	35.2	27.7		20.3	10.5	
PV of PPG external debt (in percent of exports + remittances)	...	...	157.9			188.5	210.0	234.5	232.2	226.5	47.4		44.8	29.5	
Debt service of PPG external debt (in percent of exports + remittances)	...	...	6.9			11.7	10.4	9.9	11.3	11.2	2.5		1.6	2.5	

Sources: Country authorities; and staff estimates and projections.

1/ Includes both public and private sector external debt.
2/ Derived as [r - g - ρ(1+g)]/(1+g+ρ+gρ) 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., ; gross foreign assets; and valuation adjustments. For projections also includes contribution from price and exchange rate changes and private capital flows.
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. Concessional debt is defined as debt having of grant element of at least 50 percent.
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 2b Sao Tome and Principe: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2010-2030
(In percent)

	Projections							
	2010	2011	2012	2013	2014	2015	**2020**	2030
PV of debt-to GDP ratio								
Baseline	25	32	34	35	36	28	**20**	11
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2010-2030 1/	25	22	9	0	0	0	**0**	6
A2. New public sector loans on less favorable terms in 2010-2030 2	25	37	39	42	45	36	**28**	17
A3. No Oil Production, w. Fiscal Adjustment	24	30	32	32	32	31	**30**	24
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	25	35	36	37	38	30	**22**	11
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	25	37	41	41	42	33	**24**	12
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	25	34	37	38	38	30	**22**	11
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/	25	47	51	51	51	40	**30**	14
B5. Combination of B1-B4 using one-half standard deviation shocks	25	42	46	47	47	37	**28**	14
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	25	49	49	50	51	40	**29**	15
PV of debt-to-exports ratio								
Baseline	214	234	259	254	246	48	**46**	30
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2010-2030 1/	214	165	67	0	0	0	**0**	17
A2. New public sector loans on less favorable terms in 2010-2030 2	220	315	353	358	355	115	**243**	279
A3. No Oil Production, w. Fiscal Adjustment	205	234	255	245	231	220	**214**	177
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	214	248	255	252	245	48	**45**	30
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	214	415	670	654	630	124	**118**	75
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	214	248	255	252	245	48	**45**	30
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/	214	344	382	369	352	70	**67**	40
B5. Combination of B1-B4 using one-half standard deviation shocks	214	410	533	517	497	98	**94**	58
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	214	248	255	252	245	48	**45**	30
PV of debt-to-revenue ratio								
Baseline	137	102	181	184	184	82	**55**	32
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2010-2030 1/	137	117	207	222	234	106	**74**	52
A2. New public sector loans on less favorable terms in 2010-2030 2	141	137	247	259	266	197	**290**	297
A3. No Oil Production, w. Fiscal Adjustment	131	97	170	168	165	161	**147**	110
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	137	111	190	193	195	87	**58**	34
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	137	117	215	216	216	97	**65**	36
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	137	108	193	197	198	89	**59**	34
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/	137	150	268	266	264	119	**80**	43
B5. Combination of B1-B4 using one-half standard deviation shocks	137	133	245	246	245	110	**74**	41
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	137	155	257	261	263	118	**78**	46

Sources: Country authorities; and staff estimates and projections.

1/ Variables include real GDP growth, growth of GDP deflator (in U.S. dollar terms), non-interest current account in percent of GDP, and non-debt creating flows.
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 A2 (less favorable financing) in which the terms on all new financing are as specified in footnote 2.

Table 2b cont. Sao Tome and Principe: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2010-2030
(In percent)

	Projections							
	2010	2011	2012	2013	2014	2015	**2020**	2030
Debt service-to-exports ratio								
Baseline	13	12	11	12	12	3	**2**	3
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2010-2030 1/	13	11	10	10	8	2	**1**	0
A2. New public sector loans on less favorable terms in 2010-2030 2	13	11	12	14	14	4	**4**	12
A3. No Oil Production, w. Fiscal Adjustment	13	12	11	13	12	12	**7**	10
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	13	12	11	12	12	3	**2**	3
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	13	18	25	28	28	6	**4**	7
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	13	12	11	12	12	3	**2**	3
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/	13	12	12	14	14	3	**2**	4
B5. Combination of B1-B4 using one-half standard deviation shocks	13	15	19	21	21	4	**3**	5
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	13	12	11	12	12	3	**2**	3
Debt service-to-revenue ratio								
Baseline	9	5	8	9	9	4	**2**	3
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2010-2030 1/	9	5	7	7	6	3	**1**	0
A2. New public sector loans on less favorable terms in 2010-2030 2	9	5	9	10	11	6	**5**	13
A3. No Oil Production, w. Fiscal Adjustment	8	5	7	9	9	9	**5**	6
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	9	5	8	9	10	5	**2**	3
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	9	5	8	9	10	4	**2**	3
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	9	5	8	10	10	5	**2**	3
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/	9	5	9	10	10	5	**2**	4
B5. Combination of B1-B4 using one-half standard deviation shocks	9	5	9	10	10	5	**2**	4
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	9	7	11	13	13	6	**3**	4
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5

Sources: Country authorities; and staff estimates and projections.

1/ Variables include real GDP growth, growth of GDP deflator (in U.S. dollar terms), non-interest current account in percent of GDP, and non-debt creating flows.
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 A2 (less favorable financing) in which the terms on all new financing are as specified in footnote 2.

Table 3a. São Tomé and Príncipe: Public Sector Debt Sustainability Framework, Baseline Scenario, 2007-2030

(in percent of GDP, unless otherwise indicated)

	Actual			Average	Standard Deviation	Estimate	Projections								
	2007	2008	2009			2010	2011	2012	2013	2014	2015	2010-15 Average	2020	2030	2016-30 Average
Public sector debt 1/	108.5	65.6	46.0			56.8	60.0	64.2	65.5	66.2	51.2		34.2	15.5	
o/w foreign-currency denominated	108.5	65.6	46.0			56.8	60.0	64.2	65.5	66.2	51.2		34.2	15.5	
Change in public sector debt	-191.8	-42.9	-19.6			10.8	3.2	4.2	1.3	0.7	-15.0		-2.0	-1.6	
Identified debt-creating flows	-165.8	-34.5	-13.4			14.8	-5.5	7.6	4.8	4.2	-19.5		-13.7	-9.2	
Primary deficit	-8.7	5.3	21.1	6.3	16.8	18.3	-1.4	10.4	9.5	9.1	-4.8	6.8	-11.6	-8.3	-9.7
Revenue and grants	48.1	27.5	29.7			36.4	44.3	31.6	31.1	30.6	38.6		39.6	34.4	
of which: grants	8.0	9.9	12.7			17.9	13.1	12.7	11.9	11.3	4.7		2.0	1.2	
Primary (noninterest) expenditure	39.4	32.8	50.8			54.7	42.9	42.0	40.5	39.7	33.8		28.0	26.1	
Automatic debt dynamics	-39.3	-19.1	-5.8			-3.5	-4.1	-2.9	-4.7	-4.8	-14.7		-2.1	-0.9	
Contribution from interest rate/growth differential	-24.4	-8.0	-3.1			-2.6	-4.0	-4.5	-4.7	-4.8	-15.1		-2.5	-1.1	
of which: contribution from average real interest rate	-7.4	-2.0	-0.5			-0.7	-1.0	-1.1	-1.1	-1.0	-0.9		-0.7	-0.3	
of which: contribution from real GDP growth	-17.0	-5.9	-2.5			-2.0	-3.0	-3.4	-3.6	-3.7	-14.2		-1.8	-0.8	
Contribution from real exchange rate depreciation	-14.9	-11.1	-2.8			-0.9	-0.1	1.6	0.0	-0.1	0.3		...	...	
Other identified debt-creating flows	-117.9	-20.8	-28.6			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 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)	-117.9	-20.8	-28.6			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 6/	-26.0	-8.4	-6.3			-3.9	8.7	-3.4	-3.5	-3.5	4.5		11.7	7.6	
Other Sustainability Indicators															
PV of public sector debt	0.0	0.0	19.6			25.3	31.8	34.4	35.2	35.7	28.0		20.5	10.6	
o/w foreign-currency denominated	0.0	0.0	19.6			25.3	31.8	34.4	35.2	35.7	28.0		20.5	10.6	
o/w external	...	...	19.6			25.3	31.8	34.4	35.2	35.7	28.0		20.5	10.6	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	-6.4	6.0	21.9			19.9	0.1	11.9	11.2	10.8	-3.3		-10.9	-7.4	
PV of public sector debt-to-revenue and grants ratio (in percent)	0.0	0.0	66.0			69.4	71.8	108.7	113.3	116.5	72.5		51.8	30.7	
PV of public sector debt-to-revenue ratio (in percent)	0.0	0.0	115.1			136.6	101.8	181.4	183.6	184.4	82.5		54.5	31.9	
o/w external 3/	…	…	115.1			136.6	101.8	181.4	183.6	184.4	82.5		54.5	31.9	
Debt service-to-revenue and grants ratio (in percent) 4/	4.7	2.3	2.9			4.3	3.5	4.6	5.5	5.8	3.8		1.9	2.6	
Debt service-to-revenue ratio (in percent) 4/	5.6	3.6	5.0			8.5	5.0	7.7	8.9	9.1	4.3		2.0	2.7	
Primary deficit that stabilizes the debt-to-GDP ratio	183.1	48.2	40.7			7.5	-4.7	6.2	8.2	8.4	10.2		-9.6	-6.7	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	6.0	5.8	4.0	5.5	2.9	4.5	5.5	6.0	6.0	6.0	27.3	9.2	5.1	4.7	5.8
Average nominal interest rate on forex debt (in percent)	0.2	0.1	0.3	0.7	0.4	-0.5	-0.3	0.0	0.2	0.2	0.3	0.0	0.3	0.4	0.4
Average real interest rate on domestic debt (in percent)	...	...	...	…	…	...	...	...	...	...	...	…	...	...	…
Real exchange rate depreciation (in percent, + indicates depreciation)	-5.4	-11.0	-4.5	-2.1	7.2	-2.1	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	19.5	23.0	17.0	12.8	6.5	11.3	6.3	2.0	3.9	3.2	1.8	4.7	1.7	1.7	1.7
Growth of real primary spending (deflated by GDP deflator, in percent)	-0.1	-0.1	0.6	0.1	0.2	0.1	-0.2	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0
Grant element of new external borrowing (in percent)	...	...	...	…	…	50.6	48.5	49.4	50.3	50.3	43.3	48.7	43.5	35.4	...

Sources: Country authorities; and staff estimates and projections.

1/ Public sector, includes general government.There is no debt contrated by local governments or state owned-corporations.

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.

6/ Projected residual reflect flows not covered by the template, including National Oil Account and privatization funds.

Table 3b. São Tomé and Príncipe: Sensitivity Analysis for Key Indicators of Public Debt, 2010-2030

	Projections							
	2010	2011	2012	2013	2014	2015	2020	2030
PV of Debt-to-GDP Ratio								
Baseline	25	32	34	35	36	28	20	11
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	25	40	38	36	34	44	127	258
A2. Primary balance is unchanged from 2010	25	52	62	70	79	86	197	411
A3. No Oil & Adjustment 3/	24	30	32	32	32	31	30	24
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2011-2012	25	34	39	40	42	35	36	43
B2. Primary balance is at historical average minus one standard deviations in 2011-2012	25	56	71	71	70	56	43	29
B3. Combination of B1-B2 using one half standard deviation shocks	25	48	56	57	57	46	40	37
B4. One-time 30 percent real depreciation in 2011	25	43	44	43	42	33	26	17
B5. 10 percent of GDP increase in other debt-creating flows in 2011	25	42	44	45	45	35	26	15
PV of Debt-to-Revenue Ratio 2/								
Baseline	69	72	109	113	117	72	52	31
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	69	89	120	115	109	111	316	744
A2. Primary balance is unchanged from 2010	69	116	196	227	257	222	497	1196
A3. No Oil & Adjustment 3/	67	69	102	104	104	97	88	68
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2011-2012	69	75	119	127	134	90	92	125
B2. Primary balance is at historical average minus one standard deviations in 2011-2012	69	127	226	229	229	144	108	84
B3. Combination of B1-B2 using one half standard deviation shocks	69	109	174	180	184	119	102	108
B4. One-time 30 percent real depreciation in 2011	69	97	138	138	136	86	65	49
B5. 10 percent of GDP increase in other debt-creating flows in 2011	69	94	140	144	147	92	67	45
Debt Service-to-Revenue Ratio 2/								
Baseline	4	4	5	6	6	4	2	3
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	4	4	6	6	6	4	10	40
A2. Primary balance is unchanged from 2010	4	4	7	9	10	7	17	68
A3. No Oil & Adjustment 3/	4	3	4	5	6	5	3	4
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2011-2012	4	4	5	6	6	4	3	8
B2. Primary balance is at historical average minus one standard deviations in 2011-2012	4	4	8	11	11	7	4	8
B3. Combination of B1-B2 using one half standard deviation shocks	4	4	7	8	8	6	4	8
B4. One-time 30 percent real depreciation in 2011	4	4	7	8	9	6	3	5
B5. 10 percent of GDP increase in other debt-creating flows in 2011	4	4	6	7	7	5	2	4

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.

3/ Assumes no oil production in the long-term and sustained fiscal adjustment of 2.3 percent of GDP.