INTERNATIONAL MONETARY FUND
INTERNATIONAL DEVELOPMENT ASSOCIATION

DEMOCRATIC REPUBLIC OF SÃO TOMÉ AND PRÍNCIPE

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

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the International Monetary Fund

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February 12, 2009

Based on the Debt Sustainability Analysis (DSA) for Low-Income Countries (LIC), São Tomé and Príncipe (STP)'s risk of debt distress is high.[2] *Compared to the last DSA, the overall assessment of debt distress is unchanged, although the results show that the debt outlook is somewhat weaker in the baseline scenario before oil exports start because of new financing for investment. In fact, some debt indicators exceed the thresholds before the oil era starts. In addition, like in the previous DSA, in the absence of significant adjustment, the risk of debt distress dramatically increases in the scenario without oil production, which indicates that the country's debt outlook critically depends on the oil prospects.*

I. BACKGROUND

1. **The country 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**.[3] Consequently, the debt service-to-exports ratio is projected to decline to 5.1 percent in 2008 from 24.3 percent in 2007. MDRI, in particular, brought substantial debt service savings, since 54 percent of total debt before the HIPC completion

[1] This report has been produced jointly by Bank and Fund staffs in consultation with the African Development Bank. This report updates the DSA prepared for the 2008 Article IV Consultation and Sixth Review under the Poverty Reduction and Growth Facility (IMF Country Report No. 08/307, September 19, 2008).

[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. 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.

[3] The country benefited from MDRI on two occasions, one from the MDRI Trust and one from topping-up assistance.

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 $109 million in nominal terms at the end of October 2008, down from $150 million at the end of 2007 and $360 million at the end of 2006**. Debt composition was substantially changed after the HIPC completion point. The share of multilateral debt declined to 27 percent in late-2008 from around 60 percent before the completion point, while the share of bilateral debt rose to 73 percent from around 40 percent. At the end of October 2008, Angola was the country's main creditor, with 23 percent of total debt, followed by China with 16 percent. The main multilateral creditor is the IDA. STP has no domestic debt, no short-term debt, and no commercial loans.

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 discussions have started.** Meanwhile they have also expedited debt relief negotiations with non-Paris Club members. As a result, in July 2008, STP received debt relief from Portugal, which was the main non-Paris Club creditor at that time. Since then, they have concentrated their efforts on concluding negotiations with Angola, the main remaining creditor.

Table 1. Estimated outstanding external debt (as of October 2008) [1/]

	Million USD	Share
Multilateral creditors	29.6	27%
IDA	9.7	9%
African Development Bank	2.2	2%
Arab Bank for Economic Development in Africa (BADEA)	2.5	2%
IMF	3.9	4%
OPEC	6.2	6%
Others	5.1	5%
Bilateral creditors	79.4	73%
Angola	25.4	23%
China	17.3	16%
Others	36.7	34%
Total	109.0	100%

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

II. Medium-Term Macroeconomic Framework

4. **Macroeconomic assumptions were updated from the previous DSA, which was carried out in June 2008**. The revisions include, among others, the use of the latest oil price projections from the World Economic Outlook, which are lower than those used in June 2008; the new debt service and disbursement schedules including a new PRGF program; and new macroeconomic assumptions in line with the government's medium term objectives. Changes were also made to the oil production and investment assumptions reflecting lower expected production volume.

5. **Relative to the previous DSAs, significant revisions were made on the financing assumptions in line with the latest medium term government plan.** In the period 2009–2014, the government projects to contract concessional loans for $25–30 million a year from multilateral and bilateral creditors to finance an ambitious investment program, aimed at developing non-oil sectors and improving food security. The investment projects are expected to bring in growth dividends in the long term; in the near term, they will help offset

the negative impact of the global crisis. Implementing those projects will test the government's execution capacity. Once the country enters the oil era, it is expected to receive less concessional financing. The Fund is expected to provide a new PRGF loan of about US $4 million for the period of 2009–2011. No financing from privatization operations, no commercial loans, no domestic borrowing and no short-term loans are assumed throughout the period.[4]

6. **Real non-oil GDP growth is expected to reach 8 percent by 2013 led by foreign and domestic investment projects in the agriculture, services and construction sectors along with growing tourism industry prospects.** Once those sectors reach their expected steady state, real non-oil GDP growth should slow down gradually to a sustainable 5 percent per year. Meanwhile, total real GDP growth including oil export revenues is expected to jump by 20 percent in 2015 when oil exports start. It then gradually declines to a 4.5 percent and remains around that level for the rest of projection period.

7. **Oil production is expected to start in 2014 and oil exports to start in 2015 as assumed in the previous DSA**. It is assumed that the Joint Development Zone (JDZ) produces 12,697 barrels a day at an average price of $75 per barrel during the period analyzed in this paper (2015–2028). This is expected to yield $349 million in export earnings on average and to bring $197 million in budget revenues to the Joint Development Agency (JDA) per year. São Tomé and Príncipe will receive 40 percent of the JDA's take and is expected to accumulate it in the National Oil Account (NOA) from which resources flow to the budget in accordance with the Oil Revenue Management Law (ORML). The Exclusive Development Zone is assumed to produce no oil in the time horizon covered in this paper.

8. **Inflation is projected to decline to 5 percent by 2012 and remain at that level thereafter, reflecting our assumption of strong macroeconomic policies.** Macroeconomic policies will aim to achieve single-digit inflation rates by the end of the new PRGF program.

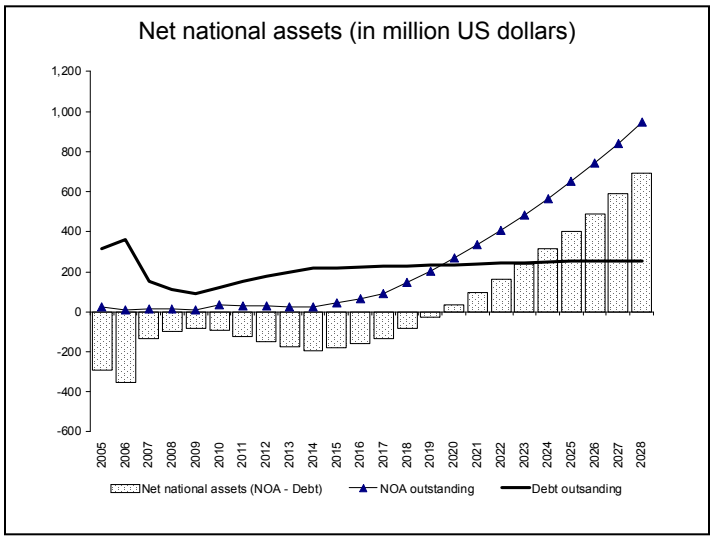
9. **Budget oil resources are projected to rise only gradually.** Budget transfers from the NOA are assumed first to be around 1.5 percent of GDP per year in 2008–2014, down from the average of about 10 percent in 2005–2007, reflecting the shrinking balance of the NOA. Once oil exports start, the transfer will rise to around 5 percent of GDP in line with the ORML. Even after oil exports start, the domestic primary deficit after budget transfers from the NOA is projected to remain around 0.5 percent of GDP, which will be financed mainly by concessional loans.

10. **The current account balance will improve once oil exports start in 2015**. The current account deficit including oil revenues is projected to decline to around 30 percent of

[4] It is assumed that all of the remaining bilateral creditors provide debt relief in 2010 on terms comparable to those of the Paris Club. Currently the country does not service bilateral debt under negotiation. Therefore even if the country does not receive debt relief from those bilateral creditors, its debt payment schedule remains unchanged on a cash flow basis.

GDP from around 35 percent before the oil era. Meanwhile, FDI and private capital inflows are projected to grow rapidly once the country enters into the oil era.[5, 6] As a result, the country is projected to record a surplus in the overall balance, and increases assets in the NOA by approximately 10 percent of GDP a year.

11. **Net national assets are projected to grow rapidly reflecting mounting oil wealth in the NOA.** In line with the ORML the oil revenues continue to be accumulated in the NOA from which annual budget transfers are allocated. As a result, net national assets including the NOA are projected to substantially increase during the oil era, reaching 68 percent of GDP at the end of 2028.



12. **The main risk to the macroeconomic framework arises from uncertain oil prospects**. Commercially viable oil reserves have not yet been found. The balance of the NOA has already declined to $12 million at the end 2008 from $49 million at the inception of NOA in 2005. Under the current assumptions of budget transfers from the NOA, and without additional oil signature bonuses and oil production revenues, the NOA would be depleted by 2013.[7] Then, the fiscal position would become significantly constrained by the lack of financing. Moreover, if commercially viable reserves are not identified and developed, resources will remain limited to those coming from the non-oil sectors and donors. Other financing, such as from privatization operations, could provide temporary relief, but would not change the nature of a non-oil scenario.

III. External Debt Sustainability Analysis [8]

13. **The baseline scenario indicates a vulnerable debt outlook before oil production starts** (Box 1)**.** Some debt burden indicators exceed the thresholds during 2009–2014. In particular, the PV of debt-to-exports ratio breaches the threshold by a wide margin in the next few years because of STP's small export base. These indicators fall sharply once oil exports

[5] Oil signature bonuses are recoded as FDI in the balance of payment.

[6] It is assumed that oil-related projects are funded by FDI and do not accumulate public debt.

[7] Oil signature bonuses of US$26 million of Block 5 and 6 have not been disbursed due to disputes among stakeholders. The baseline scenario assumes that the bonuses will be released in 2010.

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

start. The various debt ratios are somewhat higher than in the previous DSA because of higher concessional loans to finance investment projects.

Box 1. Baseline Macroeconomic Assumptions

Real non-oil GDP growth: Real non-oil GDP growth is expected to reach 8 percent by 2013 led by strong investment. It then slows down gradually to a sustainable 5 percent per year.

Inflation: Inflation is projected to decline to 5 percent by 2012 and remain at that level thereafter, reflecting our assumption of strong macroeconomic policies.

Current account balance: In the period 2009-2014, the current account deficit is projected to increase to around 35 percent of GDP due to large import demand for investment goods. Once oil exports start, the deficit will decline to around 30 percent of GDP.

Government balance: In the period of 2009-2014, the domestic primary deficit after budget transfers from the NOA is projected to improve gradually to around 2 percent of GDP, reflecting our assumption of strong macroeconomic policies. After oil exports start, the deficit will remain around 0.5 percent of GDP.

External assistance: In the period 2009-2014, the government projects to receive $30-50 million in grants a year and contract concessional loans for $25-30 million a year to finance investment. Once oil exports start, both grants and concessional loans are projected to decline substantially.

Domestic borrowing: No domestic borrowing is assumed.

14. **Historical scenarios would appear stronger.**[9] In the baseline scenario, due to the government's large planned investment projects, the fiscal balance and the external balance are projected to deteriorate substantially in the period 2009–2014. Applying instead the historical averages of key variables such as the primary balance and the non-interest current account balance improves debt sustainability, but would imply the cancellation of those projects currently planned.

15. **The stress tests show that debt indicators are vulnerable to various macroeconomic shocks**. In the most extreme stress tests, which assume exports shock or a combination of lower growth, weaker exports, and a lower US dollar GDP deflator, most of the debt ratios are projected to breach the thresholds during 2009–2014, and then fall sharply after oil exports start.[10]

[9] Historical scenarios consider constant primary balance and external balance at their historical averages of the last ten years. Those scenarios are presented in A1, key variables at their historical averages in external debt analysis in Table 1b, and A1, real GDP growth and primary balance are at historical averages and A2, primary balance is unchanged from 2008 in public debt analysis in Table 2b.

[10] In the DSA template, US dollar GDP deflator is used to calculate endogenous debt dynamics. See footnote 2 of Table 1a.

16. **In the scenario with no oil production, debt dynamics becomes explosive**. In this scenario, all debt indicators are projected to continue increasing well above the thresholds. This will call for a significant tightening of policies.

17. **Different price projections do not alter significantly the conclusions of this Debt Sustainability Analysis.** The size of the oil sector implied by the assumptions made here is quite large relative to the non-oil sector. Thus, even with significantly different oil prices, the qualitative thrust of the conclusions from the scenarios with oil would stand—if the oil sector develops, debt ratios will remain low and assets will accumulate.

IV. Fiscal Debt Sustainability Analysis [11]

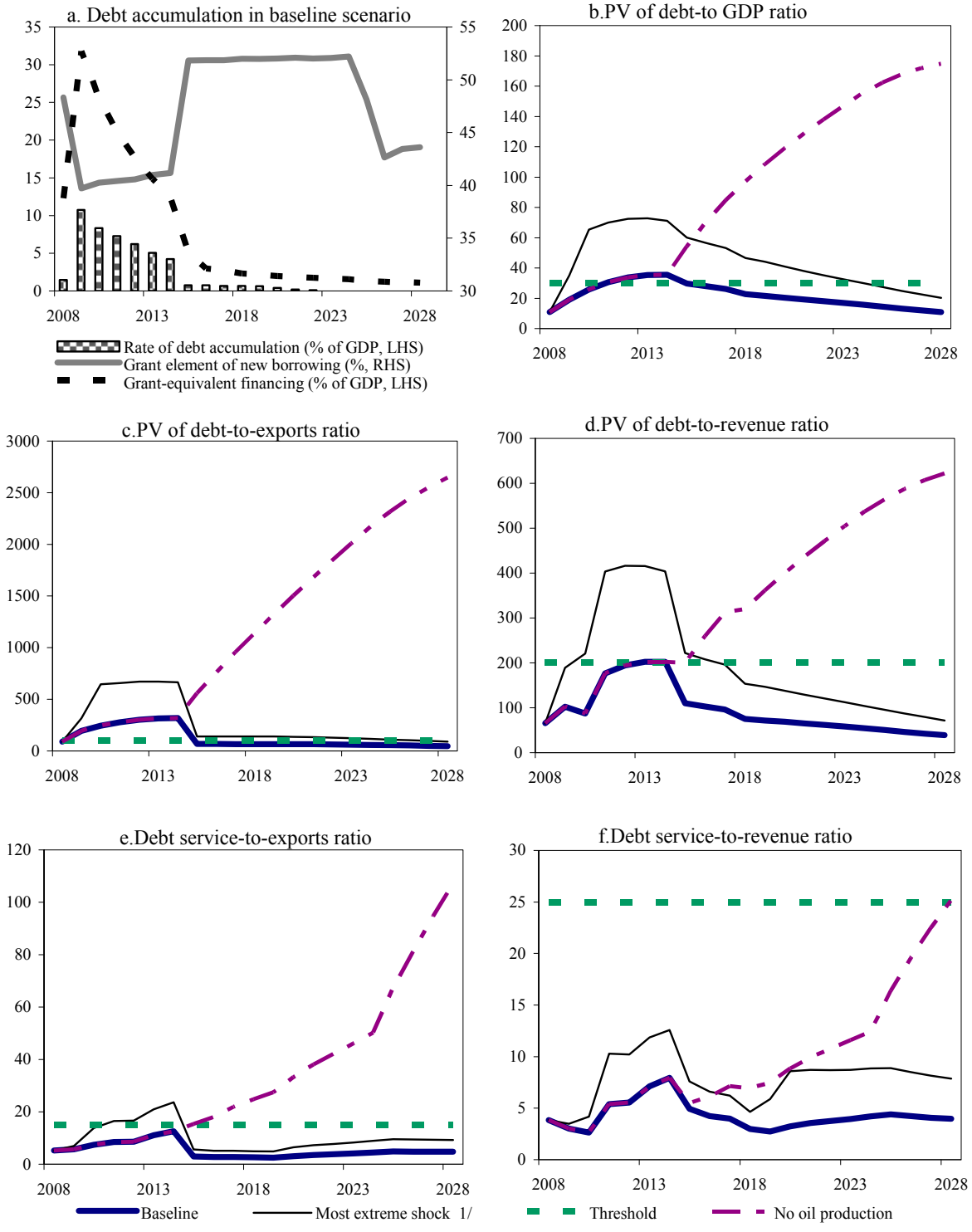
18. **The public sector debt sustainability analysis also reveals a vulnerable picture.** The fiscal stress tests show that the fiscal debt indicators are vulnerable to lower growth. The debt ratios under that scenario climb faster than the baseline scenario. São Tomé and Príncipe is not projected to issue domestic debt in the baseline scenario. Essentially, the fiscal and external DSA produce similar conclusions because the government is the main borrower among domestic residents.

V. Conclusion

19. **In staff's view, São Tomé and Príncipe should be considered at a high risk of debt distress even after debt relief under the HIPC Initiative and MDRI.** The country has a structurally high current account deficit that has been partly financed with signature bonuses. In the baseline scenario, oil revenues that are key for debt sustainability will flow from 2015. The DSA shows that, even in the baseline scenario, some debt ratios are projected to rise above the thresholds before oil production starts. In the scenario without oil production, debt distress becomes very acute on unchanged policies and clearly exhibits the dependence of the debt outlook on the development of the oil sector. The DSA also indicates that debt distress substantially intensifies in the face of various macroeconomic shocks. These results point out the need for fiscal consolidation with a continued prudent borrowing strategy. Moreover, broadening the country's export base will be necessary to mitigate the debt risk in the face of uncertain oil prospects.

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

Figure 1. São Tomé and Príncipe: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2008–28 [1/ 2/]

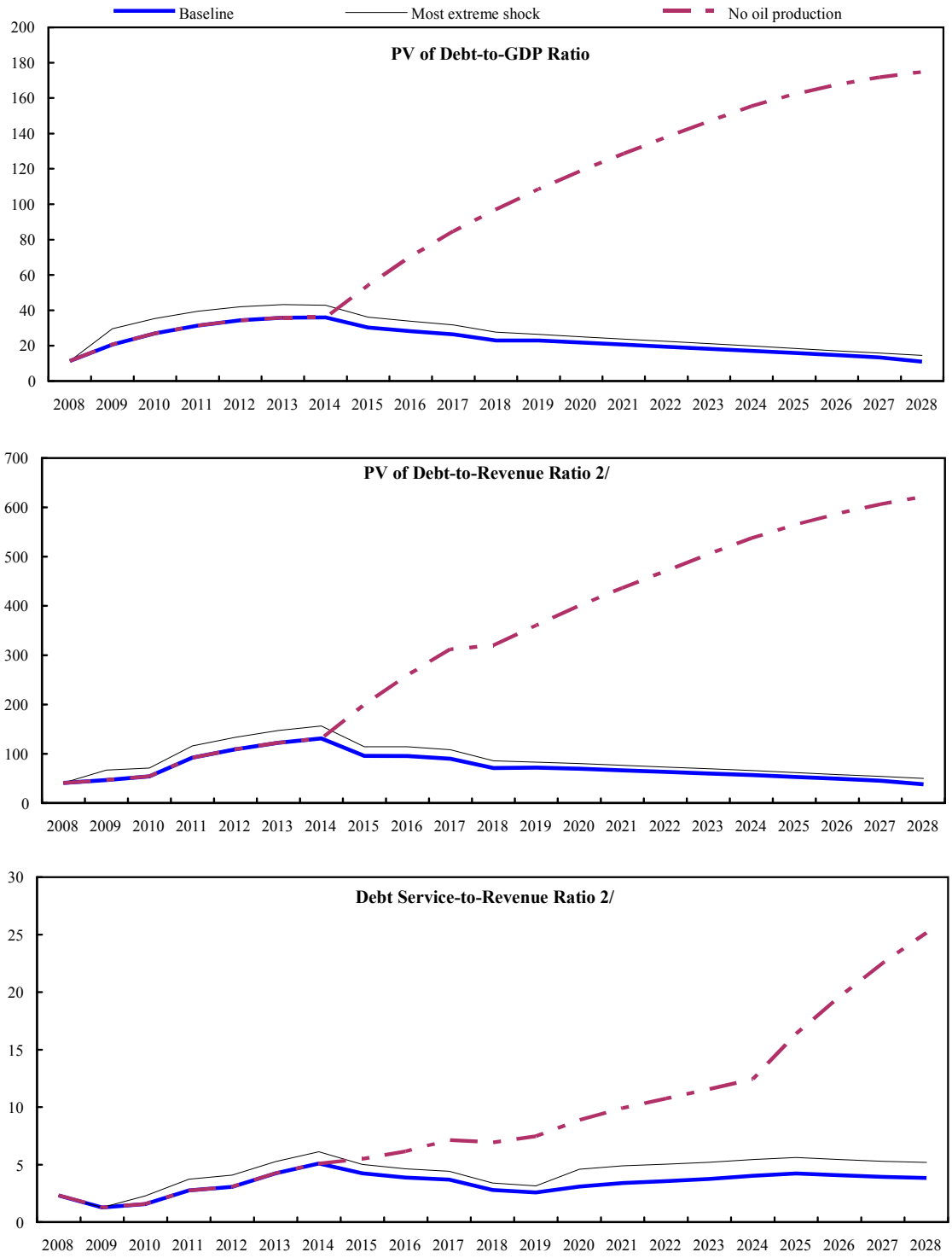


Source: Staff projections and simulations.

1/ The most extreme stress test is the test that yields the highest ratio in 2018. In figure b. it corresponds to a Combination shock; in

2/ The grant element of new borrowing declines in the period of 2009-2014 because during this period the government contracts concessional loans whose grant elements are lower than that of the World Bank, the main creditor in the rest of the period.

Figure 2. São Tomé and Príncipe: Indicators of Public Debt under Alternative Scenarios, 2008–28 [1/]



Sources: Country authorities; and Fund staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2018.

2/ Revenues are defined inclusive of grants and oil signature bonuses.

Table 1a. São Tomé and Príncipe: External Debt Sustainability Framework, Baseline Scenario, 2005–28 1/
(In percent of GDP, unless otherwise indicated)

	Actual			Historical Average 9/	Standard Deviation 9/	Projections									
	2005	2006	2007			2008	2009	2010	2011	2012	2013	2008-2013 Average	2018	2028	2014-2028 Average
External debt (nominal) 1/	**309.2**	**300.2**	**108.5**			**69.7**	**52.2**	**60.3**	**65.6**	**68.3**	**69.1**		**40.5**	**18.2**	
o/w public and publicly guaranteed (PPG)	309.2	300.2	108.5			69.7	52.2	60.3	65.6	68.3	69.1		40.5	18.2	
Change in external debt	2.6	-9.0	-191.7			-38.9	-17.5	8.2	5.3	2.7	0.8		-6.9	-1.9	
Identified net debt-creating flows	-99.6	-18.6	-67.2			-4.7	25.7	-0.9	19.0	15.2	11.9		-9.7	1.7	
Non-interest current account deficit	**-35.3**	**25.7**	**9.7**	**9.3**	**17.4**	**33.9**	**42.8**	**25.5**	**34.6**	**32.7**	**32.5**	**33.7**	**28.1**	**31.6**	32.9
Deficit in balance of goods and services	39.1	56.7	57.3			62.8	74.0	64.5	59.0	55.0	53.5		23.8	33.5	
Exports 2/	13.9	13.7	9.3			12.3	9.9	10.6	11.1	11.2	11.3		34.3	23.6	
Imports	52.9	70.4	66.6			75.1	83.9	75.0	70.1	66.3	64.8		58.2	57.1	
Net current transfers (negative = inflow)	-30.5	-26.0	-23.3	-22.1	4.9	-26.5	-28.7	-23.7	-20.1	-17.5	-15.8		-4.9	-3.4	-5.3
o/w official	-29.2	-24.8	-21.9			-24.7	-26.7	-21.4	-17.4	-14.3	-12.1		-1.9	-0.9	
Other current account flows (negative = net inflow)	-43.9	-4.9	-24.4			-2.4	-2.5	-15.2	-4.3	-4.8	-5.1		9.1	1.5	
Net FDI (negative = inflow)	**-48.2**	**-21.5**	**-36.2**	**-13.7**	**16.2**	**-33.5**	**-13.9**	**-23.6**	**-12.3**	**-13.7**	**-16.4**		**-31.8**	**-29.2**	-32.2
Endogenous debt dynamics 3/	**-16.0**	**-22.7**	**-40.7**			**-5.0**	**-3.2**	**-2.8**	**-3.3**	**-3.9**	**-4.3**		**-5.9**	**-0.6**	
Contribution from nominal interest rate	2.8	3.4	0.5			0.1	0.1	0.4	0.6	0.7	0.7		0.5	0.2	
Contribution from real GDP growth	-16.3	-18.9	-15.5			-5.2	-3.4	-3.2	-3.9	-4.5	-5.0		-6.4	-0.9	
Contribution from price and exchange rate changes	-2.5	-7.3	-25.7			-13.9	-5.2	0.4	-0.7	-0.9	-1.1		-0.8	-0.3	
Residual (3-4) 4/	**102.2**	**9.5**	**-124.5**			**-34.2**	**-43.2**	**9.1**	**-13.7**	**-12.5**	**-11.1**		**2.8**	**-3.6**	
o/w exceptional financing (including debt relief)	-1.0	-1.3	-111.9			-19.7	-26.3	0.0	0.0	0.0	0.0		0.0	0.0	
o/w accumulation to NOA from oil revenue 5/	30.4	-12.4	14.2			-1.7	-1.2	10.4	-1.7	-1.6	-1.5		9.5	6.0	
PV of external debt 6/	...	...	11.8			10.9	19.0	25.9	30.6	33.8	35.4		22.7	10.9	
In percent of exports	...	...	127.1			89.0	193.0	245.1	276.8	301.2	313.5		66.1	46.1	
PV of PPG external debt	**...**	**...**	**11.8**			**10.9**	**19.0**	**25.9**	**30.6**	**33.8**	**35.4**		**22.7**	**10.9**	
In percent of exports	**...**	**...**	**127.1**			**89.0**	**193.0**	**245.1**	**276.8**	**301.2**	**313.5**		**66.1**	**46.1**	
In percent of government revenues	**...**	**...**	**29.4**			**65.8**	**102.5**	**87.4**	**176.7**	**194.3**	**202.1**		**74.8**	**38.7**	
Debt service-to-exports ratio (in percent)	**75.6**	**65.8**	**24.3**			**5.2**	**5.7**	**7.4**	**8.4**	**8.6**	**11.0**		**2.6**	**4.7**	
PPG debt service-to-exports ratio (in percent)	**75.6**	**65.8**	**24.3**			**5.2**	**5.7**	**7.4**	**8.4**	**8.6**	**11.0**		**2.6**	**4.7**	
PPG debt service-to-revenue ratio (in percent)	**16.4**	**43.1**	**5.6**			**3.9**	**3.0**	**2.6**	**5.4**	**5.5**	**7.1**		**3.0**	**4.0**	
Total gross financing need (Billions of U.S. dollars)	-0.1	0.0	0.0			0.0	0.1	0.0	0.1	0.1	0.0		0.0	0.0	
Non-interest current account deficit that stabilizes debt ratio 7/	-37.9	34.7	201.4			72.8	60.4	17.4	29.3	30.0	31.7		34.9	33.5	
Key macroeconomic assumptions															
Real GDP growth (in percent)	5.7	6.7	6.0	5.0	3.1	5.8	5.5	6.5	7.0	7.5	8.0	6.7	16.1	4.6	7.3
GDP deflator in US dollar terms (change in percent)	0.8	2.4	9.4	2.7	3.9	14.7	8.1	-0.7	1.1	1.4	1.6	4.4	1.7	1.6	1.7
Effective interest rate (percent) 8/	1.0	1.2	0.2	0.8	0.3	0.2	0.2	0.8	1.0	1.1	1.2	0.7	1.3	1.2	1.2
Growth of exports of G&S (US dollar terms, in percent)	5.1	7.8	-21.5	4.1	28.7	60.7	-8.5	13.2	13.5	10.6	10.4	16.6	2.8	2.9	29.1
Growth of imports of G&S (US dollar terms, in percent)	9.0	45.2	9.7	10.6	19.9	36.8	27.4	-5.4	1.0	3.1	7.2	11.7	-5.4	6.3	8.6
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	48.3	39.7	40.2	40.4	40.6	41.0	41.7	52.0	43.6	49.3
Government revenues (excluding grants, in percent of GDP)	64.0	20.9	40.1			16.6	18.6	29.6	17.3	17.4	17.5		30.3	28.1	28.0
Aid flows (in Billions of US dollars) 10/	0.016	0.017	0.015			0.023	0.082	0.070	0.062	0.057	0.053		0.014	0.012	
o/w Grants	0.015	0.012	0.012			0.019	0.051	0.043	0.038	0.035	0.033		0.010	0.010	
o/w Concessional loans	0.001	0.004	0.004			0.004	0.031	0.026	0.024	0.022	0.020		0.004	0.002	
Grant-equivalent financing (in percent of GDP) 11/	...	...	...			12.3	31.8	25.5	21.1	17.7	14.9		2.3	1.1	2.8
Grant-equivalent financing (in percent of external financing) 11/	...	...	...			90.1	77.0	76.7	76.5	77.0	77.5		86.3	90.4	87.0
Memorandum items:															
Nominal GDP (Billions of US dollars)	0.1	0.1	0.1			0.2	0.2	0.2	0.2	0.3	0.3		0.5	1.0	
Nominal dollar GDP growth	6.5	9.2	15.9			21.3	14.0	5.8	8.2	9.0	9.7	**11.3**	18.0	6.3	9.2
PV of PPG external debt (in Billions of US dollars)						0.0	0.0	0.1	0.1	0.1	0.1		0.1	0.1	
(PVt-PVt-1)/GDPt-1 (in percent)						1.5	**10.8**	**8.3**	**7.3**	**6.2**	**5.1**	**6.5**	0.7	-0.5	0.4

Source: Staff simulations.

1/ Includes both public and private sector external debt.
2/ Includes full amount of oil signature bonuses and oil export revenues.
3/ Derived as [r - g - ρ*(1+g)]/(1+g+ρ+g*ρ) 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.
4/ The difference between a change in external debt and identified net debt-creating flows. Includes exceptional financing (i.e., changes in arrears and debt relief); private capital inflows; changes in gross foreign assets; and valuation adjustments. For projections also includes contribution from price and exchange rate changes and accumulation to NOA from oil exports revenues. Due to the statistical weaknesses of the country, this item could include relatively large statistical errors.
5/ Savings and dissavings from the NOA. Negative numbers show withdrawals from the NOA.
6/ Assumes that PV of private sector debt is equivalent to its face value.

7/ Non-interest current account deficit that stabilizes debt ratio is non-interest current account deficit minus the change of external debt. The figures in 2007 and 2008 are large because of debt reductions owing to debt relief.
8/ Current-year interest payments divided by previous period debt stock.
9/ Historical averages and standard deviations are generally derived over the past 10 years, subject to data availability.
10/ Defined as grants, concessional loans, and debt relief.
11/ 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 1b. São Tomé and Príncipe: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2008–28 (In percent)

	Projections							
	2008	2009	2010	2011	2012	2013	2018	2028
PV of Debt-to-GDP Ratio								
Baseline	11	21	27	31	34	36	23	11
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages 1/	11	10	20	20	20	21	64	183
A2. Primary balance is unchanged from 2008 1/	11	7	14	11	9	7	29	104
A3. Permanently lower GDP growth 2/	11	21	28	33	36	39	31	44
A4. No oil production	11	21	27	31	34	36	97	175
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	11	22	32	38	42	45	37	41
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	11	24	48	52	54	54	35	20
B3. Combination of B1-B2 using one half standard deviation shocks	11	17	35	40	43	46	34	31
B4. One-time 30 percent real depreciation in 2009	11	38	40	41	42	43	29	19
B5. 10 percent of GDP increase in other debt-creating flows in 2009	11	30	35	39	42	43	28	15
PV of Debt-to-Revenue Ratio 3/								
Baseline	41	47	54	92	109	122	71	38
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages 1/	41	22	40	56	62	68	191	619
A2. Primary balance is unchanged from 2008 1/	41	16	28	33	28	25	90	358
A3. Permanently lower GDP growth 2/	41	47	55	95	114	130	95	149
A4. No oil production	41	47	54	92	109	122	320	621
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	41	49	62	107	129	148	114	140
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	41	55	97	152	171	185	108	69
B3. Combination of B1-B2 using one half standard deviation shocks	41	38	68	114	135	152	105	107
B4. One-time 30 percent real depreciation in 2009	41	86	79	121	134	145	90	65
B5. 10 percent of GDP increase in other debt-creating flows in 2009	41	67	71	116	133	147	86	50
Debt Service-to-Revenue Ratio 3/								
Baseline	2	1	2	3	3	4	3	4
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages 1/	2	1	1	2	2	2	6	29
A2. Primary balance is unchanged from 2008 1/	2	1	0	1	1	1	2	15
A3. Permanently lower GDP growth 2/	2	1	2	3	3	4	4	9
A4. No oil production	2	1	2	3	3	4	7	25
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	2	1	2	3	4	5	4	10
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	2	1	2	5	6	7	4	7
B3. Combination of B1-B2 using one half standard deviation shocks	2	1	1	4	4	5	4	8
B4. One-time 30 percent real depreciation in 2009	2	2	2	4	5	7	5	7
B5. 10 percent of GDP increase in other debt-creating flows in 2009	2	1	2	4	4	5	3	5

Sources: Country authorities; and Fund staff estimates and projections.

1/ Those scenarios create a positive shock to debt sustainability compared to the baseline scenario in some years.

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

3/ Revenues are defined inclusive of grants and oil signature bonuses.

Table 2a. São Tomé and Príncipe: Public Sector Debt Sustainability Framework, Baseline Scenario, 2005–28
(in percent of GDP, unless otherwise indicated)

	Actual					Projections									
	2005	2006	2007	Average 7/	Standard Deviation 7/	2008	2009	2010	2011	2012	2013	2008-13 Average	2018	2028	2014-28 Average
Public sector debt 1/	309.2	300.2	108.5			69.7	52.2	60.3	65.6	68.3	69.1		40.5	18.2	
o/w foreign-currency denominated	309.2	300.2	108.5			69.7	52.2	60.3	65.6	68.3	69.1		40.5	18.2	
Change in public sector debt	2.6	-9.0	-191.7			-38.9	-17.5	8.2	5.3	2.7	0.8		-6.9	-1.9	
Identified debt-creating flows	-22.4	-26.7	-165.9			-50.0	-15.4	-1.6	7.5	4.8	3.0		-16.0	-7.2	
Primary deficit	-35.6	16.6	-8.8	6.4	16.5	3.3	18.7	2.9	12.4	10.1	8.3	9.3	-9.3	-6.2	-5.8
Revenue and grants 2/	76.9	30.8	48.1			27.6	44.1	49.9	34.1	31.5	29.4		32.3	29.1	
of which: grants	12.8	10.0	8.0			11.0	25.5	20.3	16.7	14.1	11.9		1.9	1.0	
Primary (noninterest) expenditure	41.2	47.4	39.3			30.9	62.7	52.8	46.4	41.6	37.7		23.0	22.9	
Automatic debt dynamics	14.3	-41.9	-39.1			-20.5	-5.5	-4.5	-4.9	-5.3	-5.3		-6.7	-1.0	
Contribution from interest rate/growth differential	-22.9	-25.0	-23.9			-8.1	-4.4	-3.6	-4.5	-5.1	-5.6		-7.0	-1.1	
of which: contribution from average real interest rate	-6.4	-5.6	-6.9			-2.1	-0.8	-0.4	-0.6	-0.5	-0.5		-0.4	-0.2	
of which: contribution from real GDP growth	-16.5	-19.3	-17.0			-5.9	-3.6	-3.2	-3.9	-4.6	-5.1		-6.6	-0.9	
Contribution from real exchange rate depreciation	37.2	-16.9	-15.2			-12.4	-1.1	-0.9	-0.4	-0.2	0.2		...	...	
Other identified debt-creating flows	-1.1	-1.4	-117.9			-32.8	-28.5	0.0	0.0	0.0	0.0		0.0	0.0	
Privatization receipts (negative)	0.0	0.0	0.0			-12.3	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)	-1.1	-1.4	-117.9			-20.4	-28.5	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	25.0	17.7	-25.8			11.1	-2.1	9.8	-2.2	-2.1	-2.2		9.2	5.3	
o/w accumulation to NOA from oil revenue 3/	30.4	-12.4	14.2			-1.7	-1.2	10.4	-1.7	-1.6	-1.5		9.5	6.0	
Other Sustainability Indicators															
PV of public sector debt	0.0	0.0	12.4			11.3	20.6	26.9	31.4	34.3	35.9		23.0	11.0	
o/w foreign-currency denominated	0.0	0.0	12.4			11.3	20.6	26.9	31.4	34.3	35.9		23.0	11.0	
o/w external	...	...	12.4			11.3	20.6	26.9	31.4	34.3	35.9		23.0	11.0	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 4/	-25.1	25.6	-6.6			3.9	19.2	3.7	13.3	11.1	9.6		-8.4	-5.1	
PV of public sector debt-to-revenue and grants ratio (in percent)	0.0	0.0	25.8			41.0	46.8	53.9	92.1	108.9	122.3		71.2	37.8	
PV of public sector debt-to-revenue ratio (in percent) 5/	0.0	0.0	31.0			68.1	111.2	90.9	180.9	197.1	205.1		75.7	39.2	
o/w external	…	…	31.0			68.1	111.2	90.9	180.9	197.1	205.1		75.7	39.2	
Debt service-to-revenue and grants ratio (in percent) 6/	13.6	29.2	4.7			2.3	1.3	1.6	2.7	3.1	4.2		2.8	3.8	
Debt service-to-revenue ratio (in percent) 6/	16.4	43.1	5.6			3.9	3.0	2.6	5.4	5.5	7.1		3.0	4.0	
Primary deficit that stabilizes the debt-to-GDP ratio	-38.2	25.6	182.8			42.1	36.2	-5.3	7.1	7.4	7.5		-2.5	-4.3	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	5.7	6.7	6.0	5.0	3.1	5.8	5.5	6.5	7.0	7.5	8.0	6.7	16.1	4.6	7.3
Average nominal interest rate on forex debt (in percent)	1.0	1.2	0.2	0.8	0.3	0.2	0.2	0.8	1.0	1.1	1.2	0.7	1.3	1.2	1.2
Average real interest rate on domestic debt (in percent)	...	...	...	…	…	...	...	...	...	...	...	...	...	...	...
Real exchange rate depreciation (in percent, + indicates depreciation)	13.1	-6.0	-5.5	0.8	7.1	-12.4	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	7.6	20.9	19.4	11.2	5.4	23.7	18.0	12.2	7.7	5.3	4.6	11.9	4.3	4.3	4.4
Growth of real primary spending (deflated by GDP deflator, in percent)	-0.1	0.2	-0.1	0.1	0.2	-0.2	1.1	-0.1	-0.1	0.0	0.0	0.1	0.1	0.0	0.0
Grant element of new external borrowing (in percent)	...	...	...	…	…	48.3	39.7	40.2	40.4	40.6	41.0	41.7	52.0	43.6	...

Sources: Country authorities; and Fund staff estimates and projections.

1/ Gross debt of the general government. The difference between the public sector debt table and the external debt table was created by applying the average exchange rate to the public sector debt and the end-of-period exchange rate to the external debt table.

2/ Includes full amount of oil signature bonuses and oil export revenues.

3/ Savings and dissavings from the NOA. Negative numbers show withdrawals to the NOA.

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

5/ Revenues excluding grants.

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

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

Table 2b. São Tomé and Príncipe: Sensitivity Analysis for Key Indicators of Public Debt, 2008–28

	Projections							
	2008	2009	2010	2011	2012	2013	2018	2028
PV of Debt-to-GDP Ratio								
Baseline	11	21	27	31	34	36	23	11
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages 1/	11	10	20	20	20	21	64	183
A2. Primary balance is unchanged from 2008 1/	11	7	14	11	9	7	29	104
A3. Permanently lower GDP growth 2/	11	21	28	33	36	39	31	44
A4. No oil production	11	21	27	31	34	36	97	175
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	11	22	32	38	42	45	37	41
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	11	24	48	52	54	54	35	20
B3. Combination of B1-B2 using one half standard deviation shocks	11	17	35	40	43	46	34	31
B4. One-time 30 percent real depreciation in 2009	11	38	40	41	42	43	29	19
B5. 10 percent of GDP increase in other debt-creating flows in 2009	11	30	35	39	42	43	28	15
PV of Debt-to-Revenue Ratio 3/								
Baseline	41	47	54	92	109	122	71	38
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages 1/	41	22	40	56	62	68	191	619
A2. Primary balance is unchanged from 2008 1/	41	16	28	33	28	25	90	358
A3. Permanently lower GDP growth 2/	41	47	55	95	114	130	95	149
A4. No oil production	41	47	54	92	109	122	320	621
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	41	49	62	107	129	148	114	140
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	41	55	97	152	171	185	108	69
B3. Combination of B1-B2 using one half standard deviation shocks	41	38	68	114	135	152	105	107
B4. One-time 30 percent real depreciation in 2009	41	86	79	121	134	145	90	65
B5. 10 percent of GDP increase in other debt-creating flows in 2009	41	67	71	116	133	147	86	50
Debt Service-to-Revenue Ratio 3/								
Baseline	2	1	2	3	3	4	3	4
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages 1/	2	1	1	2	2	2	6	29
A2. Primary balance is unchanged from 2008 1/	2	1	0	1	1	1	2	15
A3. Permanently lower GDP growth 2/	2	1	2	3	3	4	4	9
A4. No oil production	2	1	2	3	3	4	7	25
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	2	1	2	3	4	5	4	10
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	2	1	2	5	6	7	4	7
B3. Combination of B1-B2 using one half standard deviation shocks	2	1	1	4	4	5	4	8
B4. One-time 30 percent real depreciation in 2009	2	2	2	4	5	7	5	7
B5. 10 percent of GDP increase in other debt-creating flows in 2009	2	1	2	4	4	5	3	5

Sources: Country authorities; and Fund staff estimates and projections.

1/ Those scenarios create a positive shock to debt sustainability compared to the baseline scenario in some years.

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

3/ Revenues are defined inclusive of grants and oil signature bonuses.