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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February 3, 2010

São Tomé and Príncipe's risk of debt distress remains high.[2] *Compared to the previous DSA, the overall assessment of debt distress is unchanged. One indicator, present value of exports to debt ratio, still exceeds the threshold before the oil production starts. The risk of debt distress worsens significantly in the scenario without oil production. This is similar to the previous DSA's result indicating that the country's debt outlook critically depends on oil prospects.*

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**.[3] As a result, the debt service-to-exports ratio declined to 5.7 percent in 2008 from 24.3 percent in 2007, and is estimated at around 5.8 percent in 2009. 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.

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[1] This report updates the DSA prepared for the 2009 Request for a Three-Year Arrangement under the Poverty Reduction and Growth Facility (Country Report No. 09/106). The update has been prepared by Fund staff and reviewed by World Bank staff. The next DSA—to be prepared for the ECF second review and 2010 Article IV consultation—will be done jointly by Fund and World Bank staff.

[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.

2. **STP's medium- and long-term external debt was estimated at $107.4 in nominal terms at the end of October 2009 down from $109 million in nominal terms at the end of 2008 and down from $150 million at the end of 2007**. The debt composition changed substantially after the HIPC completion point. The share of multilateral debt declined to 28 percent in late-2009 from around 60 percent before the completion point, while the share of bilateral debt rose to 72 percent from around 40 percent. At the end of October 2009, Angola was the country's main creditor, with around 35 percent of total debt, followed by China with around 17 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 their Paris Club creditors, except Russia, with whom agreement has been reached but the bilateral agreement has not been signed.** In July 2008, STP received debt relief from Portugal, its main non-Paris Club creditor at that time. Since then, the authorities have concentrated their efforts on concluding negotiations with Angola, the main remaining creditor.

Table 1. Estimated outstanding external debt (as of October 2009) [1]

	Million USD	Share
Multilateral creditors	29.6	28%
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	77.8	72%
Portugal	15	14%
Angola	35.4	33%
China	17.3	16%
Others	10.1	9%
Total	107.4	100%

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

II. Revisions to the New DSA and Medium-Term Macroeconomic Framework

4. **The new DSA uses an updated DSA template with a different discount rate and an SDR sheet.** The new discount rate is 4 percent compared to 5 percent in the previous DSA template. The new template also assumes the use of 6.5 million SDR by the authorities in 2010 and 2011.

5. **Macroeconomic assumptions were updated from the previous DSA**. Real GDP growth has been revised downward for the period 2009–14 (see Box 1) to account for the impact of the global economic and financial crisis. The new DSA also uses an updated oil price, which is slightly higher than the one used in the previous DSA, as well as an updated exchange rate based on the latest projections from the World Economic Outlook. It has also updated the new debt service and disbursement schedules including the PRGF program approved in March 2009. The domestic primary deficit is expected to be around one percentage point of GDP higher for the period 2009–14, which will be financed by faster drawdown of privatization proceeds than previously assumed. Starting in 2015, the deficit is expected to gradually converge to the level assumed in the previous DSA.

6. **The assumptions in the previous DSA about the level of external financing have proven to be too optimistic.** Future external financing has therefore been scaled down in

line with the latest medium term outlook**.** For the 2009–14 period concessional loans contracted by the government are assumed to be around $15 million a year, down from $25–$30 million. Similarly, grants are now expected to be around $30 million a year for the same period down from between $30–$50 million a year previously. The revisions are also partly due to lower level of external financing available during the global economic crisis. The reduction in external financing, however, is assumed to be only in project based grants and loans and therefore does not affect the domestic primary deficit. The DSA assumes no reduction in budget support grants and loans. Once the country enters the oil era, it is expected to receive even less external financing. No financing from future privatization operations, no commercial loans, no domestic borrowing and no short-term loans are assumed throughout the period.[4]

Box 1. Baseline Macroeconomic Assumptions

Real GDP growth: Real GDP growth is expected to reach 6.5 percent in 2011, after slowing down in 2009 and 2010, and remain there through 2014. In 2015, real GDP growth is expected to jump to 20 percent due to the beginning of oil production. Thereafter, it then gradually declines to 4.5 percent per year.

Inflation: Inflation is projected to decline to 5 percent by 2012 and remain at that level thereafter, reflecting the assumption of strong macroeconomic policies and consistent with the successful implementation of the peg of the dobra against the euro.

Current account balance: In the period 2009–14, the current account deficit is projected to increase to around 34 percent of GDP due to large import demand for investment goods. Once oil exports start, the current account deficit is expected to gradually decline to around 12 percent of GDP.

Government balance: In the period of 2009–14, the domestic primary deficit after budget transfers from the NOA is projected to improve gradually to around 3 percent of GDP, reflecting strong macroeconomic policies. After 2015 when oil exports start, the non-oil domestic primary deficit increases to around 6 percent of GDP, while the overall fiscal balance averages 12 percent.

External assistance: During 2009–14, the government is projected to receive around $30 million in grants a year and to contract concessional loans amounting to around $15 million a year to finance investment. Once oil exports start in 2015, both grants and concessional loans are projected to decline substantially.

Domestic borrowing: No domestic borrowing is assumed.

7. **Oil production and exports is expected to start in 2015.** It is assumed that the Joint Development Zone (JDZ) produces around 13,000 barrels per day. This is expected to yield $349 million in export earnings on average and to bring $197 million in revenues to the Joint

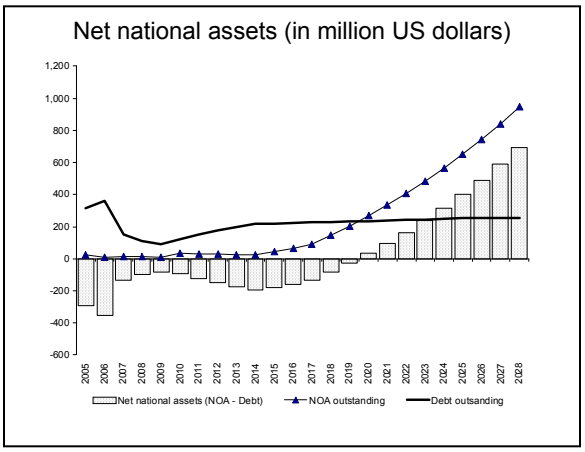
[4] It is assumed that all of the remaining bilateral creditors provide debt relief in 2010 on terms comparable to those of the Paris Club. Currently the country does not service bilateral debt under negotiation. Therefore even if the country does not receive debt relief from those bilateral creditors,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

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, consistent with the adoption of a peg of the dobra to the euro in January 2010 and in line with strong policy actions.** In the context of the PRGF program, monetary policy is expected to be conducted accordingly and fiscal policy actions aim to stabilize the domestic primary deficit below 3 percent of GDP in 2014.

9. **The current account balance will gradually improve once oil exports start in 2015**. FDI and private capital inflows are projected to grow rapidly once the country starts to produce and export oil.[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.

10. **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 2029.



11. **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 $9.8 million by mid-2009 from $12 million at the end 2008 (at its inception in 2005, the balance was $49 million). 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 end of 2014.[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

[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 yet. The authorities expect to receive them in 2011.The baseline scenario assumes that the bonuses will be released in 2011.

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]

12. **The baseline scenario indicates a vulnerable debt outlook before oil production starts.** As opposed to the previous DSA, only the PV of the debt-to-exports ratio exceeds its threshold during 2009–14. Meanwhile, the PV of the debt-to-revenue ratio shows improvement relative to the previous DSA due to the lower level of new debt contracted. As in the previous DSA, all debt indicators fall sharply once oil exports start.

13. **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 2009–14, and then fall sharply after oil exports start.[9]

14. **In the scenario with no oil production, debt dynamics becomes explosive and in all cases worsens relative to the previous DSA**. In this scenario, all debt indicators are projected to continue increasing well above the thresholds. This will call for a significant tightening of policies.

15. **Different price projections do not alter significantly the conclusions of this DSA.** 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 [10]

16. **The public sector debt sustainability analysis shows little difference compared to external debt analysis.** 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. The fiscal and external DSA produce similar conclusions because the government is the main borrower among domestic residents.

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

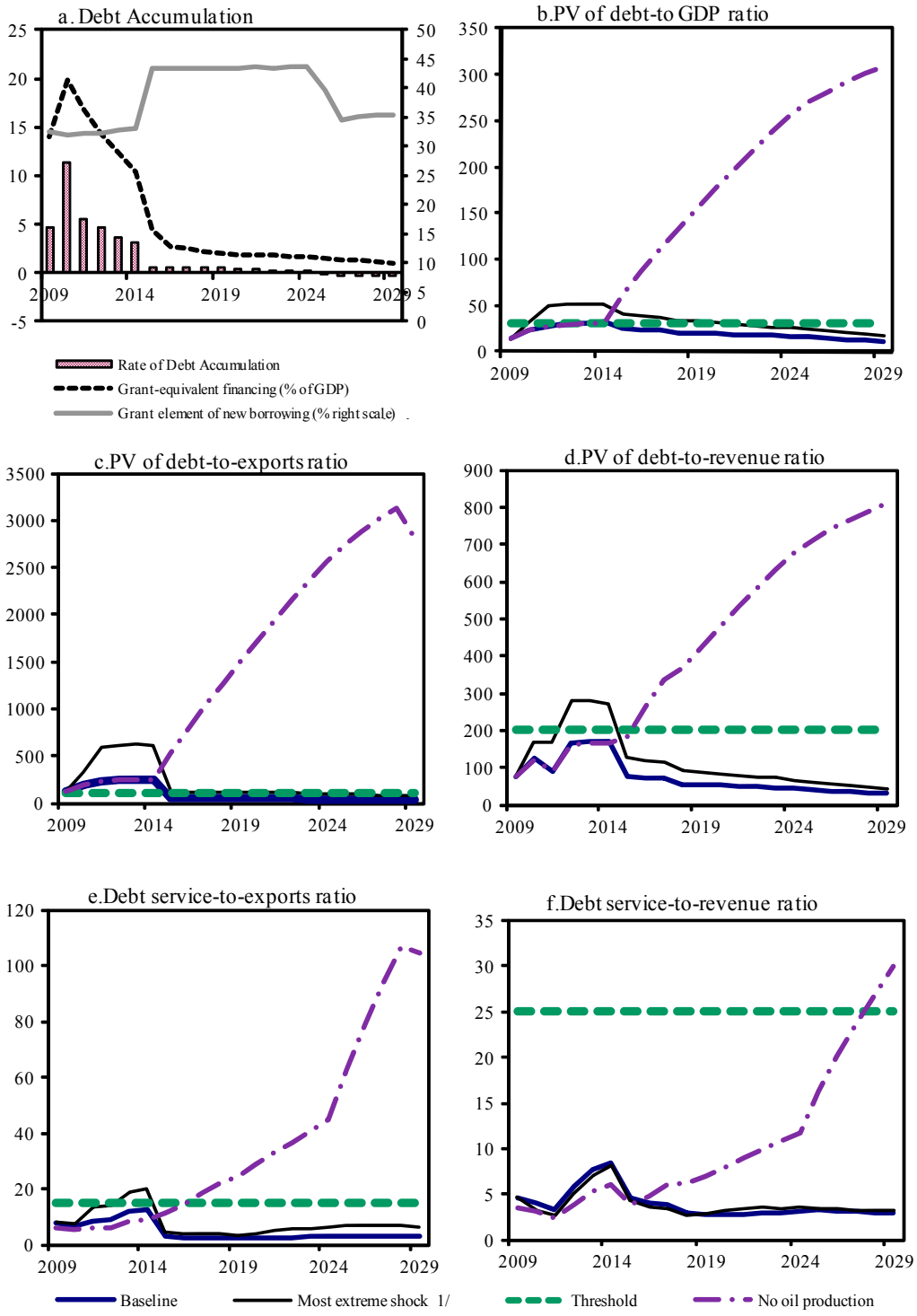
[9] In the DSA template, US dollar GDP deflator is used to calculate endogenous debt dynamics. See footnote 2 of Table 1a.

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

V. CONCLUSION

17. **In staff's view, São Tomé and Príncipe should be considered at a high risk of debt distress.** The DSA shows improvement in all debt indicators before oil production starts. However, in the scenario without oil production, the debt burden explodes and clearly shows the dependence of the debt outlook on the development of the oil sector. The present DSA also indicates that debt distress intensifies in the face of various macroeconomic shocks, although the gap against the baseline scenario appears to decline. These results continue to highlight the need for fiscal consolidation supported by a prudent borrowing strategy. Moreover, broadening the country's export base remains crucial for mitigating the debt risk in the face of uncertain oil prospects.

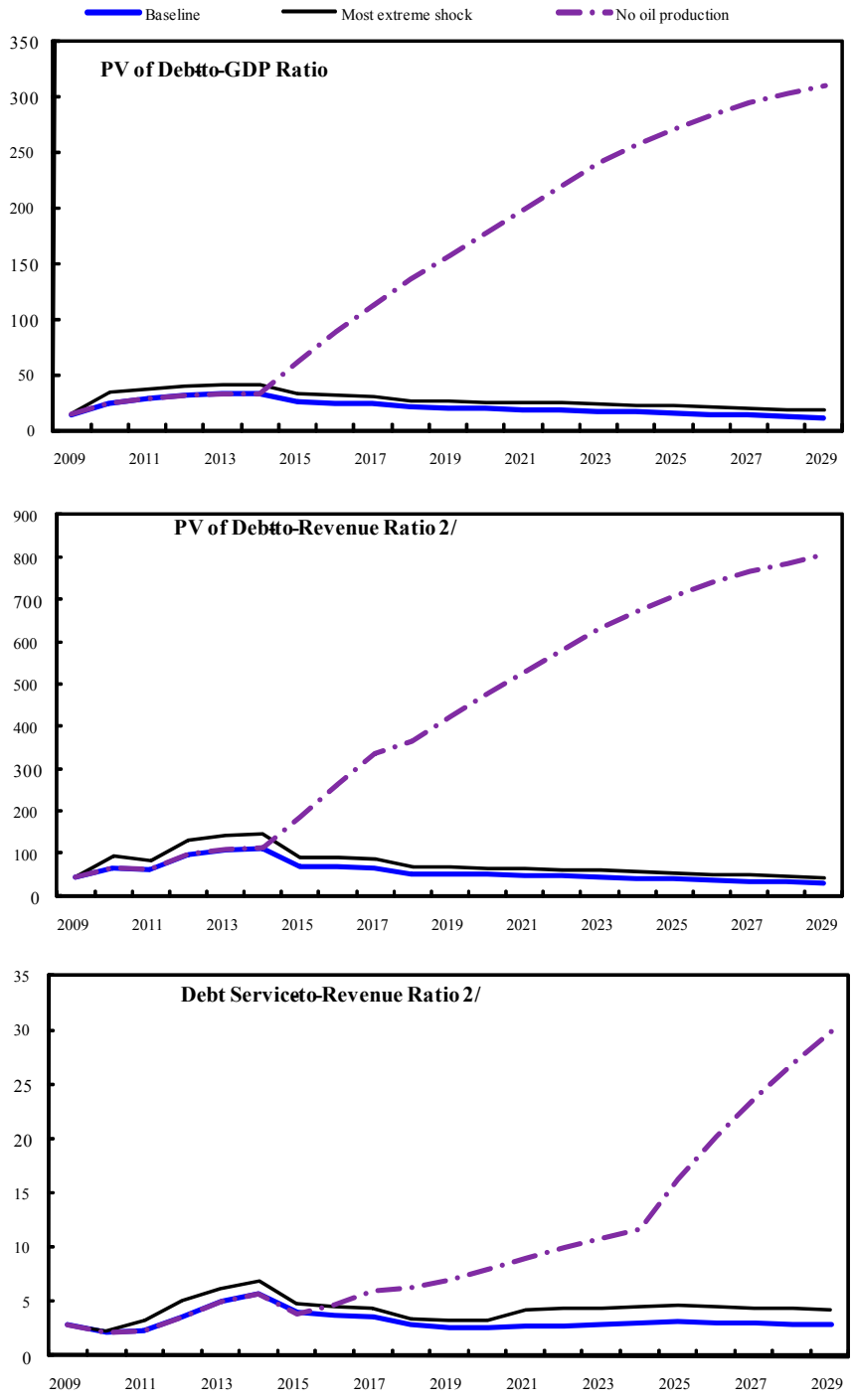
Figure 1. Sao Tome and Principe: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2009–29 [1]



Sources: Country authorities; and staff estimates and projections.

[1] The most extreme stress test is the test that yields the highest ratio in 2019. 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 Exports shock and in figure f. to a Terms shock.

Figure 2. São Tomé and Príncipe: Indicators of Public Debt under Alternative Scenarios, 2009–29 [1/]



Sources: Country authorities; and staff estimates and projections.
1/ The most extreme stress test is the test that yields the highest ratio in 2019.
2/ Revenues are defined inclusive of grants.

Table 1a.: External Debt Sustainability Framework, Baseline Scenario, 2006–29 [1]
(In percent of GDP, unless otherwise indicated)

	Actual			Historical Average [6]	Standard Deviation [6]	Projections									
	2006	2007	2008			2009	2010	2011	2012	2013	2014	2009–14 Average	2019	2029	2015–29 Average
External debt (nominal) [1]	**300.1**	**108.5**	**65.0**			**35.6**	**42.5**	**46.6**	**49.4**	**50.3**	**50.4**		**29.9**	**16.7**	
o/w public and publicly guaranteed (PPG)	300.1	108.5	65.0			35.6	42.5	46.6	49.4	50.3	50.4		29.9	16.7	
Change in external debt	-9.1	-191.7	-43.5			-29.4	7.0	4.1	2.7	1.0	0.0		-1.2	-1.4	
Identified net debt-creating flows	-18.6	-59.1	-11.6			10.0	21.9	10.1	20.4	19.2	17.9		-9.2	-9.3	
Non-interest current account deficit	**25.7**	**18.0**	**37.6**	**13.1**	**19.9**	**22.1**	**30.8**	**32.3**	**31.9**	**32.6**	**33.4**		**15.1**	**11.7**	17.7
Deficit in balance of goods and services	56.7	53.9	54.5			40.4	54.0	51.2	49.4	48.6	48.2		11.5	18.7	
Exports	13.7	9.2	11.2			11.1	11.9	12.0	12.0	12.3	12.6		42.5	35.6	
Imports	70.3	63.1	65.8			51.5	65.9	63.2	61.5	60.8	60.8		54.0	54.3	
Net current transfers (negative = inflow)	-26.0	-11.5	-14.5	-20.9	5.8	-16.4	-21.5	-17.2	-15.5	-14.1	-13.1		-8.7	-9.4	-9.1
o/w official	-24.8	-10.2	-12.8			-14.8	-19.7	-15.0	-12.9	-11.1	-9.5		-1.8	-1.0	
Other current account flows (negative = net inflow)	-4.9	-24.3	-2.4			-2.0	-1.6	-1.6	-2.1	-1.9	-1.7		12.3	2.5	
Net FDI (negative = inflow)	**-21.5**	**-36.2**	**-31.0**	**-16.2**	**16.8**	**-9.8**	**-7.2**	**-19.9**	**-9.0**	**-10.8**	**-13.0**		**-23.1**	**-20.4**	-24.6
Endogenous debt dynamics [2]	**-22.8**	**-40.9**	**-18.3**			**-2.2**	**-1.8**	**-2.3**	**-2.4**	**-2.5**	**-2.5**		**-1.1**	**-0.6**	
Contribution from nominal interest rate	3.4	0.5	0.1			0.2	0.2	0.3	0.4	0.4	0.5		0.3	0.2	
Contribution from real GDP growth	-18.9	-15.5	-5.2			-2.4	-1.9	-2.6	-2.8	-3.0	-3.0		-1.5	-0.8	
Contribution from price and exchange rate changes	-7.3	-25.8	-13.2			…	…	…	…	…	…		…	…	
Residual (3-4) [3]	**9.5**	**-132.6**	**-31.8**			**-39.5**	**-14.9**	**-6.0**	**-17.7**	**-18.2**	**-17.9**		**7.9**	**7.9**	
o/w exceptional financing (including debt relief)	-1.3	-111.9	-19.9			-27.9	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
o/w accumulation to NOA from oil revenue [5]	-12.4	14.2	-1.7			-1.3	-1.0	10.0	-1.8	-1.7	-1.5		13.7	0	
PV of external debt [4]	...	...	11.2			14.1	24.1	27.6	30.1	31.3	31.8		19.7	11.4	
In percent of exports	...	...	99.4			126.4	203.2	230.0	250.0	255.4	252.7		46.3	32.0	
PV of PPG external debt	**...**	**...**	**11.2**			**14.1**	**24.1**	**27.6**	**30.1**	**31.3**	**31.8**		**19.7**	**11.4**	
In percent of exports	**...**	**...**	**99.4**			**126.4**	**203.2**	**230.0**	**250.0**	**255.4**	**252.7**		**46.3**	**32.0**	
In percent of government revenues	**...**	**...**	**63.3**			**74.2**	**125.9**	**91.4**	**164.1**	**169.6**	**167.9**		**53.5**	**30.0**	
Debt service-to-exports ratio (in percent)	**65.8**	**24.5**	**5.6**			**7.8**	**6.6**	**8.5**	**9.0**	**11.7**	**12.7**		**2.3**	**3.1**	
PPG debt service-to-exports ratio (in percent)	**65.8**	**24.5**	**5.6**			**7.8**	**6.6**	**8.5**	**9.0**	**11.7**	**12.7**		**2.3**	**3.1**	
PPG debt service-to-revenue ratio (in percent)	**43.1**	**5.6**	**3.6**			**4.6**	**4.1**	**3.4**	**5.9**	**7.7**	**8.5**		**2.7**	**2.9**	
Total gross financing need (Billions of U.S. dollars)	0.0	0.0	0.0			0.0	0.1	0.0	0.1	0.1	0.1		0.0	-0.1	
Non-interest current account deficit that stabilizes debt ratio	34.8	209.7	81.1			51.5	23.8	28.2	29.1	31.6	33.4		16.3	13.2	
Key macroeconomic assumptions															
Real GDP growth (in percent)	6.7	6.0	5.8	5.4	3.0	4.0	6.0	6.5	6.5	6.5	6.5	6.0	4.9	4.5	6.9
GDP deflator in US dollar terms (change in percent)	2.4	9.4	13.9	3.8	5.1	3.9	3.6	-0.7	1.5	1.5	1.7	1.9	0.8	0.8	0.8
Effective interest rate (percent) [5]	1.2	0.2	0.1	0.8	0.4	0.3	0.5	0.8	0.9	1.0	1.0	0.8	1.1	1.0	1.1
Growth of exports of G&S (US dollar terms, in percent)	7.8	-22.0	47.2	9.1	31.6	6.9	17.2	6.8	8.5	10.0	11.2	10.1	2.9	6.4	32.4
Growth of imports of G&S (US dollar terms, in percent)	45.2	4.0	25.7	15.5	15.1	-15.4	40.5	1.4	5.2	6.9	8.2	7.8	5.5	5.6	7.3
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	32.7	31.9	32.2	32.3	32.8	33.1	32.5	43.5	35.4	41.0
Government revenues (excluding grants, in percent of GDP)	20.9	40.1	17.6			19.0	19.2	30.2	18.3	18.5	19.0		36.8	38.0	36.7
Aid flows (in Billions of US dollars) [7]	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
o/w Grants	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
o/w Concessional loans	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Grant-equivalent financing (in percent of GDP) [8]	...	...	...			14.1	19.9	16.8	14.4	12.2	10.5		2.0	1.0	1.9
Grant-equivalent financing (in percent of external financing) [8]	...	...	...			75.9	76.6	76.4	77.2	77.9	77.8		81.7	85.6	83.8
Memorandum items:															
Nominal GDP (Billions of US dollars)	0.1	0.1	0.2			0.2	0.2	0.2	0.2	0.3	0.3		0.5	0.8	
Nominal dollar GDP growth	9.3	16.0	20.5			8.0	9.9	5.7	8.1	8.1	8.3	**8.0**	5.7	5.3	7.7
PV of PPG external debt (in Billions of US dollars)			0.0			0.0	0.0	0.1	0.1	0.1	0.1		0.1	0.1	
(PVt-PVt-1)/GDPt-1 (in percent)						4.6	**11.4**	**5.5**	4.7	3.7	3.1	**5.5**	0.5	-0.4	0.2

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., changes in arrears and debt relief); changes in gross foreign assets; and valuation adjustments. For projections also includes contribution from price and exchange rate changes.

[4] Assumes that PV of private sector debt is equivalent to its face value.

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

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

[7] Defined as grants, concessional loans, and debt relief.

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

Table 1b.Sao Tome and Principe: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2009–29
(In percent)

	Projections					
	2009	2010	2011	2012	**2019**	2029
PV of debt-to GDP ratio						
Baseline	14	24	28	30	**20**	11
A. Alternative Scenarios						
A1. Key variables at their historical averages in 2009–29 [1]	14	7	1	-12	**-28**	20
A2. New public sector loans on less favorable terms in 2009–29 [2]	14	26	32	35	**26**	18
A2. No oil production	14	23	27	30	**156**	308
B. Bound Tests						
B1. Real GDP growth at historical average minus one standard deviation in 2010–11	14	24	29	32	**21**	12
B2. Export value growth at historical average minus one standard deviation in 2010–11 [3]	14	26	34	36	**23**	13
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010–11	14	24	29	31	**20**	12
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010–11 [4]	14	32	50	51	**32**	17
B5. Combination of B1-B4 using one-half standard deviation shocks	14	29	43	45	**29**	15
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 [5]	14	33	38	42	**27**	16
PV of debt-to-exports ratio						
Baseline	126	203	230	250	**46**	32
A. Alternative Scenarios						
A1. Key variables at their historical averages in 2009–29 [1]	126	56	8	-99	**-66**	55
A2. New public sector loans on less favorable terms in 2009–29 [2]	126	215	263	294	**61**	50
A2. No oil production	128	197	228	247	**1499**	2819
B. Bound Tests						
B1. Real GDP growth at historical average minus one standard deviation in 2010–11	126	196	228	246	**46**	32
B2. Export value growth at historical average minus one standard deviation in 2010–11 [3]	126	329	585	618	**113**	75
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010–11	126	196	228	246	**46**	32
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010–11 [4]	126	271	418	427	**76**	47
B5. Combination of B1-B4 using one-half standard deviation shocks	126	289	496	514	**93**	59
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 [5]	126	196	228	246	**46**	32
PV of debt-to-revenue ratio						
Baseline	74	126	91	164	**53**	30
A. Alternative Scenarios						
A1. Key variables at their historical averages in 2009–29 [1]	74	34	3	-65	**-76**	52
A2. New public sector loans on less favorable terms in 2009–29 [2]	74	133	104	193	**70**	47
A2. No oil production	75	122	91	162	**423**	809
B. Bound Tests						
B1. Real GDP growth at historical average minus one standard deviation in 2010–11	74	126	97	174	**57**	32
B2. Export value growth at historical average minus one standard deviation in 2010–11 [3]	74	135	111	195	**63**	34
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010–11	74	128	95	170	**56**	31
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010–11 [4]	74	168	166	280	**88**	44
B5. Combination of B1-B4 using one-half standard deviation shocks	74	149	144	246	**78**	40
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 [5]	74	171	127	227	**74**	42
Debt service-to-exports ratio						
Baseline	8	7	8	9	**2**	3
A. Alternative Scenarios						
A1. Key variables at their historical averages in 2009–29 [1]	8	5	4	2	**0**	-2
A2. New public sector loans on less favorable terms in 2009–29 [2]	8	5	7	8	**3**	3
A2. No oil production	6	5	6	6	**25**	104
B. Bound Tests						
B1. Real GDP growth at historical average minus one standard deviation in 2010–11	8	5	6	6	**2**	3
B2. Export value growth at historical average minus one standard deviation in 2010–11 [3]	8	8	13	14	**3**	6
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010–11	8	5	6	6	**2**	3
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010–11 [4]	8	5	7	9	**2**	4
B5. Combination of B1-B4 using one-half standard deviation shocks	8	6	9	11	**3**	5
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 [5]	8	5	6	6	**2**	3

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 2a.Sao Tome and Principe: Public Sector Debt Sustainability Framework, Baseline Scenario, 2006–29
(In percent of GDP, unless otherwise indicated)

	Actual					Estimate	Projections								
	2006	2007	2008	Average [5]	Standard Deviation [5]	2009	2010	2011	2012	2013	2014	2009-14 Average	2019	2029	2015-29 Average
Public sector debt [1]	300.1	108.5	65.0			35.6	42.5	46.6	49.4	50.3	50.4		29.9	16.7	
o/w foreign-currency denominated	300.1	108.5	65.0			35.6	42.5	46.6	49.4	50.3	50.4		29.9	16.7	
Change in public sector debt	-9.1	-191.7	-43.5			-29.4	7.0	4.1	2.7	1.0	0.0		-1.2	-1.4	
Identified debt-creating flows	-26.8	-165.7	-47.0			-25.1	9.7	-5.6	4.8	3.2	2.2		-15.0	-11.3	
Primary deficit	16.6	-8.7	5.3	5.4	16.2	10.2	11.3	-2.6	7.7	6.5	5.6	6.4	-13.6	-10.5	-11.5
Revenue and grants	30.8	48.1	27.5			30.9	36.3	44.5	30.7	29.0	27.9		38.5	38.9	
of which: grants	10.0	8.0	9.9			11.9	17.1	14.3	12.3	10.5	9.0		1.7	0.9	
Primary (noninterest) expenditure	47.4	39.4	32.8			41.1	47.6	41.9	38.4	35.5	33.5		24.8	28.4	
Automatic debt dynamics	-42.0	-39.2	-19.1			-7.7	-1.6	-2.9	-2.9	-3.3	-3.4		-1.4	-0.7	
Contribution from interest rate/growth differential	-25.0	-23.9	-8.0			-3.1	-2.2	-2.8	-3.2	-3.5	-3.5		-1.9	-1.0	
of which: contribution from average real interest rate	-5.6	-6.9	-2.0			-0.6	-0.2	-0.2	-0.4	-0.4	-0.4		-0.4	-0.3	
of which: contribution from real GDP growth	-19.3	-17.0	-5.9			-2.5	-2.0	-2.6	-2.8	-3.0	-3.1		-1.5	-0.8	
Contribution from real exchange rate depreciation	-17.0	-15.3	-11.1			-4.6	0.6	-0.1	0.3	0.2	0.1		...	...	
Other identified debt-creating flows	-1.4	-117.8	-33.3			-27.7	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Privatization receipts (negative)	0.0	0.0	-12.5			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)	-1.4	-117.8	-20.7			-27.7	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	17.7	-26.0	3.5			-4.3	-2.7	9.7	-2.1	-2.3	-2.2		13.8	9.9	
Other Sustainability Indicators															
PV of public sector debt	0.0	0.0	11.2			14.1	24.1	27.6	30.1	31.3	31.8		19.7	11.4	
o/w foreign-currency denominated	0.0	0.0	11.2			14.1	24.1	27.6	30.1	31.3	31.8		19.7	11.4	
o/w external	...	...	11.2			14.1	24.1	27.6	30.1	31.3	31.8		19.7	11.4	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need [2]	25.6	-6.4	6.0			11.1	12.1	-1.6	8.8	7.9	7.2		-12.6	-9.4	
PV of public sector debt-to-revenue and grants ratio (in percent)	0.0	0.0	40.6			45.6	66.5	61.9	98.1	108.0	113.9		51.1	29.3	
PV of public sector debt-to-revenue ratio (in percent)	0.0	0.0	63.3			74.2	125.9	91.4	164.1	169.6	167.9		53.5	30.0	
o/w external [3]	…	…	63.3			74.2	125.9	91.4	164.1	169.6	167.9		53.5	30.0	
Debt service-to-revenue and grants ratio (in percent) [4]	29.2	4.7	2.3			2.8	2.2	2.3	3.5	4.9	5.7		2.5	2.8	
Debt service-to-revenue ratio (in percent) [4]	43.1	5.6	3.6			4.6	4.1	3.4	5.9	7.7	8.5		2.7	2.9	
Primary deficit that stabilizes the debt-to-GDP ratio	25.7	183.0	48.8			39.7	4.3	-6.7	5.0	5.6	5.5		-12.4	-9.1	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	6.7	6.0	5.8	5.4	3.0	4.0	6.0	6.5	6.5	6.5	6.5	6.0	4.9	4.5	6.9
Average nominal interest rate on forex debt (in percent)	1.2	0.2	0.1	0.8	0.4	0.3	0.5	0.8	0.9	1.0	1.0	0.8	1.1	1.0	1.1
Average real interest rate on domestic debt (in percent)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Real exchange rate depreciation (in percent, + indicates depreciation)	-6.0	-5.5	-11.0	-1.8	7.2	-7.4	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	21.0	19.4	23.0	12.0	6.5	15.6	7.2	6.4	4.3	4.6	4.7	7.1	3.2	3.2	3.2
Growth of real primary spending (deflated by GDP deflator, in percent)	0.2	-0.1	-0.1	0.1	0.2	0.3	0.2	-0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1
Grant element of new external borrowing (in percent)	...	...	...	…	…	32.7	31.9	32.2	32.3	32.8	33.1	32.5	43.5	35.4	...

Sources: Country authorities; and staff estimates and projections.

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

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

[3] Revenues excluding grants.

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

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

Table 2b.Sao Tome and Principe: Sensitivity Analysis for Key Indicators of Public Debt 2009–29

	Projections							
	2009	2010	2011	2012	2013	2014	2019	2029
PV of Debt-to-GDP Ratio								
Baseline	14	24	28	30	31	32	20	11
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	14	18	30	31	31	31	121	284
A2. Primary balance is unchanged from 2009	14	23	39	44	48	53	130	321
A3. Permanently lower GDP growth [1]	14	24	28	31	33	35	30	59
A3. No oil production	14	24	28	30	31	32	156	308
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2010–11	14	26	33	37	39	41	38	55
B2. Primary balance is at historical average minus one standard deviations in 2010–11	14	34	62	63	63	62	40	30
B3. Combination of B1-B2 using one half standard deviation shocks	14	27	47	50	51	52	41	47
B4. One-time 30 percent real depreciation in 2010	14	32	34	36	36	37	25	19
B5. 10 percent of GDP increase in other debt-creating flows in 2010	14	34	37	39	40	41	26	17
PV of Debt-to-Revenue Ratio [2]								
Baseline	46	67	62	98	108	114	51	29
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	46	50	68	99	105	111	309	725
A2. Primary balance is unchanged from 2009	46	64	89	144	167	190	338	825
A3. Permanently lower GDP growth [1]	46	67	64	102	114	123	78	151
A3. No oil production	46	67	62	98	108	114	423	809
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2010–11	46	70	72	116	132	144	98	142
B2. Primary balance is at historical average minus one standard deviations in 2010–11	46	95	139	206	218	224	105	78
B3. Combination of B1-B2 using one half standard deviation shocks	46	73	104	160	174	184	105	120
B4. One-time 30 percent real depreciation in 2010	46	87	76	116	125	131	64	50
B5. 10 percent of GDP increase in other debt-creating flows in 2010	46	94	84	129	139	145	66	43
Debt Service-to-Revenue Ratio [2]								
Baseline	3	2	2	4	5	6	3	3
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	3	2	2	4	5	6	11	38
A2. Primary balance is unchanged from 2009	3	2	2	5	7	8	12	45
A3. Permanently lower GDP growth [1]	3	2	2	4	5	6	3	8
A3. No oil production	3	2	2	4	5	6	7	30
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2010–11	3	2	2	4	6	7	4	9
B2. Primary balance is at historical average minus one standard deviations in 2010–11	3	2	3	8	10	10	5	8
B3. Combination of B1-B2 using one half standard deviation shocks	3	2	3	6	8	8	5	9
B4. One-time 30 percent real depreciation in 2010	3	3	3	5	7	9	4	6
B5. 10 percent of GDP increase in other debt-creating flows in 2010	3	2	3	5	6	7	3	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.