INTERNATIONAL MONETARY FUND AND
INTERNATIONAL DEVELOPMENT ASSOCIATION

SAMOA

Joint IMF/World Bank Debt Sustainability Analysis 2010[1]

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

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Based on the low income country debt sustainability analysis (LIC DSA), Samoa remains at low risk of debt distress.[2] The overall assessment of debt distress is not substantively different from the last joint DSA (IMF Country Report No. 07/185). Samoa's external and public sector debt remains sustainable even after significant borrowing to finance post-tsunami reconstruction. The present value (PV) of external debt to GDP is projected to peak at 40 percent under the baseline scenario. This leaves a cushion relative to the policy-dependent threshold of 50 percent for Samoa to absorb future shocks. Large worker remittance flows equivalent to 25 percent of GDP provide a further cushion. However, it will remain important for Samoa to continue seeking concessional financing. Borrowing on non-concessional terms to finance reconstruction would significantly eat into the borrowing cushion.

I. Background

1. **The external and public debt sustainability analyses are based on the standard LIC DSA framework.[3]** The DSA presents the projected path of Samoa's external- and

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[1] This DSA was prepared jointly with the World Bank, and in collaboration with the Asian Development Bank, in accordance with the Debt Sustainability Framework for low-income countries approved by the Executive Boards of the IMF and IDA. The debt data underlying this exercise were provided by the Samoan authorities.

[2] Samoa is classified as a "strong performer" according to the three-year average of IDA's Country Policy and Institutional Assessment (CPIA) index under the joint IMF/IDA debt sustainability framework. The thresholds for "strong performers" are: 50 percent for PV of debt to GDP; 200 percent for PV of debt to exports; 300 percent for PV of debt to revenues; 25 percent debt service to exports; and 35 percent debt service to revenues.

[3] See "Debt Sustainability in Low-Income Countries: Proposal for an Operational Framework and Policy Implications" (http://www.imf.org/external/np/pdr/sustain/2004/020304.htm and IDA/SECM2004/0035, 2/3/04), "Debt Sustainability in Low-Income Countries: Further Considerations on an Operational Framework and Policy Implications" (http://www.imf.org/external/np/pdr/sustain/2004/091004.htm and IDA/SECM2004/0629,

(continued)

public-sector debt burden indicators, and draws some conclusions on the forward-looking sustainability of debt.

2. **Samoa's pre-tsunami stock of external debt as of June 2009 was relatively low.** The stock of external debt was below 40 and 30 percent of GDP in nominal and present value terms, respectively. Virtually all of Samoa's public debt is external. The stock of domestic public debt is small, around 2.3 percent of GDP in nominal terms composed mainly of state-owned enterprise debt for which the government has assumed responsibility. The government has not issued any domestic debt since 2006. Contingent liabilities related to existing guarantees on the state-owned enterprise (SOE)'s stock of debt amount to about 1.1 percent of GDP in nominal terms. Together with interest-only guarantees on SOE debt, contingent liabilities amount to about 1.2 percent of GDP on present value terms (Table 1a).

3. **Multilateral debt comprises the vast majority of the debt stock.** The Asian Development Bank is the largest creditor with claims amounting to 41 percent of Samoa's external debt stock. The largest bilateral creditor is China, which holds 16 percent of Samoa's external debt.

4. **Samoa pursues a sound public debt management strategy**. Quantitative targets are set to keep nominal net public debt at less than 40 percent of GDP and the government actively seeks to borrow on concessional terms. In addition, a recent World Bank Debt Management Performance Assessment identified a number of strengths particularly in the areas of governance of debt and the overall debt management strategy. It also noted a few areas that required further attention, including the need for a single Treasury account to improve cash management.[4]

II. Baseline Scenario

5. **The baseline scenario assumptions are presented in Box 1.** The financing requirement for the post-tsunami recovery framework leads to a sizeable buildup in the stock of external debt over the near to medium term. This build up is incorporated into the baseline scenario for the updated debt sustainability analysis and includes IMF financing provided in December 2009 under the Exogenous Shocks Facility amounting to 3 percent of Samoa's external debt. Nonetheless, the debt ratios remain within their policy dependent thresholds (50 percent of GDP for low risk of debt distress rating) under the baseline scenario. The baseline also assumes that the authorities, as is their intention, approach donors to request additional support in the form of grants and concessional loans to cover the projected financing gaps.

9/10/04), and reference to "Staff Guidance Note on the Application of the Joint Bank-Fund Debt Sustainability Framework for Low-Income Countries" (http://www.imf.org/external/pp/longres.aspx?id=4419).

[4] *Debt Management Assessment Performance* prepared by the World Bank (January 2010).

BOX 1. KEY ASSUMPTIONS

Real GDP growth: Real GDP is projected to contract about 3 percent in the first year after the September 2009 tsunami, which severely hit the tourism sector. However, with economic activity returning to normal and post-tsunami infrastructure rehabilitation spending providing a further boost, GDP growth could converge quickly to its long-run potential, which is assumed to be 3 percent, slightly below historical averages.

Inflation: The change in the average CPI is expected to decline to around zero percent y/y at the end of FY 2009/10 on base effects from lower global food and commodity prices and unusually strong food supply before returning towards its long-run average as economic growth picks up in 2011 and beyond.

Fiscal balance: The government's post-tsunami economic recovery framework for the four years through 2012/13 has a fiscal cost of about 18 percent of GDP. As a result, the fiscal deficit is projected to widen to 10 percent of GDP in FY 2009/10 and average 7 percent of GDP the following three years of reconstruction. However, the government remains committed to reducing the fiscal deficit to less than three percent of GDP once reconstruction is completed in 2013.

External sector: The non-interest current account deficit will also widen significantly in FY 2009/10 on the back of tsunami-related reconstruction imports and a fall in tourism receipts and remain elevated through 2013, when reconstruction is expected to be completed. Net FDI inflows as a percent of GDP is assumed to grow very gradually to 7 percent of GDP at the end of the projection period, as the tourism sector develops further and investment levels converge with those in other Pacific islands.

Financing flows: The government has secured donor commitments to finance tsunami-related expenditures into FY 2010/11 and is committed to seeking concessional assistance to finance the remainder of the economic recovery framework. Remittances remained stable during the global financial crisis, and are expected to remain significant throughout the projection period, growing in line with source countries' income. No financing from privatizations, commercial loans, or short-term loans is assumed throughout the period.

III. EXTERNAL DEBT SUSTAINABILITY ANALYSIS

Baseline

6. **Under the baseline, Samoa's external debt burden indicators remain below the indicative thresholds, which is consistent with debt sustainability throughout the projection period.** The PV of external debt to GDP peaks at slightly over 40 percent in 2013 and then gradually falls to 25 percent in 2030 – well below Samoa's policy-dependent

threshold level of 50 percent. The present value of debt to exports and debt service to exports remain below their relevant thresholds. If remittances were added to the denominator for debt service, the ratio would be well below 3.5 percent throughout the projection period compared to a policy-dependent threshold for debt-service to exports of 25 percent. The baseline ratios exceed those generated under a scenario where the key variables are set at their historical averages because GDP and export growth under the baseline scenario are below their historical averages.

7. **Relative to the last staff report on the authorities' ESF/RAC request after the 2009 Tsunami (IMF Country Report No. 10/46) the external debt-to-GDP and external debt-to-exports ratios differ only slightly.** Specifically, the present value of external debt to GDP is a little higher due to a lower projected nominal GDP growth, while the present value of external debt to exports is somewhat lower because of a greater concentration of grant financing in 2009 and 2010 than was assumed in IMF Country Report No. 10/46. In addition, exports of services are projected to be slightly higher in FY2009/10 due to an unexpected temporary increase in volunteer arrivals in the first quarter of the year and additional sporting events (Table 2a).

8. **Under the various bound tests, the ratios remain manageable for the shocks considered (Table 2b and Figure 1).** The combination shock using one-half standard deviation shocks for real GDP and export value growth and the U.S. dollar deflator is the most extreme shock. Only the PV of debt-to-GDP peaks above its respective indicative threshold of 50 percent before falling back below the threshold by 2020. If remittances are included, the PV of debt-to-GDP-and-remittances ratio peaks above the lower modified threshold of 45 percent for only four years before falling below the modified threshold in 2016 (Figure 3). All other indicators remain below, often by a wide margin, their thresholds.

Non-concessional borrowing

9. **Staff also made calculations in which the remaining tsunami-related financing gap is filled on non-concessional terms.** The main purpose of these calculations is to illustrate that, notwithstanding a generally favorable debt outlook, the authorities' commitment to only seek concessional assistance to finance tsunami-related reconstruction is appropriate. Staff assumed the authorities could borrow at 9.25 percent per annum for a term of five years, similar to the terms on Senegal's euro-bond issued in December 2009. The additional cost associated with non-concessional borrowing would absorb a significant portion of the cushion provided for borrowing in the event of a shock under the baseline scenario. Specifically, non-concessional borrowing adds about five percentage points of GDP to the present value of external debt to GDP relative to the baseline. This would leave a cushion of less than four percent of GDP for additional borrowing in the event of shock before the present value of external debt-to-GDP ratio would breach the policy-dependent threshold.

Samoa: Present value of public sector debt under baseline and non-concessional borrowing scenarios
(In percent of GDP)

	2009/10	2010/11	2011/12	2012/13
Tsunami-related financing need	-1.2	0.4	2.9	3.9
PV of public sector debt under baseline scenario	38.6	41.0	41.9	41.8
PV of public sector debt under non-concessional borrowing scenario	38.6	41.4	44.3	46.6

Source: Fund staff estimates.

IV. Fiscal Debt Sustainability Analysis

10. **The baseline scenario for the updated public sector debt sustainability now includes data on SOE debt.** The government has guaranteed 12 SOE loans contracted with the Samoa National Provident Fund and two commercial banks. The guarantees are equivalent to about 3.2 percent of GDP. The creditors have exercised guarantees on four of the loans and the government has assumed responsibility for servicing the loans. The rest remain contingent liabilities of the government.

11. **Public sector debt under the baseline scenario[5] also is sustainable and in line with the authorities debt management strategy.** The present value of public sector debt relative to GDP briefly exceeds the government's target of 40 percent of GDP during the reconstruction period before falling below the target ceiling in 2015 (Table 1b and Figure 2). Under this alternative scenario, in which the primary balance is held unchanged from 2010, the PV of debt-to-GDP ratio breaches the policy-dependent threshold in 2014 and continues to rise thereafter and the PV of debt-to-exports ratio follows a similar trajectory. This highlights the need for the government to follow through on its commitment to reduce the fiscal deficit to less than three percent of GDP once reconstruction is completed in 2013. Under all other shock scenarios, the public debt ratios remain below their policy dependent thresholds.[6]

V. Conclusion

12. **Samoa remains at low risk of debt distress**. Although the debt ratios will rise significantly over the next three to four years as the government receives foreign financing to recover from the 2009 tsunami, the debt outlook is expected to remain favorable, given a low initial level of indebtedness, Samoa's track record of prudent macroeconomic management, and assuming the tourism sector returns to trend growth. As a result, the overall assessment of debt distress is not substantively different from the last joint DSA (IMF Country Report

[5] The fiscal baseline assumes that creditors do not exercise existing guarantees on SOE debt.

[6] While the PV of debt-to-GDP ratio also exceeds its policy-dependent threshold initially due to a one-time real deprecation, it follows a downward trajectory and drops below 50 percent of GDP in 2015.

No. 07/185). The present value (PV) of external debt to GDP is projected to peak at 40 percent under the baseline scenario. This leaves a cushion relative to the policy-dependent threshold of 50 percent for Samoa to absorb future shocks. Even under the most extreme stress test scenarios, most indicators of debt sustainability, except for the PV of debt-to-GDP ratio, remain below their indicative thresholds, often by a wide margin. Large worker remittance flows equivalent to 25 percent of GDP provide a further cushion. If these are included, the PV of debt-to-GDP-and-remittances ratio remains below its lower modified threshold under all alternative shocks considered except for a very temporary breach of the threshold by a small margin in the combination shock. However, it will remain important for Samoa to continue seeking concessional financing. Borrowing on non-concessional terms to finance reconstruction would significantly eat into the borrowing cushion.

Table 1a. Samoa: Public Sector Debt Sustainability Framework, Baseline Scenario, 2007-2030
(In percent of GDP, unless otherwise indicated)

	Actual			Average	Standard Deviation	Projections									
	2007	2008	2009			2010	2011	2012	2013	2014	2015	2010-15 Average	2020	2030	2016-30 Average
Public sector debt 1/	37.1	30.3	40.4			54.3	59.7	61.3	61.5	59.4	57.1		47.7	37.3	
o/w foreign-currency denominated	37.1	30.3	38.1			52.4	58.1	59.8	60.2	58.3	56.2		47.4	37.3	
Change in public sector debt	-3.0	-6.8	10.1			14.0	5.4	1.5	0.2	-2.1	-2.3		-1.7	-0.5	
Identified debt-creating flows	-6.2	-1.2	3.7			10.8	4.9	2.0	1.4	-2.0	-1.6		-0.9	-0.1	
Primary deficit	-1.4	1.6	3.3	0.6	1.8	8.6	8.8	4.8	4.5	1.4	1.7	5.0	1.9	2.1	2.0
Revenue and grants	36.4	30.9	32.0			39.8	33.7	33.4	32.9	31.4	31.3		31.3	31.3	
of which: grants	7.4	5.2	7.2			15.0	8.6	7.6	6.6	5.8	5.7		5.7	5.7	
Primary (noninterest) expenditure	35.1	32.5	35.4			48.4	42.4	38.2	37.5	32.8	33.0		33.2	33.4	
Automatic debt dynamics	-4.8	-2.8	0.4			2.2	-3.9	-2.8	-3.1	-3.4	-3.3		-2.8	-2.2	
Contribution from interest rate/growth differential	-1.3	-2.6	1.3			1.3	-1.9	-1.7	-2.0	-2.2	-2.2		-1.9	-1.5	
of which: contribution from average real interest rate	-0.4	-0.8	-0.3			0.2	-0.3	-0.4	-0.4	-0.5	-0.5		-0.5	-0.4	
of which: contribution from real GDP growth	-0.9	-1.8	1.6			1.2	-1.6	-1.3	-1.5	-1.8	-1.7		-1.4	-1.1	
Contribution from real exchange rate depreciation	-3.6	-0.2	-0.9			0.8	-2.0	-1.1	-1.2	-1.2	-1.1		…	…	
Other identified debt-creating flows	0.0	0.0	0.0			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)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Other (specify, e.g. bank recapitalization)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Residual, including asset changes	3.2	-5.5	6.3			3.1	0.6	-0.5	-1.2	0.0	-0.7		-0.8	-0.4	
Other Sustainability Indicators															
PV of public sector debt	…	…	30.2			38.6	41.0	41.9	41.8	40.5	39.0		33.0	25.5	
o/w foreign-currency denominated	…	…	27.9			36.7	39.4	40.4	40.5	39.4	38.1		32.6	25.5	
o/w external	…	…	27.9			36.7	39.4	40.4	40.5	39.4	38.1		32.6	25.5	
PV of contingent liabilities (not included in public sector debt)	…	…	1.2			1.1	0.9	0.7	0.6	0.5	0.4		0.1	0.0	
Gross financing need 2/	0.3	2.8	4.9			11.0	10.9	6.9	6.7	3.5	3.8		3.9	3.5	
PV of public sector debt-to-revenue and grants ratio (in percent)	…	…	94.2			97.1	121.8	125.5	126.8	128.8	124.7		105.4	81.3	
PV of public sector debt-to-revenue ratio (in percent)	…	…	121.5			156.0	163.5	162.2	158.7	157.8	152.5		128.8	99.4	
o/w external 3/	…	…	112.3			148.1	156.9	156.6	154.0	153.6	149.0		127.5	99.4	
Debt service-to-revenue and grants ratio (in percent) 4/	4.7	4.1	4.9			5.9	6.3	6.2	6.6	6.8	6.6		6.3	4.4	
Debt service-to-revenue ratio (in percent) 4/	5.8	4.9	6.4			9.5	8.5	8.0	8.2	8.4	8.1		7.6	5.4	
Primary deficit that stabilizes the debt-to-GDP ratio	1.7	8.3	-6.7			-5.3	3.4	3.3	4.3	3.5	4.0		3.6	2.6	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	2.3	5.0	-4.9	3.7	3.8	-2.8	3.0	2.2	2.6	3.0	3.0	1.8	3.0	3.0	3.0
Average nominal interest rate on forex debt (in percent)	2.2	0.7	1.7	1.7	2.2	1.5	1.1	1.0	1.0	1.0	1.0	1.1	0.9	0.8	0.9
Average real interest rate on domestic debt (in percent)	…	…	……	…	…	9.6	3.8	5.8	5.8	5.8	5.8	6.1	5.6	1.6	4.9
Real exchange rate depreciation (in percent, + indicates depreciation)	-9.2	-0.6	-2.8	-5.2	5.6	2.1	…	…	…	…	…	…	…	…	…
Inflation rate (GDP deflator, in percent)	7.0	4.9	9.8	3.9	4.6	-0.5	6.1	4.0	4.0	4.0	3.9	3.6	3.9	3.9	3.9
Growth of real primary spending (deflated by GDP deflator, in percent)	0.2	0.0	0.0	0.0	0.1	0.3	-0.1	-0.1	0.0	-0.1	0.0	0.0	0.0	0.0	0.0
Grant element of new external borrowing (in percent)	…	…	…	…	…	40.9	44.9	42.3	44.8	43.7	43.1	43.3	43.1	43.1	…

Sources: Samoan authorities; and staff estimates and projections.

1/ Includes publicly guaranteed debt .

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 for the past 10 years.

Table 1b.Samoa: 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	39	41	42	42	40	39	33	25
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	39	35	32	29	28	26	17	7
A2. Primary balance is unchanged from 2010	39	41	45	47	51	55	69	90
A3. Permanently lower GDP growth 1/	39	42	43	44	43	43	44	58
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2011-2012	39	43	46	47	46	46	43	41
B2. Primary balance is at historical average minus one standard deviations in 2011-2012	39	36	36	36	35	33	28	23
B3. Combination of B1-B2 using one half standard deviation shocks	39	36	35	35	34	34	30	26
B4. One-time 30 percent real depreciation in 2011	39	54	53	52	50	48	39	27
B5. 10 percent of GDP increase in other debt-creating flows in 2011	39	48	49	49	47	46	38	28
PV of Debt-to-Revenue Ratio 2/								
Baseline	97	122	125	127	129	125	105	81
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	97	104	97	90	89	83	56	24
A2. Primary balance is unchanged from 2010	97	122	134	144	163	174	222	288
A3. Permanently lower GDP growth 1/	97	123	128	132	137	136	138	181
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2011-2012	97	126	135	140	146	144	137	130
B2. Primary balance is at historical average minus one standard deviations in 2011-2012	97	108	107	108	110	107	90	73
B3. Combination of B1-B2 using one half standard deviation shocks	97	107	104	107	109	107	95	84
B4. One-time 30 percent real depreciation in 2011	97	160	159	157	158	152	123	87
B5. 10 percent of GDP increase in other debt-creating flows in 2011	97	144	147	148	150	145	122	91
Debt Service-to-Revenue Ratio 2/								
Baseline	6	6	6	7	7	7	6	4
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	6	6	6	6	6	6	4	1
A2. Primary balance is unchanged from 2010	6	6	6	7	7	7	8	16
A3. Permanently lower GDP growth 1/	6	6	6	7	7	7	7	8
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2011-2012	6	6	6	7	7	7	7	7
B2. Primary balance is at historical average minus one standard deviations in 2011-2012	6	6	6	6	6	6	5	3
B3. Combination of B1-B2 using one half standard deviation shocks	6	6	6	6	6	6	5	4
B4. One-time 30 percent real depreciation in 2011	6	7	8	9	10	9	9	8
B5. 10 percent of GDP increase in other debt-creating flows in 2011	6	6	7	7	7	7	8	6

Sources: Samoan 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.

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

	Actual			Historical Average	Standard Deviation	Projections													
	2007	2008	2009			2010	2011	2012	2013	2014	2015	2010-2015 Average	2016	2017	2018	2019	2020	2030	2016-2030 Average
External debt (nominal) 1/	**37.1**	**30.3**	**38.1**			**52.4**	**58.1**	**59.8**	**60.2**	**58.3**	**56.2**		**54.3**	**52.4**	**50.6**	**49.0**	**47.4**	**37.3**	
o/w public and publicly guaranteed (PPG)	37.1	30.3	38.1			52.4	58.1	59.8	60.2	58.3	56.2		54.3	52.4	50.6	49.0	47.4	37.3	
Change in external debt	-3.0	-6.8	7.8			14.3	5.7	1.7	0.4	-1.9	-2.1		-1.9	-1.9	-1.7	-1.7	-1.6	-0.5	
Identified net debt-creating flows	-4.7	1.9	-8.2			6.6	8.9	4.5	3.2	-1.6	-2.4		-3.1	-3.4	-4.5	-5.2	-5.7	-6.6	
Non-interest current account deficit	**15.2**	**5.9**	**1.5**	**7.1**	**4.0**	**19.5**	**19.5**	**15.1**	**13.8**	**8.6**	**8.0**	14.1	**7.4**	**7.2**	**6.9**	**6.9**	**6.9**	**6.9**	7.0
Deficit in balance of goods and services	28.6	20.9	21.4			39.4	37.7	35.0	35.9	31.4	30.2		29.0	28.2	26.8	26.0	25.2	18.6	
Exports	32.7	32.4	31.3			29.7	31.9	33.5	34.4	35.4	36.4		37.3	38.3	39.1	39.8	40.7	46.6	
Imports	61.3	53.4	52.7			69.1	69.6	68.5	70.3	66.8	66.5		66.3	66.5	65.9	65.8	66.0	65.2	
Net current transfers (negative = inflow)	-19.9	-22.3	-22.5	-21.3	1.7	-25.3	-25.2	-26.1	-26.6	-27.3	-26.7	-26.2	-26.0	-25.4	-24.8	-24.3	-23.7	-18.8	-22.2
o/w official	-0.4	-0.4	-0.7			-1.2	-1.0	-1.0	-0.9	-0.8	-0.8		-0.7	-0.7	-0.6	-0.6	-0.6	-0.3	
Other current account flows (negative = net inflow)	6.4	7.2	2.6			5.4	7.0	6.3	4.5	4.6	4.5		4.4	4.5	4.9	5.2	5.4	7.1	
Net FDI and official capital transfers (negative = inflow)	**-15.5**	**-5.4**	**-7.4**	**-8.0**	**3.1**	**-14.6**	**-9.7**	**-10.0**	**-9.8**	**-9.1**	**-9.3**	-10.4	**-9.5**	**-9.6**	**-10.4**	**-11.1**	**-11.7**	**-12.6**	-11.8
Endogenous debt dynamics 2/	**-4.4**	**1.4**	**-2.3**			**1.7**	**-0.9**	**-0.6**	**-0.9**	**-1.1**	**-1.1**		**-1.1**	**-1.1**	**-1.0**	**-1.0**	**-1.0**	**-0.8**	
Contribution from nominal interest rate	0.8	0.3	0.5			0.6	0.5	0.6	0.6	0.6	0.5		0.5	0.5	0.4	0.4	0.4	0.3	
Contribution from real GDP growth	-0.8	-1.9	1.4			1.1	-1.5	-1.2	-1.5	-1.7	-1.6		-1.6	-1.5	-1.5	-1.4	-1.4	-1.1	
Contribution from price and exchange rate changes	-4.4	3.0	-4.2			…	…	…	…	…	…		…	…	…	…	…	…	
Residual (3-4) 3/	**1.7**	**-8.7**	**16.0**			**7.7**	**-3.2**	**-2.7**	**-2.8**	**-0.2**	**0.3**		**1.2**	**1.5**	**2.8**	**3.5**	**4.1**	**6.0**	
o/w exceptional financing	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
PV of external debt 4/	…	…	27.9			36.7	39.4	40.4	40.5	39.4	38.1		37.0	35.8	34.7	33.7	32.6	25.5	
In percent of exports	…	…	89.2			123.5	123.3	120.8	117.8	111.1	104.9		99.2	93.4	88.9	84.6	80.1	54.6	
PV of PPG external debt	**…**	**…**	**27.9**			**36.7**	**39.4**	**40.4**	**40.5**	**39.4**	**38.1**		**37.0**	**35.8**	**34.7**	**33.7**	**32.6**	**25.5**	
In percent of exports	**…**	**…**	**89.2**			**123.5**	**123.3**	**120.8**	**117.8**	**111.1**	**104.9**		**99.2**	**93.4**	**88.9**	**84.6**	**80.1**	**54.6**	
In percent of government revenues	**…**	**…**	**112.3**			**148.1**	**156.9**	**156.6**	**154.0**	**153.6**	**149.0**		**144.6**	**139.9**	**135.8**	**131.6**	**127.5**	**99.4**	
Debt service-to-exports ratio (in percent)	**5.2**	**3.9**	**5.1**			**6.3**	**5.7**	**5.3**	**5.6**	**5.4**	**5.1**		**4.8**	**5.0**	**4.6**	**4.6**	**4.6**	**3.0**	
PPG debt service-to-exports ratio (in percent)	**5.2**	**3.9**	**5.1**			**6.3**	**5.7**	**5.3**	**5.6**	**5.4**	**5.1**		**4.8**	**5.0**	**4.6**	**4.6**	**4.6**	**3.0**	
PPG debt service-to-revenue ratio (in percent)	**5.8**	**4.9**	**6.4**			**7.5**	**7.3**	**6.9**	**7.3**	**7.5**	**7.3**		**7.0**	**7.5**	**7.0**	**7.1**	**7.2**	**5.4**	
Total gross financing need (Billions of U.S. dollars)	0.0	0.0	0.0			0.0	0.1	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	-0.1	
Non-interest current account deficit that stabilizes debt ratio	18.2	12.7	-6.2			5.3	13.8	13.4	13.4	10.5	10.1		9.3	9.2	8.6	8.5	8.5	7.4	
Key macroeconomic assumptions																			
Real GDP growth (in percent)	2.3	5.0	-4.9	3.7	3.8	-2.8	3.0	2.2	2.6	3.0	3.0	1.8	3.0	3.0	3.0	3.0	3.0	3.0	3.0
GDP deflator in US dollar terms (change in percent)	12.3	-7.6	15.9	6.6	10.6	-0.5	6.1	4.0	4.0	4.0	3.9	3.6	3.9	3.9	3.9	3.9	3.9	3.9	3.9
Effective interest rate (percent) 5/	2.2	0.7	1.7	1.7	2.2	1.5	1.1	1.0	1.0	1.0	1.0	1.1	0.9	0.9	0.9	0.9	0.9	0.8	0.9
Growth of exports of G&S (US dollar terms, in percent)	12.8	-3.8	6.2	11.3	9.8	-8.2	17.5	11.3	9.6	10.4	9.8	8.4	9.8	9.9	9.1	9.1	9.4	8.4	8.8
Growth of imports of G&S (US dollar terms, in percent)	16.4	-15.6	8.7	11.8	11.6	27.0	10.0	4.6	9.6	1.8	6.6	9.9	6.7	7.3	6.1	6.8	7.3	7.0	6.9
Grant element of new public sector borrowing (in percent)	…	…	…	…	…	40.9	44.9	42.3	44.8	43.7	43.1	43.3	43.1	43.1	43.1	43.1	43.1	43.1	43.1
Government revenues (excluding grants, in percent of GDP)	29.1	25.7	24.8			24.8	25.1	25.8	26.3	25.6	25.6		25.6	25.6	25.6	25.6	25.6	25.6	25.6
Aid flows (in Billions of US dollars) 7/	0.0	0.0	0.0			0.1	0.1	0.1	0.1	0.1	0.1		0.1	0.1	0.1	0.1	0.1	0.2	
o/w Grants	0.0	0.0	0.0			0.1	0.1	0.0	0.0	0.0	0.0		0.0	0.1	0.1	0.1	0.1	0.1	
o/w Concessional loans	0.00	0.00	0.00			0.07	0.07	0.04	0.04	0.03	0.02		0.03	0.03	0.03	0.03	0.03	0.06	
Grant-equivalent financing (in percent of GDP)	…	…	…			20.8	13.7	10.2	9.1	7.3	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0
Grant-equivalent financing (in percent of external financing)	…	…	…			71.2	68.5	73.6	75.0	78.8	80.1		80.1	80.1	80.1	80.1	80.1	80.1	80.1
Memorandum items:																			
Nominal GDP (Billions of US dollars)	0.5	0.5	0.6			0.5	0.6	0.6	0.7	0.7	0.8		0.8	0.9	0.9	1.0	1.1	2.1	
Nominal dollar GDP growth	14.9	-3.0	10.2			-3.3	9.3	6.3	6.7	7.1	7.0	5.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Sources: Samoan authorities; and staff estimates and projections.

1/ Public external debt. Fiscal year ending in June.
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 for the past 10 years.
7/ Defined as grants, concessional loans, and debt relief.

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

	Projections					
	2010	2011	2012	2013	**2020**	2030
PV of Debt-to GDP Ratio						
Baseline	37	39	40	41	**33**	25
A. Alternative Scenarios						
A1. Key variables at their historical averages in 2010-2030 1/	37	33	29	26	**24**	38
A2. New public sector loans on less favorable terms in 2010-2030 2	37	43	46	47	**43**	40
B. Bound Tests						
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	37	41	43	43	**34**	27
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	37	42	47	47	**38**	27
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	37	44	48	49	**39**	31
B4. Net non-debt creating flow s at historical average minus one standard deviation in 2011-2012 4/	37	45	53	53	**42**	29
B5. Combination of B1-B4 using one-half standard deviation shocks	37	49	62	62	**49**	33
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	37	55	56	57	**45**	35
PV of Debt-to-Exports Ratio						
Baseline	123	123	121	118	**80**	55
A. Alternative Scenarios						
A1. Key variables at their historical averages in 2010-2030 1/	123	103	88	76	**60**	81
A2. New public sector loans on less favorable terms in 2010-2030 2	123	135	136	137	**106**	86
B. Bound Tests						
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	123	123	121	118	**80**	55
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	123	152	178	173	**117**	74
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	123	123	121	118	**80**	55
B4. Net non-debt creating flow s at historical average minus one standard deviation in 2011-2012 4/	123	142	158	153	**103**	62
B5. Combination of B1-B4 using one-half standard deviation shocks	123	161	196	189	**127**	74
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	123	123	121	118	**80**	55
PV of Debt-to-Revenue Ratio						
Baseline	148	157	157	154	**127**	99
A. Alternative Scenarios						
A1. Key variables at their historical averages in 2010-2030 1/	148	131	114	99	**95**	147
A2. New public sector loans on less favorable terms in 2010-2030 2	148	171	177	180	**169**	157
B. Bound Tests						
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	148	162	165	162	**134**	105
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	148	167	182	178	**147**	106
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	148	174	188	185	**153**	119
B4. Net non-debt creating flow s at historical average minus one standard deviation in 2011-2012 4/	148	181	205	200	**164**	113
B5. Combination of B1-B4 using one-half standard deviation shocks	148	197	240	234	**191**	127
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	148	219	218	215	**178**	139

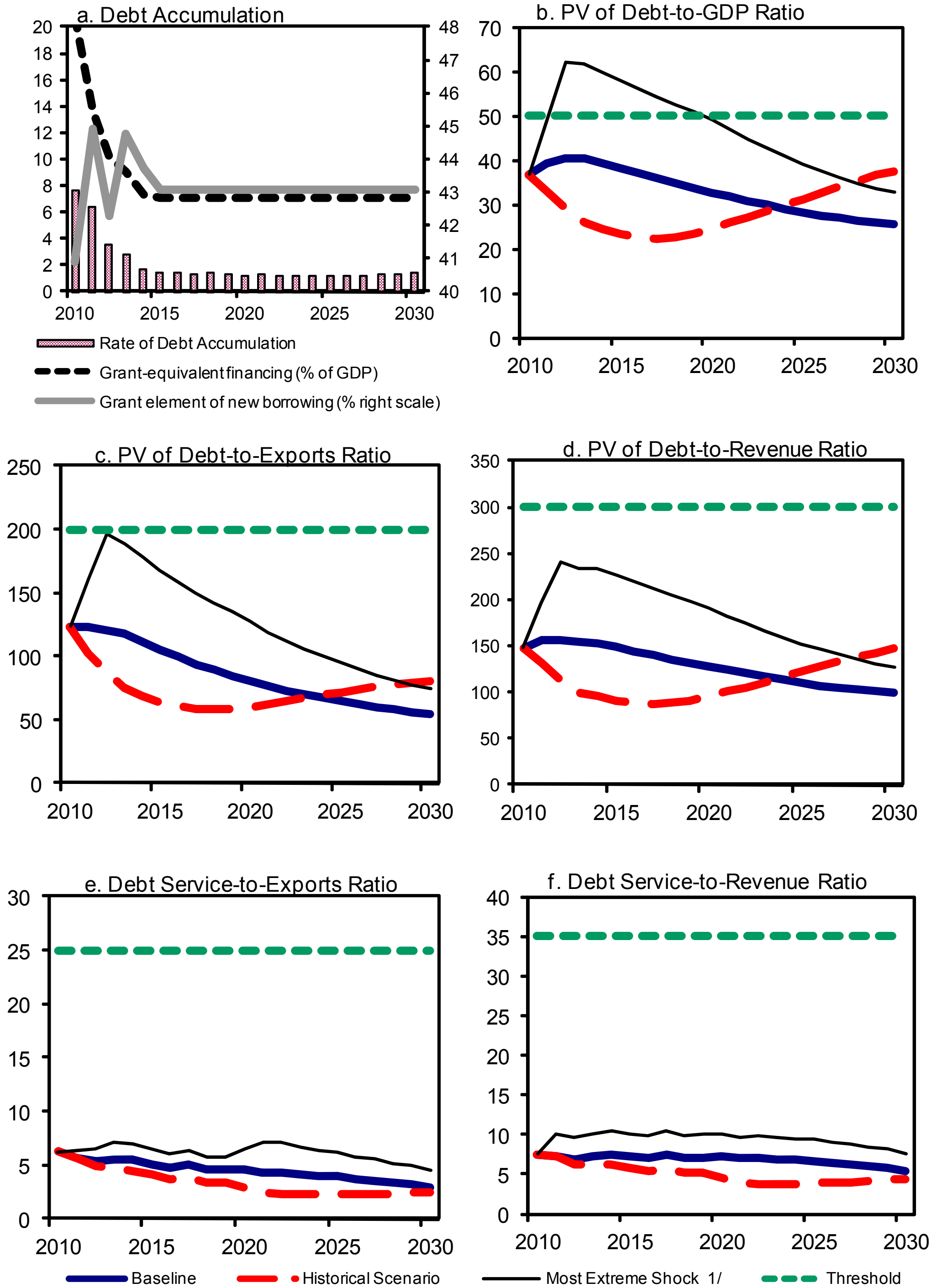
Table 2b. Samoa: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2010-2030 (continued)
(In percent)

	Projections					
	2010	2011	2012	2013	**2020**	2030
Debt Service-to-Exports Ratio						
Baseline	6	6	5	6	**5**	3
A. Alternative Scenarios						
A1. Key variables at their historical averages in 2010-2030 1/	6	6	5	5	**3**	2
A2. New public sector loans on less favorable terms in 2010-2030 2	6	6	6	6	**6**	5
B. Bound Tests						
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	6	6	5	6	**5**	3
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	6	7	7	7	**6**	4
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	6	6	5	6	**5**	3
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/	6	6	6	6	**5**	4
B5. Combination of B1-B4 using one-half standard deviation shocks	6	6	6	7	**7**	4
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	6	6	5	6	**5**	3
Debt Service-to-Revenue Ratio						
Baseline	8	7	7	7	**7**	5
A. Alternative Scenarios						
A1. Key variables at their historical averages in 2010-2030 1/	8	7	6	6	**5**	4
A2. New public sector loans on less favorable terms in 2010-2030 2	8	7	7	8	**9**	8
B. Bound Tests						
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	8	7	7	8	**8**	6
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	8	7	7	8	**8**	6
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	8	8	8	9	**9**	6
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/	8	7	7	8	**9**	7
B5. Combination of B1-B4 using one-half standard deviation shocks	8	8	8	9	**10**	8
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	8	10	10	10	**10**	8
Memorandum item:						
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	42	42	42	42	**42**	42

Sources: Samoan 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.

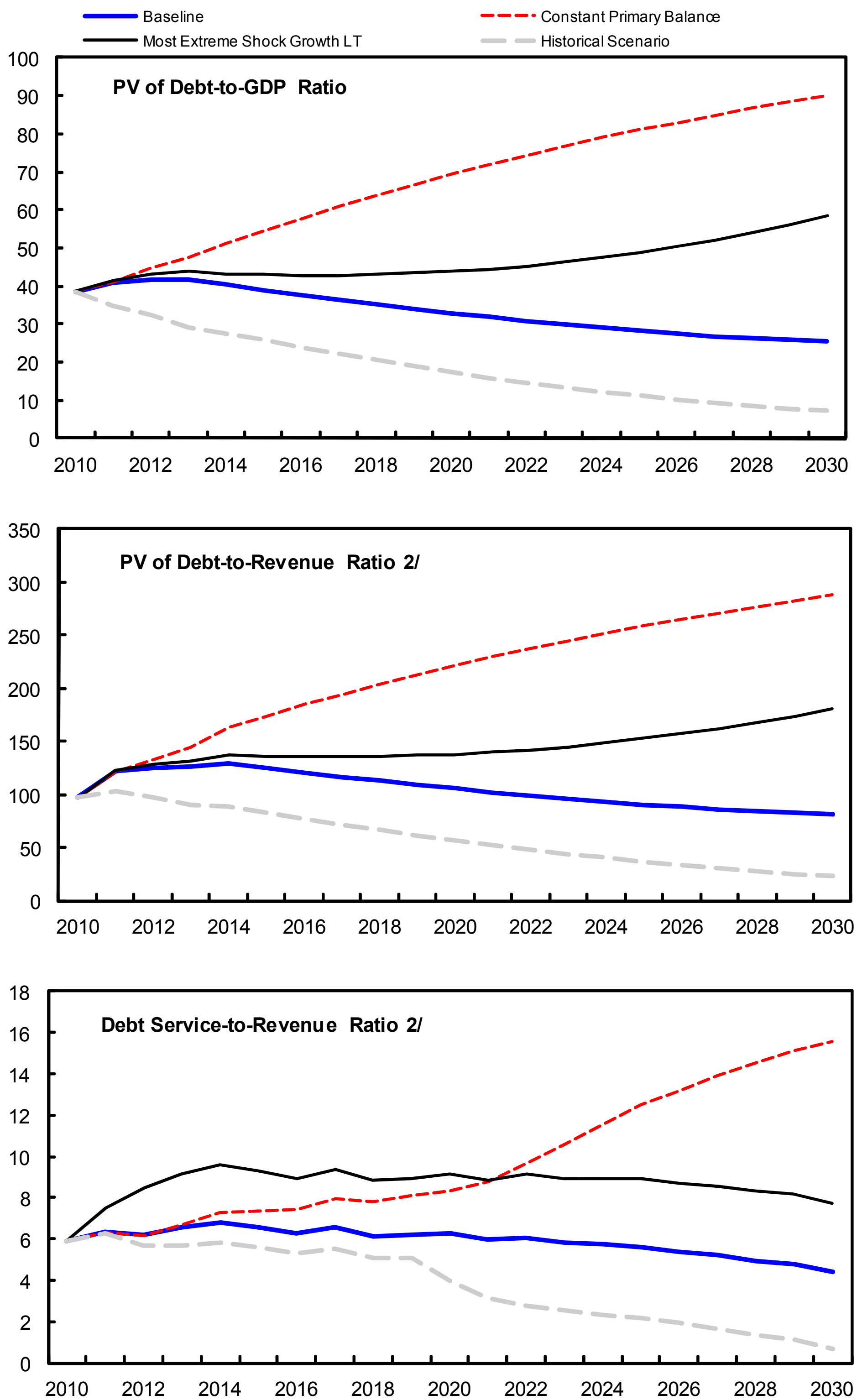
Figure 1. Samoa: Indicators of Public and Publicly Guaranteed External Debt Under Alternative Scenarios, 2010-2030 1/



Sources: Samoan authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2020. In figures b. and d. it corresponds to a one-time depreciation shock (30 percent in real terms); and in all others to a combination shock (GDP growth and the primary balance fall by 1 standard deviation from their historical average).

Figure 2. Samoa: Indicators of Public Debt Under Alternative Scenarios, 2010-30 1/

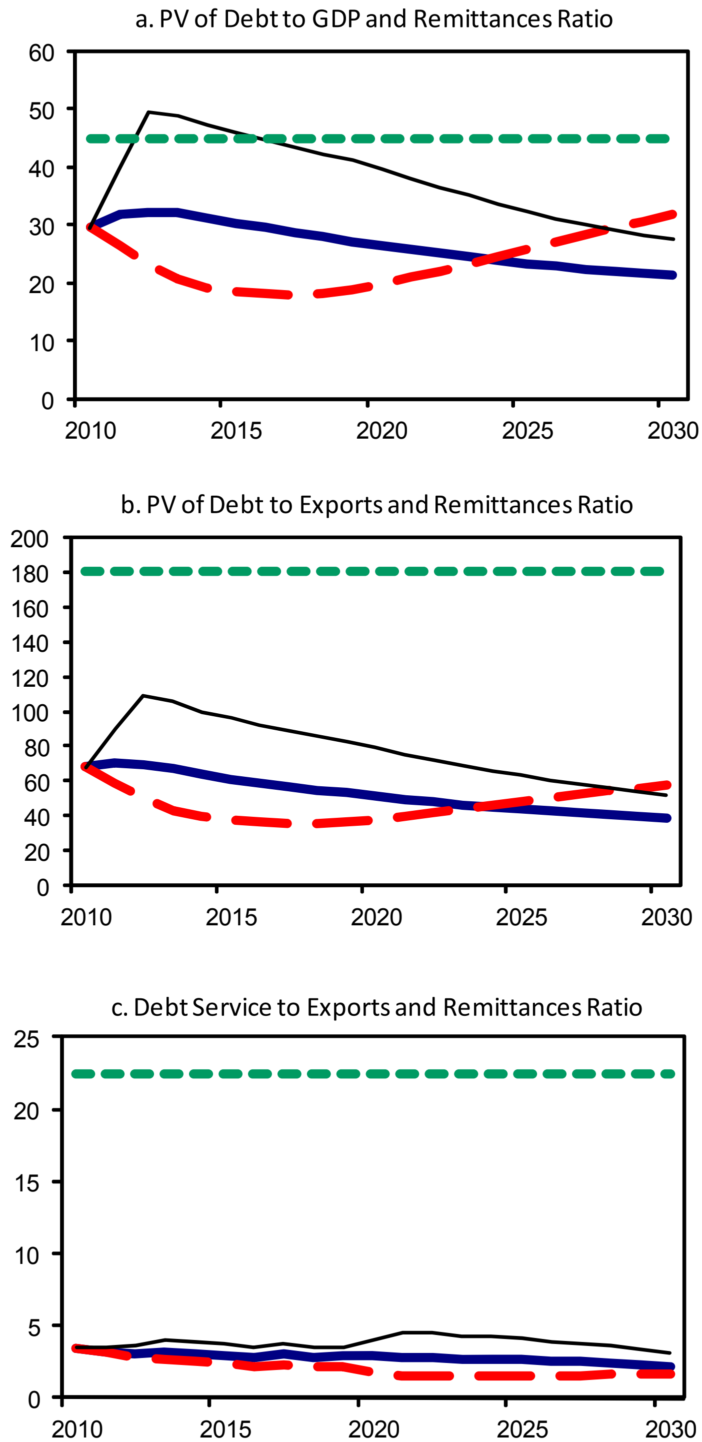


Sources: Samoan authorities; and staff estimates and projections.

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

2/ Revenues are defined inclusive of grants.

Figure 3. Samoa: Indicators of Public and Publicly Guaranteed External Debt Under Alternative Scenarios, 2010-2030 1/



Sources: Samoan authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2020. This corresponds to a combination of one-half standard deviation shocks to GDP growth, non-debt flows, exports and GDP deflator.