INTERNATIONAL MONETARY FUND

SAMOA

STAFF REPORT FOR THE 2012 ARTICLE IV CONSULTATION—DEBT SUSTAINABILITY ANALYSIS

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This joint IMF-WB debt sustainability analysis (DSA) shows that Samoa has shifted to moderate from low risk of debt distress.[1] *Compared to the previous DSA (see 2010 Article IV Staff Report), this analysis assumes a slightly lower medium- and long-term growth rate of GDP in the baseline given the less favorable external environment and the dissipation of the benefits of earlier reforms. The analysis finds that there is a large and protracted breach of the present value of debt to GDP threshold in an exchange rate shock scenario. Given the rising debt burden, forceful policy actions, especially on the fiscal front, would be needed to ensure medium- and long-term debt sustainability.*

[1] This DSA was prepared by IMF and IDA staffs in accordance with the standard methodology for low-income countries. It is based on the general framework approved by the Executive Boards of the IMF and the World Bank, including the recent revisions to the framework endorsed by the two Boards (SM/12/10)

BACKGROUND

1. **Samoa is currently faced with the challenge of slow growth and high volatility arising from exogenous shocks.** The economy is particularly exposed to external factors impacting tourism, remittances and aid which Samoa is largely reliant on. Goods exports are small and comprise a limited number of agricultural products.

2. **The Samoan economy has not fully recovered from the impact of the global financial crisis and the 2009 tsunami.** Tourism is still declining, albeit at a slower pace. Reconstruction activity, which has been supporting economic recovery, is in the process of winding down. Growth is projected to be around 1½-2 percent in the short term and rise to 2½ percent over the medium term which is close to the 10-year historical average. This outlook is subject to considerable uncertainty given the current global, regional and domestic environment.

3. **The fiscal expansion following the global slowdown and the tsunami was supported by both multilateral (ADB and IDA) and bilateral partners (Australia, New Zealand, China, and Japan).** Samoa has benefited from grants and concessional loans, which have made its debt stock much smaller in present value terms and debt repayment much less costly.

4. **At the end of 2010/2011 fiscal year, the face value of public external debt was estimated at 737.7 million tala (48 percent of GDP) and domestic debt at 48.9 million tala (3.9 percent of GDP).** Multilateral creditors account for 71 percent of Samoa's external debt (including 32.3 percent owed to the World Bank, 35.3 percent to ADB, and 3.4 percent to OPEC, IFAD, EEC and EIB). Bilateral creditors (JICA, China, and France) account for approximately 29 percent of the external debt.

5. **Samoa has managed its debt relatively well with most of external government debt being contracted on concessional terms**. Non-concessional loans from OPEC are small and attract interest rates ranging from 2.75 percent to 4.5 percent while those on other loans range from 0.45 percent to 2.5 percent.

6. **The central government's net domestic debt is small**. Treasury bonds outstanding are worth only 0.4 million tala with interest rates ranging from 5 percent to 7 percent. The government has assumed the responsibility for repaying a number of public enterprise (PE) loans that are in default with an outstanding balance of 48.5 million tala at end of FY 2011. PE liabilities, although backed by their assets, represent a fiscal risk to the government. Total current liabilities are reported

to be at 100.9 million tala at the end of 2010 fiscal year and non-current liabilities at 267.9 million tala. Not all PE balance sheets were available as of end of 2011 fiscal year.

METHODOLOGY AND ASSUMPTIONS

7. **Debt sustainability is assessed in relation to policy-dependent debt burden thresholds**. 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.[2] Samoa's debt is therefore assessed against higher thresholds compared to countries that have a weaker governance and policy environment.[3]

8. **This DSA is based on updated data provided by the authorities supplemented with staffs' estimates.** It covers borrowings by the central government and public enterprises (including defaulted public enterprise loans currently being repaid by government) based on available data and forecasts. The DSA uses non-reconciled debt data and a single discount rate of 4 percent.

9. **Key assumptions underlying the baseline DSA are consistent with the macroeconomic framework developed during the 2012 Article IV consultation and afterwards.** These assumptions are as follows except for the modifications specified in alternative scenarios:

- Annual real GDP growth is projected at 1.5 percent for fiscal year 2011/12, improving gradually to 2.5 percent over the long term, which is higher than the average GDP growth of 0.9 percent for 2005/06-2010/11, a period when the Samoan economy was subject to a series of adverse shocks.

- Average inflation is assumed to be about 6.0 percent for 2011/12, falling to 2.0 percent in 2012-2013. Over the medium term, inflation is projected to be about 4.0 percent (about the historical average) and falling to 3.0 percent over the long term, in line with the target set by the Central Bank of Samoa (CBS).

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[2] Three year average CPIA rating for Samoa is 4.06.

[3] According to the 2012 review of the Debt Sustainability Framework for Low Income Countries, 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 22 percent debt service to revenues.

- A constant real effective exchange rate is assumed for the medium term, and, for simplicity, a constant real exchange rate against the U.S. dollar is assumed over the long run.

- Annual goods and services export growth is assumed at about 4 percent in nominal US dollar terms. The external non-interest current account deficit is projected at about 10½ percent of GDP in 2011/12 falling to about 8 percent by 2016/17. An annual average current account balance of slightly lower than 8 percent of GDP is assumed over the 2018-32 period. The current account deficit is expected to be largely financed by grants and concessional loans from development partners.

- A fiscal consolidation is assumed to take place over the medium term, gradually reducing the fiscal deficit to 2½ percent of GDP. Over the longer term, the deficit will be further reduced and maintained at 1½ percent of GDP. Revenues are assumed to remain constant at about 32 percent of GDP, and development expenditure is reduced to about 11 percent of GDP, financed by grants, concessional loans and domestic resources. This is 7 percentage points below the level during the post-tsunami reconstruction period which included one-off donor support. Current expenditure in the long run is assumed to be about 22 percent of GDP, following a gradual decline from 25 percent of GDP over the medium term, consistent with phasing out of reconstruction projects and the authorities intention to streamline the public administration sector. Samoa's interest expenditure is not large as most borrowing is on concessional terms.

- New external borrowing will be required (largely available on concessional terms) to finance the fiscal deficit. Central government domestic debt is about 3 percent of GDP and PE debt about 27 percent of GDP (excluding defaulted loans that the government has taken over). Assumptions about new borrowing include budget support loans from multilateral development partners. PE borrowing is assumed to be on commercial terms. Continued eligibility for concessional borrowing from IDA is assumed during the forecast period.

- PE balance sheet data for 2011 fiscal year was incomplete. For the purposes of public sector DSA it is assumed that there is no change in the debt levels from 2010 fiscal year for PEs with missing balance sheet information for 2011 fiscal year. PE debt is assumed to be constant as a percentage of GDP for the projection period.

EXTERNAL DEBT SUSTAINABILITY

10. **Under the baseline scenario, all initial debt ratios are below the policy-dependent thresholds for a low income country classified as a strong performer on policy ratings.** Nevertheless, these ratios are projected to exceed the target of 40 percent of GDP in PV terms set by the authorities (Figure 1; Tables 1a, 1b and 1c), reflecting the continued need to borrow and the rapid accumulation of external debt as a result of fiscal expansion in the wake of the global financial crisis and the tsunami.

11. **Stress tests indicate that Samoa faces a moderate risk of debt distress, a step up from its low risk status in the last assessment.** The increase in risk of debt distress reflects weaker output growth and slower fiscal consolidation in comparison to the last DSA. Samoa's external debt situation is generally resilient but shocks would lead to a sharp initial worsening in debt indicators. The most extreme stress tests show that an exchange rate shock of 30 percent would push the PV of public external debt as a share of GDP from 39 percent in 2012 to significantly above 50 percent for the entire forecast period, the PV of debt-to revenue ratio from 157 percent to 246 percent, the PV of debt to exports from 132 percent to 199 percent, and the debt service to revenue ratio from 5 percent to 18 percent over a number of years. Over time, however, all but the PV of debt to exports measure improve as the one-off effects of the shocks dissipate.[4]

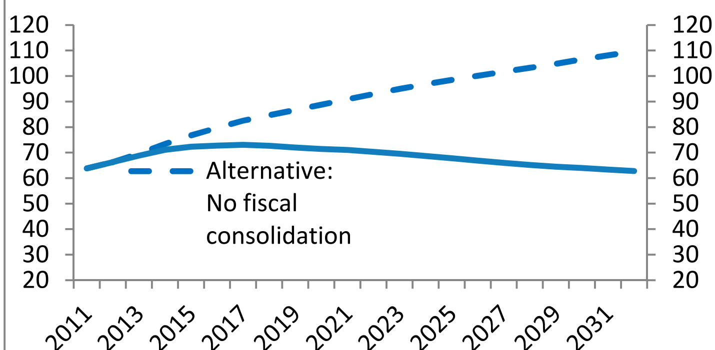
12. **An "historical" scenario, which replicates the past performance of key economic variables, yields debt ratios that are below the current baseline projections (Figure 1).** Samoa has historically had sound macroeconomic policies supported by an array of structural reforms that had resulted in a period of sustained growth. However, there was a step down in output growth in years just preceding the global crisis. The global crisis hit Samoa hard and the country suffered another blow when a tsunami hit its tourism-oriented region.

[4] Given the large and protracted breach of the PV of debt to GDP threshold, the consideration of Samoa's large remittances in the assessment would not be able to help reduce the moderate risk rating.

PUBLIC SECTOR DSA

13. **The public sector debt analysis supports the conclusions drawn from the external debt analysis (Figure 2; Tables 2a and 2b).**[5] The nominal value of public sector debt stock is estimated at 76 percent of GDP in FY2011 (62.8 percent of GDP in PV terms) and is expected to rise to 80 percent of GDP (66 percent of GDP in PV terms) in the current fiscal year. Scenario analysis shows that if Samoa failed to undertake fiscal consolidation, public sector debt would keep growing over the entire forecast period, with the PV of public debt exceeding 100 percent of GDP toward the end of the forecast period.

NPV of Public Sector Debt under



Source: Fund staff calculations

CONCLUSION AND STAFF ASSESSMENT

14. **Despite its reliance on concessional external borrowing and continued support from development partners, Samoa is now faced with a moderate risk of debt distress.** Because of the slower-than-anticipated recovery and less favorable growth prospects, the underlying risk of debt distress has moved upward. This DSA shows that while Samoa’s debt path is generally resilient to shocks, it is very vulnerable to exchange rate shocks. Scenario analysis indicates that Samoa would be even more vulnerable to such shocks should the country fail to reduce its fiscal deficit to a more sustainable level over the medium term.

15. **Samoa’s challenges for maintaining a sustainable level of public debt have increased in recent years.** Achieving the growth and export projections in the baseline scenario would require policies to maintain macroeconomic stability, continued investment in and maintenance of infrastructure, and structural reforms to improve the investment climate and increase economic efficiency, particularly that of public enterprises. Samoa would need to develop a credible deficit-

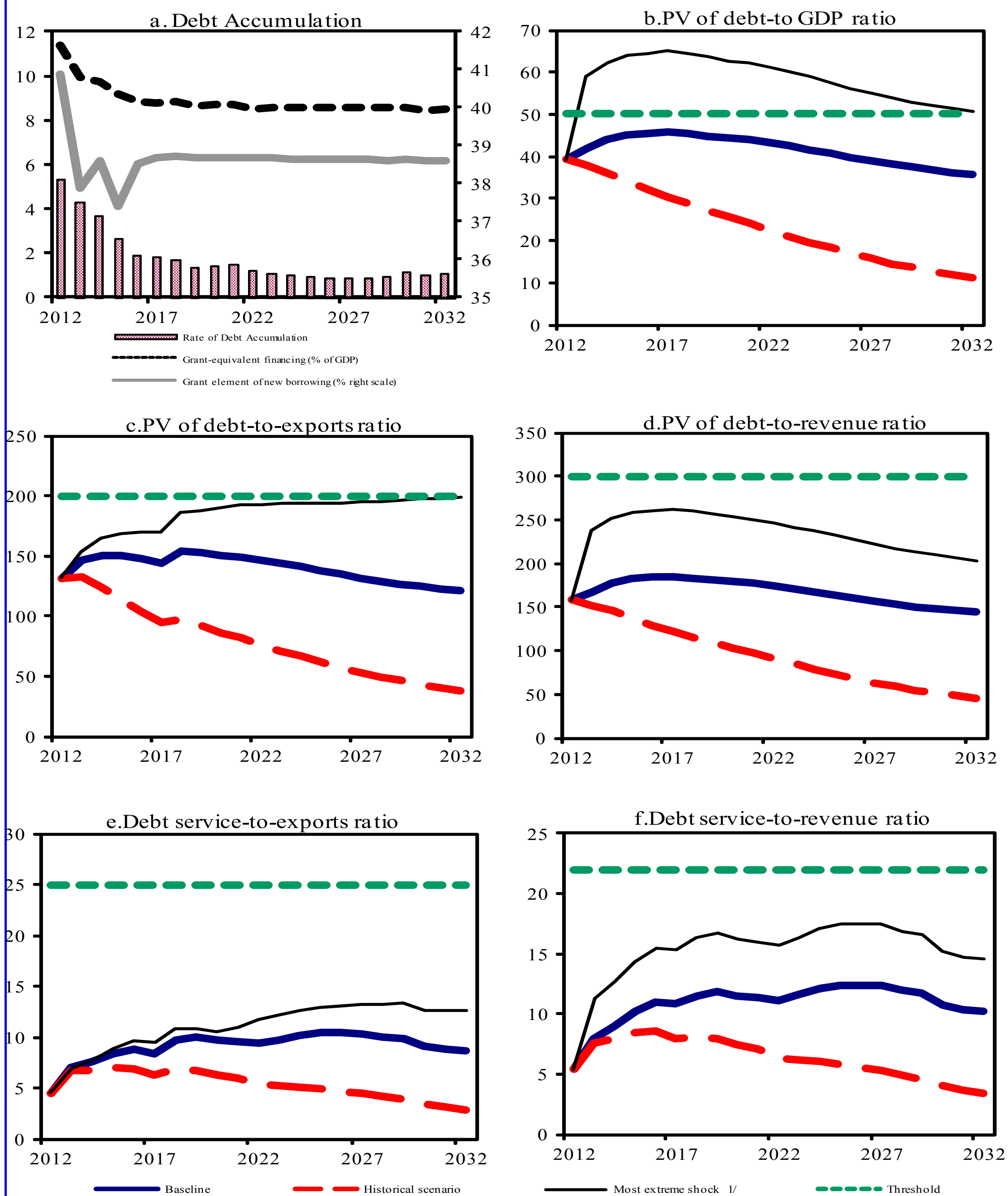
[5] Public sector debt includes all external debt of the central government, including on-lent amounts, domestic debt of the central government, defaulted loans of PEs, and PE current and non-current liabilities (excluding government on-lending and inter-PE loans).

reduction plan over the medium term and further improve debt management to support fiscal consolidation. Sustained efforts would be needed to rebuild policy buffers against future shocks.

AUTHORITIES' VIEWS

16. **The authorities recognize the risks posed by the high and rising debt burdens and are committed to bringing them down to more sustainable levels.** They agreed that it is critical to formulate and implement a credible fiscal consolidation plan and to strengthen debt management and undertake structural reforms to boost growth.

Figure 1. Samoa: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2012-2032 1/



Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2022. In figure b. it corresponds to a One-time depreciation shock; in c. to a Terms shock; in d. to a One-time depreciation shock; in e. to a Terms shock and in figure f. to a One-time depreciation shock

Table 1a.: External Debt Sustainability Framework, Baseline Scenario, 2009-2032 1/
(In percent of GDP, unless otherwise indicated)

	Actual			Historical Average 6/	Standard Deviation 6/	Projections									
	2009	2010	2011			2012	2013	2014	2015	2016	2017	2012-2017 Average	2022	2032	2018-2032 Average
External debt (nominal) 1/	**45.3**	**53.6**	**49.3**			**53.2**	**57.1**	**60.8**	**62.6**	**63.4**	**64.1**		**61.0**	**51.8**	
o/w public and publicly guaranteed (PPG)	45.3	53.6	49.3			53.2	57.1	60.8	62.6	63.4	64.1		61.0	51.8	
Change in external debt	45.3	8.3	-4.2			3.9	3.9	3.6	1.9	0.8	0.6		-1.0	-0.7	
Identified net debt-creating flows	...	3.5	6.1			10.6	9.9	9.0	8.2	7.6	7.2		6.6	6.8	
Non-interest current account deficit	**2.6**	**6.5**	**7.4**	**8.3**	**3.7**	**10.5**	**10.6**	**9.9**	**9.2**	**8.6**	**8.1**		**7.7**	**7.9**	7.8
Deficit in balance of goods and services	24.2	26.6	27.2			28.8	29.3	28.6	27.9	27.3	26.8		24.8	24.8	
Exports	34.0	32.0	31.7			29.7	28.4	29.3	30.1	31.0	31.9		29.5	29.5	
Imports	58.1	58.5	58.8			58.5	57.6	57.9	58.1	58.3	58.7		54.3	54.3	
Net current transfers (negative = inflow)	-24.4	-22.5	-23.3	-22.5	1.5	-21.8	-21.9	-21.9	-21.8	-21.8	-21.7		-20.0	-20.0	-20.0
o/w official	-0.3	0.0	-0.4			-0.3	-0.3	-0.3	-0.3	-0.2	-0.2		-0.2	-0.1	
Other current account flows (negative = net inflow)	2.8	2.4	3.5			3.5	3.2	3.2	3.1	3.0	3.0		2.9	3.1	
Net FDI (negative = inflow)	**-1.6**	**-0.2**	**-1.5**	**-1.7**	**1.9**	**0.3**	**-0.4**	**-0.4**	**-0.4**	**-0.4**	**-0.4**		**-0.4**	**-0.4**	-0.4
Endogenous debt dynamics 2/	**...**	**-2.8**	**0.2**			**-0.2**	**-0.3**	**-0.5**	**-0.6**	**-0.6**	**-0.6**		**-0.7**	**-0.7**	
Contribution from nominal interest rate	...	0.8	1.3			0.4	0.7	0.7	0.9	1.0	1.0		0.7	0.6	
Contribution from real GDP growth	0.0	-0.2	-1.1			-0.6	-1.0	-1.3	-1.5	-1.6	-1.5		-1.5	-1.2	
Contribution from price and exchange rate changes	0.0	-3.5	0.0			...	...	...	...	...	...		...	...	
Residual (3-4) 3/	**...**	**4.8**	**-10.3**			**-6.7**	**-6.0**	**-5.4**	**-6.3**	**-6.8**	**-6.5**		**-7.6**	**-7.5**	
o/w exceptional financing	...	-1.4	0.0			0.0	0.0	0.0	0.1	0.2	0.2		0.0	0.0	
PV of external debt 4/	...	...	36.7			39.2	41.7	44.0	45.2	45.6	45.9		43.2	35.7	
In percent of exports	...	...	115.9			131.7	146.9	150.5	150.2	147.2	144.0		146.5	121.1	
PV of PPG external debt	**...**	**...**	**36.7**			**39.2**	**41.7**	**44.0**	**45.2**	**45.6**	**45.9**		**43.2**	**35.7**	
In percent of exports	**...**	**...**	**115.9**			**131.7**	**146.9**	**150.5**	**150.2**	**147.2**	**144.0**		**146.5**	**121.1**	
In percent of government revenues	**...**	**...**	**131.2**			**157.8**	**167.9**	**177.4**	**182.2**	**183.8**	**185.0**		**174.1**	**143.9**	
Debt service-to-exports ratio (in percent)	**1.7**	**2.4**	**3.9**			**4.5**	**7.0**	**7.6**	**8.4**	**8.8**	**8.4**		**9.4**	**8.7**	
PPG debt service-to-exports ratio (in percent)	**1.7**	**2.4**	**3.8**			**4.5**	**7.0**	**7.6**	**8.4**	**8.8**	**8.4**		**9.4**	**8.7**	
PPG debt service-to-revenue ratio (in percent)	**2.1**	**3.0**	**4.3**			**5.4**	**8.0**	**9.0**	**10.2**	**11.0**	**10.8**		**11.1**	**10.3**	
Total gross financing need (Millions of U.S. dollars)	8.7	43.9	45.2			86.9	90.6	90.3	89.6	89.0	87.8		105.5	162.2	
Non-interest current account deficit that stabilizes debt ratio	-42.7	-1.8	11.6			6.6	6.7	6.3	7.3	7.7	7.5		8.8	8.6	
Key macroeconomic assumptions															
Real GDP growth (in percent)	-5.1	0.4	2.0	2.7	3.4	1.5	1.9	2.3	2.5	2.6	2.5	2.2	2.5	2.5	2.5
GDP deflator in US dollar terms (change in percent)	20.0	8.3	0.1	6.2	9.1	10.9	2.3	0.8	0.8	0.7	0.7	2.7	1.9	1.9	1.9
Effective interest rate (percent) 5/	...	2.0	2.5	2.2	0.3	0.9	1.3	1.3	1.5	1.6	1.6	1.4	1.2	1.1	1.2
Growth of exports of G&S (US dollar terms, in percent)	19.0	2.4	1.1	7.0	9.9	5.7	-0.6	6.3	6.3	6.3	6.3	5.0	4.4	4.4	3.9
Growth of imports of G&S (US dollar terms, in percent)	22.9	9.5	2.6	9.3	13.3	12.0	2.6	3.5	3.5	3.8	3.9	4.9	4.4	4.4	3.9
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	40.9	37.9	38.6	37.4	38.5	38.7	38.7	38.7	38.6	38.7
Government revenues (excluding grants, in percent of GDP)	26.7	25.6	28.0			24.8	24.8	24.8	24.8	24.8	24.8		24.8	24.8	24.8
Aid flows (in Millions of US dollars) 7/	44.4	65.4	60.1			93.8	82.1	84.6	81.5	81.8	80.9		96.0	146.6	
o/w Grants	44.4	65.4	60.1			58.1	53.0	54.6	56.4	58.2	60.1		74.6	114.8	
o/w Concessional loans	0.0	0.0	0.0			35.7	29.2	30.0	25.1	23.6	20.8		21.4	31.8	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			11.4	9.9	9.8	9.2	8.9	8.8		8.5	8.5	8.6
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			70.9	68.4	69.9	72.9	76.1	76.7		79.3	79.8	78.6
Memorandum items:															
Nominal GDP (Millions of US dollars)	571.7	621.5	634.4			713.8	743.9	766.8	791.8	817.8	844.5		1047.7	1612.5	
Nominal dollar GDP growth	13.8	8.7	2.1			12.5	4.2	3.1	3.3	3.3	3.3	4.9	4.4	4.4	4.4
PV of PPG external debt (in Millions of US dollars)			245.6			279.6	310.1	337.7	358.2	373.1	387.9		452.8	576.0	
(PVt-PVt-1)/GDPt-1 (in percent)						5.3	4.3	3.7	2.7	1.9	1.8	3.3	1.2	1.0	1.1
Gross workers' remittances (Millions of US dollars)	137.4	139.8	145.2			153.7	161.2	166.0	170.9	175.9	181.1		207.9	320.0	
PV of PPG external debt (in percent of GDP + remittances)	...	...	29.9			32.2	34.3	36.2	37.2	37.5	37.8		36.1	29.8	
PV of PPG external debt (in percent of exports + remittances)	...	...	67.3			76.4	83.3	86.5	87.5	86.9	86.1		87.6	72.4	
Debt service of PPG external debt (in percent of exports + remittances)	...	...	2.2			2.6	4.0	4.4	4.9	5.2	5.0		5.6	5.2	

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.Samoa: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2012-2032
(In percent)

	Projections							
	2012	2013	2014	2015	2016	2017	**2022**	2032
PV of debt-to GDP ratio								
Baseline	39	42	44	45	46	46	**43**	36
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2012-2032 1/	39	38	36	34	32	30	**23**	11
A2. New public sector loans on less favorable terms in 2012-2032 2	39	44	48	51	53	54	**57**	59
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013-2014	39	42	44	45	46	46	**43**	36
B2. Export value growth at historical average minus one standard deviation in 2013-2014 3/	39	42	46	48	48	48	**45**	37
B3. US dollar GDP deflator at historical average minus one standard deviation in 2013-2014	39	44	48	49	50	50	**47**	39
B4. Net non-debt creating flows at historical average minus one standard deviation in 2013-2014 4/	39	43	46	47	47	48	**45**	37
B5. Combination of B1-B4 using one-half standard deviation shocks	39	42	45	46	47	47	**44**	36
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	39	59	62	64	65	65	**61**	51
PV of debt-to-exports ratio								
Baseline	132	147	151	150	147	144	**147**	121
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2012-2032 1/	132	133	124	114	103	95	**76**	38
A2. New public sector loans on less favorable terms in 2012-2032 2	132	154	164	169	170	170	**193**	199
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013-2014	132	147	151	150	147	144	**147**	121
B2. Export value growth at historical average minus one standard deviation in 2013-2014 3/	132	152	178	177	173	170	**173**	140
B3. US dollar GDP deflator at historical average minus one standard deviation in 2013-2014	132	147	151	150	147	144	**147**	121
B4. Net non-debt creating flows at historical average minus one standard deviation in 2013-2014 4/	132	150	157	156	153	150	**152**	124
B5. Combination of B1-B4 using one-half standard deviation shocks	132	142	152	152	149	146	**148**	123
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	132	147	151	150	147	144	**147**	121
PV of debt-to-revenue ratio								
Baseline	158	168	177	182	184	185	**174**	144
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2012-2032 1/	158	152	146	138	129	121	**91**	45
A2. New public sector loans on less favorable terms in 2012-2032 2	158	176	194	205	212	218	**229**	236
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013-2014	158	168	177	182	184	185	**174**	144
B2. Export value growth at historical average minus one standard deviation in 2013-2014 3/	158	170	187	192	193	195	**183**	148
B3. US dollar GDP deflator at historical average minus one standard deviation in 2013-2014	158	177	194	199	201	202	**190**	157
B4. Net non-debt creating flows at historical average minus one standard deviation in 2013-2014 4/	158	172	185	190	191	192	**181**	147
B5. Combination of B1-B4 using one-half standard deviation shocks	158	169	181	186	187	189	**178**	147
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	158	238	251	258	260	262	**246**	204

Table 1b (continued).Samoa: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2012-2032
(In percent)

Debt service-to-exports ratio

Baseline	4	7	8	8	9	8	**9**	9
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2012-2032 1/	4	7	6	6	6	5	**4**	1
A2. New public sector loans on less favorable terms in 2012-2032 2	4	7	8	9	10	10	**12**	13
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013-2014	4	7	8	8	9	8	**9**	9
B2. Export value growth at historical average minus one standard deviation in 2013-2014 3/	4	7	9	10	10	10	**11**	10
B3. US dollar GDP deflator at historical average minus one standard deviation in 2013-2014	4	7	8	8	9	8	**9**	9
B4. Net non-debt creating flows at historical average minus one standard deviation in 2013-2014 4/	4	7	8	9	10	9	**12**	11
B5. Combination of B1-B4 using one-half standard deviation shocks	4	7	8	9	10	9	**11**	10
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	4	7	8	8	9	8	**9**	9

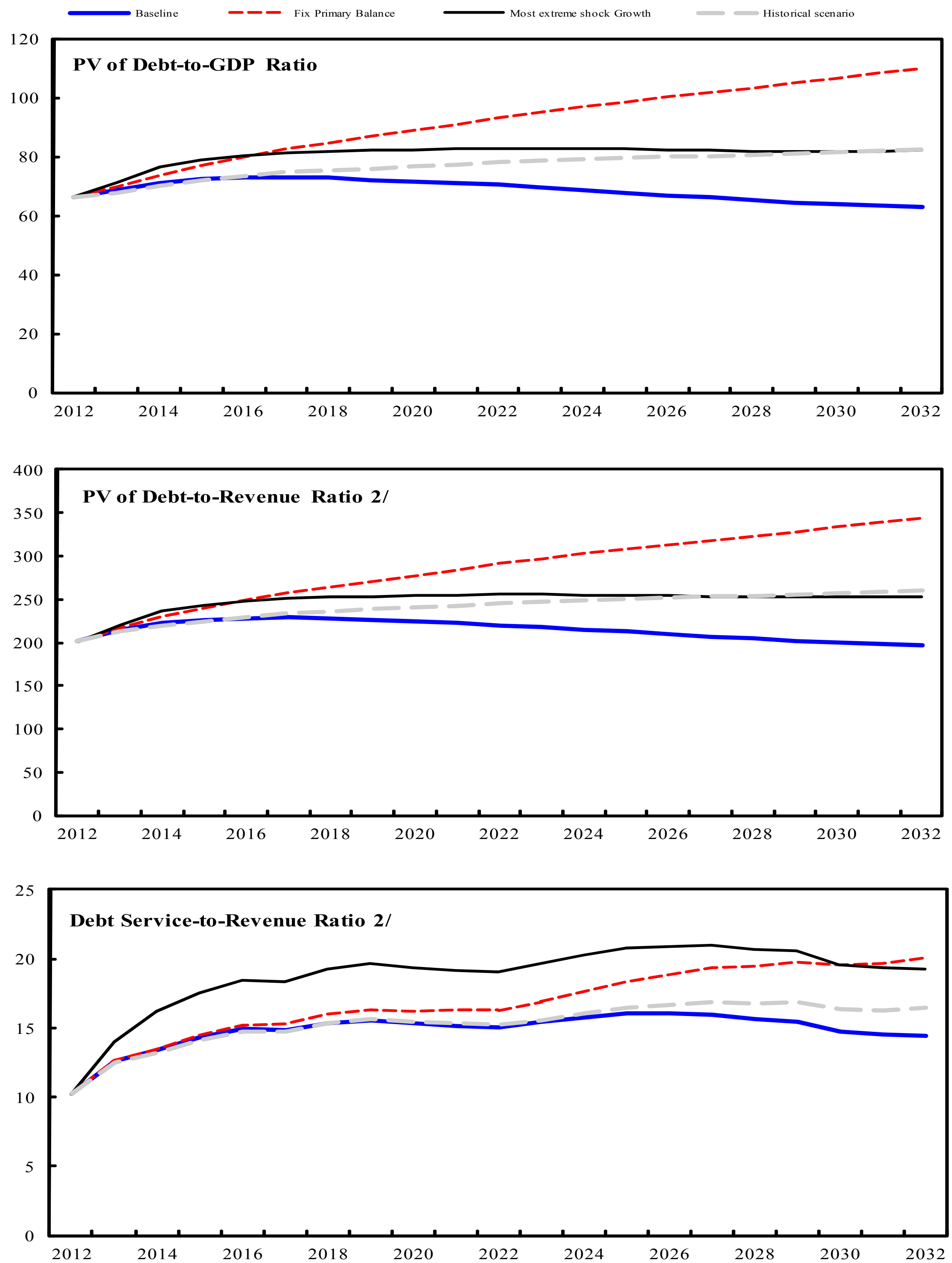
Debt service-to-revenue ratio

Baseline	5	8	9	10	11	11	**11**	10
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2012-2032 1/	5	7	8	8	8	7	**5**	1
A2. New public sector loans on less favorable terms in 2012-2032 2	5	8	9	11	12	12	**14**	15
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013-2014	5	8	9	10	11	11	**11**	10
B2. Export value growth at historical average minus one standard deviation in 2013-2014 3/	5	8	9	10	11	11	**11**	11
B3. US dollar GDP deflator at historical average minus one standard deviation in 2013-2014	5	8	9	11	11	11	**12**	11
B4. Net non-debt creating flows at historical average minus one standard deviation in 2013-2014 4/	5	8	10	12	12	12	**14**	14
B5. Combination of B1-B4 using one-half standard deviation shocks	5	8	9	11	11	11	**12**	12
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	5	11	13	14	16	15	**16**	15
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	36	36	36	36	36	36	**36**	36

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.

Figure 2.Samoa: Indicators of Public Debt Under Alternative Scenarios, 2012-2032 1/



Sources: Country authorities; and staff estimates and projections.
1/ The most extreme stress test is the test that yields the highest ratio in 2022.
2/ Revenues are defined inclusive of grants.

Table 2a.Samoa: Public Sector Debt Sustainability Framework, Baseline Scenario, 2009-2032
(In percent of GDP, unless otherwise indicated)

	Actual			Average 5/	Standard Deviation 5/	Estimate	Projections								
	2009	2010	2011			2012	2013	2014	2015	2016	2017	2012-17 Average	2022	2032	2018-32 Average
Public sector debt 1/	75.9	82.9	76.4			80.3	84.2	87.9	89.7	90.5	91.2		88.1	78.9	
o/w foreign-currency denominated	45.3	53.6	49.3			53.2	57.1	60.8	62.6	63.4	64.1		61.0	51.8	
Change in public sector debt	75.9	6.9	-6.4			3.9	3.9	3.6	1.9	0.8	0.6		-1.0	-0.7	
Identified debt-creating flows	...	2.1	-1.6			0.9	1.9	0.7	-0.6	-1.1	-1.2		-2.5	-2.1	
Primary deficit	1.3	4.7	3.0	1.4	1.7	3.6	2.3	1.2	0.1	-0.5	-0.5	1.0	-1.2	-1.1	-1.0
Revenue and grants	34.5	36.2	37.5			33.0	31.9	31.9	31.9	31.9	31.9		31.9	31.9	
of which: grants	7.8	10.5	9.5			8.1	7.1	7.1	7.1	7.1	7.1		7.1	7.1	
Primary (noninterest) expenditure	35.8	40.8	40.5			36.5	34.3	33.2	32.0	31.5	31.4		30.7	30.9	
Automatic debt dynamics	...	-2.5	-4.6			-2.7	-0.5	-0.6	-0.7	-0.6	-0.7		-1.3	-1.0	
Contribution from interest rate/growth differential	...	0.8	-0.1			-1.0	-0.3	-1.2	-1.3	-1.4	-1.4		-1.3	-1.0	
of which: contribution from average real interest rate	...	1.1	1.5			0.1	1.2	0.7	0.8	0.9	0.8		0.9	0.9	
of which: contribution from real GDP growth	0.0	-0.3	-1.6			-1.1	-1.5	-1.9	-2.1	-2.2	-2.2		-2.2	-1.9	
Contribution from real exchange rate depreciation	...	-3.4	-4.5			-1.6	-0.2	0.6	0.6	0.7	0.7		...	...	
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	...	4.8	-4.8			3.0	2.1	3.0	2.5	1.9	1.8		1.4	1.4	
Other Sustainability Indicators															
PV of public sector debt	...	...	63.8			66.3	68.8	71.1	72.3	72.7	73.0		70.3	62.8	
o/w foreign-currency denominated	...	...	36.7			39.2	41.7	44.0	45.2	45.6	45.9		43.2	35.7	
o/w external	...	...	36.7			39.2	41.7	44.0	45.2	45.6	45.9		43.2	35.7	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	4.2	13.9	13.1			11.6	11.2	10.3	9.4	9.1	9.0		8.4	8.4	
PV of public sector debt-to-revenue and grants ratio (in percent)	…	…	170.4			201.0	215.4	222.7	226.5	227.7	228.6		220.1	196.7	
PV of public sector debt-to-revenue ratio (in percent)	…	…	228.0			267.0	277.1	286.6	291.4	293.0	294.2		283.3	253.1	
o/w external 3/	…	…	131.2			157.8	167.9	177.4	182.2	183.8	185.0		174.1	143.9	
Debt service-to-revenue and grants ratio (in percent) 4/	8.5	7.8	9.1			10.3	12.6	13.4	14.3	14.9	14.8		15.0	14.4	
Debt service-to-revenue ratio (in percent) 4/	11.0	11.0	12.2			13.6	16.2	17.2	18.4	19.2	19.1		19.4	18.5	
Primary deficit that stabilizes the debt-to-GDP ratio	-74.6	-2.3	9.4			-0.3	-1.6	-2.4	-1.8	-1.3	-1.1		-0.2	-0.4	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	-5.1	0.4	2.0	2.7	3.4	1.5	1.9	2.3	2.5	2.6	2.5	2.2	2.5	2.5	2.5
Average nominal interest rate on forex debt (in percent)	...	2.0	2.5	2.2	0.3	0.9	1.3	1.3	1.5	1.6	1.6	1.4	1.2	1.1	1.2
Average real interest rate on domestic debt (in percent)	...	5.2	5.5	5.3	0.2	1.5	5.8	3.9	3.9	3.9	3.9	3.8	4.9	4.9	4.9
Real exchange rate depreciation (in percent, + indicates depreciation)	3.5	-7.5	-8.6	-4.3	4.8	-3.4	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	3.0	1.5	2.2	4.2	2.1	6.6	1.9	4.0	4.0	4.0	4.0	4.1	2.9	2.9	2.9
Growth of real primary spending (deflated by GDP deflator, in percent)	0.0	0.1	0.0	0.1	0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grant element of new external borrowing (in percent)	...	...	...	…	…	40.9	37.9	38.6	37.4	38.5	38.7	38.7	38.7	38.6	...

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.Samoa: Sensitivity Analysis for Key Indicators of Public Debt 2012-2032

	Projections							
	2012	2013	2014	2015	2016	2017	2022	2032
PV of Debt-to-GDP Ratio								
Baseline	66	69	71	72	73	73	70	63
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	66	68	70	72	73	75	78	83
A2. Primary balance is unchanged from 2012	66	70	73	77	80	83	93	110
A3. Permanently lower GDP growth 1/	66	69	73	75	76	77	82	97
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2013-2014	66	71	77	79	80	81	83	82
B2. Primary balance is at historical average minus one standard deviations in 2013-2014	66	69	73	74	74	75	72	64
B3. Combination of B1-B2 using one half standard deviation shocks	66	69	73	75	76	76	75	70
B4. One-time 30 percent real depreciation in 2013	66	84	85	86	86	85	80	69
B5. 10 percent of GDP increase in other debt-creating flows in 2013	66	75	77	79	79	79	76	67
PV of Debt-to-Revenue Ratio 2/								
Baseline	201	215	223	226	228	229	220	197
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	201	212	219	225	230	234	245	261
A2. Primary balance is unchanged from 2012	201	218	230	240	249	258	291	343
A3. Permanently lower GDP growth 1/	201	217	226	233	236	241	253	294
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2013-2014	201	221	237	243	247	251	256	253
B2. Primary balance is at historical average minus one standard deviations in 2013-2014	201	217	228	232	233	234	225	201
B3. Combination of B1-B2 using one half standard deviation shocks	201	217	228	233	236	238	234	219
B4. One-time 30 percent real depreciation in 2013	201	264	268	269	268	268	250	217
B5. 10 percent of GDP increase in other debt-creating flows in 2013	201	235	243	246	247	248	239	211
Debt Service-to-Revenue Ratio 2/								
Baseline	10	13	13	14	15	15	15	14
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	10	13	13	14	15	15	15	16
A2. Primary balance is unchanged from 2012	10	13	13	14	15	15	16	20
A3. Permanently lower GDP growth 1/	10	13	14	15	15	15	16	18
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2013-2014	10	13	14	15	16	16	16	17
B2. Primary balance is at historical average minus one standard deviations in 2013-2014	10	13	13	14	15	15	15	15
B3. Combination of B1-B2 using one half standard deviation shocks	10	13	14	15	15	15	15	15
B4. One-time 30 percent real depreciation in 2013	10	14	16	18	18	18	19	19
B5. 10 percent of GDP increase in other debt-creating flows in 2013	10	13	14	15	15	15	15	15

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.