INTERNATIONAL MONETARY FUND

SAMOA

STAFF REPORT FOR THE 2018 ARTICLE IV CONSULTATION—DEBT SUSTAINABILITY ANALYSIS

April 16, 2018

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Prepared by the staffs of the International Monetary Fund (IMF) and the International Development Association (IDA)[1]

The results of this update of the debt sustainability analysis (DSA) show that Samoa remains at high risk of external debt distress. Consistent with the methodology introduced in the previous DSA, the average long-term costs of natural disasters are incorporated into the DSA to assess the impact on Samoa's economic growth, fiscal position and external debt sustainability. The result is a breach of the threshold under the baseline scenario for the present value of the public-and publicly guaranteed (PPG) external debt-to-GDP ratio. Given Samoa's vulnerability to natural disasters, strategies to strengthen Samoa's resilience to economic shocks should continue to be implemented.

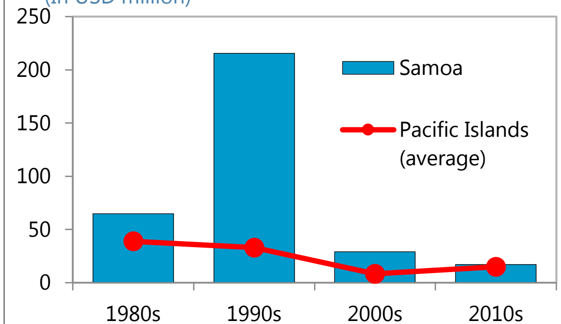
[1] The DSA was prepared jointly, in accordance with the Staff Guidance Note on the Application of the Joint Fund-Bank Debt Sustainability Framework (DSF) for Low-Income Countries (November 5, 2013). For the purposes of defining debt burden thresholds under the DSF, Samoa is classified as a strong policy performer, with an average Country Policy and Institutional Assessment (CPIA) rating of 4.0 over the last three years (2014-2017)—the highest rating among Pacific Island countries (PICs). Debt is therefore assessed against higher thresholds compared to other PICs. The corresponding external debt burden thresholds (including remittances) are: i) 45 percent for the present value (PV) of debt-to-GDP ratio; 160 percent for the PV of debt-to-exports ratio; 300 percent for the PV of debt-to-revenue ratio; 22 percent for the debt service-to-revenue ratio; and 20 percent for the debt service-to-exports ratio.

BACKGROUND

1. **Samoa's rating for risk of debt distress was revised from moderate to high in the 2017 Article IV Staff Report, due to a change in methodology incorporating the average annual effects of natural disasters on medium-term growth, fiscal and current account balance projections.** The long run assumption for the baseline average growth rate was adjusted down to 0.8 percent—compared with a non-disaster potential growth rate of 2.1 percent—and the current account deficit was widened by 1.5 percentage points. These adjustments were based on the historical experience in Samoa, as well as the literature on the macroeconomic impact of natural disasters in the PICs.

2. **Historically the annual average damage and losses incurred after a natural disaster in Samoa have been the highest in the region.** The recovery efforts and reconstruction required after the 2009 tsunami and 2012 Cyclone Evan were largely financed by borrowing, pushing total public debt close to 58 percent of GDP in FY2014/15—well above the government's threshold target of 50 percent.

Natural Disaster Costs
(In USD million)



Source: EM-DAT

3. **Borrowing costs and the government's risk exposure have increased.** Much of Samoa's debt is long-term and concessional, however, total debt service requirements have increased from a historical average of around 50 million Samoan Tala (SAT) to above SAT 60 million. The proportion of total public debt denominated in foreign currency is also high, limiting the potential role for exchange rate movements to facilitate the adjustment of the economy to external shocks.

METHODOLOGY AND ASSUMPTIONS

4. **The underlying assumptions in the DSA are consistent with the macroeconomic framework, based on updated data provided by the authorities and estimates by staff**. The impact of natural disasters is incorporated using the methodology introduced in the 2017 AIV Staff Report,[2] in line with the 2016 IMF Board Paper on "Small States' Resilience to Natural Disasters and Climate Change."

- **Real GDP growth** normalized at 2.5 percent for 2016/17—after peaking at 7 percent in 2015/16—and is projected at 2.2 percent on average between 2018-2023. To account for the average impact of natural disasters and climate change, the growth rate is lowered by 1.3 percentage points after 2023.

[2] A full DSA was prepared for the 2017 AIV Staff Report elaborating on the change in methodology. As the external risk rating remains unchanged, this is a light update only.

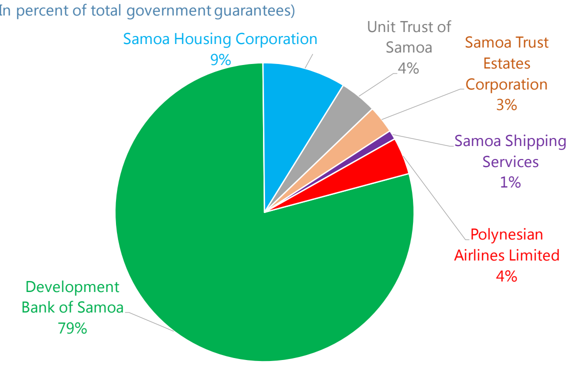
- **Average inflation** picked up from close to zero in 2015/16 to 1.3 percent in 2016/17, and is expected to stabilize at around 3 percent over the medium term.

- **The current account deficit** narrowed to 2.3 percent of GDP in 2016/17 and is projected to remain below 5 percent of GDP between 2018-2023. To account for the average impact of natural disasters and climate change, the deficit is widened by 1.5 percentage points annually after 2023.

- **The fiscal deficit** widened to 1.1 percent of GDP in 2016/17 from 0.4 percent of GDP in 2015/16, and is projected to widen further after 2023 to account for the average annual impact of natural disasters and climate change.

- **Contingent liabilities from government guarantees to state-owned enterprises (SOEs)** have fallen from around 8.8 percent of GDP in 2015/15 to an estimated 7.2 percent of GDP in 2016/17, and are included in the baseline in the public DSA. The guarantees outstanding are mostly with the Development Bank of Samoa (DBS)—79 percent of total guarantees— for a credit line facility channeled from the Central Bank of Samoa (CBS) through the DBS for rehabilitation and recovery efforts post-Cyclone Evan. The CBS extended another facility to the DBS in 2013/14 in preparation for the 2014 International Conference on Small Island Developing States (SIDS).

Government Guarantees Outstanding by SOE, end-Sep 2017
(In percent of total government guarantees)



Source: Samoa Ministry of Finance, Quarterly Public Debt Bulletin *(September 2017).*

- **Continued eligibility for concessional borrowing from MDBs** is assumed for the forecast period to finance the fiscal deficit. The grant element of new loans is 40 percent on average. However, it is assumed that borrowing from the World Bank is on full credit terms.[3]

- **Remittances are included as they account for over 15 percent of GDP**. Following the staff guidance note remittances are presented as the base case, as they are both greater than 10 percent of GDP and 20 percent of exports of goods and services.[4]

[3] With respect to projected new borrowing from IDA and ADB, DSAs always assume terms that would prevail if the country was at low risk of debt distress, independent of current actual terms (which can change on a year to year basis). This is done to avoid a circular situation where the assumption that future commitments will be on grant terms would yield actual commitments on credit terms.

[4] Both ratios are measured on a backward-looking, three-year average basis.

EXTERNAL DSA

5. **Under the baseline scenario, the PV of the PPG debt-to-GDP+remittances ratio (Figure 1a. chart b) breaches the indicative threshold from 2034 onwards.** The losses in production and higher expenditures related to mitigation of the effects of natural disasters have historically reduced growth. Consistent with the historical average, the average growth rate under the baseline scenario is reduced after 2027 to 0.9 percent of GDP.

6. **Stress tests confirm Samoa's vulnerability to exogenous shocks.** There is a significant breach of the PV of the PPG debt-to-GDP ratio threshold (Figure 1a. chart b.) following an extreme shock and a severe natural disaster shock and of the PV of PPG debt-to-exports threshold (Figure 1a. chart c.) following an extreme shock.[5]

PUBLIC DSA

7. **Under the baseline scenario, total public sector debt rises but remains below the benchmark over the projection period (Figure 2).** However, under the extreme shock scenario-a markdown of real GDP growth by a full standard deviation-there is a large and substantial breach of the PV of public debt-to-GDP benchmark from 2028 onwards, and by the end of the projection period is at more than double prudent levels. The public DSA baseline includes government guarantees to SOEs of 7.2 percent of GDP.

CONCLUSION

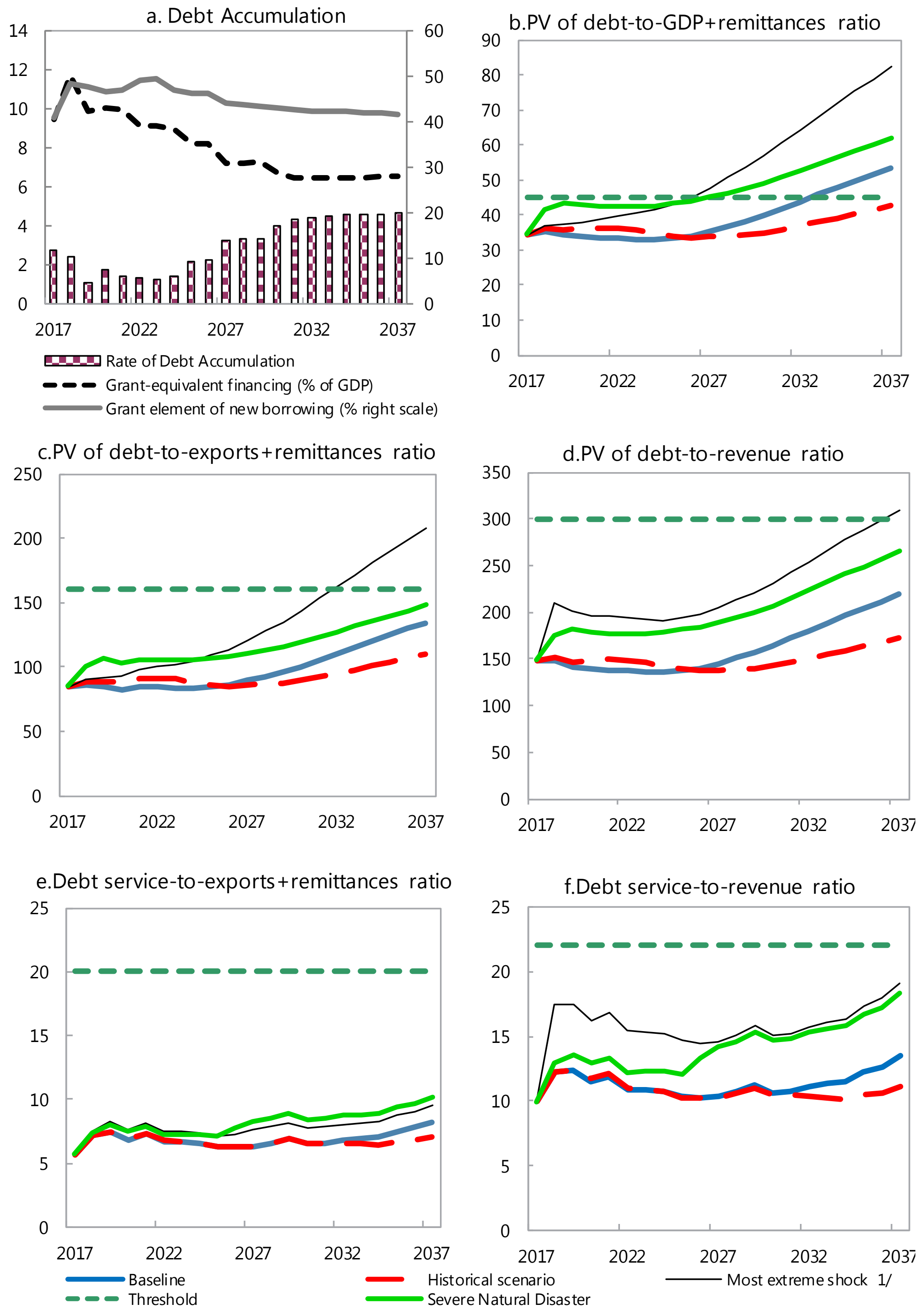
8. **The updated DSA suggests that Samoa remains at high risk of debt distress**. Samoa's external debt breaches the threshold when the average impact of natural disasters is incorporated into medium-term projections. The government should continue with efforts to boost revenue collection and consolidate public finances, to be better prepared to respond to a future economic shock or natural disaster. Introducing a lower public debt-to-GDP target of 45 percent in the medium term and 40 percent over the longer term would increase fiscal space available to respond to a natural disaster.

AUTHORITIES' VIEWS

9. **The authorities agreed with the DSA findings and remain committed to reducing total public debt**. With debt just below the government's target of 50 percent of GDP, the Samoan authorities were open to lowering the debt target further to 45 percent of GDP in the medium-term, and 40 percent of GDP in the longer term, to build fiscal buffers for responding to natural disasters and other shocks.

[5] The most extreme stress tests for the debt indicators noted are "combination shocks", which assess effects on the baseline indicator of a markdown to GDP growth, inflation, exports and non-debt creating capital flows by half a standard deviation of the 10-year average for these series. Shocks are enabled for the first two years of the forecast. For Samoa this is suggestive of high exposure to developments in both the domestic and external environments.

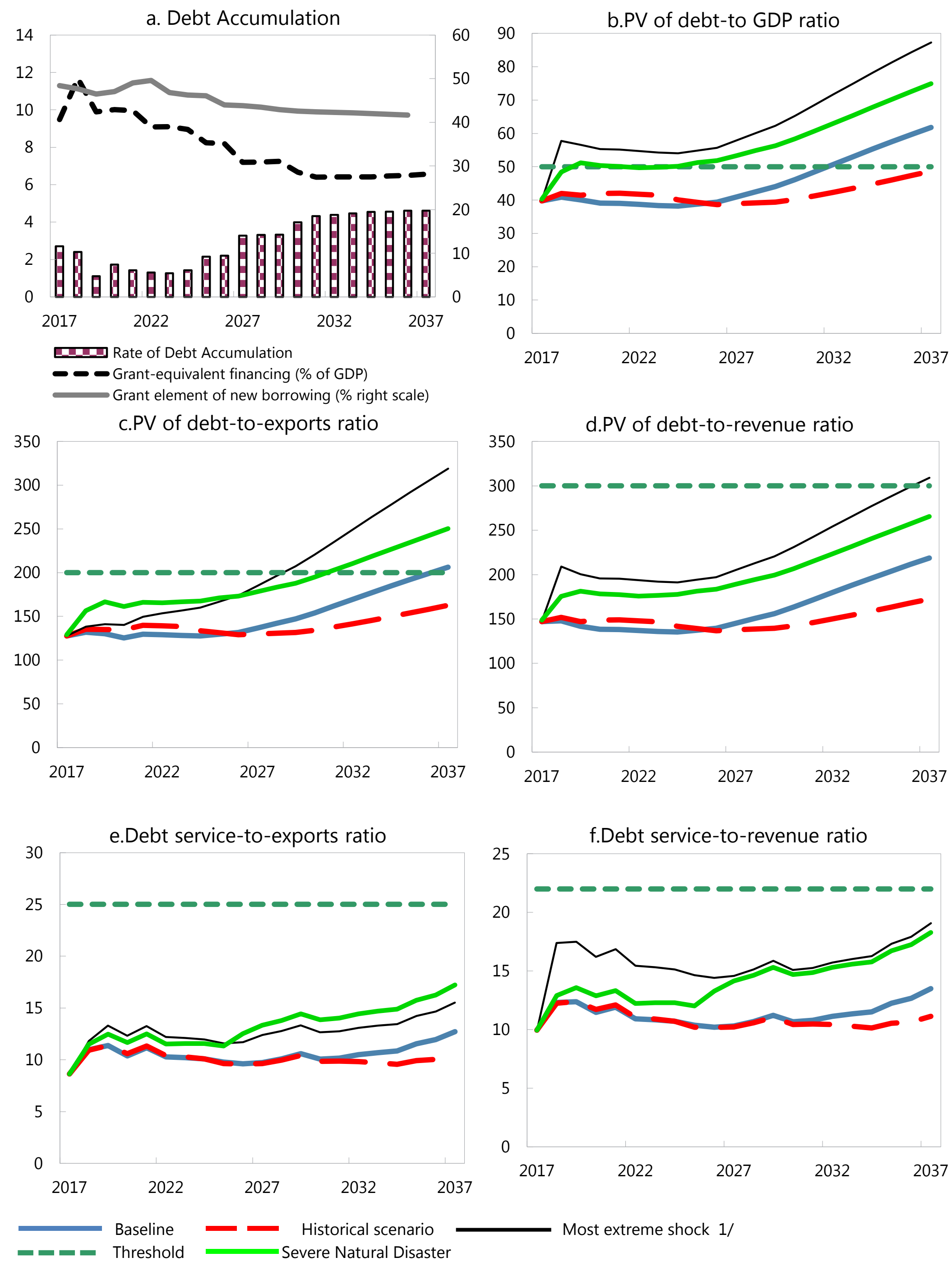
Figure 1a. Samoa: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2017-2037 1/



Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio on or before 2027. In figure b. it corresponds to a Combination shock; in c. to a Combination shock; in d. to a One-time depreciation shock; in e. to a Exports shock and in figure f. to a One-time depreciation shock

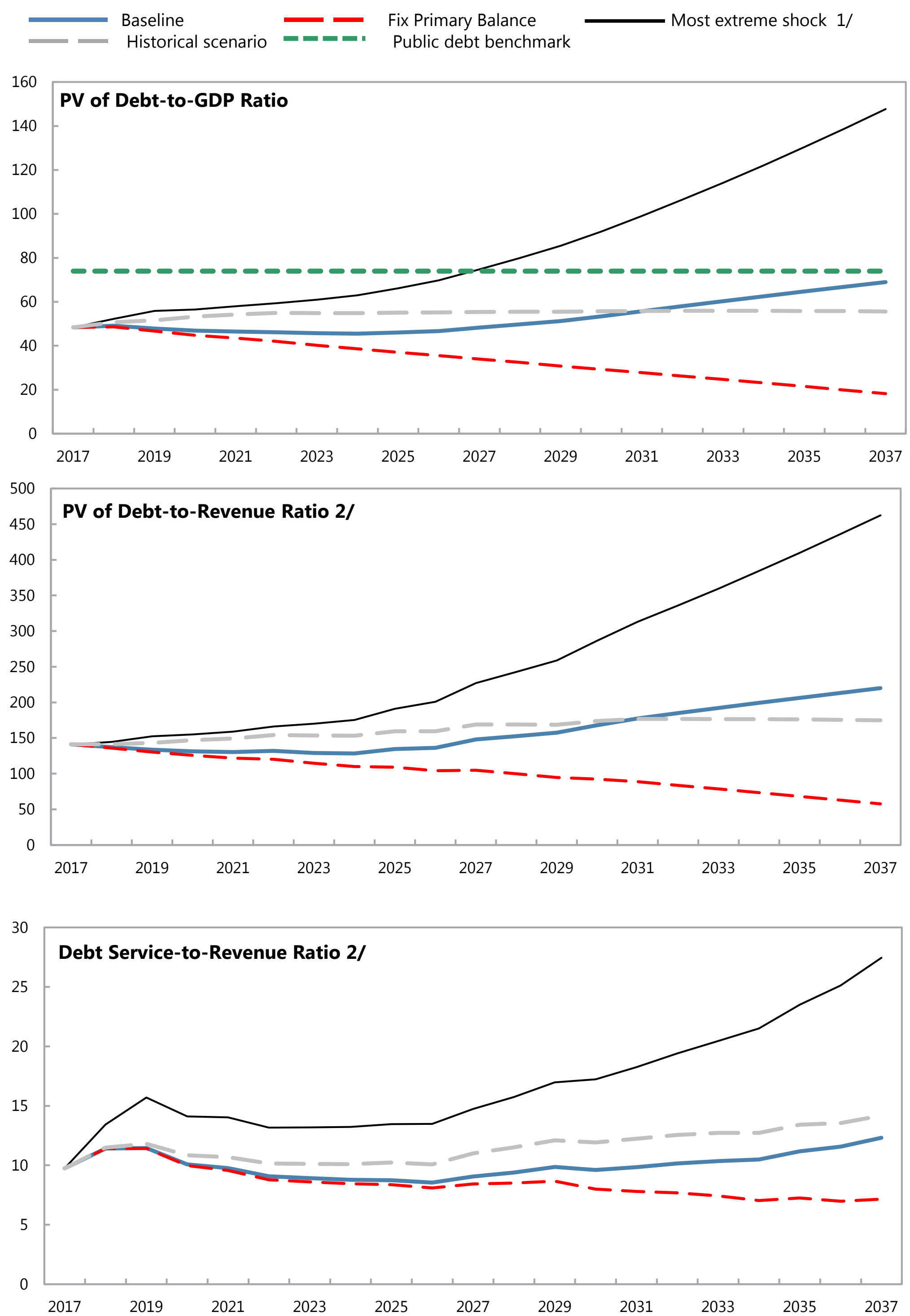
Figure 1b. Samoa: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, Excluding Remittances 2017-2037 1/



Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio on or before 2027. In figure b. it corresponds to a One-time depreciation shock; in c. to a Combination shock; in d. to a One-time depreciation shock; in e. to a Exports shock and in figure f. to a One-time depreciation shock

Figure 2. Samoa: Indicators of Public Debt Under Alternative Scenarios, 2017-2037



Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio on or before 2027.
2/ Revenues are defined inclusive of grants.

Table 1a. Samoa: External Debt Sustainability Framework, Baseline Scenario, 2014-2037 1/

(In percent of GDP, unless otherwise indicated)

Table 1a .Samoa: External Debt Sustainability Framework, Baseline Scenario, 2014-2037 1/
(In percent of GDP, unless otherwise indicated)

	Actual			Historical [6/]	Standard [6/]	Projections									
				Average	Deviation							2017-2022			2023-2037
	2014	2015	2016			2017	2018	2019	2020	2021	2022	Average	2027	2037	Average
External debt (nominal) 1/	**51.8**	**55.3**	**50.7**			**47.7**	**49.1**	**49.6**	**49.0**	**49.8**	**50.5**		**61.3**	**96.9**	
of which: public and publicly guaranteed (PPG)	51.8	55.3	50.7			47.7	49.1	49.6	49.0	49.8	50.5		61.3	96.9	
Change in external debt	0.2	3.6	-4.6			-3.0	1.3	0.5	-0.6	0.8	0.7		3.3	3.1	
Identified net debt-creating flows	6.2	-0.3	5.2			2.1	1.1	2.1	0.4	2.0	2.2		4.2	3.2	
Non-interest current account deficit	**7.4**	**2.4**	**4.0**	**5.5**	**2.5**	**1.3**	**1.8**	**3.2**	**2.9**	**3.2**	**3.6**		**5.8**	**5.3**	5.5
Deficit in balance of goods and services	24.6	21.3	19.2			15.6	16.3	17.8	17.3	17.8	17.9		20.1	19.9	
Exports	27.8	27.4	30.7			31.2	31.0	30.7	31.2	30.1	30.0		29.9	29.9	
Imports	52.5	48.7	49.8			46.8	47.3	48.5	48.5	47.9	47.9		50.0	49.8	
Net current transfers (negative = inflow)	-20.2	-20.2	-16.8	-20.3	1.9	-16.7	-16.8	-16.8	-16.7	-16.6	-16.5		-16.5	-16.5	-16.5
of which: official	-0.3	-0.2	0.0			-0.6	-0.5	-0.5	-0.5	-0.5	-0.4		-0.4	-0.4	
Other current account flows (negative = net inflow)	3.1	1.3	1.6			2.4	2.3	2.2	2.2	2.1	2.2		2.2	1.9	
Net FDI (negative = inflow)	**-2.0**	**-3.4**	**-0.8**	**-2.4**	**2.3**	**1.0**	**-1.0**	**-0.9**	**-1.2**	**-1.1**	**-1.1**		**-1.1**	**-1.1**	-1.1
Endogenous debt dynamics 2/	**0.8**	**0.7**	**2.1**			**-0.2**	**0.3**	**-0.3**	**-1.3**	**-0.1**	**-0.3**		**-0.5**	**-1.0**	
Contribution from nominal interest rate	0.7	0.7	0.8			1.0	1.1	1.2	1.0	0.9	0.8		0.7	1.1	
Contribution from real GDP growth	-0.6	-0.8	-4.0			-1.2	-0.8	-1.5	-2.3	-1.0	-1.1		-1.3	-2.0	
Contribution from price and exchange rate changes	0.7	0.8	5.3			...	...	...	...	...	...		...	...	
Residual (3-4) 3/	**-6.0**	**3.9**	**-9.9**			**-5.1**	**0.3**	**-1.5**	**-1.0**	**-1.2**	**-1.6**		**-1.0**	**-0.1**	
of which: exceptional financing	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/	...	...	39.3			39.8	40.8	40.0	39.1	39.0	38.7		41.0	61.8	
In percent of exports	...	...	128.1			127.7	131.8	130.2	125.3	129.5	129.1		136.8	206.2	
PV of PPG external debt	**...**	**...**	**39.3**			**39.8**	**40.8**	**40.0**	**39.1**	**39.0**	**38.7**		**41.0**	**61.8**	
In percent of exports	**...**	**...**	**128.1**			**127.7**	**131.8**	**130.2**	**125.3**	**129.5**	**129.1**		**136.8**	**206.2**	
In percent of government revenues	**...**	**...**	**146.8**			**147.1**	**147.8**	**141.8**	**138.5**	**138.2**	**137.2**		**145.1**	**218.8**	
Debt service-to-exports ratio (in percent)	**2.4**	**2.5**	**2.5**			**8.6**	**11.0**	**11.4**	**10.4**	**11.2**	**10.3**		**9.7**	**12.7**	
PPG debt service-to-exports ratio (in percent)	**2.4**	**2.5**	**2.5**			**8.6**	**11.0**	**11.4**	**10.4**	**11.2**	**10.3**		**9.7**	**12.7**	
PPG debt service-to-revenue ratio (in percent)	**2.6**	**2.8**	**2.9**			**9.9**	**12.3**	**12.4**	**11.5**	**11.9**	**10.9**		**10.3**	**13.5**	
Total gross financing need (Millions of U.S. dollars)	49.1	-2.4	31.1			42.3	36.9	53.9	48.6	55.4	59.7		99.5	156.2	
Non-interest current account deficit that stabilizes debt ratio	7.2	-1.2	8.6			4.3	0.4	2.7	3.5	2.4	2.9		2.5	2.2	
Key macroeconomic assumptions															
Real GDP growth (in percent)	1.2	1.6	7.1	1.0	3.8	2.5	1.8	3.2	5.0	2.2	2.2	2.8	0.9	0.9	0.9
GDP deflator in US dollar terms (change in percent)	-1.3	-1.6	-8.7	3.9	8.3	4.3	2.6	1.6	1.7	1.7	1.8	2.3	1.8	1.8	1.8
Effective interest rate (percent) 5/	1.3	1.3	1.4	1.2	0.5	2.0	2.4	2.5	2.1	2.0	1.6	2.1	1.3	1.2	1.3
Growth of exports of G&S (US dollar terms, in percent)	-4.1	-1.4	9.5	5.2	8.8	8.6	3.9	4.0	8.4	0.3	3.7	4.8	4.1	4.1	4.1
Growth of imports of G&S (US dollar terms, in percent)	6.0	-7.1	0.1	4.2	8.6	0.4	5.5	7.6	6.8	2.5	4.1	4.5	4.0	4.1	4.4
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	40.8	48.4	47.7	46.5	47.0	49.0	46.6	44.0	41.7	43.8
Government revenues (excluding grants, in percent of GDP)	25.4	25.3	26.8			27.0	27.6	28.2	28.2	28.2	28.2		28.2	28.2	28.2
Aid flows (in Millions of US dollars) 7/	101.5	78.5	73.1			60.7	71.3	69.2	72.9	75.8	71.4		51.0	53.0	
of which: Grants	101.5	78.5	73.1			60.7	71.3	69.2	72.9	75.8	71.4		51.0	53.0	
of which: 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/	...	...	...			9.5	11.7	9.9	10.0	10.0	9.1		7.2	6.6	7.2
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			74.2	75.5	79.2	77.0	77.7	78.7		63.3	54.9	62.6
Memorandum items:															
Nominal GDP (Millions of US dollars)	803.6	804.0	786.4			840.7	878.0	920.4	982.7	1021.1	1063.2		1301.4	1947.6	
Nominal dollar GDP growth	-0.2	0.0	-2.2			6.9	4.4	4.8	6.8	3.9	4.1	5.2	4.1	4.1	4.1
PV of PPG external debt (in Millions of US dollars)			317.1			338.4	358.6	368.3	384.3	398.3	411.6		533.2	1202.8	
(PVt-PVt-1)/GDPt-1 (in percent)						2.7	2.4	1.1	1.7	1.4	1.3	1.8	3.3	4.6	3.5
Gross workers' remittances (Millions of US dollars)	160.0	160.9	131.6			135.7	143.1	150.1	159.5	165.3	170.8		209.0	312.8	
PV of PPG external debt (in percent of GDP + remittances)	...	...	33.7			34.2	35.1	34.4	33.6	33.6	33.4		35.3	53.2	
PV of PPG external debt (in percent of exports + remittances)	...	...	82.9			84.1	86.4	85.1	82.5	84.2	84.1		89.1	134.2	
Debt service of PPG external debt (in percent of exports + remittances)	...	...	1.6			5.7	7.2	7.4	6.8	7.3	6.7		6.3	8.3	

Sources: Country authorities; and staff estimates and projections.

1/ Includes both public and private sector external debt. The financial years ends 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 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, 2017-2037

(In percent)

	Projections							
	2017	2018	2019	2020	2021	2022	**2027**	2037
PV of debt-to-GDP+remittances ratio								
Baseline	34	35	34	34	34	33	**35**	53
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2017-2037 1/	34	36	36	36	36	36	**34**	43
A2. New public sector loans on less favorable terms in 2017-2037 2	34	37	37	38	39	40	**48**	82
A3. Alternative Scenario: Severe Natural Disaster in 2018	35	41	44	43	43	42	**45**	62
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	34	37	38	37	37	37	**39**	58
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	34	36	38	37	37	36	**38**	54
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	34	37	38	38	38	37	**39**	60
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	34	34	33	33	33	33	**35**	53
B5. Combination of B1-B4 using one-half standard deviation shocks	34	36	37	37	37	36	**38**	58
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	34	47	46	45	45	45	**47**	71
PV of debt-to-exports+remittances ratio								
Baseline	84	86	85	82	84	84	**89**	134
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2017-2037 1/	84	89	88	88	91	91	**86**	110
A2. New public sector loans on less favorable terms in 2017-2037 2	84	91	92	92	97	100	**120**	208
A3. Alternative Scenario: Severe Natural Disaster in 2018	85	101	106	104	105	105	111	148
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	84	86	85	82	84	84	**89**	134
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	84	93	102	99	101	101	**106**	151
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	84	86	85	82	84	84	**89**	134
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	84	83	81	81	83	82	**87**	134
B5. Combination of B1-B4 using one-half standard deviation shocks	84	83	85	83	84	84	**89**	134
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	84	86	85	82	84	84	**89**	134
PV of debt-to-revenue ratio								
Baseline	147	148	142	139	138	137	**145**	219
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2017-2037 1/	147	152	147	149	149	148	**138**	172
A2. New public sector loans on less favorable terms in 2017-2037 2	147	155	154	155	160	163	**196**	338
A3. Alternative Scenario: Severe Natural Disaster in 2018	149	175	181	178	177	176	**189**	265
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	147	155	158	154	154	153	**162**	243
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	147	152	155	151	151	150	**157**	224
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	147	159	162	158	158	156	**165**	249
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	147	147	139	136	135	134	**143**	218
B5. Combination of B1-B4 using one-half standard deviation shocks	147	155	160	156	156	155	**164**	246
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	147	209	200	196	195	194	**205**	309

Table 1b. Samoa: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2017-2037 (concluded)
(In percent)

	Projections							
	2017	2018	2019	2020	2021	2022	**2027**	2037
Debt service-to-exports+remittances ratio								
Baseline	6	7	7	7	7	7	**6**	8
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2017-2037 1/	6	7	7	7	7	7	**6**	7
A2. New public sector loans on less favorable terms in 2017-2037 2	6	7	7	7	8	7	**8**	13
A3. Alternative Scenario: Severe Natural Disaster in 2018	6	7	8	7	8	7	**8**	10
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	6	7	7	7	7	7	**6**	8
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	6	8	8	8	8	8	**8**	10
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	6	7	7	7	7	7	**6**	8
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	6	7	7	7	7	7	**6**	8
B5. Combination of B1-B4 using one-half standard deviation shocks	6	7	7	7	7	7	**6**	8
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	6	7	7	7	7	7	**6**	8
Debt service-to-revenue ratio								
Baseline	10	12	12	11	12	11	**10**	13
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2017-2037 1/	10	12	12	12	12	11	**10**	11
A2. New public sector loans on less favorable terms in 2017-2037 2	10	12	12	12	13	12	**13**	21
A3. Alternative Scenario: Severe Natural Disaster in 2018	10	13	14	13	13	12	**14**	18
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	10	13	14	13	13	12	**11**	15
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	10	12	12	12	12	11	**11**	14
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	10	13	14	13	14	12	**12**	15
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	10	12	12	11	12	11	**10**	13
B5. Combination of B1-B4 using one-half standard deviation shocks	10	13	14	13	13	12	**12**	15
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	10	17	17	16	17	15	**15**	19
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	43	43	43	43	43	43	**43**	43

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. Samoa: Public Sector Debt Sustainability Framework, Baseline Scenario, 2014-2037 1/

(In percent of GDP, unless otherwise indicated)

	Actual			Average 5/	Standard Deviation 5/	Estimate	Projections								
	2014	2015	2016			2017	2018	2019	2020	2021	2022	2017-22 Average	2027	2037	2023-37 Average
Public sector debt 1/	63.1	66.1	60.5			56.3	57.3	57.4	56.8	57.3	57.9		68.5	104.1	
of which: foreign-currency denominated	51.8	55.3	50.7			47.7	49.1	49.6	49.0	49.8	50.5		61.3	96.9	
Change in public sector debt	0.7	3.0	-5.6			-4.3	1.0	0.1	-0.6	0.5	0.6		3.2	3.1	
Identified debt-creating flows	2.2	7.8	-3.4			-1.9	0.1	-0.5	-1.3	0.1	0.1		3.5	3.7	
Primary deficit	4.4	2.6	-0.8	2.7	2.4	-0.3	0.6	0.9	1.3	1.4	1.7	0.9	4.5	5.4	4.4
Revenue and grants	38.0	35.1	36.1			34.2	35.7	35.7	35.6	35.6	34.9		32.1	30.9	
of which: grants	12.6	9.8	9.3			7.2	8.1	7.5	7.4	7.4	6.7		3.9	2.7	
Primary (noninterest) expenditure	42.4	37.7	35.2			34.0	36.3	36.6	36.9	37.0	36.6		36.7	36.4	
Automatic debt dynamics	-2.2	5.1	-2.6			-1.6	-0.5	-1.3	-2.6	-1.2	-1.5		-1.1	-1.7	
Contribution from interest rate/growth differential	-1.4	-1.7	-4.3			-1.0	-0.7	-1.5	-2.7	-1.3	-1.6		-1.1	-1.8	
of which: contribution from average real interest rate	-0.6	-0.7	0.1			0.5	0.3	0.3	0.0	-0.1	-0.3		-0.5	-0.9	
of which: contribution from real GDP growth	-0.7	-1.0	-4.4			-1.5	-1.0	-1.8	-2.7	-1.2	-1.3		-0.6	-0.9	
Contribution from real exchange rate depreciation	-0.8	6.8	1.8			-0.6	0.3	0.1	0.1	0.1	0.0		...	...	
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	-1.5	-4.8	-2.3			-2.3	1.0	0.5	0.7	0.4	0.5		-0.2	-0.6	
Other Sustainability Indicators															
PV of public sector debt	...	...	49.1			48.3	49.1	47.8	46.9	46.5	46.1		48.2	69.0	
of which: foreign-currency denominated	...	...	39.3			39.8	40.8	40.0	39.1	39.0	38.7		41.0	61.8	
of which: external	...	...	39.3			39.8	40.8	40.0	39.1	39.0	38.7		41.0	61.8	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	5.3	3.9	0.8			3.0	4.6	5.0	4.9	4.8	4.8		7.4	9.2	
PV of public sector debt-to-revenue and grants ratio (in percent)	...	...	136.2			141.1	137.3	133.7	131.4	130.4	132.0		149.9	222.8	
PV of public sector debt-to-revenue ratio (in percent)	...	...	183.5			178.7	177.7	169.4	166.0	164.7	163.4		170.8	244.3	
of which: external 3/	...	...	146.8			147.1	147.8	141.8	138.5	138.2	137.2		145.1	218.8	
Debt service-to-revenue and grants ratio (in percent) 4/	2.6	3.6	4.6			9.7	11.4	11.4	10.1	9.8	9.1		9.1	12.3	
Debt service-to-revenue ratio (in percent) 4/	3.9	4.9	6.1			12.4	14.8	14.5	12.7	12.3	11.2		10.3	13.5	
Primary deficit that stabilizes the debt-to-GDP ratio	3.7	-0.4	4.8			4.0	-0.5	0.8	1.9	0.8	1.1		1.3	2.3	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	1.2	1.6	7.1	1.0	3.8	2.5	1.8	3.2	5.0	2.2	2.2	2.8	0.9	0.9	0.9
Average nominal interest rate on forex debt (in percent)	1.3	1.3	1.4	1.2	0.5	2.0	2.4	2.5	2.1	2.0	1.6	2.1	1.3	1.2	1.3
Real exchange rate depreciation (in percent, + indicates depreciation)	-1.6	13.6	3.5	-1.4	8.9	-1.2	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	0.3	2.7	-1.6	3.1	3.4	1.3	2.9	2.5	2.6	2.8	3.0	2.5	3.0	3.0	3.0
Growth of real primary spending (deflated by GDP deflator, in percent)	17.4	-9.6	0.2	0.8	6.6	-1.3	8.9	4.0	5.9	2.4	1.1	3.5	2.2	2.1	2.2
Grant element of new external borrowing (in percent)	...	...	...	...	...	40.8	48.4	47.7	46.5	47.0	49.0	46.6	44.0	41.7	...

Sources: Country authorities; and staff estimates and projections.

1/ Includes public sector debt and government guarantees of 7.2 percent of GDP. Gross debt is used. The financial year ends June

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, 2017-2037

	Projections							
	2017	2018	2019	2020	2021	2022	2027	2037
PV of Debt-to-GDP Ratio								
Baseline	48	49	48	47	46	46	48	69
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	48	51	52	53	54	55	55	56
A2. Primary balance is unchanged from 2017	48	49	47	45	43	42	34	18
A3. Permanently lower GDP growth 1/	48	50	49	49	49	50	63	151
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviation in 2018-19	48	52	56	57	58	59	75	148
B2. Primary balance is at historical average minus one standard deviation in 2018-19	48	52	53	52	51	51	56	104
B3. Combination of B1-B2 using one half standard deviation shocks	48	52	55	55	56	56	68	131
B4. One-time 30 percent real depreciation in 2018	48	66	63	61	59	58	57	97
B5. 10 percent of GDP increase in other debt-creating flows in 2018	48	55	54	52	52	52	57	105
PV of Debt-to-Revenue Ratio 2/								
Baseline	141	137	134	131	130	132	148	220
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	141	142	143	147	149	154	169	175
A2. Primary balance is unchanged from 2017	141	136	130	126	122	120	105	58
A3. Permanently lower GDP growth 1/	141	139	137	136	138	142	194	469
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviation in 2018-19	141	144	153	155	159	166	227	463
B2. Primary balance is at historical average minus one standard deviation in 2018-19	141	145	148	145	144	146	173	330
B3. Combination of B1-B2 using one half standard deviation shocks	141	146	151	152	154	159	207	413
B4. One-time 30 percent real depreciation in 2018	141	185	177	171	166	165	175	307
B5. 10 percent of GDP increase in other debt-creating flows in 2018	141	153	150	147	146	148	175	332
Debt Service-to-Revenue Ratio 2/								
Baseline	10	11	11	10	10	9	9	12
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	10	11	12	11	11	10	11	14
A2. Primary balance is unchanged from 2017	10	11	11	10	10	9	8	7
A3. Permanently lower GDP growth 1/	10	11	12	10	10	10	11	26
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviation in 2018-19	10	12	12	11	11	10	12	26
B2. Primary balance is at historical average minus one standard deviation in 2018-19	10	11	12	11	10	10	11	19
B3. Combination of B1-B2 using one half standard deviation shocks	10	12	12	11	11	10	12	24
B4. One-time 30 percent real depreciation in 2018	10	13	16	14	14	13	15	27
B5. 10 percent of GDP increase in other debt-creating flows in 2018	10	11	12	11	10	10	11	20

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.