INTERNATIONAL MONETARY FUND AND
INTERNATIONAL DEVELOPMENT ASSOCIATION

TONGA

Joint IMF/World Bank Debt Sustainability Analysis 2008[1]

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Under the baseline scenario, the NPV-of-debt to GDP as well as the NPV-of-debt to export ratios remain above the country-specific indicative thresholds for a prolonged period. Consequently, the Low Income Country Debt Sustainability Analysis (LIC DSA) indicates that Tonga remains at a high risk of external debt distress. At the same time, Tonga benefits from very high remittance inflows (over 30 percent of GDP), which are by far the largest source of foreign exchange earnings and have a countervailing effect by helping to mitigate liquidity risks. Moreover, Tonga's overall public sector debt indicators, while elevated over the short term, show a decreasing trend over the longer run. Taking into account the cushion provided to the economy by the large workers remittances, the debt should remain manageable.

The LIC DSA suggests limiting the utilization of the nonconcessional reconstruction loan while lengthening its disbursement horizon, together with increases in donor grant and concessional financing to support future developments, are crucial for further improving Tonga's public debt dynamics. Fiscal prudence and policies to enhance growth prospects are also critical underpinnings to debt sustainability over the medium term.

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[1]This DSA was prepared jointly with the World 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 Tongan authorities.

I. BACKGROUND

The external and public debt sustainability analyses are based on the standard LIC DSA framework.[2] The DSA presents the projected path of Tonga's external and public sector debt burden indicators, and draws some conclusions on the forward-looking sustainability of debt.

Tonga's total public sector debt stock (including publicly guaranteed debt) declined to 45¼ percent of GDP in FY06/07 from 48½ percent of GDP in FY05/06. External debt to GDP fell as donor financing declined in real terms, while fiscal consolidation to limit domestic budget financing also contributed to a downward trend in domestic public debt to GDP.

Following the civil unrest in November of 2006, the government made a significant effort toward securing financing for the reconstruction of the capital city of Nuku'alofa. This includes donor grants of about $15 million, to be channeled through designated banks to business entities affected by the riots in the form of off-budget, low interest rate loans in the second half of FY07/08. The government also signed a long-term reconstruction loan from the EXIM Bank of China in November 2007. Disbursements of this loan have been postponed, as the government is currently reassessing the overall financing requirement for the reconstruction, with an aim to reduce the overall loan utilization and lengthening the disbursement horizon.[3]

II. BASELINE

Tonga's DSA builds on the baseline scenario assumptions presented in Box 1. It assumes real GDP growth rate at its historical average, fiscal consolidation, a utilization of $50 million of the reconstruction loan over FY08/09–FY12/13, with an even disbursement of $10 million per year and repayments after a five-year grace period. The baseline assumes no other major external nonconcessional borrowing. The authorities are currently reassessing the overall financing requirement to be supported by the reconstruction loan, with an aim to significantly reduce the overall size of loan utilization while lengthening the disbursement horizon. Accordingly, the assumption on the reconstruction loan under the baseline is likely to be an upper bound.

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[2]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, 9/10/04), and reference to "Staff Guidance Note on the Application of the Joint Bank-Fund Debt Sustainability."

[3] The 2008 DSA baseline shows an improved public debt and debt service profiles over the medium to long term as compared with those presented in the 2007 DSA where the reconstruction loan was assumed to be disbursed and utilized fully over a two-year period during FY08/09–09/10.

Tonga: Baseline Vis-a-Vis 10-year Average (used in the DSA)			
	Baseline 2007/08-2012/13	2013/14-2028/29	10-year Historical Average 1997/98-2006/0?
Real GDP growth (in percent)	1.8	1.6	1.9
GDP deflator (in U.S. dollar term, change in percent)	3.3	2.1	2.2
Current account deficit (percent of GDP)	-8.4	-7.7	-4.4
Growth of exports of G&S (U.S. dollar, in percent)	9.9	3.9	-1.2
Overall fiscal balance (percent of GDP)	0.0	0.1	-0.7
Sources: Staff estimates.			

III. EXTERNAL DSA

External debt declined to 40½ percent of GDP in FY06/07, from 42½ percent of GDP in FY05/06, over 80 percent of which is on concessional terms. Under the baseline scenario, the NPV of PPG external debt is projected to increase by about 5 percent of GDP, to 38 percent of GDP by FY12/13, above its indicative threshold of 30 percent, but decline subsequently to 16½ percent of GDP by FY27/28.[4] The NPV of debt and debt service-to-revenue ratios also remain well below their respective indicative thresholds of 200 percent and 25 percent over the projection period (Table 1a).

Reflecting Tonga's low exports, the NPV of PPG external debt-to-exports ratio is projected to exceed the respective indicative threshold of 100 percent. However, this is mitigated by the fact that large remittances, which are the largest source of foreign exchange earnings (one half of Tongans live abroad, mostly in Australia, New Zealand, and the United States) have a countervailing effect by helping to reduce liquidity risks.[5] Efforts to improve the policy framework, including fiscal consolidation, will also be critical to reduce risks of external debt distress.

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[4] The average World Bank's Country Policy and Institutional Assessment for the period 2005–2007 classifies Tonga as a poor performer. The corresponding debt distress thresholds are: NPV of debt-to-exports (100 percent), GDP (30 percent), and revenues (200 percent); and debt service in percent of exports (15 percent) and revenues (25 percent).

[5] The baseline scenario assumes that net private transfer receipts will climb to an average 45½ percent of GDP over the projection period from a historical average of 33½ percent, mainly reflecting the recent increase in the number of Tongan workers abroad as well as a reduction in transfer costs.

Tonga: External Public Debt Indicators

	Indicative Thresholds 1/	2006/07
NPV of external debt		
In percent of GDP	30	27
In percent of exports	100	204
In percent of revenues	200	91
Debt service		
In percent of exports	15	11
In percent of revenues	25	5

1/ Represents Low Income Country DSA indicative thresholds for Tonga that is classified
as a poor performer under the World Bank's Country Policy and Institutional assessment.

The alternative scenarios and bound tests indicate Tonga's vulnerability of its external debt position to negative shocks to remittances and exports (Table 1b, Figure 1). Stress tests also underscore the importance of limiting the nonconcessional borrowing to reduce the risk without undermining debt sustainability. Moreover, a return of key variables, including GDP and export growth, to their historical averages, would imply a deterioration in all ratios.

IV. PUBLIC DEBT SUSTAINABILITY ANALYSIS

Tonga's public debt sustainability depends critically on fiscal prudence, the government's commitment to limit new public borrowing, and its adoption of a phased approach to utilizing the reconstruction loan (Table 2a). Under the baseline scenario, total NPV of public debt is projected to increase by 5 percent of GDP by 2012/13 (to 43 percent of GDP), and gradually decline to about 18 percent of GDP over the longer term, benefiting in part from a favorable fiscal policy stance under the baseline scenario. Domestic public debt is also projected to narrow markedly under this scenario, in line with recent policy commitments, to below 6 percent of GDP by 2012/13 and less than 1 percent of GDP by 2027/28.

Alternative scenarios and stress tests highlight the vulnerability of the total public debt to growth shocks, which could lead to a sharp deterioration in the debt burden indicators. Furthermore, if other debt-creating flows increase, or the primary fiscal deficit returns to its historical average of 0.6 percent of GDP, the public debt dynamics would become much less favorable. The size of the reconstruction loan also remains a key risk, especially if it were to be fully disbursed in the next two years (FY08/09–09/10), as originally planned.

V. STAFF ASSESSMENT

Tonga remains at a high risk of external debt distress. At the same time, Tonga benefits from very high remittance inflows, which are the largest source of foreign exchange earnings and have a countervailing effect by helping to mitigate liquidity risks. Moreover, Tonga's overall public sector debt dynamics, while elevated over the short term, shows a decreasing trend over the longer run, suggesting that it should remain manageable.

Stress tests highlight key vulnerabilities to debt sustainability over the medium term, including lower GDP growth, major external shocks, and borrowing on less concessional terms. This underscores the importance of sound macroeconomic policies to improve growth potential on a sustainable basis, export diversification, and continued efforts in fiscal consolidation. Moreover, limited use of nonconcessional borrowing and increased utilization of donor grants and concessional financing would substantially improve the public debt dynamics and reduce the risk of external debt distress. A sound public debt policy, in line with the medium-term fiscal framework, is also essential to guide future development financing in Tonga. In this context, priorities should be given to projects which would help generate high growth and employment to ensure debt service capacity in the future.

Box 1. Baseline Assumptions

Real GDP growth is projected to average 1¾ percent over the period 2007/08–2012/13. This reflects a transitory growth stimulus spurred by reconstruction activity in the capital city over the first two years, and a return to a historical average of 1½ percent thereafter. This conservative long-run growth outlook reflects structural impediments which continue to constrain Tonga's growth potential.

Inflation, as measured by the GDP deflator, is projected to average at around 8 percent over the projection period of 2007/08–2012/13, reflecting partial pass through of world food and fuel price increases assumed by the WEO. In U.S. dollar terms, GDP deflator inflation is projected to average around 4 percent over the same period, reflecting modest depreciation of the pa'anga against the U.S. dollar.

The fiscal balance is projected to achieve a virtual balance during 2007/08–2008/09 and small surpluses over 2009/10–2012/13, based on the authorities' stated objectives to limit domestic financing of the budget. In the long run, tax revenue is projected to stabilize near its historical average of around 32 percent of GDP, while total expenditure to come slightly below its historical average of 32 percent of GDP through a modest containment of the wage bill in real terms. This implies a fiscal surplus of ¼ percent of GDP in the long run to build fiscal savings.

The current account deficit is projected to narrow to about 7 percent of GDP over the medium term and stabilize around that level thereafter (from 10 percent of GDP in 2007/08). Export base is projected to remain narrow and relatively undiversified, while strong remittance inflows are expected to continue. Growth of imports is projected to moderate markedly as reconstruction-related imports subside and world food and fuel prices stabilize. Meanwhile, the outlook for net foreign direct investment remains favorable, broadly in line with the past five-year average of 5½ percent of GDP. Official foreign reserves are projected to remain comfortable in terms of import cover.

Reconstruction financing under the baseline represents an illustrative scenario where a soft-loan of about $10 million per year would be disbursed over a five-year period during 2008/09–2012/13. The cumulative loan disbursement of about $50 million represents a plausible upper bound on the utilization of the $63 million reconstruction loan over the next five years. This loan has an interest rate of 2 percent and a maturity of 20 years, with a 5-year grace period.

Table 1a. Tonga: External Debt Sustainability Framework, Baseline Scenario, 2005/06-2027/28 1/

(In percent of GDP, unless otherwise indicated)

	Actual		Historical Average 6/	Standard Deviation 6/	Projections						2007/08-2012/13 Average			2013/14-2027/28 Average
	2005/06	2006/07			2007/08	2008/09	2009/10	2010/11	2011/12	2012/13		2022/23	2027/28	
External debt (nominal) 1/	**42.5**	**40.5**			**35.1**	**37.6**	**37.6**	**37.0**	**37.9**	**38.8**		**25.4**	**19.7**	
o/w public and publicly guaranteed (PPG)	34.5	34.2			30.6	34.5	36.1	37.0	37.9	38.8		25.4	19.7	
Change in external debt	-3.7	-2.0			-5.4	2.5	0.0	-0.6	0.9	0.9		-1.2	-1.1	
Identified net debt-creating flows	0.4	1.7			1.8	-0.6	-0.4	-1.3	-1.3	-1.3		-1.2	-1.1	
Non-interest current account deficit	**8.9**	**9.6**	**3.1**	**5.7**	**9.3**	**7.2**	**7.2**	**6.3**	**6.3**	**6.3**		**6.4**	**6.5**	**6.3**
Deficit in balance of goods and services	48.5	46.0			51.0	57.2	57.2	53.7	53.7	53.7		53.7	53.7	
Exports	17.3	13.3			15.1	17.0	17.0	17.0	17.0	17.0		17.0	17.0	
Imports	65.8	59.3			66.1	74.2	74.2	70.7	70.7	70.7		70.7	70.7	
Net current transfers (negative = inflow)	-37.6	-34.2	-33.6	7.4	-39.6	-47.9	-48.0	-45.6	-45.6	-45.6		-45.6	-45.6	-45.6
Other current account flows (negative = net inflow)	-2.0	-2.1			-2.2	-2.1	-2.0	-1.9	-1.9	-1.8		-1.8	-1.7	
Net FDI (negative = inflow)	**-6.0**	**-6.9**	**-3.4**	**4.1**	**-7.8**	**-7.6**	**-7.5**	**-7.5**	**-7.5**	**-7.5**		**-7.5**	**-7.5**	**-7.5**
Endogenous debt dynamics 2/	**-2.5**	**-1.0**			**0.3**	**-0.2**	**0.0**	**-0.1**	**0.0**	**-0.1**		**0.0**	**0.0**	
Contribution from nominal interest rate	0.8	0.7			0.7	0.7	0.6	0.6	0.5	0.5		0.4	0.3	
Contribution from real GDP growth	-0.3	1.3			-0.5	-0.9	-0.7	-0.6	-0.6	-0.6		-0.4	-0.3	
Contribution from price and exchange rate changes	-3.1	-3.0												
Residual (3-4) 3/	**-4.0**	**-3.7**			**-7.1**	**3.1**	**0.4**	**0.7**	**2.2**	**2.2**		**-0.1**	**0.0**	
o/w exceptional financing	-3.5	-4.6			-3.5	-8.5	-8.2	-8.0	-7.8	-7.7		-5.4	-5.2	
NPV of external debt 4/	...	33.4			30.8	32.5	33.8	34.2	36.0	38.0		22.7	16.5	
In percent of exports	...	251.6			204.5	191.5	198.5	201.3	211.9	223.6		133.3	97.1	
NPV of PPG external debt		**27.1**			**26.2**	**29.4**	**32.3**	**34.2**	**36.0**	**38.0**		**22.7**	**16.5**	
In percent of exports		204.0			174.1	173.1	189.6	201.3	211.9	223.6		133.3	97.1	
In percent of government revenues		91.1			89.2	102.8	112.7	119.7	126.0	132.9		79.3	57.7	
Debt service-to-exports ratio (in percent)	**18.1**	**23.2**			**22.3**	**20.5**	**18.6**	**19.4**	**10.5**	**9.6**		**14.1**	**12.8**	
Total gross financing need (billions of U.S. dollars)	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Non-interest current account deficit that stabilizes debt ratio	12.5	11.7			14.6	4.7	7.2	6.9	5.4	5.5		7.6	7.5	
Key macroeconomic assumptions														
Real GDP growth (in percent)	0.6	-3.2	1.9	3.0	1.2	2.6	1.9	1.8	1.6	1.6	1.8	1.6	1.6	1.6
GDP deflator in US dollar terms (change in percent)	7.1	7.6	2.2	11.2	5.6	-2.5	4.8	5.0	4.4	4.0	3.6	2.3	2.3	2.2
Effective interest rate (percent) 5/	1.9	1.7	1.4	0.4	2.0	2.0	1.8	1.6	1.5	1.4	1.7	1.7	1.7	1.7
Growth of exports of G&S (US dollar terms, in percent)	2.6	-19.8	-1.2	21.3	21.0	13.0	6.8	6.8	6.2	5.7	9.9	4.0	4.0	3.9
Growth of imports of G&S (US dollar terms, in percent)	11.7	-6.1	6.9	17.1	19.1	12.4	6.8	6.8	6.2	5.7	8.7	4.0	4.0	3.9
Grant element of new public sector borrowing (in percent)	...	...		...	44.7	29.2	41.6	41.8	42.0	42.2	40.2	56.9	56.9	56.9
Grant-equivalent financing (in percent of GDP) 8/	...	...			3.0	4.7	6.9	6.8	6.6	6.6		4.6	4.5	4.7
Memorandum items:														
Nominal GDP (millions of US dollars)	236.2	246.0			263.0	263.2	280.9	300.1	318.6	336.8		490.5	596.4	

Source: Staff simulations.

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 NPV 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 NPV of new debt).

Table 1b. Tonga: Sensitivity Analyses for Key Indicators of Public and Publicly Guaranteed External Debt, 2007/08-2027/28
(In percent)

				Projections				
	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2017/18	2027/28

NPV of debt-to-GDP ratio

Baseline	26	29	32	34	36	38	30	17
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2008/09-27/28 1/	26	29	33	36	39	43	38	29
A2. New public sector loans on less favorable terms in 2008/09-27/28 2/	26	31	35	39	43	46	41	31
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2008/09-09/10	26	31	34	37	39	41	32	18
B2. Export value growth at historical average minus one standard deviation in 2008/09-09/10 3/	26	32	39	41	42	44	37	20
B3. US dollar GDP deflator at historical average minus one standard deviation in 2008/09-09/10	26	32	40	42	44	47	37	20
B4. Net non-debt creating flows at historical average minus one standard deviation in 2008/09-09/10 4/	26	44	61	62	63	65	57	32
B5. Combination of B1-B4 using one-half standard deviation shocks	26	42	64	65	67	69	60	33
B6. One-time 30 percent nominal depreciation relative to the baseline in 2008/09 5/	26	42	47	49	52	55	44	24

NPV of debt-to-exports ratio

Baseline	174	173	190	201	212	224	178	97
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2008/09-27/28 1/	174	169	191	212	232	251	224	171
A2. New public sector loans on less favorable terms in 2008/09-27/28 2/	174	179	208	231	252	273	242	181
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2008/09-09/10	174	173	190	201	212	224	178	97
B2. Export value growth at historical average minus one standard deviation in 2008/09-09/10 3/	174	274	459	480	500	522	431	236
B3. US dollar GDP deflator at historical average minus one standard deviation in 2008-09	174	173	190	201	212	224	178	97
B4. Net non-debt creating flows at historical average minus one standard deviation in 2008/09-09/10 4/	174	259	359	366	373	382	336	186
B5. Combination of B1-B4 using one-half standard deviation shocks	174	304	514	527	539	554	483	266
B6. One-time 30 percent nominal depreciation relative to the baseline in 2008/09 5/	174	173	190	201	212	224	178	97

NPV of debt-to-revenue ratio

Baseline	89	103	113	120	126	133	106	58
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2008/09-27/28 1/	89	100	114	126	138	149	133	102
A2. New public sector loans on less favorable terms in 2008/09-27/28 2/	89	107	124	137	150	162	144	108
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2008/09-09/10	89	107	120	128	135	142	113	62
B2. Export value growth at historical average minus one standard deviation in 2008/09-09/10 3/	89	112	136	142	148	155	128	70
B3. US dollar GDP deflator at historical average minus one standard deviation in 2008/09-09/10	89	110	139	148	155	164	131	71
B4. Net non-debt creating flows at historical average minus one standard deviation in 2008/09-09/10 4/	89	154	213	218	222	227	200	110
B5. Combination of B1-B4 using one-half standard deviation shocks	89	146	223	229	234	241	210	116
B6. One-time 30 percent nominal depreciation relative to the baseline in 2008/09 5/	89	148	163	173	182	192	153	83

Source: Staff projections and simulations.

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 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.Tonga: Public Sector Debt Sustainability Framework, Baseline Scenario, 2005/06-2027/28
(In percent of GDP, unless otherwise indicated)

	Actual				Projections									
	2005/06	2006/07	Historical Average 5/	Standard Deviation 5/	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2007/08-12/13 Average	2022/23	2027/28	2012/13-27/28 Average
Public sector debt 1/	**48.5**	**45.3**			**40.2**	**42.4**	**43.5**	**43.6**	**43.9**	**44.1**		**27.1**	**20.9**	
o/w foreign-currency denominated	35.4	33.2			29.8	33.0	35.4	36.5	37.4	38.4		24.9	19.4	
Change in public sector debt	-2.8	-3.1			-5.1	2.1	1.2	0.0	0.3	0.3		-1.4	-1.2	
Identified debt-creating flows	-5.6	1.3			-6.6	-4.3	-6.1	-5.1	-4.6	-4.1		-3.2	-2.6	
Primary deficit	0.8	0.4	0.1	1.6	-0.7	0.1	-1.0	-1.0	-1.1	-1.0	-0.8	-0.8	-0.7	-0.8
Revenue and grants	33.4	33.2			31.4	31.8	32.0	32.1	32.2	32.3		32.3	32.3	
of which: grants	2.1	3.4			2.0	3.2	3.3	3.4	3.5	3.6		3.6	3.6	
Primary (noninterest) expenditure	34.2	33.6			30.7	31.9	30.9	31.0	31.1	31.3		31.5	31.6	
Automatic debt dynamics	-6.7	0.9			-5.8	-4.4	-5.0	-4.1	-3.5	-3.1		-2.4	-1.9	
Contribution from interest rate/growth differential	-1.9	0.9			-1.4	-1.2	-1.0	-1.1	-1.0	-1.0		-0.5	-0.4	
of which: contribution from average real interest rate	-1.6	-0.7			-0.9	-0.2	-0.3	-0.3	-0.2	-0.3		-0.1	0.0	
of which: contribution from real GDP growth	-0.3	1.6			-0.5	-1.0	-0.8	-0.8	-0.7	-0.7		-0.5	-0.4	
Contribution from real exchange rate depreciation	-4.7	-0.1			-4.4	-3.2	-4.0	-3.0	-2.6	-2.2		...	...	
Other identified debt-creating flows	0.3	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	
Recognition of implicit or contingent liabilities	0.3	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	
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	
Residual, including asset changes	2.8	-4.4			1.5	6.4	7.3	5.1	4.9	4.4		1.8	1.4	
NPV of public sector debt	...	**38.5**			**36.0**	**37.5**	**39.8**	**40.8**	**42.0**	**43.4**		**24.4**	**17.7**	
o/w foreign-currency denominated	...	26.4			25.5	28.2	31.6	33.7	35.6	37.7		22.3	16.2	
o/w external	...	26.4			25.5	28.2	31.6	33.7	35.6	37.7		22.3	16.2	
NPV of contingent liabilities (not included in public sector debt)														
Gross financing need 2/	3.7	3.1			2.1	2.9	1.7	1.9	1.7	1.6		2.0	1.7	
NPV of public sector debt-to-revenue and grants ratio (in percent)	...	115.8			114.6	117.9	124.4	127.4	130.7	134.6		75.7	54.8	
Debt service-to-revenue and grants ratio (in percent) 4/	5.0	5.0			6.4	6.6	6.6	7.1	6.7	6.2		7.8	7.0	
Primary deficit that stabilizes the debt-to-GDP ratio	3.6	3.5			4.3	-2.0	-2.2	-1.0	-1.4	-1.3		0.6	0.5	
Key macroeconomic and fiscal assumptions														
Real GDP growth (in percent)	0.6	-3.2	1.9	3.0	1.2	2.6	1.9	1.8	1.6	1.6	1.8	1.6	1.6	1.6
Average nominal interest rate on forex debt (in percent)	0.9	0.8	1.1	0.3	1.4	1.7	1.7	1.6	1.6	1.4	1.6	1.8	1.8	1.8
Average real interest rate on domestic currency debt (in percent)	-7.3	-4.1	-3.4	4.1	-7.3	-3.1	-2.8	-2.0	-1.1	-0.2	-2.7	-0.2	-0.2	-0.2
Real exchange rate depreciation (in percent, + indicates depreciation)	-13.4	-0.1	-8.4	8.2	-13.5	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	11.0	7.2	6.9	4.1	11.1	6.2	9.0	8.1	7.1	6.1	7.9	6.1	6.1	6.1
Growth of real primary spending (deflated by GDP deflator, in percent)	35.6	-4.8	2.4	15.5	-7.6	6.6	-1.2	2.2	1.8	2.3	0.7	1.7	1.7	1.7

Sources: Country authorities; and Fund 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.Tonga: Sensitivity Analysis for Key Indicators of Public Debt 2007/08-2027/28

	Projections							
	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2017/18	2027/28
NPV of Debt-to-GDP Ratio								
Baseline	36	37	40	41	42	43	33	18
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	36	38	41	43	45	47	39	26
A2. Primary balance is unchanged from 2007/08	36	37	39	41	42	44	34	19
A3. Permanently lower GDP growth 1/	36	38	41	43	45	47	44	48
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2008/09-2009/10	36	40	45	48	51	54	49	40
B2. Primary balance is at historical average minus one standard deviations in 2008/09-2009/10	36	39	44	44	45	47	35	19
B3. Combination of B1-B2 using one half standard deviation shocks	36	39	44	45	46	47	35	18
B4. One-time 30 percent real depreciation in 2008/09	36	46	47	47	48	49	36	17
B5. 10 percent of GDP increase in other debt-creating flows in 2008/09	36	47	48	49	49	50	38	20
NPV of Debt-to-Revenue Ratio 2/								
Baseline	115	118	124	127	131	135	102	55
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	115	119	129	134	140	146	123	82
A2. Primary balance is unchanged from 2007/08	115	116	123	127	131	136	106	57
A3. Permanently lower GDP growth 1/	115	119	128	133	139	146	135	148
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2008/09-2009/10	115	125	141	149	157	166	150	122
B2. Primary balance is at historical average minus one standard deviations in 2008/09-2009/10	115	123	137	139	141	145	110	58
B3. Combination of B1-B2 using one half standard deviation shocks	115	123	136	139	141	145	109	56
B4. One-time 30 percent real depreciation in 2008/09	115	144	147	148	150	153	110	52
B5. 10 percent of GDP increase in other debt-creating flows in 2008/09	115	147	151	152	153	156	118	62
Debt Service-to-Revenue Ratio 2/								
Baseline	6	7	7	7	7	6	9	7
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	6	7	7	8	8	8	11	10
A2. Primary balance is unchanged from 2007/08	6	7	6	7	7	7	9	7
A3. Permanently lower GDP growth 1/	6	7	7	8	8	8	13	18
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2008/09-2009/10	6	7	8	10	10	10	14	15
B2. Primary balance is at historical average minus one standard deviations in 2008/09-2009/10	6	7	8	11	8	7	9	8
B3. Combination of B1-B2 using one half standard deviation shocks	6	7	8	10	8	7	9	7
B4. One-time 30 percent real depreciation in 2008/09	6	7	7	8	8	7	10	8
B5. 10 percent of GDP increase in other debt-creating flows in 2008/09	6	7	17	11	9	8	10	8

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

1/ Assumes that real GDP growth is at baseline minus one standard deviation divided by the square root of 20 (i.e., the length of the projection period).
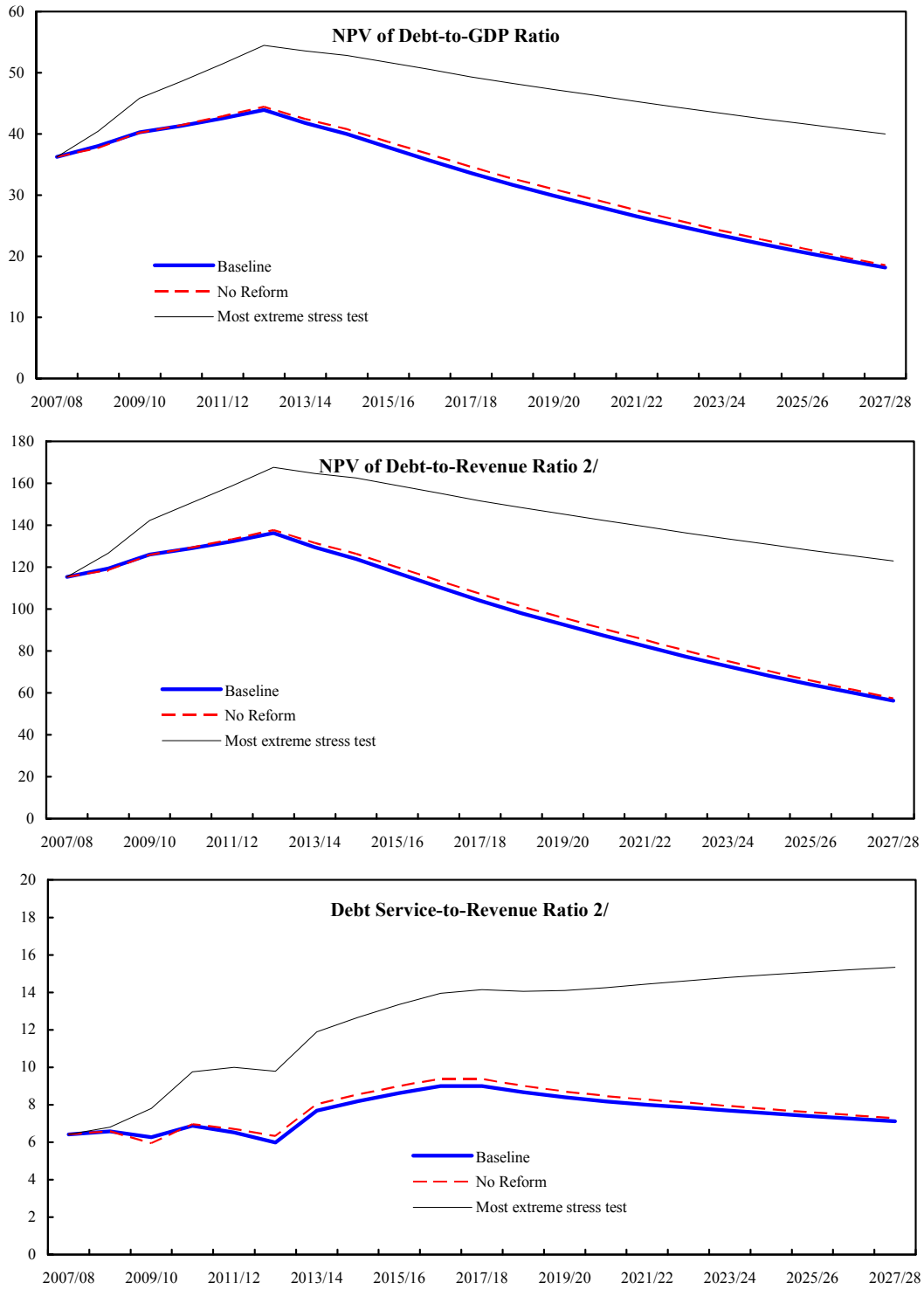
2/ Revenues are defined inclusive of grants.

Figure 1. Tonga: Indicators of Public and Publicly Guaranteed External Debt
Under Alternative Scenarios, 2007/08-2027/28
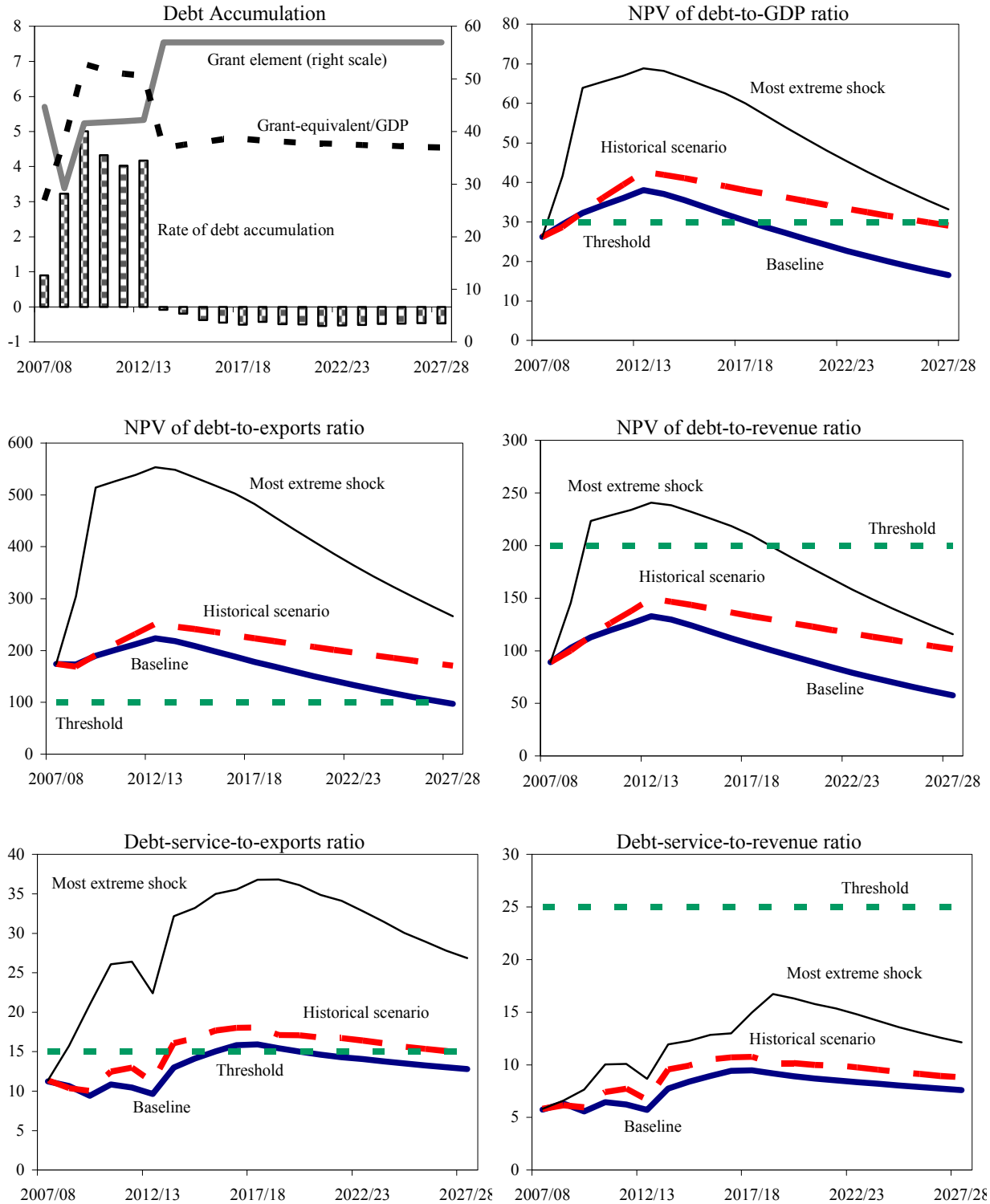
Source: Staff projections and simulations.

Figure 2. Tonga: Indicators of Total Public Debt Under Alternative Scenarios, 2007/08–2027/28 1/

NPV of Debt-to-GDP Ratio

- Baseline
- No Reform
- Most extreme stress test

NPV of Debt-to-Revenue Ratio 2/

- Baseline
- No Reform
- Most extreme stress test

Debt Service-to-Revenue Ratio 2/

- Baseline
- No Reform
- Most extreme stress test

Sources: Staff projections and simulations.

1/ Most extreme stress test is test that yields highest ratio in 2017/18.
2/ Revenue including grants.