INTERNATIONAL MONETARY FUND

SOLOMON ISLANDS

STAFF REPORT FOR THE 2016 ARTICLE IV CONSULTATION AND FIFTH AND SIXTH REVIEWS UNDER THE EXTENDED CREDIT FACILITY ARRANGEMENT—DEBT SUSTAINABILITYANALYSIS[1]

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Approved By
Hoe Ee Khor and Masato Miyazaki (IMF) and Satu Kahkonen (IDA)

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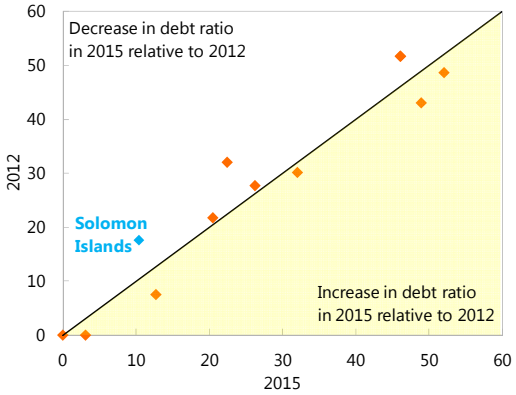
Debt sustainability analysis indicates that Solomon Islands faces moderate risk of external debt distress, consistent with the last assessment in 2013. Under the baseline scenario, all external and public debt indicators remain below the relevant sustainability thresholds. However, the alternative scenarios suggest that this baseline is subject to significant risks, particularly a shock to financing terms and one where growth is permanently lower. The DSA has been extended to incorporate risks from natural disasters and climate change, drawing on cost estimates from recent events in the region. Under an alternative scenario of a single extreme weather event, debt remains sustainable. However, such events occur on average every 10 years and multiple events could pose a risk to debt sustainability over the 20-year DSA horizon. This risk can be mitigated by infrastructure investment and a buildup of cash reserves.

[1] The DSA was prepared by R. Sean Craig and Yiqun Wu with contributions from Chandana Kularatne.

RECENT DEBT DEVELOPMENTS

1. Fiscal buffers have been rebuilt in the Solomon Islands in recent years. Public debt fell sharply to 17 percent of GDP at end-2012 from about 60 percent in 2005 under the Honiara Club Framework, which prohibited new borrowing. Since 2012, the country's' debt position has registered one of the strongest gains in the region (Figure on gross debt in Pacific Small States). This reflects a new debt management strategy, adopted by the government in May 2012, that allowed external borrowing to resume and provided an anchor to ensure that debt remained at prudent levels by setting an annual government external borrowing limit of SI$300 million (3 percent of GDP). Government external borrowing remained well below this limit and external debt has continued to fall to about 10 percent of GDP by end-2015. This partly reflected delays in a number of planned investment projects, including the undersea cable project and the electricity network upgrade. In December 2015, the government also repaid the entire stock of domestic debt, worth SI$99.5 million (US$12.2 million) using cash reserves, reducing total public debt to 10.4 percent of GDP at the end of 2015. Looking forward, possible fiscal anchors for the Solomon Islands are targets for cash reserves and the non-commodity primary budget balance, which is used in the DSA and discussed in the staff report. Debt sustainability benefits come from improvements in public financial management (PFM), which should continue to enhance revenue mobilization and the quality of spending.[2]

Pacific Small States: Gross Public Debt
(In percent of GDP)



DSA ASSUMPTIONS

2. The macroeconomic assumptions in the DSA reflect developments through end-2015. They underpin the projection that starts in 2016 and runs for 20 years. These include a reduction in donor support, a gradual decline in forestry output, and a prolonged closure of the Gold Ridge Mine, all of which contribute to deterioration in the trade and current account balances in the medium term. The discount rate used to calculate the net present value (NPV) of external debt remains at 5 percent. The key assumptions are:

- **Growth.** Long-term growth is maintained at between 3 and 3½ percent under cautious assumptions and is somewhat lower than growth set out in the authorities' development plans. Positive growth spillovers are assumed to result from planned increases in development investment, reflected in capital spending, which helps counteract the expected long-term fall in forestry and minerals sector.

[2] There is considerable scope to strengthen tax administration given that, for example, only 187 people account for 70 percent of income tax revenues. This effort is being supported by the donors and the IFIs, particularly by the IMF's Technical Assistance Center in the Pacific, PFTAC, which has emphasized efforts to strengthen PFM.

- **Non-interest current account deficit.** The deficit is expected to increase to close to 7.5 percent of GDP by 2017 from around 2 percent in 2015, reflecting a number of import-intensive projects in the pipeline—the Tina River Hydropower Project (TRHP), the undersea cable and Soltuna—as well as lower exports from the delay in reopening the Gold Ridge Mine until 2020. Also contributing to an improvement in the balance after 2020 is an assumed fall in fuel imports of 25 percent as TRHP comes on line that year.
- **External borrowing.** External borrowing in 2015 helped finance the electricity network upgrade, and should occur in 2016 and 2017, partly to finance the undersea fiber optic cable. Concessional borrowing is projected to average about 2½ percent of GDP annually over the next five years and 3.2 percent of GDP over the longer term. The effective interest rate on external borrowing is around 1.5 percent in line with rates on concessional lending from the multilateral development banks and donors.
- **Fiscal anchor and outlook.** The non-commodity primary fiscal balance is used as the fiscal anchor, which is set at a 2.5 percent deficit over the medium and long term. This results in a rising primary fiscal surplus that peaks at 2.6 percent of GDP in 2025 and then declines, turning into a small deficit by the end of that decade as commodity revenues decline with grants, logging and mining revenues projected to fall a share of GDP. This contributes to a buildup in cash reserves (reflected in the DSA residual) that is then run down. Grant-funded development expenditure is projected to decline and only be partially substituted for by external borrowing. Revenues (excluding grants) are forecast to fall to about 30 percent of GDP over the medium and long term with the decline in commodity-related revenues.[3]
- **Aid flows and FDI.** Aid flows are expected to average about 13.5 percent of GDP over the medium term—down from the 19 percent of GDP assumed in 2013. In the long term, aid declines to about 10 percent of GDP even though the level continue to rise in nominal and real terms. Historic and projected FDI numbers have been revised down substantially since 2013, largely due to improvements in data.[4] Net FDI is now projected to be around 3½ percent of GDP over the medium to long term. The part of the current account deficit not financed by aid and FDI flows is assumed to be financed by external borrowing.
- **Logging and mining.** Logging output is expected to decline by about 4 percent per year on average until 2025 and then to stabilize at this lower level. Gold Ridge Mine is expected to remain closed until 2020, owing to persistently low gold prices and the high cost of resuming operations after the flood damage. After reopening, production is assumed to peak at 62,000 ounces per annum in 2023 and then to run down gradually. It is assumed to run for 10 years with a cumulative output of 465,000, significantly lower than assumed in 2013 before the flood which, together with lower gold prices, probably reduced capacity.

[3] This represents a substantial improvement from the decline in revenues to 27 percent of GDP assumed in the 2013 DSA and reflects the benefit of PFM reforms that are underway.

[4] Following recent TA, historic FDI data has been aligned with BPM 6 standards, to re-categorize net losses as negative reinvested earnings; TA also identified weaknesses in survey methodologies that led to a significant overestimation of FDI flows.

Box 1. Solomon Islands: Incorporating Climate Change and Extreme Weather Shocks into the DSA

The Pacific Island states are particularly exposed to climate change and vulnerable to extreme weather events, which climatologists warn may be worsened by climate change. To provide effective policy advice, these major long term costs and risks need to be quantified and incorporated into an analytic framework—which the DSA provides—to assess how they will impact countries' fiscal position and external debt sustainability.

This assessment draws on research that estimates both the recurrent cost of climate change and of the frequency and cost of natural disasters.[1] The recurrent cost of mitigating the effects of climate change is estimate at around 0.5 percent of GDP per year and is reflected in the DSA baseline. This cost is assumed to be covered from government resources (i.e. not by additional borrowing) and to be divided between the recurrent budget (0.2 percent of GDP) and development budget that finances ongoing capital expenditures for climate change adaptation (0.3 percent of GDP). The extreme natural disaster shock is incorporated in the DSA as a new adverse scenario that results in losses and damage of around 15 percent of GDP and reflected in a fall in real GDP growth of roughly 7.5 percentage points in the year of the disaster, a deterioration of fiscal balance of about 7.5 percent of GDP in the year after the disaster, and about 15 percent of GDP of additional external public debt.

The DSA, by design, includes only one extreme weather natural disasters as a scenario over its 20 year horizon. However, more than one extreme weather event is possible over this period, in which case extreme weather could have a significantly larger cumulative effect on debt sustainability than the DSA results show (Figure 2). In preparation for such events, countries need to have the capacity to mobilize large resources quickly at infrequent intervals, which they can do by building up a substantial cash buffer over time that they can draw down. Also, infrastructure investment to build resilience to reduce the cost of extreme weather events becomes more important in light of this higher frequency. The Article IV Staff Report discusses the design of a medium term fiscal framework and anchor to support these efforts and contain the risks to debt sustainability from climate change and extreme weather.

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[1] Estimates are reported in Cabezon, Hunter, Tumbarello, Washimi, and Wu (WP/15/125). This working paper draws on the Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) report (2013) prepared by the World Bank, other IFIs, and regional donors.

- **Tina River Hydropower Project.** This project involves a government guarantee of around US$150 million (12 percent of GDP) to cover a power purchase agreement (PPA) between the project developers and Solomon Islands Electricity Authority (SIEA). Since PPAs are not typical financial instruments, the guarantee is not recorded on the government balance sheet or in the DSA baseline. However, a customized scenario captures the full materialization of this contingent liability in which SIEA is unable to make the PPA payment and government steps in to pay the full PPA amount, estimated to be US$20 million per year (a "worst-case" scenario). This is reflected in higher public expenditure, resulting in a larger fiscal deficit over the 30-year contract period and higher public debt.

EXTERNAL AND PUBLIC DEBT SUSTAINABILITY ANALYSIS

3. External Debt Sustainability Analysis. Under the baseline scenario, all external Public and Publicly Guaranteed (PPG) debt indicators remain below the policy relevant thresholds. Total external debt is projected to gradually increase from 13 percent in 2015 to 36 percent of GDP over the long term while PPG external debt is projected to rise to around 34 percent of GDP. This rise is driven largely by the financing of infrastructure investment, of which an increasing share if financed by concessional debt rather than grants. This represents an improvement from the last DSA, reflecting a lower-than-expected resumption in external concessional borrowing since 2013.[5] All indicators of sustainability (i.e. total and PPG debt as a ratio of GDP or revenues or in present value (PV) terms, and external debt servicing) remain well below the indicative thresholds. The PV of PPG debt in terms of export ratios remains below the indicative threshold of 100 percent, but rises from around 16 to 67 percent owing to the declining trend in commodity exports. Sensitivity analysis highlights two risks to external debt sustainability, also identified in the 2013 DSA. These correspond to a shock to financing terms – a rise in interest rates on new borrowing of 2 percentage points – that leads to a breach in the threshold for ratios of PV of PPG external debt to GDP (of 30 percent), and a negative export shock (Table 2).

4. **Public Debt Sustainability Analysis.** Public debt remains below the threshold for debt sustainability under the baseline scenario (Figure 2). However, sensitivity analysis also reveals that public debt sustainability remains vulnerable to shocks, particularly to the extreme shock of permanently lower growth and the fix-primary deficit scenarios (which "fixes" this deficit at its recent, expansionary, level relative to the baseline, which has some consolidation). In both scenarios, the PV of debt to GDP ratio breaches the 38 percent of GDP benchmark threshold by the end of the next decade. In the extreme shock scenario, the PV of debt to revenue ratio rises to 169 percent of GDP by 2036. Scenario analysis suggests that if the TRHP PPA contingent liability materializes, the impact on public debt would be manageable (Figure 2), with relatively small effects on the PV of debt to GDP, revenue and debt service to revenue indicators. This contributes to a rise in the PV of debt to GDP rises from 7 to 30 percent, about 7 percentage points above the baseline, but it stays below the 38 percent benchmark. Similarly, the natural disaster shock discussed above results in a sharp, near term rise in the PV of debt to GDP that diminishes as growth rebounds and remains below the benchmark (Figure 2).

[5] The reflect the fact that part of the current account deficit has been financed through the aid in kind for capital projects from donors, which are expected to be scaled back, and contributes to a shift from negative to positive residuals at the start of the projection in Table 1 (i.e. these inflows are reflected in capital account but are not captured in net debt-creating flows in the Table, which only correct for FDI inflows; and, thus, are reflected directly in the residual.)

CONCLUSIONS

5. **The current DSA suggests that the Solomon Islands continue to face a moderate risk of debt distress, consistent with the 2013 DSA.**[6] Although there is no breach of thresholds under the baseline, external debt does rise above the debt to GDP and exports thresholds in the long run under some scenarios. Overall, the analysis demonstrates the vulnerability of public debt sustainability to external financing, fiscal and growth shocks; and, conversely, the contribution of donor funding and FDI to debt sustainability. This highlights the need for to maintain a prudent fiscal policy. Borrowing that leads to a buildup in debt should therefore remain cautious, targeting projects that broaden the export base and strengthen potential growth (e.g. infrastructure investment) and increase resilience of debt sustainability to shocks.

6. **The DSA has been extended to incorporate the effects of extreme weather events and climate change in both the baseline and alternative scenarios.** The baseline now includes the recurrent fiscal costs of climate change, estimated at 0.5 percent of GDP per year, which includes infrastructure investment to protect against adverse weather. The natural disaster shock scenario assumes losses of 15 percent of GDP; involving a sharp, temporary fall in GDP, and large, one-off reconstruction outlays. The DSA finds that external and public debt remains sustainable under this scenario. However, in interpreting this finding, it is important to recognize that the DSA includes only one instance of each shock over its 20 year horizon, and that multiple extreme weather events are possible over this period in light of their 10 year average frequency (Box 1). Policy, therefore, needs to prepare for the possibility of multiple extreme weather events that could have a significantly larger cumulative effect on debt sustainability than the DSA results show.

[6] Solomon Islands is classified as having weak policies and institutions based on its three-year average CPIA score of 2.94. While this is a slight improvement on the 2013 average score of 2.89, which informed the previous DSA, it remains below the 3.25 threshold required for classification as medium policy performer.

Table 1. Solomon Islands: External Debt Sustainability Framework, Baseline Scenario, 2013-2036 1/

(In percent of GDP, Unless Otherwise Indicated)

	Actual			Historical Average 6/	Standard Deviation 6/	Projections									
	2013	2014	2015			2016	2017	2018	2019	2020	2021	2016-2021 Average	2026	2036	2022-2036 Average
External debt (nominal) 1/	**19.6**	**19.5**	**12.9**			**12.1**	**15.5**	**18.7**	**21.2**	**23.9**	**25.8**		**32.3**	**36.4**	
of which: public and publicly guaranteed (PPG)	11.3	10.4	9.8			8.4	9.4	10.7	12.2	14.0	16.3		25.6	34.0	
Change in external debt	-1.8	-0.1	-6.6			-0.8	3.4	3.1	2.6	2.6	1.9		1.2	-0.2	
Identified net debt-creating flows	-2.7	1.9	0.7			1.0	3.9	3.2	2.4	2.2	-1.0		0.1	10.8	
Non-interest current account deficit	**2.9**	**3.8**	**2.1**	10.8	10.6	**4.2**	**7.5**	**6.7**	**5.7**	**5.5**	**2.7**	5.4	**3.9**	**14.7**	6.1
Deficit in balance of goods and services	12.5	10.1	8.2			8.5	11.9	11.2	10.1	9.8	8.3		10.1	15.7	
Exports	51.6	49.2	44.6			42.8	40.8	39.8	39.9	39.6	41.0		40.2	32.5	
Imports	64.2	59.3	52.7			51.3	52.7	51.0	50.0	49.4	49.4		50.3	48.2	
Net current transfers (negative = inflow)	-10.7	-8.9	-7.2	-15.6	6.0	-8.1	-7.9	-7.6	-7.5	-7.4	-7.6	-7.7	-9.0	-3.1	-7.9
of which: official	-10.0	-8.6	-7.0			-7.6	-7.3	-7.0	-6.7	-6.4	-6.5		-7.2	-0.9	
Other current account flows (negative = net inflow)	1.1	2.6	1.1			3.8	3.5	3.1	3.1	3.1	2.0		2.8	2.1	
Net FDI (negative = inflow)	**-4.5**	**-1.8**	**-2.0**	-9.0	7.1	**-3.1**	**-3.5**	**-3.4**	**-3.3**	**-3.3**	**-3.7**	-3.4	**-3.5**	**-3.3**	-3.4
Endogenous debt dynamics 2/	**-1.1**	**-0.2**	**0.7**			**-0.1**	**-0.1**	**0.0**	**0.0**	**0.0**	**-0.1**		**-0.3**	**-0.7**	
Contribution from nominal interest rate	0.5	0.5	0.6			0.2	0.3	0.4	0.5	0.6	0.7		0.7	0.6	
Contribution from real GDP growth	-0.6	-0.4	-0.6			-0.4	-0.4	-0.4	-0.5	-0.6	-0.7		-1.0	-1.3	
Contribution from price and exchange rate changes	-1.0	-0.4	0.7			...	...	...	...	...	...		...	...	
Residual (3-4) 3/	**0.9**	**-1.9**	**-7.3**			**-1.7**	**-0.5**	**0.0**	**0.2**	**0.5**	**3.0**		**1.1**	**-11.0**	
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/	...	...	10.2			9.9	12.7	15.1	16.9	18.8	19.7		22.7	24.3	
In percent of exports	...	...	22.9			23.1	31.0	38.0	42.4	47.4	48.0		56.6	74.7	
PV of PPG external debt	**...**	**...**	**7.1**			**6.2**	**6.6**	**7.1**	**7.9**	**8.8**	**10.2**		**16.0**	**21.8**	
In percent of exports	**...**	**...**	**16.0**			**14.4**	**16.1**	**18.0**	**19.8**	**22.4**	**24.9**		**39.8**	**67.2**	
In percent of government revenues	**...**	**...**	**20.6**			**19.5**	**20.8**	**22.5**	**24.8**	**28.0**	**32.1**		**47.8**	**70.1**	
Debt service-to-exports ratio (in percent)	**2.7**	**2.9**	**3.6**			**3.2**	**3.4**	**3.6**	**3.5**	**3.3**	**3.3**		**3.0**	**4.7**	
PPG debt service-to-exports ratio (in percent)	**1.4**	**1.6**	**1.6**			**1.9**	**2.0**	**1.9**	**1.6**	**1.3**	**1.3**		**1.6**	**3.5**	
PPG debt service-to-revenue ratio (in percent)	**2.1**	**2.3**	**2.0**			**2.6**	**2.6**	**2.3**	**2.1**	**1.7**	**1.7**		**1.9**	**3.6**	
Total gross financing need (Millions of U.S. dollars)	-2.5	40.4	19.0			29.9	68.5	61.5	53.3	51.5	5.7		33.8	480.0	
Non-interest current account deficit that stabilizes debt ratio	4.8	3.9	8.7			5.0	4.1	3.5	3.2	2.8	0.8		2.8	15.0	
Key macroeconomic assumptions															
Real GDP growth (in percent)	3.0	2.0	3.3	4.5	4.5	3.0	3.3	3.0	3.0	3.0	3.2	3.1	3.4	3.8	3.5
GDP deflator in US dollar terms (change in percent)	5.1	1.9	-3.7	5.7	5.6	1.7	1.8	1.8	2.5	3.0	0.3	1.8	2.0	3.4	2.5
Effective interest rate (percent) 5/	2.7	2.7	2.9	2.5	0.4	1.9	2.3	2.7	2.9	2.9	2.9	2.6	2.3	1.7	2.1
Growth of exports of G&S (US dollar terms, in percent)	-7.3	-1.1	-9.9	16.4	25.9	0.6	0.3	2.1	5.8	5.3	7.3	3.6	4.5	4.8	4.4
Growth of imports of G&S (US dollar terms, in percent)	12.1	-4.0	-11.6	15.6	25.2	2.0	7.9	1.5	3.5	4.8	3.4	3.9	6.1	6.4	5.8
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	30.9	44.3	44.3	44.3	44.3	44.3	42.0	44.3	44.3	44.3
Government revenues (excluding grants, in percent of GDP)	34.1	33.2	34.7			31.6	31.6	31.8	31.7	31.6	31.9		33.5	31.1	
Aid flows (in Millions of US dollars) 7/	197.3	170.2	131.4			146.2	175.0	180.0	186.9	196.4	201.6		236.5	296.0	
of which: Grants	197.3	170.2	131.4			146.2	147.6	148.6	150.9	154.5	152.4		172.0	178.1	
of which: Concessional loans	0.0	0.0	0.0			0.0	27.4	31.4	36.0	41.8	49.1		64.5	118.0	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			12.2	12.6	12.3	11.9	11.7	11.3	12.0	9.9	6.2	8.8
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			99.9	91.3	90.3	89.3	88.1	86.4	90.9	84.8	77.8	82.8
Memorandum items:															
Nominal GDP (Millions of US dollars)	1110.5	1153.6	1147.2			1202.1	1263.8	1325.4	1399.3	1484.0	1535.6		2016.3	3686.6	
Nominal dollar GDP growth	8.3	3.9	-0.6			4.8	5.1	4.9	5.6	6.1	3.5	5.0	5.5	7.4	6.0
PV of PPG external debt (in Millions of US dollars)			79.8			74.2	82.9	94.7	110.3	131.3	157.1		322.4	804.9	
(PVt-PVt-1)/GDPt-1 (in percent)						-0.5	0.7	0.9	1.2	1.5	1.7	0.9	2.0	1.8	1.9
Gross workers' remittances (Millions of US dollars)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
PV of PPG external debt (in percent of GDP + remittances)	...	...	7.1			6.2	6.6	7.1	7.9	8.8	10.2		16.0	21.8	
PV of PPG external debt (in percent of exports + remittances)	...	...	16.0			14.4	16.1	18.0	19.8	22.4	24.9		39.8	67.2	
Debt service of PPG external debt (in percent of exports + remittances)	...	...	1.6			1.9	2.0	1.9	1.6	1.3	1.3		1.6	3.5	

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.

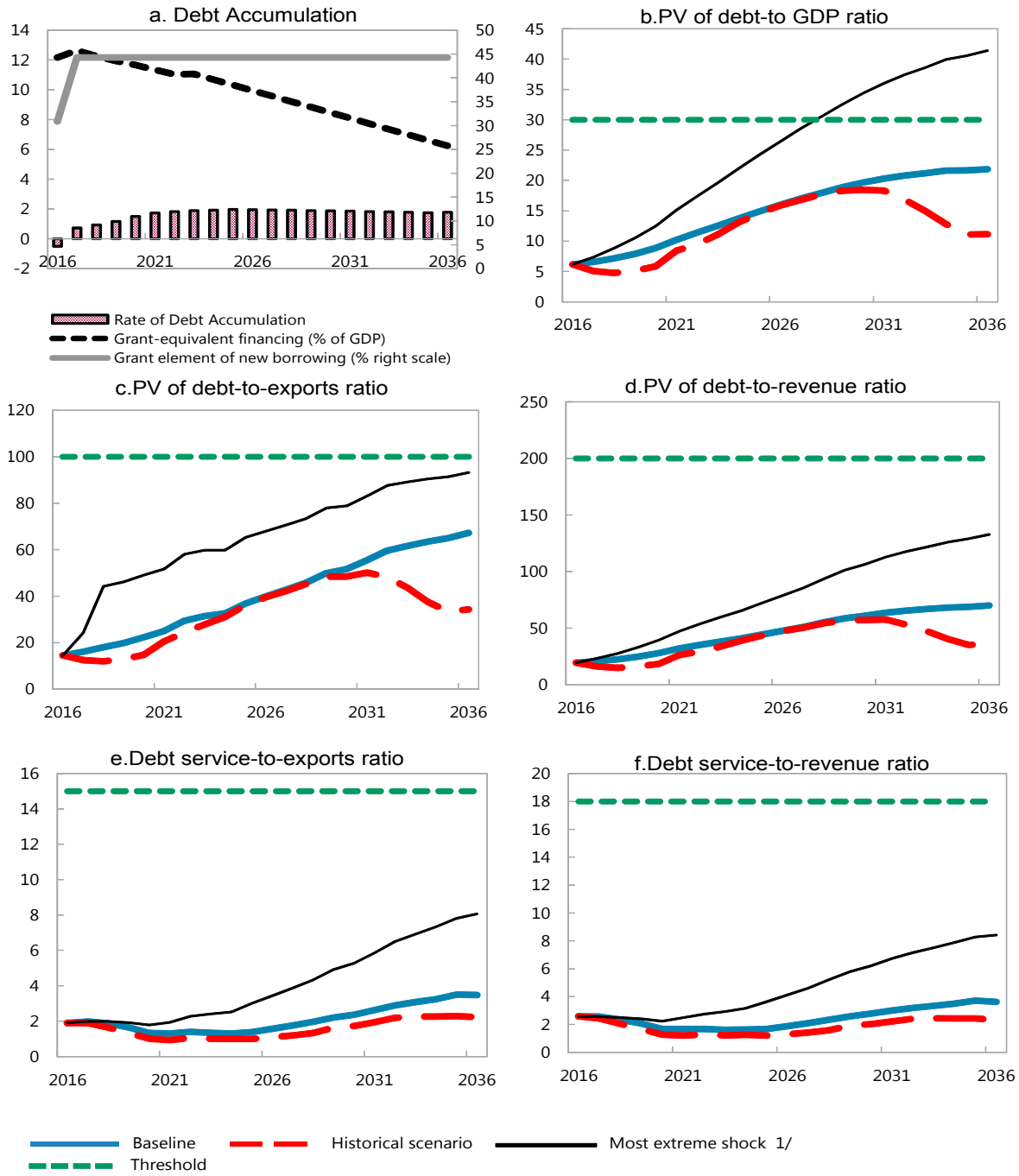
5/ Current-year interest payments divided by previous period debt stock.

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).

Figure 1. Solomon Islands: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2016-2036 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 2026. In figure b. it corresponds to a Terms shock; in c. to a Exports shock; in d. to a Terms shock; in e. to a Terms shock and in figure f. to a Terms shock

Table 2. Solomon Islands: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2016–2036

(In percent)

	Projections							
	2016	2017	2018	2019	2020	2021	**2026**	2036
PV of debt-to GDP ratio								
Baseline	6	7	7	8	9	10	**16**	22
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2016-2036 1/	6	5	5	5	6	8	16	5
A2. New public sector loans on less favorable terms in 2016-2036 2	6	7	9	11	12	15	**26**	41
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2017-2018	6	7	8	8	9	11	**17**	23
B2. Export value growth at historical average minus one standard deviation in 2017-2018 3/	6	9	14	15	16	17	**22**	24
B3. US dollar GDP deflator at historical average minus one standard deviation in 2017-2018	6	7	7	8	9	11	**17**	23
B4. Net non-debt creating flows at historical average minus one standard deviation in 2017-2018 4/	6	6	7	8	9	10	**16**	22
B5. Combination of B1-B4 using one-half standard deviation shocks	6	2	0	0	0	1	**8**	18
B6. One-time 30 percent nominal depreciation relative to the baseline in 2017 5/	6	9	10	11	13	15	**23**	31
PV of debt-to-exports ratio								
Baseline	14	16	18	20	22	25	**40**	67
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2016-2036 1/	14	12	12	13	15	21	39	15
A2. New public sector loans on less favorable terms in 2016-2036 2	14	18	22	26	32	37	**66**	127
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2017-2018	14	16	18	20	22	25	**40**	67
B2. Export value growth at historical average minus one standard deviation in 2017-2018 3/	14	24	44	46	49	52	**68**	93
B3. US dollar GDP deflator at historical average minus one standard deviation in 2017-2018	14	16	18	20	22	25	**40**	67
B4. Net non-debt creating flows at historical average minus one standard deviation in 2017-2018 4/	14	16	17	19	22	24	**39**	67
B5. Combination of B1-B4 using one-half standard deviation shocks	14	5	0	0	0	2	**19**	55
B6. One-time 30 percent nominal depreciation relative to the baseline in 2017 5/	14	16	18	20	22	25	**40**	67
PV of debt-to-revenue ratio								
Baseline	20	21	22	25	28	32	**48**	70
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2016-2036 1/	20	16	15	16	19	26	47	16
A2. New public sector loans on less favorable terms in 2016-2036 2	20	23	28	33	39	47	**79**	133
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2017-2018	20	21	24	26	30	34	**51**	75
B2. Export value growth at historical average minus one standard deviation in 2017-2018 3/	20	28	44	46	49	53	**65**	78
B3. US dollar GDP deflator at historical average minus one standard deviation in 2017-2018	20	21	23	26	29	33	**49**	72
B4. Net non-debt creating flows at historical average minus one standard deviation in 2017-2018 4/	20	21	22	24	27	31	**47**	70
B5. Combination of B1-B4 using one-half standard deviation shocks	20	6	0	0	0	3	**24**	59
B6. One-time 30 percent nominal depreciation relative to the baseline in 2017 5/	20	29	32	35	40	46	**68**	99

Title 3. Solomon Islands: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2016-2036 (continued)

Debt service-to-exports ratio

Baseline	2	2	2	2	1	1	**2**	3
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2016-2036 1/	2	2	2	1	1	1	**1**	2
A2. New public sector loans on less favorable terms in 2016-2036 2	2	2	2	2	2	2	**3**	8
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2017-2018	2	2	2	2	1	1	**2**	3
B2. Export value growth at historical average minus one standard deviation in 2017-2018 3/	2	2	3	3	2	2	**3**	5
B3. US dollar GDP deflator at historical average minus one standard deviation in 2017-2018	2	2	2	2	1	1	**2**	3
B4. Net non-debt creating flows at historical average minus one standard deviation in 2017-2018 4/	2	2	2	2	1	1	**2**	3
B5. Combination of B1-B4 using one-half standard deviation shocks	2	2	2	1	1	1	**0**	2
B6. One-time 30 percent nominal depreciation relative to the baseline in 2017 5/	2	2	2	2	1	1	**2**	3

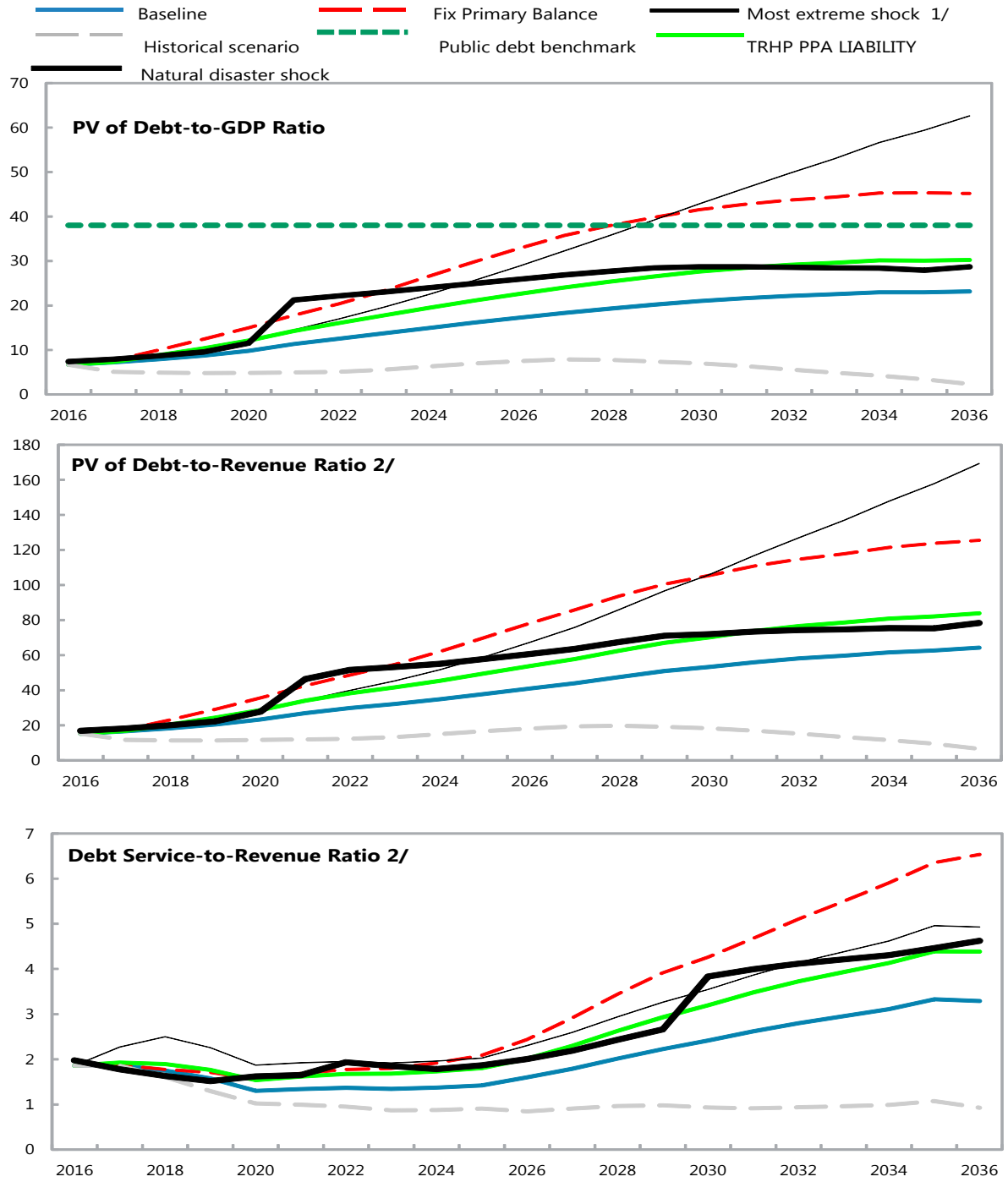
Debt service-to-revenue ratio

Baseline	3	3	2	2	2	2	**2**	4
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2016-2036 1/	3	2	2	2	1	1	**1**	2
A2. New public sector loans on less favorable terms in 2016-2036 2	3	3	2	2	2	2	**4**	8
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2017-2018	3	3	2	2	2	2	**2**	4
B2. Export value growth at historical average minus one standard deviation in 2017-2018 3/	3	3	3	3	2	2	**3**	4
B3. US dollar GDP deflator at historical average minus one standard deviation in 2017-2018	3	3	2	2	2	2	**2**	4
B4. Net non-debt creating flows at historical average minus one standard deviation in 2017-2018 4/	3	3	2	2	2	2	**2**	4
B5. Combination of B1-B4 using one-half standard deviation shocks	3	3	2	1	1	1	**0**	2
B6. One-time 30 percent nominal depreciation relative to the baseline in 2017 5/	3	4	3	3	2	2	**3**	5
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 a 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.Solomon Islands: Indicators of Public Debt Under Alternative Scenarios, 2016-2036 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 2026.
2/ Revenues are defined inclusive of grants.

Table 4. Solomon Islands: Public Sector Debt Sustainability Framework, Baseline Scenario, 2013–2036
(In percent of GDP, Unless Otherwise Indicated)

	Actual					Estimate	Projections								
	2013	2014	2015	Average 5/	Standard Deviation 5/	2016	2017	2018	2019	2020	2021	2016-21 Average	2026	2036	2022-36 Average
Public sector debt 1/	15.5	13.3	10.4			8.9	10.1	11.5	13.1	14.9	17.4		26.8	35.3	
of which: foreign-currency denominated	11.3	10.4	9.8			8.4	9.4	10.7	12.2	14.0	16.3		25.6	34.0	
Change in public sector debt	-2.1	-2.3	-2.9			-1.5	1.2	1.4	1.6	1.9	2.5		1.7	0.2	
Identified debt-creating flows	-5.4	-2.1	0.2			0.6	0.2	-2.1	-2.1	-2.1	-1.3		-3.5	-1.8	
Primary deficit	-4.4	-1.9	0.1	-3.1	3.1	1.3	0.5	-1.7	-1.6	-1.5	-1.0	-0.7	-2.5	0.1	-1.4
Revenue and grants	51.8	48.0	46.1			43.8	43.3	43.0	42.5	42.1	41.8		42.0	36.0	
of which: grants	17.8	14.8	11.5			12.2	11.7	11.2	10.8	10.4	9.9		8.5	4.8	
Primary (noninterest) expenditure	47.5	46.1	46.3			45.0	43.8	41.3	40.9	40.5	40.8		39.5	36.0	
Automatic debt dynamics	-1.0	-0.3	0.0			-0.6	-0.3	-0.4	-0.5	-0.6	-0.3		-0.9	-1.9	
Contribution from interest rate/growth differential	-0.7	-0.4	-0.5			-0.4	-0.3	-0.3	-0.4	-0.4	-0.5		-0.9	-1.3	
of which: contribution from average real interest rate	-0.2	-0.1	-0.1			-0.1	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
of which: contribution from real GDP growth	-0.5	-0.3	-0.4			-0.3	-0.3	-0.3	-0.3	-0.4	-0.5		-0.8	-1.3	
Contribution from real exchange rate depreciation	-0.3	0.2	0.5			-0.3	0.0	0.0	-0.1	-0.2	0.2		...	...	
Other identified debt-creating flows	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Privatization receipts (negative)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recognition of implicit or contingent liabilities	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Debt relief (HIPC and other)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Other (specify, e.g. bank recapitalization)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Residual, including asset changes	3.3	-0.1	-3.1			-2.1	1.0	3.5	3.6	4.0	3.8		5.1	2.0	
Other Sustainability Indicators															
PV of public sector debt	...	...	7.7			6.7	7.2	7.9	8.7	9.8	11.3		17.2	23.1	
of which: foreign-currency denominated	...	...	7.1			6.2	6.6	7.1	7.9	8.8	10.2		16.0	21.8	
of which: external	...	...	7.1			6.2	6.6	7.1	7.9	8.8	10.2		16.0	21.8	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	-2.7	-0.2	2.8			2.5	1.7	-0.6	-0.6	-0.6	-0.1		-1.6	1.4	
PV of public sector debt-to-revenue and grants ratio (in percent)	...	...	16.7			15.2	16.6	18.4	20.6	23.3	27.0		41.0	64.3	
PV of public sector debt-to-revenue ratio (in percent)	...	...	22.2			21.1	22.8	24.8	27.5	31.0	35.5		51.5	74.3	
of which: external 3/	...	...	20.6			19.5	20.8	22.5	24.8	28.0	32.1		47.8	70.1	
Debt service-to-revenue and grants ratio (in percent) 4/	2.3	2.5	4.8			1.9	1.9	1.8	1.6	1.3	1.3		1.6	3.3	
Debt service-to-revenue ratio (in percent) 4/	3.5	3.5	6.4			2.6	2.6	2.4	2.1	1.7	1.8		2.0	3.8	
Primary deficit that stabilizes the debt-to-GDP ratio	-2.3	0.4	3.0			2.7	-0.7	-3.1	-3.2	-3.4	-3.5		-4.2	-0.1	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	3.0	2.0	3.3	4.5	4.5	3.0	3.3	3.0	3.0	3.0	3.2	3.1	3.4	3.8	3.5
Average nominal interest rate on forex debt (in percent)	1.1	1.1	0.9	1.3	0.6	0.9	1.1	1.2	1.3	1.4	1.4	1.2	1.4	1.5	1.5
Average real interest rate on domestic debt (in percent)	-3.0	-2.0	-0.4	-4.0	2.7	...	...	-0.6	-0.5	-0.5	2.6	0.3	0.3	-0.5	0.0
Real exchange rate depreciation (in percent, + indicates depreciation)	-2.8	1.6	5.4	-3.3	5.8	-2.7	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	4.4	3.2	1.6	6.0	3.2	4.3	1.8	1.8	2.5	3.0	0.3	2.3	3.5	4.9	4.0
Growth of real primary spending (deflated by GDP deflator, in percent)	-3.0	-0.9	3.6	0.0	1.6	0.2	0.4	-2.9	2.1	2.0	3.9	1.0	2.6	4.3	2.6
Grant element of new external borrowing (in percent)	...	...	...	...	...	30.9	44.3	44.3	44.3	44.3	44.3	42.0	44.3	44.3	...

Sources: Country authorities; and staff estimates and projections.

1/ Coverage of public sector debt is general government and gross debt.

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

3/ Revenues excluding grants.

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

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

Table 5. Solomon Islands: Sensitivity Analysis for Key Indicators of Public Debt 2016–2036

	Projections							
	2016	2017	2018	2019	2020	2021	2026	2036
PV of Debt-to-GDP Ratio								
Baseline	7	7	8	9	10	11	17	23
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	7	5	5	5	5	5	7	2
A2. Primary balance is unchanged from 2016	7	8	10	12	15	18	33	45
A3. Permanently lower GDP growth 1/	7	7	9	10	12	14	29	63
A.4 Tina PPA - Contingent Liability	7	7	9	10	12	14	23	30
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2017-2018	7	8	10	12	14	17	29	42
B2. Primary balance is at historical average minus one standard deviations in 2017-2018	7	7	9	9	10	12	18	24
B3. Combination of B1-B2 using one half standard deviation shocks	7	6	7	8	10	11	19	27
B4. One-time 30 percent real depreciation in 2017	7	9	10	10	10	11	16	21
B5. 10 percent of GDP increase in other debt-creating flows in 2017	7	13	13	14	15	17	22	26
PV of Debt-to-Revenue Ratio 2/								
Baseline	15	17	18	21	23	27	41	64
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	15	12	11	11	12	12	18	7
A2. Primary balance is unchanged from 2016	15	18	23	29	36	43	78	126
A3. Permanently lower GDP growth 1/	15	17	20	23	28	34	67	169
A.4 Tina PPA - Contingent Liability	15	17	20	24	29	34	54	84
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2017-2018	15	18	23	28	33	40	67	116
B2. Primary balance is at historical average minus one standard deviations in 2017-2018	15	16	20	22	25	29	42	65
B3. Combination of B1-B2 using one half standard deviation shocks	15	14	16	19	23	27	45	76
B4. One-time 30 percent real depreciation in 2017	15	22	22	23	25	27	38	59
B5. 10 percent of GDP increase in other debt-creating flows in 2017	15	30	31	33	36	40	53	73
Debt Service-to-Revenue Ratio 2/								
Baseline	2	2	2	2	1	1	2	3
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	2	2	2	1	1	1	1	1
A2. Primary balance is unchanged from 2016	2	2	2	2	2	2	2	7
A3. Permanently lower GDP growth 1/	2	2	2	2	1	2	2	7
A.4 Tina PPA - Contingent Liability	2	2	2	2	2	2	2	4
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2017-2018	2	2	2	2	2	2	2	6
B2. Primary balance is at historical average minus one standard deviations in 2017-2018	2	2	2	2	1	1	2	3
B3. Combination of B1-B2 using one half standard deviation shocks	2	2	2	1	1	1	2	4
B4. One-time 30 percent real depreciation in 2017	2	2	3	2	2	2	2	5
B5. 10 percent of GDP increase in other debt-creating flows in 2017	2	2	2	2	2	2	2	4

Sources: Country authorities; and staff estimates and projections.
1/ Assumes that real GDP growth is at baseline minus one standard deviation divided by the square root of the length of the projection period.
2/ Revenues are defined inclusive of grants.

Table 6. Solomon Islands: Baseline Macroeconomic Assumptions
(In percent of GDP, Unless Otherwise Stated)

	2015	2016	2017	2018	2019	2020	2013 DSA*
Real GDP growth	3.3	3.0	3.3	3.0	3.0	3.0	3.5
GDP deflator in US dollar terms (change in percent)	-3.7	1.7	1.8	1.8	2.5	3.0	5.5
Non-interest current account deficit	2.1	4.2	7.5	6.7	5.7	5.5	9.8
Exports (Goods and Services)	44.6	42.8	40.8	39.8	39.9	39.6	48.7
Imports (Goods and Services)	52.7	51.3	52.7	51.0	50.0	49.4	61.7
Government revenues (excluding grants)	34.7	31.6	31.6	31.8	31.7	31.6	32.0
Primary (noninterest) expenditure	46.3	45.0	43.8	41.3	40.9	40.5	49.0
Net FDI (negative = inflow)	-2.0	-3.1	-3.5	-3.4	-3.3	-3.3	-7.5
Aid Flows	11.5	12.2	13.8	13.6	13.4	13.2	19.5
Grants	11.5	12.2	11.7	11.2	10.8	10.4	17.3
Concessional Loans	0.0	0.0	2.2	2.4	2.6	2.8	2.2

* Projected medium-term values in the 2013 DSA
Source: IMF staff projections