



TUVALU

STAFF REPORT FOR THE 2021 ARTICLE IV CONSULTATION—DEBT SUSTAINABILITY ANALYSIS

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

Tuvalu remains at a high risk of debt distress, unchanged from the 2018 Debt Sustainability Analysis (DSA). While government's fiscal position in 2020 remained in surplus, under the current policies Tuvalu is projected to face persistent fiscal deficits going forward. To adequately capture Tuvalu's vulnerability to natural disasters and the effects of climate change, the projection horizon was extended to 20 years, as opposed to the standard ten years. Present Value (PV) of external and total public debt-to-GDP ratios currently remain below their respective thresholds. However, these ratios are projected to breach the thresholds under the baseline scenario in the long-run. Elevated current spending, high reliance on fishing revenues (which remain volatile and subject to changing weather patterns) and grants (projected to decline in the future given uncertainty of donor commitments), and risks of natural disasters pose a risk to Tuvalu's debt sustainability outlook. This underscores the importance of reigning in fiscal deficits, improving public financial management and implementing structural reforms in order to ensure good cooperation with international donors and securing grants needed to fulfill country's large development needs. Thus, Tuvalu is assessed to be at a high risk of external and public debt distress on the basis of judgment due to its exposure to climate shocks. Despite upward trending debt burden indicators, Tuvalu's debt is assessed as sustainable. This assessment is based on the assumption of a continued access to external budget support on concessional terms from the development partners, low debt service ratios throughout the projection horizon, and significant cash buffers in Consolidated Investment Fund (CIF).

Tuvalu Joint Bank-Fund Debt Sustainability Analysis	
Risk of external debt distress	High
Overall risk of debt distress	High
Granularity in the risk rating	Sustainable
Application of judgment	Yes

PUBLIC DEBT: COVERAGE AND RECENT DEVELOPMENTS

1. Tuvalu's liabilities covered in this DSA comprise of concessional debt of the central government and debt of the State-Owned Enterprises (SOEs) (Text Table 1). Total official public debt (incl. SOEs) stood at 7.3 percent of GDP in 2020 (Text Table 2). The official public debt (excl. SOEs), consisting only of external debt with an average maturity of 29 years, stood at 5.5 percent of GDP (there is no domestic public debt). About 60 percent of the debt is denominated in U.S. dollar (after accounting for its weight in SDR). Debt incurred by public entities that has been explicitly guaranteed by the government has been repaid in full in 2018. In 2020, the authorities begun reporting debt of the SOEs that has been implicitly guaranteed by the government. This debt is domestic, incurred to the National Bank of Tuvalu (NBT) in the form of lines of credit, and in 2020 it stood at AUD1.4 million, or 1.8 percent of GDP.²⁹ While SOE loans do not carry an explicit government guarantee, the authorities may be asked to step in and cover these obligations if an SOE were unable to fulfill it, given that these corporations are wholly owned by the government. That justifies its inclusion in the baseline definition of government debt rather than as a contingent liability (Text Table 3). Bilateral donors provide only grant assistance, while multilateral development institutions (like ADB) provide both grants and concessional lending. There are no sub-government structures in Tuvalu able to contract debt and no central bank and the coverage of public debt in the baseline is deemed complete according to staff knowledge.

2. Between 2018 and 2020, Tuvalu's total debt has declined from 13.1 to 7.3 percent of GDP. The total public and publicly guaranteed debt declined from 9.6 to 5.5 percent of GDP as the authorities repaid the remaining portion of the EIB loan and continued repayment of their loans to ADB. Currently, the concessional debt to AIB accounts for all of the government's external debt. In 2019, the International Cooperation and Development Fund (ICDF) from Taiwan Province of China extended to the authorities a ten year loan of USD2.4 million for the construction of Tuvalu Convention Center. That loan was paid off in 2020 as the Taiwan Province of China's authorities reduced the annual grant to Tuvalu by the loan amount.

3. Tuvalu's external assets remain sizable, but are not fully sovereign. The market value of the Tuvalu Trust Fund (TTF) increased to around 240 percent of GDP in 2020 from 143 percent in 2013. The TTF is administered by a Board consisting of representatives from Tuvalu, Australia, and New Zealand, and is not fully sovereign. When the market value of TTF exceeds its "maintained value" (indexed to the Australian CPI), the excess funds are transferred to the CIF. The CIF is controlled by the Tuvaluan authorities, and is used as a cash buffer to finance fiscal expenditures.

²⁹ Prior to 2020, the public debt does exclude non-guaranteed debt contracted by SOEs.

Text Table 1. Tuvalu: Debt Coverage

Subsectors of the public sector		Sub-sectors covered
1	Central government	X
2	State and local government	N/A
3	Other elements in the general government	N/A
4	o/w: Social security fund	
5	o/w: Extra budgetary funds (EBFs)	
6	Guarantees (to other entities in the public and private sector, including to SOEs)	X
7	Central bank (borrowed on behalf of the government)	N/A
8	Non-guaranteed SOE debt	X

Text Table 2. Tuvalu's Public, Publicly Guaranteed, and SOE Debt
Public Debt

	2018	2019	2020	2018	2019	2020
	(In millions of AUD)			(Percent of GDP)		
Lender						
ADB	5.7	5.2	4.4	8.9	6.6	5.5
EIB	0.5	0.0	0.0	0.7	0.0	0.0
ICDF (Taiwan Province of China)	0.0	3.1	0.0	0.0	4.0	0.0
Total	6.2	8.3	4.4	9.6	10.6	5.5

Loan currency¹	(In millions of AUD)			(Percent of GDP)		
USD	1.9	4.7	1.2	3.0	6.1	1.5
EUR	1.7	1.1	1.0	2.6	1.4	1.2
RMB	0.4	0.4	0.3	0.6	0.5	0.4
JPY	0.3	0.3	0.3	0.5	0.4	0.3
GBP	0.3	0.3	0.3	0.5	0.4	0.3
Total	6.2	8.3	4.4	9.6	10.6	5.5

Publicly Guaranteed Debt

Lender	(In millions of AUD)			(Percent of GDP)		
EIB (DBT Global Loan)	0	0	0	0	0	0

SOE Debt (Implicitly Guaranteed by the Government)

Borrower	(In millions of AUD)			(Percent of GDP)		
Tuvalu Electric Corporation	0.8	0.3	0.2	1.3	0.4	0.3
Tuvalu Telecom Corporation	1.3	1.3	1.1	2.1	1.7	1.4
Tuvalu Broadcasting	0.0	0.0	0.0	0.0	0.0	0.0
Tuvalu Philatelic	0.1	0.1	0.0	0.1	0.1	0.1
Total	2.2	1.7	1.4	3.5	2.2	1.8

Total Debt	8.4	10.0	5.8	13.1	12.8	7.3
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Sources: Tuvaluan authorities; and IMF staff estimates.

¹ The two loans to the ADB in SDR have been decomposed into the underlying currencies.

Text Table 3. Tuvalu: Contingent Liabilities

1 The country's coverage of public debt	The central government, government-guaranteed debt, non-guaranteed SOE debt		
	Default	Used for the analysis	Reasons for deviations from the default settings
2 Other elements of the general government not captured in 1.	0 percent of GDP	0.0	
3 SoE's debt (guaranteed and not guaranteed by the government) 1/	2 percent of GDP	0.0	All SOE debt is included in the baseline
4 PPP	35 percent of PPP stock	0.0	There are no PPPs in Tuvalu
5 Financial market (the default value of 5 percent of GDP is the minimum value)	5 percent of GDP	5.0	
Total (2+3+4+5) (in percent of GDP)		5.0	

1/ The default shock of 2% of GDP will be triggered for countries whose government-guaranteed debt is not fully captured under the country's public debt definition (1.). If it is already included in the government debt (1.) and risks associated with SoE's debt not guaranteed by the government is assessed to be negligible, a country team may reduce this to 0%.

COUNTRY CLASSIFICATION

4. **Tuvalu's debt-carrying capacity is classified as weak (Text Table 4).** The rating is based on the Composite Indicator (CI) index, calculated using the October 2020 WEO data for macroeconomic indicators and the World Bank's 2019 Country Policy and Institutional Assessment (CPIA). The CI stands at 2.62, indicating that the country's debt-carrying capacity is weak in the LIC-DSA framework. The CI index, calculated based on the 2018 DSA vintage was 2.7, indicating medium debt carrying capacity. Compared to the 2018 DSA, carried out under the previous LIC framework,³⁰ the debt-carrying capacity of Tuvalu has been downgraded. This is largely due to newly added variables (real GDP growth, remittances, reserves, and world growth) that lowered the CPIA score.

Text Table 4. Tuvalu: Country Policy and Institutional Assessment Rating

Components	Coefficients (A)	10-year average values (B)	CI Score components (A*B) = (C)	Contribution of components
CPIA	0.385	2.866	1.10	42%
Real growth rate (in percent)	2.719	4.160	0.11	4%
Import coverage of reserves (in percent)	4.052	57.588	2.33	89%
Import coverage of reserves ² (in percent)	-3.990	33.164	-1.32	-50%
Remittances (in percent)	2.022	0.000	0.00	0%
World economic growth (in percent)	13.520	2.928	0.40	15%
CI Score			2.62	100%
CI rating			Weak	

5. **Based on the CI score, Tuvalu's debt is assessed against the lowest threshold designated in the context of the LIC DSA (Text Table 5).** For the purposes of the DSA, to ensure relevance of the PV of public and publicly guaranteed (PPG) external debt-to-exports ratio and the PPG external debt service-to-exports ratio and to adequately capture FX risks, fishing revenues are included in exports rather than in primary income as under conventional balance of payments statistics.

³⁰ See IMF Country Report 18/209.

Text Table 5. Tuvalu: Debt Thresholds

Debt carrying capacity (CI classification)	PV of PPG external debt in percent of		PPG external debt service in percent of		PV of total public debt
	GDP	Exports	Exports	Revenue	GDP
Weak	30	140	10	14	35
Medium	40	180	15	18	55
Strong	55	240	21	23	70

MACROECONOMIC FORECASTS AND DETERMINATION OF SCENARIO STRESS TESTS

6. The baseline macroeconomic and fiscal assumptions underpinning the DSA are as follows (Text Table 7):

- Economic growth.** After a pandemic-induced slowdown in growth in 2020 to 1 percent, the economy is expected to rebound to 2.5 percent in 2021, supported by elevated current spending and gradual resumption of infrastructure projects. This forecast assumes reopening of borders will start at the end of 2021 at the earliest, in line with expectations of Tuvalu's major international donors involved in infrastructure investment, and full disbursement of donor funding. Real GDP growth is then projected to peak at 4 percent in 2024, factoring in full resumption of international travel, continued high public spending, and full implementation of planned infrastructure projects, including those financed directly by the Green Climate Fund.³¹ Over the long-term, the baseline scenario incorporates the impact of natural disasters and climate change. While the years 2021-26 are projected to be disaster-free to simplify policy discussions, from 2027 on, the baseline scenario incorporates a cost of natural disasters and climate change at 1 percent of GDP per year on average. Real growth is projected to moderate to 2 percent towards the end of the projection horizon. In addition to the impact of climate change, growth is expected to be weighed down by the dominance of inefficient public enterprises in the economy, capacity constraints, and weak competitiveness.³²
- Inflation.** Elevated current spending, rising public sector wages, married with a resumption of infrastructure investment and a weakening Australian dollar is projected

³¹ Green Climate Fund-financed projects are extrabudgetary and they do not affect debt levels.

³² See Lee, D., Zhang, H., & Nguyen, C. (2018). "The economic impact of natural disasters in Pacific Island countries: Adaptation and preparedness." IMF Working Paper No 18/108, International Monetary Fund, Washington; and "First Resilience Development Policy Operation with a CAT-DDO (P170558)", Report No. PGD101, The World Bank.

to raise inflation to 3.1 percent by 2026. Inflation is projected to moderate to 2 percent in the long run, similar to the 2018 DSA.

- **Balance of payments.** Under the baseline scenario, Tuvalu's current account balance is expected to swing from an estimated 3.8 percent of GDP surplus in 2020 to 4.1 percent deficit in 2021. Over the medium-term, the current account deficit is projected at around 3 percent of GDP on average. The deficit is driven by elevated imports: while imports are projected to fall from their peak 2020, they are expected to remain elevated due to lack of domestic production capacity and ongoing infrastructure investment. Revenues from fishing license fees are projected to stabilize at around 40 percent of GDP, a ten-year average. Exports of goods and services are projected to remain modest, at around 11 percent of GDP in the medium and long term, and foreign direct investment is projected to remain limited. No significant inflows from privatization of SOEs are assumed as the authorities were not successful so far in attracting foreign investors.
- **Fiscal balance.** The 2020 budget closed with 5 percent of GDP surplus as high fishing revenues and additional donor grants, combined with underspending on infrastructure and travel, helped offset COVID-related spending. In 2021, general government balance is projected to shift to a deficit of 7 percent of GDP as a result of significant increases in recurrent spending on goods and services and public sector wage bill, and higher capital spending, mostly due to expenditures related to a planned national airline (at AUD13mIn or 16 percent of GDP).³³ A significant increase in current spending on goods and services and public sector wage bill, and higher capital spending, mostly due to expenditures related to a planned national airline (AUD13mIn or 16 percent of GDP) are expected to drive the deficit. In the long-term, fishing revenues are projected to plateau at 40 percent of GDP due to uncertain weather patterns and the already-high price of fishing licenses that make large future increases unlikely. Fees from the DotTv license are projected fall to 7 percent of GDP given the increasing use of other internet domains. Foreign grants are projected to decline to 22 percent of GDP due to the conclusion of the existing investment projects and uncertainty surrounding long-term donor commitments. With falling revenues, total expenditures would gradually decline from around 116 percent of GDP (five-year average) to around 100 percent of GDP. Spending on public sector wages, TMTS, and scholarship programs is projected to stay elevated, crowding out infrastructure investment, and leading to widening of general government deficit to 4.6 percent of GDP in the medium term and 6.0 percent of GDP by 2041 and the domestic current balance to 54 percent of GDP by 2041.³⁴

³³ The public debt dynamics incorporate projected SOE income that could be used to repay their debt service.

³⁴ The domestic current balance excludes fishing revenues, grants, and capital expenditure.

- **Deficit financing.** The authorities are expecting to receive at least USD7.5 million in FY 2021 and 2022 in grants from the ongoing IDA budget support operation of the World Bank. Over the long-term, that support is projected to average USD5 million annually at minimum. Outside the budget support, the average annual IDA net flows are expected to be around USD13 million over the long-term. Continued support from other development partners (ADB, Australia, New Zealand, and the Taiwan Province of China) is also envisaged, though total grants are projected to decline as a share of GDP. Government is projected to fund fiscal deficits with transfers from the CIF first, subject to the existing rule of leaving at least 16 percent of the TTF maintained value in the CIF (since 2012, the authorities used CIF to finance budget deficit only in 2019, at AUD1.6 million, or 2 percent of GDP).³⁵ When CIF transfers are insufficient to fund the deficit, the authorities are projected to borrow, initially fully on concessional terms, with additional commercial borrowing assumed at the end of the projection horizon. Under the baseline scenario, no CIF transfers are projected after 2031 as the Fund does not hold sufficient assets. No domestic borrowing by the government is envisaged due to the lack of domestic financial markets.

7. Realism tools suggests that projections are reasonable (Figures 3 and 4). Although the public debt trajectory debt differs from the 2018 DSA, it remains below the 2016 DSA assumptions, with a similar trajectory. The difference with 2018 DSA can be explained by early repayment of NAFICOT and ICDF loans which resulted in lower than projected debt outcome in 2020, as well as changes in macro-fiscal assumptions over the projection horizon. Both the current account and the fiscal balance are highly volatile in the small economy like Tuvalu, and changes to both the forecast and the historical data explain changes in the debt dynamics and the larger average forecasting errors than those of LICs. Large residuals in the public debt are explained by financing of the budget deficit by transfers from the CIF, before resorting to external borrowing (no domestic borrowing is assumed). Drawdown of reserves explain residuals in the external debt dynamics. Staff baseline macroeconomic projections incorporate the impact of the COVID-19 pandemic: in 2021, growth is projected to be at the lower range of the realism tools as it assumes that the reopening of the economy will start at the end of 2021 at the earliest. In 2022, staff assumes full reopening of the economy, and incorporates the impact of a full resumption of the Green Climate Fund project, financed directly by the UNDP. Implementation of capital investment projects is higher than assumed in the 2018 DSA as past execution was higher than projected. Due to finalization of existing projects and uncertainty surrounding donor commitments, public infrastructure is expected to decline gradually over the years.

³⁵ Projected transfers from the CIF are captured by the residuals in the debt dynamics (Table 2).

Text Table 7. Tuvalu: Macro-financial Assumptions, 2018 vs. 2021 DSA

	2018 DSA	2021 DSA
	Average over 2017-37	Average over 2021-41
Real GDP growth	2.7	2.7
Deflator	1.7	2.4
Current account balance (% GDP)	-4.2	-2.0
Fiscal balance (% GDP)	-6.7	-5.4

8. Alternative scenarios are also considered to examine the impact of potential upside and downside risks on Tuvalu's debt profile. They reflect a combination of tailored stress tests and fully customized scenarios:

- **Tailored stress test – commodity price decline.** Under this scenario, price of fishing license fees (main export commodity of Tuvalu) is projected to decline by 30 percent.
- **Adjustment scenarios:** In the adjustment scenarios, the authorities implement reforms to necessary increase efficiency of public spending on TMTS and overseas education scholarships, align public sector wage growth with productivity gains, and continue public enterprise reform. Under both scenarios, they target the current deficit of 40 percent of GDP, attaining it in 2041 (scenario 1). This adjustment allows for a buildup of fiscal buffers for essential investment in climate infrastructure and for the impact of natural disasters. The scenarios cover the entire projected horizon.
- **Fishing revenue shock.** In this scenario, fishing revenue is assumed to decline to 35 percent of GDP after 2031 due to changes in weather patterns. Revenue shortfall would widen the fiscal deficit to 12 percent of GDP by 2041.
- **Natural disaster.** A cyclone similar to the 2015 Pam is projected to hit the island in 2022, causing a damage of 30 percent of GDP. Recovery and rehabilitation programs are projected to take five years, and widen the fiscal deficit to 11 percent of GDP in 2031, (compared to a 6 percent of GDP baseline) and add around 1 percent to the deficit in 2032-36. The need for additional spending to rebuild infrastructure is largely met by the donor community, mitigating the impact on deficit and debt to 10 percent of GDP. The higher fiscal deficits would accelerate the depletion of fiscal buffers, causing the present value of debt-to-GDP to breach its threshold earlier than in the baseline.
- **Positive grant shock.** In an upside scenario, grants are assumed to remain high due to continued progress on Policy Reform Matrix discussions with donors and on favorable global economic and financial conditions. Under this scenario, grants are projected to remain at 30 percent of GDP (average over the last five years).

RISK RATINGS AND VULNERABILITIES

F. Baseline Scenario

9. Tuvalu's mechanical risk ratings for both external and public debt are moderate, but the final risks of debt distress is rated as high, applying staff's judgement. ³⁶ To fully evaluate Tuvalu's risk of debt distress, the projection horizon has been extended to 20 years from the standard ten years, to account for Tuvalu's exposure to natural disasters and the effects of climate, as well as the volatility of the macroeconomic outcomes and uncertainty about the data. Longer horizon also allows to account for a protracted breach of the threshold under the baseline scenario.

10. The external and public debt-to-GDP ratios are projected to breach their relevant thresholds in 2038 and 2039, respectively. Both debt trajectories show steady increases that reflect persistent deficits due to elevated current spending and the need for external funding for infrastructure projects amid declining revenues. Staff assumes that the authorities maintain the minimum buffer of 16 percent of the TTF value in the CIF account, and any funds above that threshold are used to finance deficits. All borrowing is external, given small size and persistently low asset quality of the domestic banking system and lack of a domestic financial market. Borrowing is projected to be conducted on concessional terms. As a result, the debt service-to-revenue and debt service-to-export ratios remain low, below the respective DSA thresholds.

11. Stress tests to both external and public sector debt indicate that debt ratios are highly sensitive to exports and commodity price shocks. One standard deviation shock to export growth would cause the external debt-to-GDP ratio to breach the indicative threshold in 2023. A standard shock to exports also results in a breach of the debt-to-export and debt service-to-exports thresholds. A one-time 30 percent decline in prices of agricultural commodities would cause the public debt-to-GDP ratio to breach the indicative threshold in 2025 and stay above it throughout the projection period. In all cases, the debt indicators show an exponential trend.

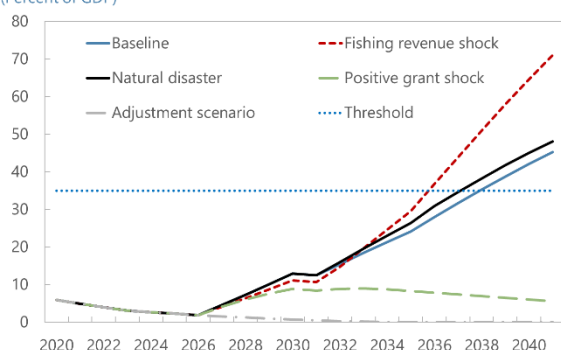
G. Alternative Scenarios

12. Alternative scenarios show high susceptibility of Tuvalu's projections to macro-fiscal assumptions. Under the adjustment scenarios, where fiscal policy is anchored by an appropriate fiscal target, the risk of debt distress is eliminated while Tuvalu manages to

³⁶ The rating and application of judgement is in line with paragraph 87 of the LIC DSF Guidance Note (2018), which states that in exceptional circumstances, threshold breaches in years 11-20 may provide a rationale to change the risk rating. It is possible to consider a change in rating when (i) breaches are expected to be large, persistent, and thus resulting in significant differences relative to historical averages; and (ii) occur with a high probability despite occurring in the distant future. Such a situation could arise from trends that are not easily influenced by policy interventions, such as climate change (as in Tuvalu's case).

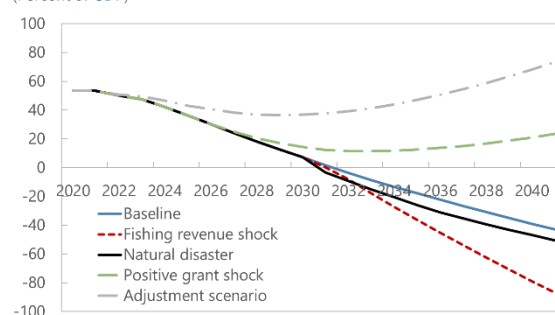
preserve fiscal space to improve climate change resilience. A natural disaster or fishing revenue shocks would have the opposite effect, causing the PV of debt-to-GDP ratio to breach its threshold one and two years earlier, respectively, earlier than under the baseline. Finally, higher grants would cause the debt-to-GDP ratio to remain well below the indicative threshold (Text Figures 1-2).

Tuvalu: PV of Debt-to-GDP Ratio, Alternative Scenarios
(Percent of GDP)



Sources: Tuvalu authorities; and IMF staff calculations.

Tuvalu: Government's Net Financial Worth Under Alternative Scenarios
(Percent of GDP)



Sources: Tuvalu authorities; and IMF staff calculations.

RISK RATING AND VULNERABILITIES

13. Tuvalu remains at high risk of debt distress, unchanged from the conclusions of the 2018 DSA. Under the baseline scenario, Tuvalu would face persistent budget deficits due to elevated current spending and the need to maintain infrastructure spending amid declining fishing revenues and grants. In the long term, existing buffers would be insufficient to finance deficits, thus necessitating external borrowing. The debt trajectory highlights the importance of targeting a small fiscal surplus to lower the risk of debt distress while maintaining fiscal space to maintain buffers and allow for climate adaptation efforts, and of continuing structural reforms to ensure donor support in the form of grants. Higher spending efficiency and domestic revenue mobilization efforts would help.

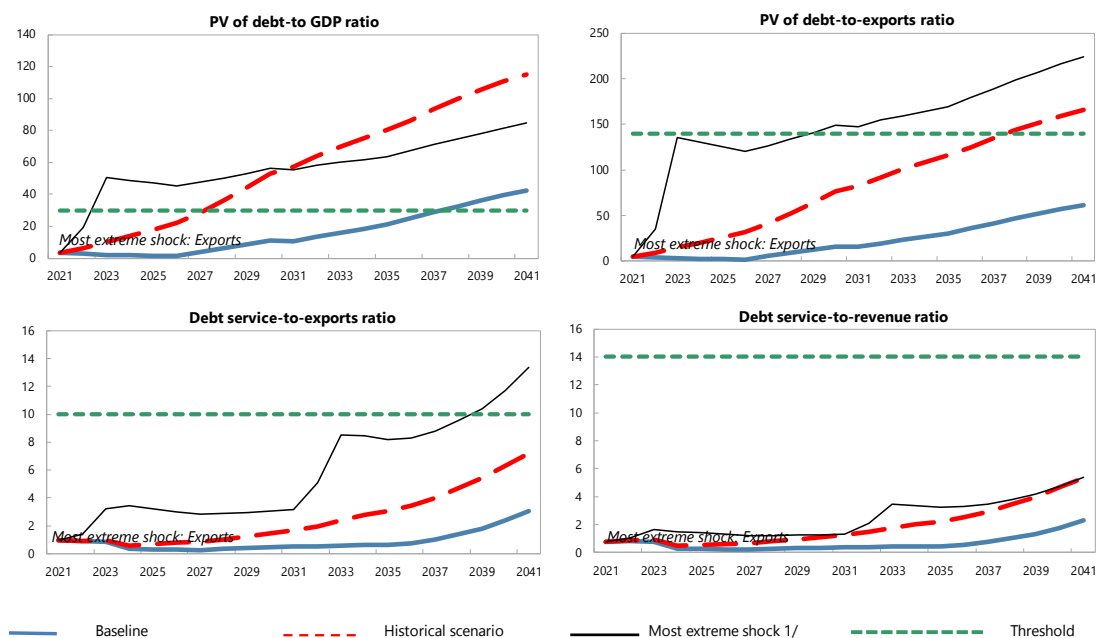
14. Despite high risk rating, Tuvalu's debt is rated as sustainable. Several factors mitigate Tuvalu's debt vulnerability. First, Tuvalu currently only receives budget support in the form of grants from development partners while the DSA assumes debt financing in the medium-term. Second, the authorities have significant cash buffers, and could, in principle, allow a drawdown of the CIF below the threshold of 16 percent of TTF.

H. Authorities' Views

15. The authorities agreed with the DSA assessment. They noted that, to mitigate risks, they have decided not to incur any new debt, either in concessional or commercial terms, over short- to medium-term. To fully account for debt-related risks, their latest budget included an

assessment of risks stemming from explicit and implicit government guarantees. The authorities plan to rely on grants from development partners to fund infrastructure projects, which would help contain fiscal risks. Planned reforms to the budget formulation, execution, and reporting processes should help improve fiscal planning and ensure that expenditures are kept within the planned budgetary allocations.

Figure 1. Tuvalu: Indicators of Public and Publicly Guaranteed External Debt under Alternative Scenarios, 2021-2041



Customization of Default Settings		
	Size	Interactions
Tailored Stress		
Combined CL	Yes	
Natural disaster	Yes	Yes
Commodity price	No	No
Market financing	n.a.	n.a.

Note: "Yes" indicates any change to the size or interactions of the default settings for the stress tests. "n.a." indicates that the stress test does not apply.

Borrowing assumptions on additional financing needs resulting from the stress tests*		
	Default	User defined
Shares of marginal debt		
External PPG MLT debt	100%	
Terms of marginal debt		
Avg. nominal interest rate on new borrowing in USD	1.1%	1.1%
USD Discount rate	5.0%	5.0%
Avg. maturity (incl. grace period)	36	36
Avg. grace period	9	9

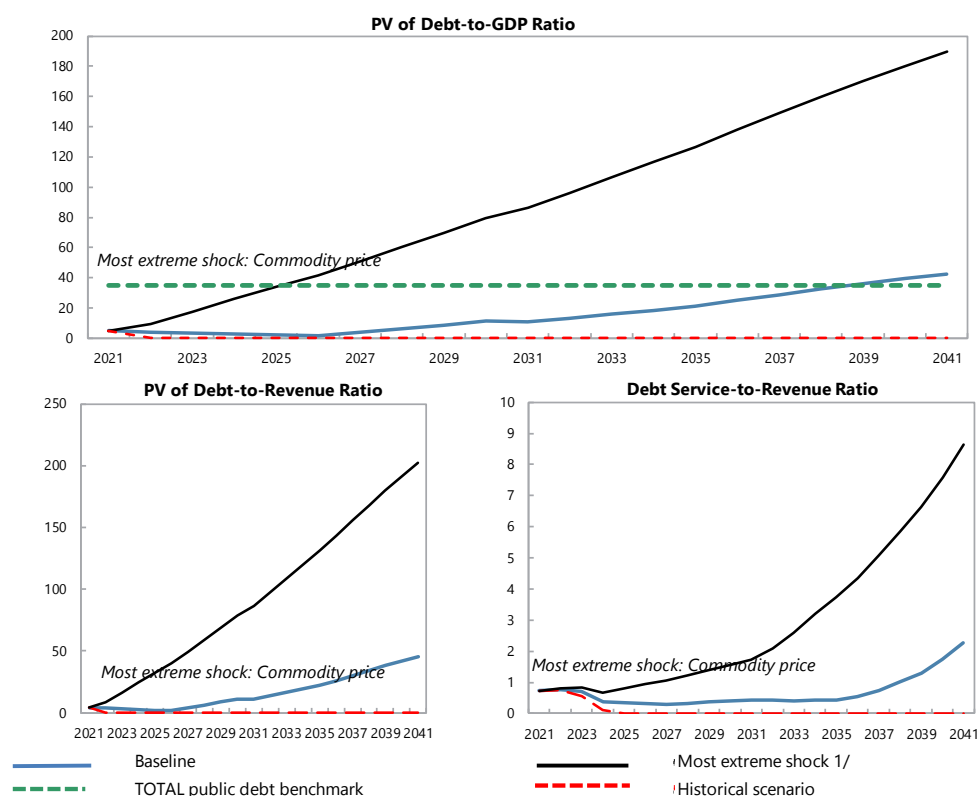
* Note: All the additional financing needs generated by the shocks under the stress tests are assumed to be covered by PPG external MLT debt in the external DSA. Default terms of marginal debt are based on baseline 10-year projections.

Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in or before 2031. The stress test with a one-off breach is also presented (if any), while the one-off breach is deemed away for mechanical signals. When a stress test with a one-off breach happens to be the most extreme shock even after disregarding the one-off breach, only that stress test (with a one-off breach) would be presented.

2/ The magnitude of shocks used for the commodity price shock stress test are based on the commodity prices outlook prepared by the IMF research department.

Figure 2. Tuvalu: Indicators of Public Debt Under Alternative Scenarios, 2021-2041



Borrowing assumptions on additional financing needs resulting from the stress tests*	Default	User defined
Shares of marginal debt		
External PPG medium and long-term	100%	100%
Domestic medium and long-term	0%	0%
Domestic short-term	0%	0%
Terms of marginal debt		
External MLT debt		
Avg. nominal interest rate on new borrowing in USD	1.1%	1.1%
Avg. maturity (incl. grace period)	36	36
Avg. grace period	9	9
Domestic MLT debt		
Avg. real interest rate on new borrowing	-2.9%	-2.9%
Avg. maturity (incl. grace period)	12	12
Avg. grace period	0	0
Domestic short-term debt		
Avg. real interest rate	0.0%	0.0%

* Note: The public DSA allows for domestic financing to cover the additional financing needs generated by the shocks under the stress tests in the public DSA. Default terms of marginal debt are based on baseline 10-year projections.

Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in or before 2031. The stress test with a one-off breach is also presented (if any), while the one-off breach is deemed away for mechanical signals. When a stress test with a one-off breach happens to be the most extreme shock even after disregarding the one-off breach, only that stress test (with a one-off breach) would be presented.

Figure 3. Tuvalu: Drivers of Debt Dynamics: External Scenario

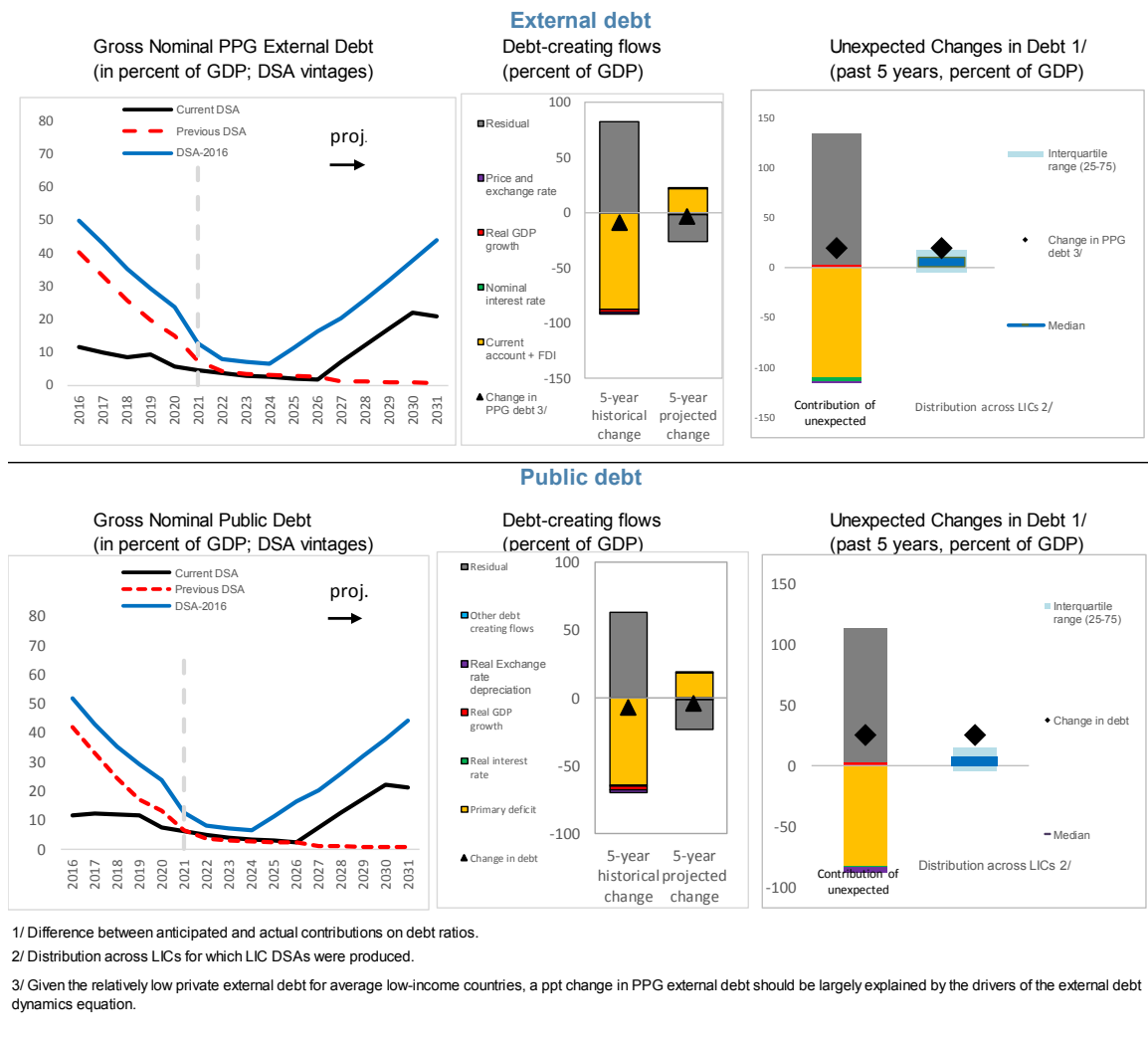
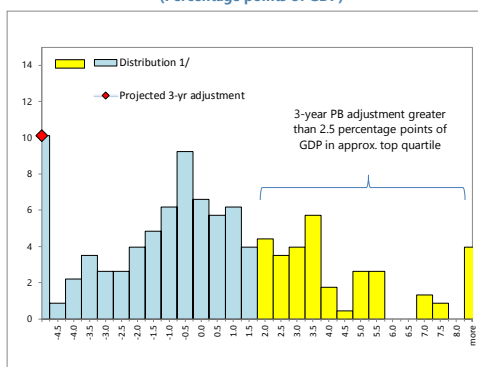
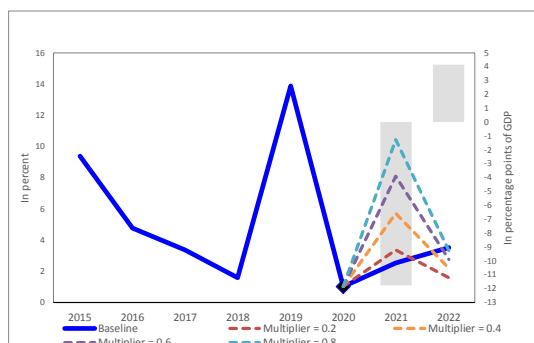


Figure 4. Tuvalu: Realism Tools

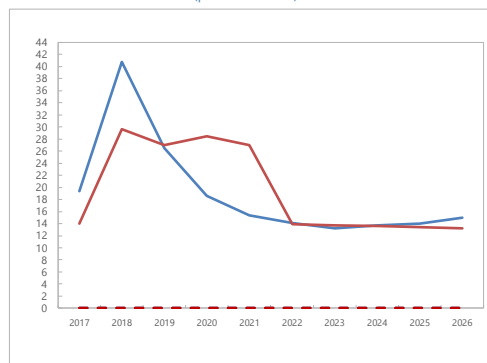
3-Year Adjustment in Primary Balance
(Percentage points of GDP)

1/ Data cover Fund-supported programs for LICs (excluding emergency financing) approved since 1990. The size of 3-year adjustment from program inception is found on the horizontal axis; the percent of sample is found on the vertical axis.

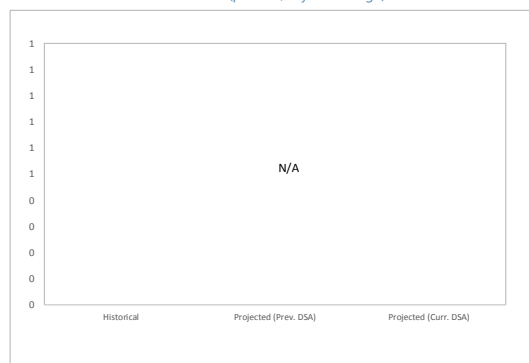
Fiscal Adjustment and Possible Growth Paths 1/



1/ Bars refer to annual projected fiscal adjustment (right-hand side scale) and lines show possible real GDP growth paths under different fiscal multipliers (left-hand side scale).

Public and Private Investment Rates
(percent of GDP)

Gov. Invest. - Prev. DSA
Priv. Invest. - Prev. DSA
Gov. Invest. - Curr. DSA
Priv. Invest. - Curr. DSA

Contribution to Real GDP growth
(percent, 5-year average)

Contribution of other factors
Contribution of government capital

Table 1. Tuvalu: External Debt Sustainability Framework, Baseline Scenario, 2018-2041
(in percent of GDP, unless otherwise indicated)

	Actual			Projections								Average 8/ Historical Projections	
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2031	2041	Historical	Projections
External debt (nominal) 1/	8.4	9.4	5.5	4.5	3.6	2.9	2.5	2.1	1.8	20.9	65.2	13.1	8.8
of which: public and publicly guaranteed (PPG)	8.4	9.4	5.5	4.5	3.6	2.9	2.5	2.1	1.8	20.9	65.2	13.1	8.8
Change in external debt	-1.4	1.0	-3.8	-1.0	-0.9	-0.8	-0.4	-0.4	-0.3	-1.1	3.9		
Identified net debt-creating flows	-72.7	23.3	-5.6	5.3	5.1	4.0	3.9	3.7	3.6	1.2	2.7	12.5	2.8
Non-interest current account deficit	-72.2	24.1	-5.6	5.3	5.2	4.1	4.0	3.8	3.7	1.5	2.8	12.9	2.9
Deficit in balance of goods and services	35.0	100.5	86.5	80.8	77.1	78.4	78.3	76.4	73.9	61.7	53.9	97.8	71.9
Exports	130.9	97.6	96.0	70.2	71.2	68.9	69.0	69.3	69.4	69.4	69.4		
Imports	166.0	198.1	182.6	151.0	148.2	147.3	147.3	145.7	143.3	131.1	123.3		
Net current transfers (negative = inflow)	-72.3	-58.6	-61.7	-62.3	-56.5	-57.9	-56.5	-54.2	-52.1	-43.9	-36.8	-54.4	-52.2
of which: official	-71.9	-58.2	-60.6	-60.9	-55.0	-56.4	-55.0	-52.8	-50.8	-42.9	-36.1		
Other current account flows (negative = net inflow)	-35.0	-17.8	-30.4	-13.2	-15.4	-16.4	-17.8	-18.5	-18.1	-16.3	-14.3	-30.6	-16.8
Net FDI (negative = inflow)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Endogenous debt dynamics 2/	-0.5	-0.8	-0.1	0.0	-0.1	-0.1	-0.1	-0.1	0.0	-0.3	-0.1		
Contribution from nominal interest rate	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.2	1.1		
Contribution from real GDP growth	-0.1	-1.0	0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.5	-1.2		
Contribution from price and exchange rate changes	-0.4	0.1	0.0	...	...	...	...	...	...	...	...
Residual 3/	71.3	-22.3	1.8	-6.3	-5.9	-4.8	-4.3	-4.1	-3.9	-2.4	1.2	-14.0	-1.4
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		
Sustainability indicators													
PV of PPG external debt-to-GDP ratio	...	...	4.5	3.4	2.7	2.0	1.8	1.5	1.3	10.7	42.6		
PV of PPG external debt-to-exports ratio	...	...	4.7	4.8	3.8	3.0	2.6	2.2	1.9	15.4	61.4		
PPG debt service-to-exports ratio	0.8	1.1	1.3	1.0	0.9	0.8	0.3	0.3	0.3	0.5	3.1		
PPG debt service-to-revenue ratio	0.9	1.3	1.4	0.8	0.8	0.8	0.3	0.2	0.2	0.4	2.3		
Gross external financing need (Million of U.S. dollars)	-34.3	13.6	-2.4	3.9	4.0	3.5	3.4	3.4	3.5	2.3	8.8		
Key macroeconomic assumptions													
Real GDP growth (in percent)	1.6	13.9	1.0	2.5	3.5	3.8	4.0	3.8	3.7	2.4	2.0	4.4	3.3
GDP deflator in US dollar terms (change in percent)	4.7	-1.2	0.4	14.2	3.6	3.4	3.2	3.3	3.1	2.2	1.8	1.3	4.0
Effective interest rate (percent) 4/	1.3	2.0	0.8	1.5	1.4	1.3	1.3	1.3	1.3	1.1	1.8	1.9	1.2
Growth of exports of G&S (US dollar terms, in percent)	67.6	-16.1	-0.2	-14.3	8.6	4.1	7.5	7.6	7.1	4.7	3.9	21.7	4.5
Growth of imports of G&S (US dollar terms, in percent)	6.5	34.3	-6.5	-3.1	5.2	6.8	7.3	6.1	5.1	4.7	3.5	10.8	4.3
Grant element of new public sector borrowing (in percent)	...	...	...	52.6	52.6	52.6	52.6	52.6	52.6	52.6	31.6	...	52.6
Government revenues (excluding grants, in percent of GDP)	118.1	82.9	89.6	86.8	74.9	73.8	87.3	86.9	88.6	90.4	93.3	85.6	86.1
Aid flows (in Million of US dollars) 5/	18.3	15.6	17.5	23.0	22.5	24.8	15.2	15.6	14.0	10.1	8.5		
Grant-equivalent financing (in percent of GDP) 6/	...	...	...	35.6	32.6	33.5	19.1	18.2	15.3	8.4	2.7	...	20.0
Grant-equivalent financing (in percent of external financing) 6/	...	...	...	100.0	100.0	100.0	100.0	100.0	100.0	100.0	35.5	...	94.2
Nominal GDP (Million of US dollars)	48	54	55	64	69	74	80	85	91	121	178		
Nominal dollar GDP growth	6.3	12.5	1.5	17.1	7.2	7.4	7.3	7.3	6.9	4.7	3.9	5.7	7.5
Memorandum items:													
PV of external debt 7/	...	...	4.5	3.4	2.7	2.0	1.8	1.5	1.3	10.7	42.6		
In percent of exports	...	...	4.7	4.8	3.8	3.0	2.6	2.2	1.9	15.4	61.4		
Total external debt service-to-exports ratio	0.8	1.1	1.3	1.0	0.9	0.8	0.3	0.3	0.3	0.5	3.1		
PV of PPG external debt (in Million of US dollars)	...	...	2.5	2.2	1.8	1.5	1.4	1.3	1.2	12.9	75.9		
(Pvt-Pvt-1)/GDPt-1 (in percent)	...	...	...	-0.6	-0.5	-0.5	-0.1	-0.1	-0.1	0.2	4.9		
Non-interest current account deficit that stabilizes debt ratio	-70.8	23.1	-1.7	6.3	6.0	4.9	4.4	4.1	4.0	2.7	-1.1		

Sources: Country authorities; and staff estimates and projections.

1/ Includes both public and private sector external debt.

2/ Derived as $[r - g - p(1+g) + \epsilon\alpha(1+r)] / (1+g+p+g\alpha)$ times previous period debt ratio, with r = nominal interest rate; g = real GDP growth rate; p = growth rate of GDP deflator in U.S. dollar terms; ϵ = nominal appreciation of the local currency, and α = share of local currency-denominated external debt in total external debt.

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

5/ Defined as grants, concessional loans, and debt relief.

6/ 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).

7/ Assumes that PV of private sector debt is equivalent to its face value.

8/ Historical averages are generally derived over the past 10 years, subject to data availability, whereas projections averages are over the first year of projection and the next 10 years.

Definition of external/domestic debt	Residency-based
Is there a material difference between the two criteria?	Yes

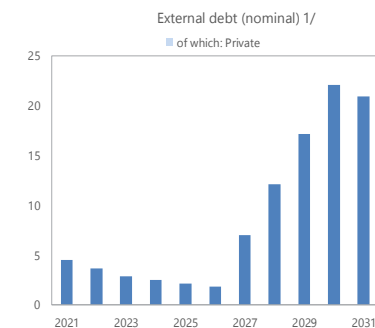
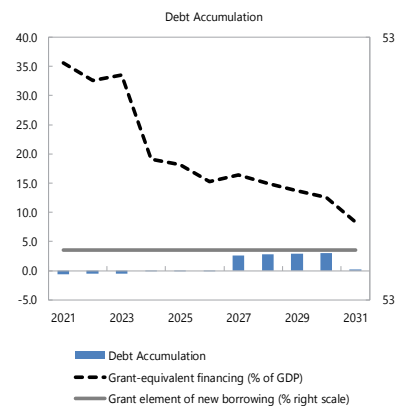


Table 2. Tuvalu: Public Sector Debt Sustainability Framework, Baseline Scenario, 2018-2041
(In percent of GDP, unless otherwise indicated)

	Actual			Projections								Average 6/	
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2031	2041	Historical	Projections
Public sector debt 1/	11.8	11.5	7.3	6.1	5.0	4.0	3.4	2.9	2.4	21.0	65.2	14.1	9.5
of which: external debt	8.4	9.4	5.5	4.5	3.6	2.9	2.5	2.1	1.8	20.9	65.2	13.1	8.8
Change in public sector debt	-0.2	-0.3	-4.2	-1.2	-1.1	-1.0	-0.6	-0.5	-0.5	-1.2	3.9		
Identified debt-creating flows	-30.7	-0.7	-6.0	6.6	2.4	2.2	2.9	3.8	4.3	5.2	3.7	-11.5	4.3
Primary deficit	-30.4	0.9	-5.0	6.7	2.6	2.4	3.0	3.9	4.4	5.9	5.1	-11.2	4.6
Revenue and grants	156.1	111.7	121.5	122.5	107.4	107.3	106.4	105.1	103.9	98.7	93.7	113.8	105.1
of which: grants	38.0	28.9	31.9	35.6	32.6	33.5	19.1	18.2	15.3	8.4	0.4		
Primary (noninterest) expenditure	125.6	112.6	116.5	129.2	110.0	109.7	109.5	109.0	108.3	104.6	98.8	102.6	109.7
Automatic debt dynamics	-0.3	-1.6	-1.0	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.7	-1.3		
Contribution from interest rate/growth differential	-0.4	-1.6	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.7	-1.3		
of which: contribution from average real interest rate	-0.3	-0.2	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	-0.2	-0.1		
of which: contribution from real GDP growth	-0.2	-1.4	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.5	-1.2		
Contribution from real exchange rate depreciation	0.1	0.0	-0.8	...	...	...	...	...	...	...	...
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	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 contingent liabilities (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		
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 debt creating or reducing flow (please specify)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Residual	30.5	0.4	1.8	-7.8	-3.5	-3.2	-3.5	-4.3	-4.8	-6.4	0.1	10.1	-3.1
Sustainability indicators													
PV of public debt-to-GDP ratio 2/	...	...	5.9	4.9	4.0	3.2	2.7	2.3	1.9	10.8	42.6		
PV of public debt-to-revenue and grants ratio	...	...	4.9	4.0	3.7	2.9	2.5	2.1	1.8	10.9	45.5		
Debt service-to-revenue and grants ratio 3/	0.7	1.0	1.1	0.7	0.8	0.7	0.4	0.3	0.3	0.4	2.3		
Gross financing need 4/	-29.4	2.0	-3.8	7.7	3.4	3.2	3.4	4.3	4.7	6.3	7.2		
Key macroeconomic and fiscal assumptions													
Real GDP growth (in percent)	1.6	13.9	1.0	2.5	3.5	3.8	4.0	3.8	3.7	2.4	2.0	4.4	3.3
Average nominal interest rate on external debt (in percent)	1.3	2.1	0.8	1.4	1.4	1.3	1.3	1.3	1.3	1.1	1.8	1.9	1.2
Average real interest rate on domestic debt (in percent)	-6.8	-5.9	-1.2	2.7	2.3	1.9	1.6	1.3	1.7	2.7	-1.8	-2.4	2.0
Real exchange rate depreciation (in percent, + indicates depreciation)	1.5	0.1	-8.5	...	...	...	...	...	...	...	...	0.8	...
Inflation rate (GDP deflator, in percent)	7.3	6.3	1.2	2.2	2.7	3.1	3.3	3.7	3.2	2.2	1.8	4.0	2.9
Growth of real primary spending (deflated by GDP deflator, in percent)	20.0	2.1	4.4	13.8	-11.8	3.6	3.8	3.4	3.0	1.7	1.5	7.5	2.4
Primary deficit that stabilizes the debt-to-GDP ratio 5/	-30.2	1.2	-0.8	8.0	3.7	3.4	3.6	4.5	4.9	7.1	1.2	-9.9	3.3
PV of contingent liabilities (not included in public sector debt)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		

Sources: Country authorities; and staff estimates and projections.

1/ Coverage of debt: The central government, government-guaranteed debt, non-guaranteed SOE debt. Definition of external debt is Residency-based.

2/ The underlying PV of external debt-to-GDP ratio under the public DSA differs from the external DSA with the size of differences depending on exchange rates projections.

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

4/ 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 and other debt creating/reducing flows.

5/ Defined as a primary deficit minus a change in the public debt-to-GDP ratio (-): a primary surplus), which would stabilize the debt ratio only in the year in question.

6/ Historical averages are generally derived over the past 10 years, subject to data availability, whereas projections averages are over the first year of projection and the next 10 years.

Definition of external/domestic debt	Residency-based
Is there a material difference between the two criteria?	Yes

Public sector debt 1/

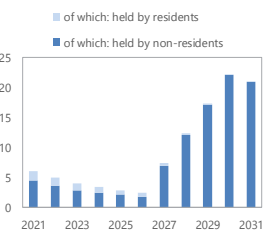
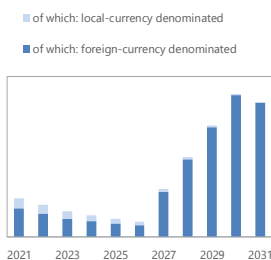


Table 3. Tuvalu: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2021-2041 (In percent of GDP, unless otherwise indicated)

	Projections 1/																					
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	
PV of debt-to GDP ratio																						
Baseline	3	3	2	2	2	1	4	6	9	11	11	13	16	18	21	25	29	32	36	39	43	
A. Alternative Scenarios																						
A1. Key variables at their historical averages in 2021-2031 2/	3	6	10	14	18	22	29	36	44	53	57	64	70	75	80	86	93	100	105	110	115	
B. Bound Tests																						
B1. Real GDP growth	3	3	2	2	2	1	4	7	10	13	12	15	19	21	25	29	33	38	42	46	49	
B2. Primary balance	3	9	15	14	13	13	15	17	19	22	21	24	26	28	31	34	38	41	45	48	51	
B3. Exports	3	19	51	49	47	45	48	50	53	56	55	58	60	62	64	67	71	75	78	81	84	
B4. Other flows 3/	3	11	19	19	18	17	19	21	23	26	25	28	29	31	33	36	40	43	46	48	51	
B5. Depreciation	3	3	-9	-9	-8	-8	-5	-2	1	4	4	7	11	15	19	24	29	34	39	43	48	
B6. Combination of B1-B5	3	18	21	20	19	18	21	23	26	28	28	30	33	35	37	41	45	48	52	55	58	
C. Tailored Tests																						
C1. Combined contingent liabilities	3	5	4	4	4	3	6	8	11	13	13	15	18	20	23	27	31	34	38	41	45	
C2. Natural disaster	3	18	18	18	18	18	21	24	27	30	30	34	37	41	45	50	54	59	64	68	73	
C3. Commodity price	3	3	3	1	-1	-4	-4	-3	-3	-2	-4	-4	-3	-2	-1	1	3	6	8	11	13	
C4. Market Financing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Threshold	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
PV of debt-to-exports ratio																						
Baseline	5	4	3	3	2	2	5	9	12	16	15	19	23	27	30	36	41	47	52	57	61	
A. Alternative Scenarios																						
A1. Key variables at their historical averages in 2021-2031 2/	5	9	15	20	26	32	41	52	64	76	82	92	101	108	116	124	134	144	152	159	166	
B. Bound Tests																						
B1. Real GDP growth	5	4	3	3	2	2	5	9	12	16	15	19	23	27	30	36	41	47	52	57	61	
B2. Primary balance	5	13	21	20	19	18	21	25	28	31	31	34	38	41	44	50	55	60	65	69	74	
B3. Exports	5	35	136	130	125	121	127	133	141	149	147	155	159	164	169	179	189	198	208	216	224	
B4. Other flows 3/	5	16	28	27	26	25	28	31	34	37	36	40	42	45	48	53	57	62	66	70	74	
B5. Depreciation	5	4	-10	-10	-10	-10	-6	-2	1	5	5	9	13	17	21	27	33	39	45	50	55	
B6. Combination of B1-B5	5	28	26	38	36	35	39	44	49	54	53	57	62	66	70	78	85	92	98	105	111	
C. Tailored Tests																						
C1. Combined contingent liabilities	5	7	6	6	5	5	8	12	15	19	18	22	26	30	33	39	44	50	55	60	64	
C2. Natural disaster	5	26	26	26	26	26	30	35	39	44	44	50	55	60	65	73	80	86	93	100	106	
C3. Commodity price	5	4	4	1	-2	-6	-5	-5	-4	-3	-6	-5	-4	-3	-2	1	5	8	12	15	19	
C4. Market Financing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Threshold	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	
Debt service-to-exports ratio																						
Baseline	1	1	1	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	2	2	3	
A. Alternative Scenarios																						
A1. Key variables at their historical averages in 2021-2031 2/	1	1	1	1	1	1	1	1	1	1	2	2	2	3	3	3	4	5	5	6	7	
B. Bound Tests																						
B1. Real GDP growth	1	1	1	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	2	2	3	
B2. Primary balance	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3	4	4	
B3. Exports	1	1	3	3	3	3	3	3	3	3	3	5	9	8	8	8	9	10	10	12	13	
B4. Other flows 3/	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	3	4	4	
B5. Depreciation	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	3	
B6. Combination of B1-B5	1	1	2	1	1	1	1	1	1	1	1	2	3	3	3	3	3	4	4	5	6	
C. Tailored Tests																						
C1. Combined contingent liabilities	1	1	1	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2	2	3	
C2. Natural disaster	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	4	4	
C3. Commodity price	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
C4. Market Financing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Threshold	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
Debt service-to-revenue ratio																						
Baseline	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	2	
A. Alternative Scenarios																						
historical averages in 2021-2031 2/	1	1	1	0	1	1	1	1	1	1	1	1	2	2	2	3	3	3	4	5	5	
B. Bound Tests																						
B1. Real GDP growth	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	2	2	3	
B2. Primary balance	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	2	2	3	
B3. Exports	1	1	2	1	1	1	1	1	1	1	1	2	3	3	3	3	3	4	4	5	5	
B4. Other flows 3/	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	3	
B5. Depreciation	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	
B6. Combination of B1-B5	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	2	2	2	2	3	3	
C. Tailored Tests																						
C1. Combined contingent liabilities	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	2	
C2. Natural disaster	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	
C3. Commodity price	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
C4. Market Financing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Threshold	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	

Sources: Country authorities; and staff estimates and projections.

1/ A bold value indicates a breach of the threshold.

2/ Variables include real GDP growth, GDP deflator (in U.S. dollar terms), non-interest current account in percent of GDP, and non-debt creating flows.

3/ Includes official and private transfers and FDI.

Table 4. Tuvalu: Sensitivity Analysis for Key Indicators of Public Debt, 2021-2041 (in percent)

	Projections 1/																				
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
PV of Debt-to-GDP Ratio																					
Baseline	5	4	3	3	2	2	4	6	9	11	11	13	16	19	21	25	29	32	36	39	43
A. Alternative Scenarios																					
A1. Key variables at their historical averages in 2021-2031 2/	5	-3	-10	-17	-24	-30	-35	-39	-43	-47	-53	-56	-59	-62	-64	-66	-67	-68	-70	-71	-72
B. Bound Tests																					
B1. Real GDP growth	5	7	13	19	25	31	39	48	58	67	73	83	93	104	114	126	137	148	159	169	179
B2. Primary balance	5	10	16	15	14	13	15	17	20	22	21	24	26	28	31	34	38	41	45	48	51
B3. Exports	5	17	37	35	34	32	34	36	37	39	39	41	42	43	45	47	50	52	55	57	59
B4. Other flows 3/	5	12	21	20	19	18	20	22	24	26	25	28	29	31	33	37	40	43	46	48	51
B5. Depreciation	5	3	1	-2	-4	-7	-8	-9	-10	-11	-14	-15	-16	-17	-18	-17	-16	-16	-15	-14	-14
B6. Combination of B1-B5	5	11	10	3	3	2	4	7	9	12	11	14	16	19	22	26	29	33	37	40	43
C. Tailored Tests																					
C1. Combined contingent liabilities	5	6	6	5	4	4	6	8	11	13	13	15	18	20	23	27	31	34	38	41	45
C2. Natural disaster	5	19	19	19	19	19	21	24	27	30	31	34	38	41	45	50	55	59	64	68	73
C3. Commodity price	5	9	17	26	34	41	51	60	70	79	86	96	106	117	127	138	149	160	170	180	190
C4. Market Financing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
TOTAL public debt benchm:	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
PV of Debt-to-Revenue Ratio																					
Baseline	4	4	3	3	2	2	4	6	9	11	11	14	16	19	22	26	30	34	38	42	45
A. Alternative Scenarios																					
A1. Key variables at their historical averages in 2021-2031 2/	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B. Bound Tests																					
B1. Real GDP growth	4	7	11	17	23	29	38	47	56	66	73	84	95	106	118	130	143	155	167	179	191
B2. Primary balance	4	10	15	14	13	13	15	17	19	22	22	24	27	29	32	36	40	44	47	51	54
B3. Exports	4	16	34	33	32	31	33	35	37	40	39	42	43	45	46	49	52	55	58	60	63
B4. Other flows 3/	4	12	19	18	17	19	21	24	26	26	28	30	32	34	38	41	45	48	51	55	55
B5. Depreciation	4	3	1	(2)	(4)	(6)	(8)	(9)	(10)	(11)	(14)	(15)	(17)	(18)	(19)	(18)	(17)	(16)	(16)	(15)	(15)
B6. Combination of B1-B5	4	10	9	3	2	2	4	7	9	12	11	14	17	20	22	27	31	35	39	42	46
C. Tailored Tests																					
C1. Combined contingent liabilities	4	6	5	5	4	4	6	8	11	13	13	16	18	21	24	28	32	36	40	44	48
C2. Natural disaster	4	18	17	18	18	18	21	24	27	30	31	35	38	42	46	52	57	62	67	72	77
C3. Commodity price	4	9	16	25	32	40	49	59	69	79	87	98	109	120	131	144	156	168	180	191	202
C4. Market Financing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Debt Service-to-Revenue Ratio																					
Baseline	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	2
A. Alternative Scenarios																					
A1. Key variables at their historical averages in 2021-2031 2/	1	1	1	0	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(1)	(1)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
B. Bound Tests																					
B1. Real GDP growth	1	1	1	1	1	1	1	1	1	1	2	2	2	3	3	4	4	5	6	7	8
B2. Primary balance	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3
B3. Exports	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3	3	4	4
B4. Other flows 3/	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3
B5. Depreciation	1	1	1	0	0	0	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(1)	(2)	(2)	(2)	(2)	(1)	(1)	(1)
B6. Combination of B1-B5	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	2	2
C. Tailored Tests																					
C1. Combined contingent liabilities	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	2
C2. Natural disaster	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3
C3. Commodity price	1	1	1	1	1	1	1	1	1	2	2	2	3	3	4	4	5	6	7	8	9
C4. Market Financing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Sources: Country authorities; and staff estimates and projections.

1/ A bold value indicates a breach of the benchmark.

2/ Variables include real GDP growth, GDP deflator and primary deficit in percent of GDP.

3/ Includes official and private transfers and FDI.