

TUVALU

JOINT WORLD BANK-IMF DEBT SUSTAINABILITY ANALYSIS

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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. The projection horizon was extended to 20 years to capture the impact of natural disasters and climate change on debt dynamics.

Tuvalu remains at a high risk of debt distress, unchanged from the 2021 Debt Sustainability Analysis (DSA). Consistent with the previous DSA, judgment was applied to extend the projection horizon to 20 years as opposed to the standard 10 years. This is to adequately capture Tuvalu’s vulnerability to natural disasters and the effects of climate change on debt dynamics. While the government’s fiscal position remained favorable in 2022, under current policies Tuvalu is projected to face persistent fiscal deficits going forward and high levels of debt relative to the 2021 DSA. The mechanical external and overall risk rating is moderate based on the first 11 years of projections since none of the debt burden indicators breach their thresholds² under the baseline, and the Present Value (PV) of external and public debt-to-GDP ratio breach their thresholds under the stress tests. However, these ratios are projected to breach indicative thresholds under the baseline scenario in the long run triggering a final external and overall high risk of debt distress. Despite upward trending debt burden indicators, Tuvalu’s debt is assessed as sustainable. This assessment assumes a continued access to external budget support on concessional terms from the development partners, low

¹ This DSA has been prepared jointly by the IMF and World Bank, following the Guidance Note on the Bank-Fund Debt Sustainability Framework for Low Income Countries (2018).

² Tuvalu’s Composite Indicator (CI) index indicates that the country’s debt-carrying capacity remains weak (2.58) based on the IMF’s April 2023 World Economic Outlook (WEO) and the 2021 World Bank Country Policy and Institutional Assessment (CPIA).

debt service ratios throughout the projection horizon, and limited cash buffers in the Consolidated Investment Fund (CIF) to finance deficits. Risks to debt sustainability remain high due to elevated current spending, high reliance on volatile fishing revenues and grants, and risks of natural disasters. This underscores the importance of reining in fiscal deficits, improving public financial management and implementing structural reforms to ensure sustainable, inclusive, and resilient growth, also ensuring good cooperation with donors and securing grants needed to fulfill the country's large development needs and climate adaptation efforts.

PUBLIC DEBT COVERAGE

1. Tuvalu's liabilities covered in this Debt Sustainability Analysis comprise concessional and commercial debt of the central government (Text Table 1). There is no sub-national government structure in Tuvalu, no central bank and no domestic debt is issued by the government. Public debt bulletins are currently not publishing SOE debt that is implicitly guaranteed by the government. This debt, in the form of lines from credit extended to Tuvalu's non-financial SOEs by the National Bank of Tuvalu (NBT), stood at 3.5 percent of GDP in 2021.³ 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 the corporations are wholly owned by the government. Thus, this debt is included in the baseline definition of public debt. The definition of external and domestic debt is based on residency. Bilateral donors provide only grant assistance, while multilateral development institutions (like ADB) provide both grants and concessional lending. All external debt is on a concessional basis.

2. Substantial progress has been achieved in debt reporting and transparency, but recent reporting has been delayed by the pandemic. The World Bank January 2022 Debt Reporting and Transparency Heat Map rated Tuvalu with the highest mark ("Green") for four indicators, compared to none in the previous report. The update reflected improvements in data accessibility and breadth with the publication of the inaugural annual public debt bulletin in September 2021. However, the 2023 heatmap rendered Tuvalu "Red" on most indicators as preparation of the second public debt bulletin was considerably delayed due to the pandemic. SOE debt publication has been hindered by pandemic related delays in audits, which have now been completed.

3. The DSA includes a combined contingent liabilities stress test aimed at capturing the public sector's exposure to a financial market shock (Text Table 2). The justification of the calibration of the contingent liability shock is as follows. The SoE's debt shock has been reduced to 0 percent of GDP because the government-guaranteed and non-guaranteed debt is captured in the baseline under the country's public debt definition. The Public Private Partnerships (PPPs) shock is set to zero as there are no PPPs in Tuvalu. Thus, the contingent liabilities stress test is based on the default values for the financial market component (5 percent of GDP) because the financial sector in Tuvalu is very limited, comprising two banks and the public sector pension fund, where both the largest bank and the pension are relatively well capitalized based on the latest data (2021).

³ Publication of SOE debt was included in Debt bulletins since 2020.

Text Table 1. Tuvalu: Debt Coverage

Subsectors of the public sector		Sub-sectors covered
1	Central government	X
2	State and local government	
3	Other elements in the general government	
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)	
8	Non-guaranteed SOE debt	X

Text Table 2. Tuvalu: Contingent Liabilities Stress Test

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	Included in baseline
4 PPP	35 percent of PPP stock	0.0	No PPP present.
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

BACKGROUND ON DEBT

4. Tuvalu is one of the smallest, most remote, and climate change-vulnerable countries in the world, and is categorized as an FCS country. Tuvalu has a GDP of US\$60 million in 2022 and a population of 11,792 in 2020. It has underdeveloped structural economic conditions and is heavily dependent on international grants and the donor-financed Tuvalu Trust Fund (TTF) reserves to absorb shocks. Income derives primarily from fishing license fees, .tv internet domain licenses, trust fund investments, foreign aid, and remittances. The public sector dominates the economy. Use of the Australian dollar as legal tender and a very small financial sector make fiscal policy critical. Tuvalu is one of the most vulnerable climate-change exposed countries in the world. Natural disasters disrupt fiscal planning and substantially alter budgeted outcomes.

5. Total public debt as of end-2022 stood at 10.1 percent of GDP (Text Table 3), up by 2.8 percentage points since the 2021 DSA. Debt incurred by public entities that has been explicitly guaranteed by the government has been repaid in full in 2018. There are no sub-government structures in Tuvalu. Bilateral donors provide only grant assistance, while multilateral development institutions (like ADB) provide both grants and concessional lending. Future lending is assumed to be concessional, and equally split between the ADB and other multilateral institutions, in line with the authorities' intention to adhere to IDA's requirement of zero non-concessional ceiling on contracting new external debt. Tuvalu's

debt is long-term: the International Cooperation Development Fund (ICDF - from Taiwan, China) loan has a 10-year maturity while the ADB loans are projected to mature by 2037. The ICDF loan is included in the DSA as external debt, in contrast to the 2021 DSA – without this definitional change the debt level would be *lower* by 0.2 percentage points relative to the previous DSA.⁴ External debt levels have been on a downward trajectory in the past decade from a high of 21 percent of GDP in 2010 to 10.1 percent as of end-2022. This has been enabled by building up the value of the CIF and its use to fund deficit spending. Debt levels are expected to rise faster than the 2021 DSA (Figure 3) due to weaker real GDP growth and a 12 percent of GDP drop in the stock of the CIF in 2023. This permitted a six-year period of drawdowns of the CIF in the previous projections before hitting the government’s maintenance threshold, whereas the current level of the CIF only permits a single year of drawdown in 2025 in the current projections. Promoting fiscal sustainability in the medium term will require and building buffers by mobilizing revenues and rationalizing current expenditures

Text Table 3: Tuvalu’s Public and Publicly Guaranteed Debt

Public Debt						
Lender	2020	2021	2022	2020	2021	2022
	(In millions of AUD)			(Percent of GDP)		
ADB	4.1	3.8	3.4	5.4	4.7	4.0
ICDF	2.8	2.7	2.5	3.7	3.4	2.9
Loan currency	(In millions of AUD)			(Percent of GDP)		
USD	3.7	3.4	3.0	5.0	4.2	3.5
SDR	3.2	3.1	2.9	4.2	3.8	3.4
Total	6.9	6.4	5.9	9.2	8.0	6.9
Publicly Guaranteed Debt						
	(In millions of AUD)			(Percent of GDP)		
Tuvalu Electric Corporation	0.9	1.1	1.1	1.2	1.4	1.3
Tuvalu Telecom Corporation	1.3	1.6	1.6	1.8	2.0	1.8
Tuvalu Broadcasting	0.0	0.0	0.0	0.0	0.0	0.0
Tuvalu Philatelic	0.0	0.0	0.0	0.0	0.0	0.0
	2.3	2.8	2.7	3.1	3.5	3.1
Total Debt	9.1	9.2	8.6	12.2	11.5	10.1
Sources: Tuvaluan authorities; and IMF staff estimates.						

⁴ The ICDF debt was excluded from the 2021 DSA since a Memorandum of Understanding (MoU) between Taiwan, China and the government of Tuvalu includes a grant which covers part of the repayment of the debt. However, this is added back in the current DSA because treating the ICDF debt as external debt and recording the grant inclusive of the portion intended to cover this repayment in government revenue, is considered more transparent and is a more robust way to capture any change in the MoU between the countries.”

6. Tuvalu’s external assets remain sizable but are not fully available to meet fiscal needs. The market value of the Tuvalu Trust Fund (TTF) rose in 2021 by 12 percent to the highest level on record (261 percent of GDP). However, following the downturn in global equity markets in 2022, the TTF’s value ended 2022 down by 7 percent y/y. By end 2022 the CIF stood at 42.6 percent of GDP. The downturn in the TTF’s value in 2022 entails that no distribution to the CIF (which can be used for fiscal space) can be made this year, similar constraints are binding should returns remain below their maintenance level (see text box 1).

Text Box 1: The Structure of Tuvalu’s Trust Funds

Tuvalu Trust Fund (TTF) is a sovereign wealth fund that is owned by Tuvalu but is administered by an international Board and the government of Tuvalu. When TTF’s value exceeds its “maintained value”, linked to the Australian CPI, the excess funds are transferred to the Consolidated Investment Fund (CIF, below), and can be freely drawn upon by the Tuvalu’s government to finance budgetary expenditures. Any additional transfers from TTF to CIF can only be done with the agreement of the two-thirds of the TTF’s Board.

The Consolidated Investment Fund (CIF) is a buffer fund under a full control of the Tuvaluan government. It serves as a repository of TTF’s automatic distributions. The government targets a CIF balance of a minimum of 16 percent of TTF maintained value as a precaution against sustained downturns that can lower TTF’s market value.

Tuvalu Survival Fund (TSF) is a climate adaptation fund. It was established in 2015 by Tuvalu’s government to finance recovery and rehabilitation from natural disasters as well as investments in mitigation and adaptation projects. The TSF is to be used to augment multilateral funding for climate change investments and environmental protection, e.g. the GCF, Adaptation Fund (AF), or the Global Environment Fund (GEF).

The Tuvalu Development Fund (TDF) is a fund under the management of the Ministry of Finance and Economic Development to collect donor funds that are earmarked for off-budget projects, primarily infrastructure. The allocation is motivated by the fact the not all these funds are spent in a given fiscal year.

BACKGROUND ON MACRO ASSUMPTIONS

7. The baseline assumptions underpinning the DSA are as follows:

- **Economic growth.** After a pandemic-induced slowdown in growth in 2020 (-4.3 percent) and weak recovery in 2021 (1.8 percent) and 2022 (0.7 percent) a more significant rebound is expected in 2023 (3.9 percent) and 2024 (3.5 percent). A gradual return to trend growth takes place after 2025, as the re-opening dividend fades. The recovery in 2023 is premised on the reopening of the island in December 2022, elevated current spending, a resumption of infrastructure projects that were paused due to COVID-19 and full disbursement of donor funding. Longer term growth is expected to fall below 2 percent, primarily driven by capital investment and sluggish TFP growth, remaining

relatively low given the dominance of inefficient public enterprises, capacity constraints, outward migration and weak competitiveness. Growth projections of slightly below 2 percent are considered to be consistent with a cost of natural disasters and climate change, at 0.8 percent of GDP on average.

- **Inflation.** CPI Inflation rose sharply in 2022 to 11.5 percent on the back of elevated imported food inflation with global food prices and a weaker Australian dollar. GDP deflator inflation also rose in 2022 to a more moderate 5.5 percent, in part due to the substantial share of imported goods in CPI inflation. The GDP deflator is expected to rise in 2023 to 6 percent due to the high public sector wage growth. CPI Inflation is expected to moderate to 3.7 percent by 2024 as global inflation pressures subside and is projected to moderate to 2 percent in the medium term similar to the 2021 DSA assumption. The GDP deflator is also expected to settle close to 2 percent in the medium term. Both CPI and the GDP deflator medium term values are assumed to converge to Australian inflation, given the country is dollarized.
- **Balance of payments.** After large surpluses during the pandemic lockdown, the current account (CA) surplus is projected to decline to 3.0 percent of GDP in 2023 as infrastructure projects restart. Fishing license revenues are expected to recover only slowly from the pandemic, primarily in 2024. As noted above the TTF performance has been qualitatively in line with global stock markets, generating a 12 percent return in 2021 but a 7 percent decline in 2022. Over the medium term, the current account turns into deficit, in line with developments in the fiscal balance (see below). Imports are projected to fall from their peak in 2024 but remain elevated due to the ongoing infrastructure investment. Exports of goods and services (including fishing licenses) are projected to remain at around 58 percent of GDP in the medium and long term. Foreign direct investment is projected to remain limited.
- **Fiscal balance.** The primary fiscal balance improved to a surplus of 9.1 percent of GDP in 2022 due to a large World Bank grant expected in 2021, arriving in early 2022.⁵ A small primary fiscal surplus of 1.2 percent is expected in 2023 as new grants from Taiwan, China and Australia⁶ offset current expenditures that became elevated during the pandemic and remain high. The elevated current expenditures in 2023 are driven by high public sector wage growth as well as the Tuvalu Overseas Medical Referral Scheme (TOMRS). In the medium term, fishing license revenues are projected to plateau at 42 percent of GDP, in line with uncertain weather patterns and the already-high price of fishing licenses that make large future increases unlikely. Fees from the .tv license are projected to fall to 5 percent of GDP given the increasing use of other internet domains. Foreign grants are projected to decline to around 22 percent of GDP (currently exceptionally high at 43 percent, due in part to large one-off grant from Australia) 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 115 percent of GDP (five-year average) to around 103 percent of GDP. Spending on public sector wages, Tuvalu Overseas

⁵ Without which it would have been a deficit of 4.3 percent of GDP.

⁶ The current account has also improved in line with the improved fiscal balance, driven by these two large grants (from Australia, which is once-off, and Taiwan, China which is recurring).

Medical Referral Scheme (TOMRS), and scholarship programs is projected to stay elevated, crowding out infrastructure investment, and leading to widening of the general government deficit to just under 10 percent of GDP by 2043.

- **Government borrowing.** The 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. When CIF transfers are insufficient to fund the deficit, the authorities are projected to borrow externally on concessional terms. The Government is adhering to a zero non-concessional borrowing, as per IDA Sustainable Development Financing Policy (SDFP).

8. Realism tools suggests that projections are reasonable (Figures 3 and 4). The paths for public and external debt are projected to rise faster than in the 2021 DSA due to weaker economic growth assumptions as well as well as a lower stock of fiscal buffers when deficits start in 2025 (see Text Table 4). The current account, which is highly volatile in a small, fragile economy like Tuvalu, is the main component behind unexpected changes in external debt dynamics. Note that new BOP data have been issued by the authorities covering the years 2013 to present which also accounts for differences from the 2021 DSA (when those data were estimated). A volatile current account was also the most significant driver behind unexpected changes in debt levels in the 2021 DSA. Large residuals are explained by historic financing of the deficit by the CIF. Staff baseline macroeconomic projections incorporate only a brief period of rebound in growth following the re-opening in 2023 and then assume growth returns to potential of just below 2 percent thereafter. This assumption is based on significant structural challenges such as remoteness raising the costs of doing business/trading with the rest of the world, low access to credit, the dominance of the public sector and weak private sector growth. The paths for fiscal adjustment and growth use the last year of data, 2022, where growth was still very weak due to the pandemic and assume a persistence parameter of 0.6. This helps keep the baseline growth response to fiscal expansion in 2023 relatively muted (see figure 4). Capital investment projects are assumed to be supported by donor financing, through the Tuvalu Development Fund (TDF, see Text Box 1) reducing the burden on government revenues.⁷ Capital expenditures are expected to remain close to 25 percent in the long term, supporting development goals and climate change adaptation.

⁷ Capital expenditures are defined as infrastructure projects that are financed by the TDF given the significant scale of these investments. We project steady-state capital expenditures of 25 percent of GDP. The 2021 DSA did not include TDF projects in capital expenditure. The 2021 DSA projected capital expenditures to fall from 41 percent in 2021 to only 14 percent in 2041.

Text Table 4. Tuvalu: Baseline Macroeconomic Assumptions
(In percent of GDP)

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2011-21 Historical Average	2022-2032 Average
Current DSA											
Real GDP (in Percent)	-4.3	1.8	0.7	3.9	3.5	2.4	2.2	2.1	2.0	3.7	2.2
GDP Deflator, (percent)	0.2	14.0	-2.4	5.7	3.2	3.1	2.5	3.2	3.0	1.5	2.6
Current Account Balance (in percent of GDP)	16.3	24.1	4.6	2.3	-1.3	-4.3	-4.8	-5.3	-4.8	-3.4	-2.8
Total Revenue (in percent of GDP)	5	-11	7	0	1	-4	0	0	0	6	0
Total Expenditure (in percent of GDP)	12	6	7	7	7	7	7	7	7	10	7
Domestic Current Balance*	0.0	2.5	3.3	1.4	1.4	1.4	1.4	1.4	1.4	0.6	1.6
Exports incl. Fishing licenses (in percent of GDP)	64.8	53.8	49.4	47.5	58.7	58.5	59.8	59.9	60.0	31.1	58.2
Imports (in percent of GDP)	110.0	106.3	97.2	117.2	120.4	120.2	120.8	121.0	120.0	129.4	117.8
Primary Fiscal Balance	8.3	-13.5	9.1	1.2	1.2	-3.2	-3.8	-4.3	-4.8	9.2	-2.5
Fiscal Balance	10.1	20.7	9.5	9.8	9.7	10.2	10.5	10.7	10.9	7.3	10.5
Previous DSA											
Real GDP (in Percent)	1.0	2.5	3.5	3.8	4.0	3.8	3.7	3.5	3.2	4.2	3.3
GDP Deflator, (percent)	0.4	14.2	3.6	3.4	3.2	3.3	3.1	3.1	3.0	2.5	2.9
Current Account Balance	3.8	-4.2	-4.1	-3.3	-3.3	-3.1	-3.0	-2.8	-1.0	-12.4	-2.2
Total Revenue (in percent of GDP)	121	122	107	107	106	105	103	102	101	115	99
Total Expenditure (in percent of GDP)	117	129	110	110	109	109	108	107	107	105	107
Domestic Current Balance*	-41.0	-55.6	-55.6	-55.3	-55.2	-55.0	-54.5	-54.4	-54.2	-42.0	-54.5
Exports incl. Fishing licenses (in percent of GDP)	66.3	54.2	55.3	53.8	53.8	53.8	53.8	53.8	53.8	60.4	53.9
Imports (in percent of GDP)	126.0	116.4	115.2	114.8	114.6	113.0	111.0	108.9	105.5	140.1	108.3
Primary Fiscal Balance	5.0	-6.9	-2.7	-2.6	-3.2	-4.0	-4.5	-5.2	-5.4	8.5	-4.6
Fiscal Balance	5.0	-7.0	-2.8	-2.6	-3.2	-4.1	-4.5	-5.2	-5.4	9.2	-4.7

Source: Country Authorities, IMF Staff estimates

*The fiscal balance excluding fishing license fees and grants, and capital revenues and expenditures.

COUNTRY CLASSIFICATION AND DETERMINATION OF SCENARIO STRESS TESTS

9. **Tuvalu's debt-carrying capacity is classified as weak (Text Table 5).** The rating is based on the Composite Indicator (CI) index, calculated using the April 2023 WEO data and the World Bank's 2021 Country Policy and Institutional Assessment (CPIA). The CI stands at 2.59, indicating that the country's debt-carrying capacity is weak in the LIC-DSA framework. The CI index in the 2021 DSA was 2.62, also consistent with a weak rating.

Text Table 5. 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	2.861	1.10	43%
Real growth rate (in percent)	2.719	2.808	0.08	3%
Import coverage of reserves (in percent)	4.052	57.963	2.35	91%
Import coverage of reserves ² (in percent)	-3.990	33.597	-1.34	-52%
Remittances (in percent)	2.022	0.794	0.02	1%
World economic growth (in percent)	13.520	2.856	0.39	15%
CI Score			2.59	100%
CI rating			Weak	

10. **Based on the CI rating, Tuvalu's debt is assessed against the lowest threshold designated in the context of the LIC DSA (Text Table 6).** With "weak" rating, Tuvalu is assessed against a threshold

of 35 percent for the PV of total public debt-to-GDP ratio. The other two indicators, the PV of PPG external debt-to-exports ratio and the PPG external debt service-to-exports ratio remain well below their respective threshold values due to the combination of concessional debt, and thus lower debt service costs, and the inclusion of fishing license revenues in the definition of exports. The latter is done in order to better represent foreign exchange earnings to meet external debt obligations and is consistent with the definition of exports in the 2021 DSA.

Text Table 6. 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

11. Besides the six standardized stress tests, the analysis incorporates three tailored stress tests and three customized scenarios. They include the contingent liabilities, natural disasters and commodity price. The combined contingent liabilities stress test is described in paragraph 3 above. A natural disaster stress test was also applied, calibrated at a one-time 30 percent of GDP shock to the external debt-to-GDP ratio, a one-off 2 percentage points decline in real GDP growth and the standard 3.5 percentage points shock on exports growth. This tailored stress test was customized in line with the impact of Cyclone Pam in 2015. In addition, the commodity price shock is triggered since commodity exports equal 30 percent of total exports over the previous three-year period. The calibration of the commodity price shock corresponds to default values generated by the DSA template because Tuvalu has limited ability to insure against these price swings (and would thus face the full extent of a one standard deviation shock from current price levels) In addition, three customized scenarios were implemented a fiscal adjustment scenario, a fishing licenses revenue shock and a scenario with strong TTF returns. These are described in paragraph 15 below.

DEBT SUSTAINABILITY

BASELINE SCENARIO

12. Tuvalu's risk ratings for both external and public debt indicate a high probability of debt distress in the long-term. Although, the mechanical external and overall risk rating is moderate based on the first 11 years of projections,⁸ the final external and overall risk of debt distress is assessed to be high given that the PV of both public and external debt-to-GDP ratios breach their respective thresholds from 2036 onwards. The projection horizons have been extended to 20 years -beyond the standard ten-years-

⁸ In the first 11 years of the projection horizon none of the debt burden indicators breach their thresholds under the baseline, and the PV of external and public debt-to-GDP ratio breach their thresholds under the stress tests.

To account for Tuvalu's vulnerability to natural disasters and the effects of climate change on debt dynamics.

13. Under the baseline scenario, the PV of both the external and public debt breach their indicative debt-to-GDP thresholds. Public and external debt is projected to breach the relevant threshold by 2036. The debt trajectory shows steady increases that reflect persistent deficits due to elevated current spending and the need for external funding for infrastructure projects amid declining revenues. Staff assume 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 limited small size and persistently low asset quality of the domestic banking system. Borrowing is assumed to be conducted on concessional terms over the entire forecast horizon. As a result, the debt service-to-revenue ratio remains very low, peaking at 3 percent, well below the 14 percent of the revenues-to-GDP threshold.

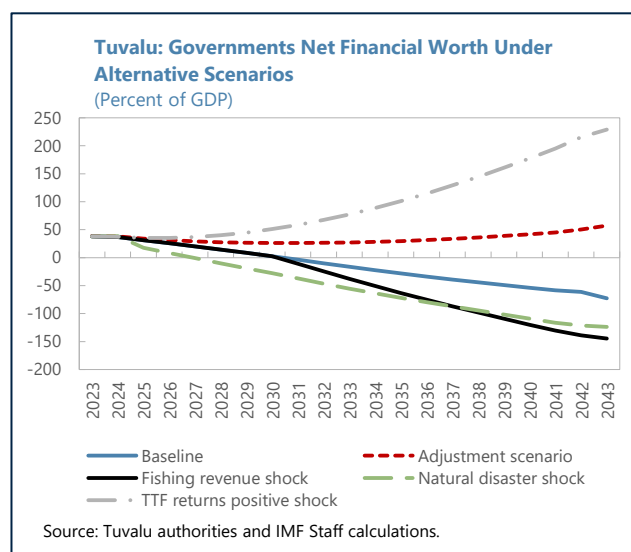
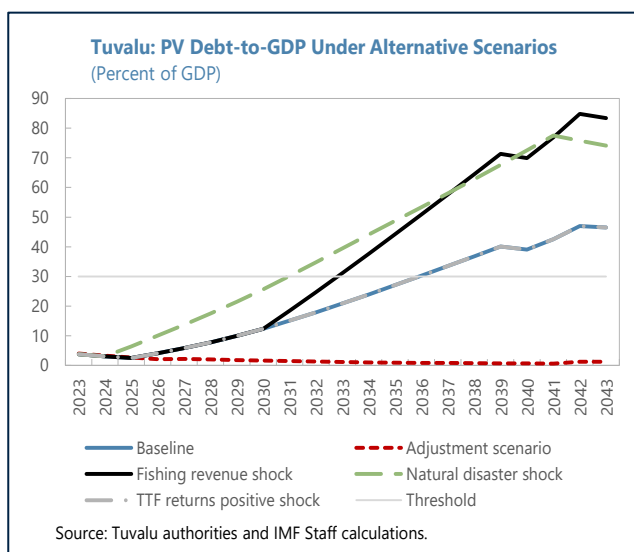
14. Stress tests to both external and public sector debt indicate that debt ratios are highly sensitive to exports, natural disaster and commodity price shocks. We customize the natural disaster shock to be 30 percent of GDP, in line with the impact of Cyclone Pam in 2015. This would result in the present value of Debt-to-GDP rising above the threshold of 30 percent by 2028 and remaining above that level for the remainder of the projection period, however debt service levels would remain well below the 14 percent threshold due to current low debt levels and concessional terms for new debt. A standard export shock results in a very large increase in debt-to-exports and debt service-to-exports crossing the relevant thresholds in 2024 and 2025, respectively. The definition of exports in the DSA includes fishing license revenues, thus the exports shock implies a large drop in this key revenue source and abrupt and large increases in debt. A standard commodity price shock would lead public debt-to-GDP to rise above 30 percent by 2026 due to the high dependence on imported fuel. However, debt service levels remain below the 14 percent threshold under a commodity price shock.

ALTERNATIVE SCENARIOS

15. 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:

- **Adjustment scenario.** Authorities pursue a fiscal anchor of 40 percent deficit for the domestic current balance through the unwinding of the sharp increase in goods and services spending of 2021; reducing spending on the TOMRS rationalizing overseas scholarships; reviewing all subsidies, replacing untargeted ones with means-tested transfers while phasing out price controls. This would raise domestic buffers to 60 percent of GDP by 2043. Such buffers would be sufficient to cover most shocks, including a sharp fall in fishing revenues and a natural disaster shock.
- **Fishing licenses revenue shock.** Fishing licenses revenue falls to 35 percent of GDP (from 42 percent) after 2031 to reflect climate shocks that could affect tuna stocks. This shock would widen the deficit by 7.3 percent of GDP in 2031 and push the deficit to 18 percent by 2043.

- Natural disaster.** We consider a natural disaster shock based on a cyclone similar in scale to the 2015 Cyclone Pam hitting the island in 2024, causing a damage of 30 percent of GDP.⁹ Recovery and rehabilitation programs are projected to take five years, widening the fiscal deficit to 9.5 percent of GDP in 2029, (compared to 5 percent of GDP in the baseline) and add around 3 percent to the deficit in 2032-36. The higher fiscal deficits would accelerate the depletion of fiscal buffers, causing the present value of debt-to-GDP to breach its threshold by 2031 resulting in a high mechanical risk of debt distress.
- Strong TTF returns.** Baseline projections assume performance of the TTF is in line with Australian CPI. This scenario supposes that TTF returns exceed that inflation benchmark by 1 percent. This creates additional fiscal space through transfers to the CIF and reduces debt to below 1 percent by 2032. The TTF and CIF are 186 and 99 percent of GDP, respectively, by 2035 (versus 164 and 21.5 percent in the baseline). Thus, strong returns in the TTF translate into a large sovereign fund (CIF), creating significant fiscal space.



RISK RATING AND VULNERABILITIES

16. Tuvalu remains at high risk of debt distress, similar to the conclusion of the 2021 DSA. Under the baseline scenario, Tuvalu would face persistent budget deficits due to elevated current spending and the need to maintain infrastructure spending while fishing revenues and grants do not grow fast enough to offset growth in expenditures. Due to the weak performance of the TTF in 2022, no deposit could be made into the CIF and projected deficits would entail an increase in concessional debt as soon as 2026. The debt trajectory highlights the importance of raising the domestic current balance (revenues less expenditures excluding grants, fishing revenues and capital expenditures) to lower the risk of debt distress

⁹ The GDP estimate for this shock taken from the 2021 Tuvalu Article IV and is consistent with estimates published by the World Bank (<https://www.worldbank.org/en/news/press-release/2015/09/15/tuvalu-gets-continued-support-for-cyclone-pam-recovery>).

while creating fiscal space to maintain buffers and allow for climate adaptation efforts.¹⁰ Two prominent climate adaptation projects are the Tuvalu Coastal Adaptation Project (TCAP), financed by the Green Climate Fund and currently underway, which is a land reclamation project and raised sea wall; the Long Term Adaptation Plan (L-TAP) aims to create raised, safe land, provide safe drinking water and renewable energy¹¹. Higher spending efficiency and domestic revenue mobilization efforts would help.

17. Despite the risk rating, debt is assessed as sustainable, given concessional sources and low debt service burden. Despite remaining in permanent breach of the debt-to-GDP threshold after 2035, debt is assessed as sustainable primarily because all debt is on concessional terms, and debt service indicators remain well below their relevant thresholds. Indeed, the debt-to-GDP threshold is only breached after 13 years. Projections for a 20-year period are inherently uncertain especially so in the case where data quality is low, suggesting further down weighting is appropriate for far off horizons when assessing sustainability.

AUTHORITIES' VIEWS

18. The authorities agreed with the DSA assessment. The long run risks associated with climate change pose significant risks to debt sustainability as do large natural disasters. However, no new debt has been taken on since 2019 and overall external debt has been decreasing in recent years. The elevated domestic current deficit has been driven by exceptional items such as the once-in-50-year land-lease renegotiation as well as the restructuring of the public sector pay in 2023. Going forward current expenditure is expected moderate and support macro-fiscal sustainability.

19. The authorities noted that, to mitigate risks, they do not plan to incur any new non-concessional debt over short- to medium-term in line with the IDA SDFP for FY2023. To promote transparency on contingent liabilities, the authorities has institutionalized, in April 2023, the annual disclosure of fiscal risks – the second FY23 Performance and Policy Action under SDFP.¹² The fiscal risk reports will be prepared using an incremental coverage approach,¹³ and published as a stand-alone report on the Ministry of Finance's (MOF) website. 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.

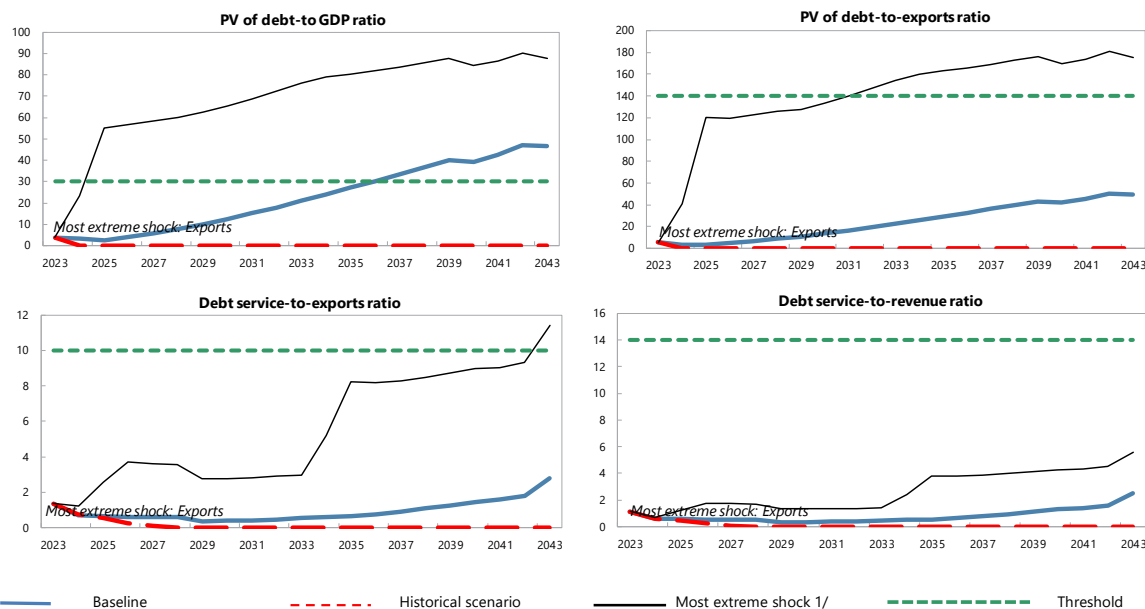
¹⁰ The Government of Tuvalu's Policy Reform Matrix May 2023 aims to pilot climate tagging for select ministries/departments for the 2024 budget and follow a phased approach for full implementation, with a goal to increase budget programs linked to Government's climate change priorities in the medium term. However, a large proportion of climate adaptation expenditure is donor funded and is off-budget - funded by the TDF -estimated between 25-50 percent of capital expenditures in a given year.

¹¹ Greater details on the TCAP and L-TAP can be found in the 2023 IMF Article IV, appendix I.

¹² While the authorities have completed the FY23 PPAs, the Bank's implementation assessment has not been completed yet.

¹³ Considering low capacity and assuming continued training of relevant staff, the first fiscal risk report will analyze debt-related risks and contingent liabilities of two SOEs. The authorities are expected to achieve full coverage for the report by 2027.

Figure 1. Tuvalu: Indicators of Public and Publicly Guaranteed External Debt under Alternative Scenarios, 2021-2043



Customization of Default Settings		
	Size	Interactions
Standardized Tests	Yes	
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.

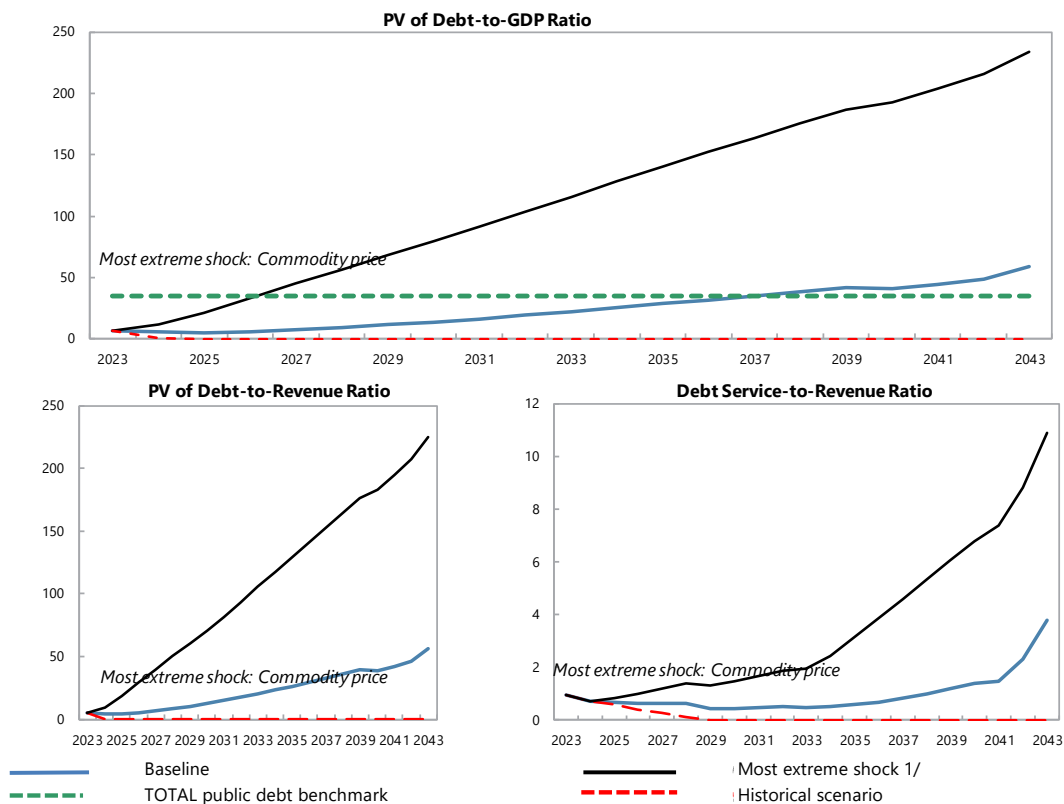
Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in or before 2033. 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.

3/ Because of Tuvalu's strong surpluses in the past and the current account is projected to deteriorate, the historical scenario does not produce meaningful results to assess risk of debt distress and therefore its results have been truncated at zero.

Figure 2. Tuvalu: Indicators of Public Debt Under Alternative Scenarios, 2023-2043



Borrowing assumptions on additional financing needs resulting from the stress tests*	Default	User defined
Shares of marginal debt		
External PPG medium and long-term	99%	99%
Domestic medium and long-term	1%	1%
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	-2.5%	-2.5%
Avg. maturity (incl. grace period)	12	12
Avg. grace period	0	0
Domestic short-term debt		
Avg. real interest rate	0.0%	0.0%

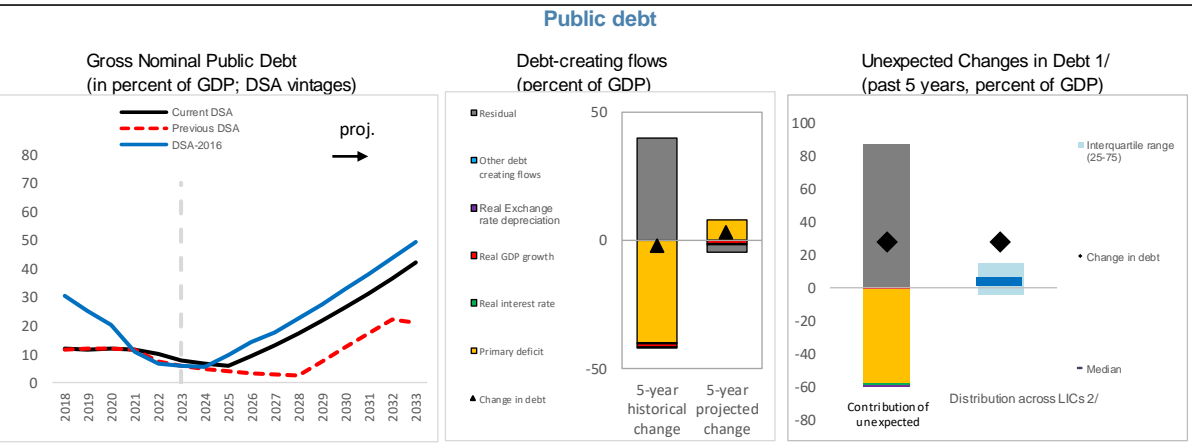
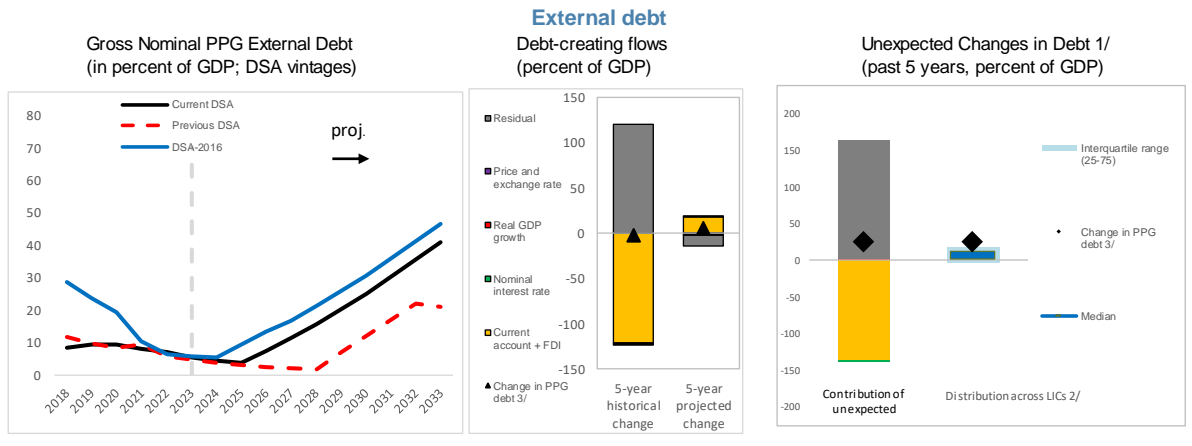
* Note: The public DSA allows for domestic financing to cover the additional financing needs generated by the shocks under the stress tests in the public DSA. Default terms of marginal debt are based on baseline 10-year projections.

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 2033. 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/ Because of Tuvalu's strong surpluses in the past and the fiscal balance is projected to deteriorate, the historical scenario does not produce meaningful results to assess risk of debt distress and therefore its results have been truncated at zero.

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

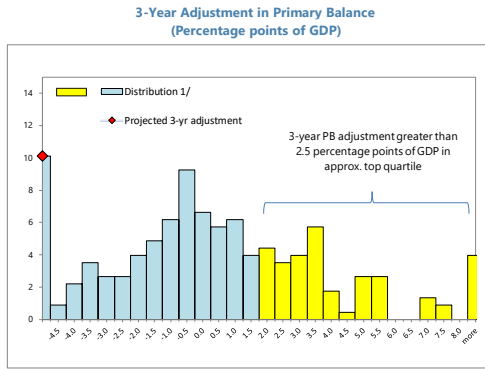


1/ Difference between anticipated and actual contributions on debt ratios.

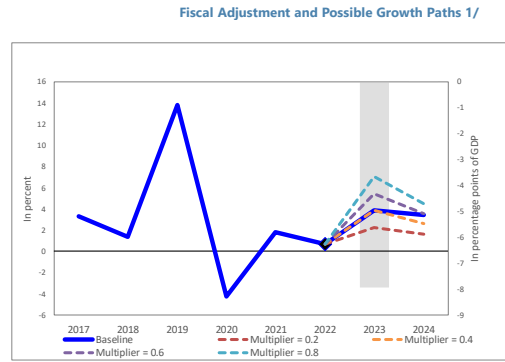
2/ Distribution across LICs for which LIC DSAs were produced.

3/ Given the relatively low private external debt for average low-income countries, a ppt change in PPG external debt should be largely explained by the drivers of the external debt dynamics equation.

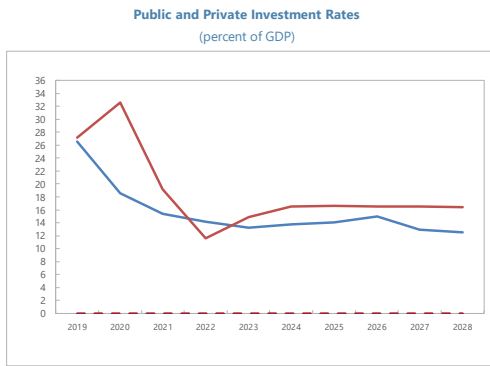
Figure 4. Tuvalu: Realism Tools



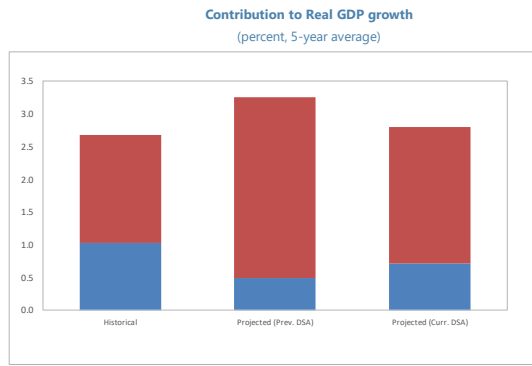
1/ Data cover Fund-supported programs for LICs (excluding emergency financing) approved since 1990. The size of 3-year adjustment from program inception is found on the horizontal axis; the percent of sample is found on the vertical axis.



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).



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

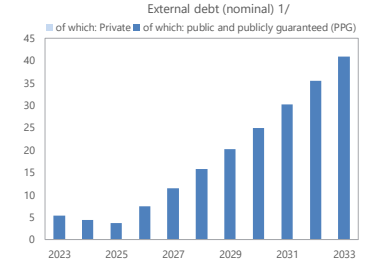
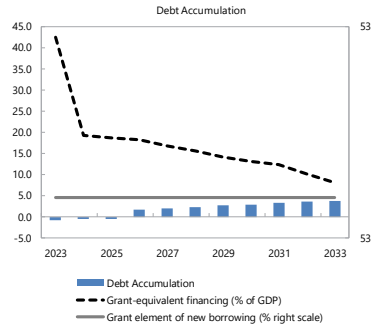


■ Contribution of other factors
 ■ Contribution of government capital

Table 1. Tuvalu: External Debt Sustainability Framework, Baseline Scenario, 2023-2043
(In percent of GDP, unless otherwise indicated)

	Actual			Projections								Average 8/	
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2033	2043	Historical	Projections
External debt (nominal) 1/	9.2	8.0	6.9	5.3	4.4	3.6	7.4	11.4	15.8	40.9	81.4	11.2	18.1
of which: public and publicly guaranteed (PPG)	9.2	8.0	6.9	5.3	4.4	3.6	7.4	11.4	15.8	40.9	81.4	11.2	18.1
Change in external debt	-0.2	-1.2	-1.1	-1.6	-0.9	-0.8	3.8	4.1	4.3	5.5	-3.0		
Identified net debt-creating flows	-23.4	-35.4	-6.5	-4.5	0.6	6.7	7.0	7.5	6.7	6.2	8.5	-12.4	4.6
Non-interest current account deficit	-23.9	-34.2	-6.7	-4.4	0.7	6.8	7.0	7.6	6.8	6.5	9.0	-12.2	4.8
Deficit in balance of goods and services	-17.8	0.1	-12.0	6.1	-8.9	-10.7	-14.2	-14.8	-15.7	-19.1	-20.5	-20.5	-13.9
Exports	93.9	71.5	71.1	68.9	86.0	86.4	89.1	89.6	90.0	92.7	94.1		
Imports	76.1	71.7	59.1	75.0	77.1	75.7	74.9	74.8	74.3	73.6	73.6		
Net current transfers (negative = inflow)	-53.9	-61.4	-38.5	-71.7	-61.5	-57.1	-55.9	-55.6	-55.4	-53.3	-47.3	-51.9	-57.1
of which: official	-56.5	-65.5	-41.7	-74.6	-64.1	-59.5	-58.2	-57.7	-57.4	-54.8	-48.1		
Other current account flows (negative = net inflow)	47.7	27.0	43.8	61.2	71.1	74.5	77.1	77.9	77.8	78.9	76.9	60.2	75.7
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	-1.2	0.2	-0.2	-0.1	-0.1	0.0	-0.1	-0.1	-0.3	-0.5	0.0	0.0
Contribution from nominal interest rate	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.4	0.9	0.9
Contribution from real GDP growth	0.4	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.6	-1.4		
Contribution from price and exchange rate changes	0.0	-1.1	0.2	...	...	...	...	...	...	...	...
Residual 3/	23.3	34.2	5.3	2.9	-1.5	-7.5	-3.2	-3.4	-2.3	-0.7	-11.6	11.2	-1.5
of which: exceptional financing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.3		
Sustainability indicators													
PV of PPG external debt-to-GDP ratio	...	...	4.9	3.8	3.1	2.5	4.1	5.8	7.8	20.9	46.5		
PV of PPG external debt-to-exports ratio	...	...	6.9	5.5	3.6	2.9	4.6	6.5	8.6	22.5	49.4		
PPG debt service-to-exports ratio	1.4	1.4	1.4	1.3	0.7	0.7	0.6	0.6	0.6	0.5	2.7		
PPG debt service-to-revenue ratio	1.3	1.1	1.1	1.1	0.6	0.6	0.5	0.5	0.6	0.5	2.5		
Gross external financing need (Million of U.S. dollars)	-11.7	-20.0	-3.4	-2.2	0.9	5.4	5.8	6.6	6.2	7.3	19.1		
Key macroeconomic assumptions													
Real GDP growth (in percent)	-4.3	1.8	0.7	3.9	3.5	2.4	2.2	2.1	2.0	1.8	1.8	3.6	2.3
GDP deflator in US dollar terms (change in percent)	0.2	14.0	-2.4	5.7	3.2	3.1	2.5	3.2	3.0	2.1	2.3	1.0	3.0
Effective interest rate (percent) 4/	0.8	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.5	1.0
Growth of exports of G&S (US dollar terms, in percent)	-7.9	-11.5	-2.4	6.4	33.3	6.1	8.1	5.9	5.5	4.1	4.2	18.6	8.2
Growth of imports of G&S (US dollar terms, in percent)	-13.5	9.3	-19.1	39.4	9.7	3.8	3.6	5.1	4.4	4.0	4.1	16.9	7.9
Grant element of new public sector borrowing (in percent)	...	...	...	52.6	52.6	52.6	52.6	52.6	52.6	52.6	52.6	...	...
Government revenues (excluding grants, in percent of GDP)	104.9	93.6	97.5	81.1	102.9	97.5	99.0	99.9	100.7	104.9	102.3	95.7	99.4
Aid flows (in Million of US dollars) 5/	17.5	9.8	18.2	27.7	13.4	13.6	15.6	15.4	15.3	12.0	3.0		
Grant-equivalent financing (in percent of GDP) 6/	...	...	...	42.6	19.3	18.6	18.2	16.8	15.5	8.2	1.6	...	17.2
Grant-equivalent financing (in percent of external financing) 6/	...	...	...	100.0	100.0	100.0	89.7	87.9	86.0	71.3	84.4	...	87.3
Nominal GDP (Million of US dollars)	52	60	59	65	69	73	77	81	85	105	156		
Nominal dollar GDP growth	-4.1	16.0	-1.8	9.8	6.7	5.6	4.8	5.3	5.1	4.0	4.1	4.5	5.4
Memorandum items:													
PV of external debt 7/	...	...	4.9	3.8	3.1	2.5	4.1	5.8	7.8	20.9	46.5		
In percent of exports	...	...	6.9	5.5	3.6	2.9	4.6	6.5	8.6	22.5	49.4		
Total external debt service-to-exports ratio	1.4	1.4	1.4	1.3	0.7	0.7	0.6	0.6	0.6	0.5	2.7		
PV of PPG external debt (in Million of US dollars)	...	...	...	2.9	2.5	2.2	1.8	3.1	4.7	6.6	21.9		
(PVt-PVt-1)/GDPt-1 (in percent)	...	...	...	-0.8	-0.5	-0.5	1.7	2.1	2.3	3.8	1.3		
Non-interest current account deficit that stabilizes debt ratio	-23.7	-33.1	-5.6	-2.7	1.6	7.5	3.3	3.5	2.4	1.0	12.1		

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



Sources: Country authorities; and staff estimates and projections.

1/ Includes both public and private sector external debt.

2/ Derived as $(r - g - p)(1 + g) + \sum_{t=0}^{T-1} (1 + g)^t (1 + p + g)$ 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.

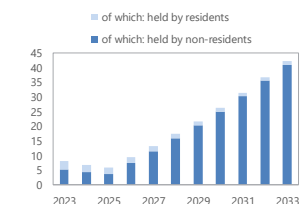
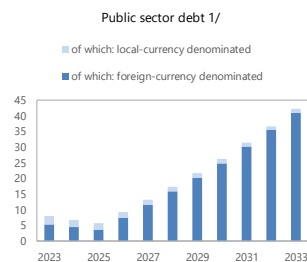
8/ Historical averages are generally derived over the past 10 years, subject to data availability, whereas projections averages are over the first year of projection and the next 10 years.

Table 2. Tuvalu: Public Sector Debt Sustainability Framework, Baseline Scenario, 2023-2043
(In percent of GDP, unless otherwise indicated)

(In percent of GDP, unless otherwise indicated)

	Actual			Projections							Average 6/		
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2033	2043	Historical	Projections
Public sector debt 1/	12.2	11.5	10.1	8.0	6.8	5.8	9.3	13.2	17.4	42.2	93.3	12.9	19.9
of which: external debt	9.2	8.0	6.9	5.3	4.4	3.6	7.4	11.4	15.8	40.9	81.4	11.2	18.1
Change in public sector debt	0.6	-0.6	-1.5	-2.1	-1.2	-1.0	3.5	3.9	4.2	5.5	7.6		
Identified debt-creating flows	-14.3	13.1	-9.4	-1.9	-1.7	2.8	3.5	3.9	4.3	5.5	7.9	-11.7	3.3
Primary deficit	-14.0	13.2	-9.4	-1.5	-1.4	3.0	3.6	4.1	4.6	6.5	8.8	-11.5	3.7
Revenue and grants	138.6	109.9	128.2	123.6	122.2	116.2	114.8	114.1	113.4	109.4	103.6	123.9	114.4
of which: grants	33.7	16.2	30.7	42.6	19.3	18.6	15.9	14.2	12.7	4.5	1.3		
Primary (noninterest) expenditure	124.7	123.0	118.8	122.2	120.8	119.2	118.4	118.3	118.1	115.9	112.4	112.4	118.2
Automatic debt dynamics	-0.4	0.0	0.0	-0.5	-0.3	-0.2	-0.1	-0.2	-0.3	-1.0	-0.9		
Contribution from interest rate/growth differential	0.5	-0.2	-0.2	-0.5	-0.3	-0.2	-0.1	-0.2	-0.3	-1.0	-0.9		
of which: contribution from average real interest rate	-0.1	0.0	-0.1	-0.1	0.0	0.0	0.0	0.0	-0.1	-0.3	0.5		
of which: contribution from real GDP growth	0.5	-0.2	-0.1	-0.4	-0.3	-0.2	-0.1	-0.2	-0.3	-0.7	-1.5		
Contribution from real exchange rate depreciation	-0.8	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	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	14.9	-13.7	7.9	-0.1	0.5	-3.9	0.1	0.0	-0.1	0.0	-0.2	10.7	-0.3
Sustainability indicators													
PV of public debt-to-GDP ratio 2/	...	...	8.2	6.5	5.5	4.7	6.0	7.6	9.4	22.2	58.5		
PV of public debt-to-revenue and grants ratio	...	...	6.4	5.3	4.5	4.0	5.2	6.6	8.3	20.3	56.5		
Debt service-to-revenue and grants ratio 3/	1.0	1.2	1.0	1.0	0.7	0.7	0.6	0.6	0.6	0.5	3.8		
Gross financing need 4/	-12.6	14.5	-8.1	-0.3	-0.6	3.8	4.3	4.9	5.4	7.1	12.7		
Key macroeconomic and fiscal assumptions													
Real GDP growth (in percent)	-4.3	1.8	0.7	3.9	3.5	2.4	2.2	2.1	2.0	1.8	1.8	3.6	2.3
Average nominal interest rate on external debt (in percent)	0.8	1.1	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.5	1.0
Average real interest rate on domestic debt (in percent)	-0.9	1.5	-0.7	-1.2	0.8	0.8	1.3	1.5	1.7	-2.1	105.4	-2.7	0.9
Real exchange rate depreciation (in percent, + indicates depreciation)	-8.3	2.3	2.2	...	...	...	...	...	...	...	...	1.6	...
Inflation rate (GDP deflator, in percent)	0.9	4.7	5.5	6.0	4.0	3.9	3.5	3.2	3.0	2.1	2.3	4.9	3.2
Growth of real primary spending (deflated by GDP deflator, in percent)	5.9	0.4	-2.7	6.8	2.3	1.0	1.6	1.9	1.9	1.6	1.5	8.8	2.1
Primary deficit that stabilizes the debt-to-GDP ratio 5/	-14.6	13.8	-7.9	0.6	-0.2	4.0	0.1	0.3	0.4	1.0	1.1	-2.9	0.8
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		

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



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.

Table 3. Tuvalu: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2022-2043
(In percent of GDP, unless otherwise indicated)

	Projections 1/																				
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
PV of debt-to-GDP ratio																					
Baseline	4	3	3	4	6	8	10	12	15	18	21	24	27	30	33	37	40	39	43	47	46
A. Alternative Scenarios																					
A1. Key variables at their historical averages in 2023-2033 2/	4	-3	-13	-21	-28	-35	-41	-47	-53	-58	-64	-70	-75	-79	-84	-88	-91	-99	-102	-104	-111
B. Bound Tests																					
B1. Real GDP growth	4	3	3	5	7	9	12	14	18	21	24	28	32	35	39	43	47	46	50	55	54
B2. Primary balance	4	10	16	17	19	21	23	25	28	31	34	37	39	42	45	48	51	50	53	57	57
B3. Exports	4	24	36	37	39	41	43	46	49	52	55	58	61	64	66	68	70	71	72	73	73
B4. Other flows 3/	4	15	24	25	27	29	31	33	36	38	41	44	46	48	51	53	55	53	56	60	58
B5. Depreciation	4	3	3	5	6	9	11	14	17	20	23	27	30	34	37	41	45	43	47	52	52
B6. Combination of B1-B5	4	25	34	36	37	39	41	44	47	50	53	56	58	60	62	64	66	64	66	70	68
C. Tailored Tests																					
C1. Combined contingent liabilities	4	6	5	6	8	10	12	15	17	20	23	26	29	33	36	39	42	41	45	49	49
C2. Natural disaster	4	19	19	21	24	26	30	33	37	41	45	49	53	57	62	66	70	70	75	81	81
C3. Commodity price	4	7	11	18	16	19	22	25	29	33	37	41	44	48	52	56	60	59	63	68	68
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	5	6	9	11	13	16	19	23	26	29	33	36	39	43	42	45	50	49
A. Alternative Scenarios																					
A1. Key variables at their historical averages in 2023-2033 2/	5	-4	-15	-23	-32	-39	-45	-51	-57	-63	-69	-75	-80	-85	-90	-94	-98	-106	-109	-111	-118
B. Bound Tests																					
B1. Real GDP growth	5	4	3	5	6	9	11	13	16	19	23	26	29	33	36	39	43	42	45	50	49
B2. Primary balance	5	11	18	20	21	23	25	27	30	33	36	40	42	46	49	52	55	53	57	61	60
B3. Exports	5	41	121	120	123	126	128	133	140	147	155	160	163	166	169	172	176	169	173	180	175
B4. Other flows 3/	5	18	28	29	30	32	33	36	39	42	45	47	50	52	54	57	59	57	60	63	62
B5. Depreciation	5	4	3	5	6	9	11	13	16	19	23	26	29	33	36	39	43	42	45	50	49
B6. Combination of B1-B5	5	38	36	54	56	58	60	63	68	72	77	80	83	86	88	92	95	91	95	100	97
C. Tailored Tests																					
C1. Combined contingent liabilities	5	6	6	7	9	11	13	16	19	22	25	28	32	35	38	42	45	44	48	53	52
C2. Natural disaster	5	22	22	24	27	30	32	36	40	44	48	53	57	62	66	71	76	76	80	86	87
C3. Commodity price	5	9	14	16	18	21	24	28	32	36	40	44	48	53	57	61	65	64	68	74	73
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	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	2	2	3
A. Alternative Scenarios																					
A1. Key variables at their historical averages in 2023-2033 2/	1	1	1	0	0	0	-1	-1	-1	-1	-1	-1	-2	-3	-3	-3	-4	-4	-4	-4	-4
B. Bound Tests																					
B1. Real GDP growth	1	1	1	1	1	1	0	0	0	0	1	1	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	2	2	3	3
B3. Exports	1	1	3	4	4	4	3	3	3	3	5	8	8	8	9	9	9	9	9	11	11
B4. Other flows 3/	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3	3	3	4	4
B5. Depreciation	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	2	2	3
B6. Combination of B1-B5	1	1	2	2	2	2	1	1	1	2	3	4	4	4	4	4	4	5	5	5	6
C. Tailored Tests																					
C1. Combined contingent liabilities	1	1	1	1	1	1	0	0	0	1	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	2	2	2	2	3	3
C3. Commodity price	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3	4
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	1	1	1	0	0	0	0	0	1	1	1	1	1	1	1	1	2	3
A. Alternative Scenarios																					
A1. Key variables at their historical averages in 2023-2033 2/	1	1	0	0	0	0	-1	-1	-1	-1	-1	-1	-2	-2	-3	-3	-3	-3	-4	-4	-4
B. Bound Tests																					
B1. Real GDP growth	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	2	2	3
B2. Primary balance	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3
B3. Exports	1	1	1	2	2	2	1	1	1	1	2	4	4	4	4	4	4	4	5	6	6
B4. Other flows 3/	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	4
B5. Depreciation	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	2	2	3
B6. Combination of B1-B5	1	1	1	1	1	1	1	1	1	1	2	2	2	3	3	3	3	3	3	3	4
C. Tailored Tests																					
C1. Combined contingent liabilities	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	2	3
C2. Natural disaster	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3
C3. Commodity price	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	4
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.