

**EXECUTIVE  
BOARD  
MEETING**

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June 23, 2021

To: Members of the Executive Board

From: The Acting Secretary

Subject: **Democratic Republic of Timor-Leste—Staff Report for the 2021 Article IV Consultation—Debt Sustainability Analysis**

Board Action: Executive Directors' **consideration** (Formal)

Prepared by: The staffs of the Fund and the International Development Association

Tentative Board Date: **Wednesday, July 7, 2021**

Publication: Yes\*

Questions: Mr. Lopez Murphy, APD (ext. 37647)  
Mr. Kumakura, APD (ext. 39899)  
Ms. Khera, APD (ext. 39973)

Document Transmittal in the Absence of an Objection and in accordance with Board policy: After Board Consideration—Asian Development Bank, World Trade Organization

**\*The Secretary's Department has been notified by the authorities that their explicit consent is required prior to the publication of Board documents. At the time of circulation of this paper to the Board, the authorities have indicated that they consent to the Fund's publication of this paper.**





# DEMOCRATIC REPUBLIC OF TIMOR-LESTE

June 22, 2021

## STAFF REPORT FOR THE 2021 ARTICLE IV CONSULTATION— DEBT SUSTAINABILITY ANALYSIS<sup>1</sup>

Approved By  
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Timor-Leste: Joint Bank-Fund Debt Sustainability Analysis	
<b>Risk of external debt distress</b>	Moderate
<b>Overall risk of debt distress</b>	Moderate
<b>Granularity in the risk rating</b>	Limited space to absorb shocks
<b>Application of judgement</b>	Yes. Petroleum sovereign wealth fund is a strong mitigating factor for the country's debt sustainability.

*The debt sustainability analysis indicates that Timor-Leste is at moderate risk of overall and external debt distress, with application of judgement, reflecting a projected increase in: (i) debt service payments as existing loan grace periods come to an end; and (ii) concessional borrowing to finance a large increase in public investment in infrastructure. This represents a downgrade from a low risk of debt distress at the time of the 2019 Article IV debt sustainability analysis, reflecting worse initial conditions and a downgrade in its debt carrying capacity from medium to weak. The present value of external debt-to-exports ratio and the debt service-to-exports ratio under the baseline are projected to breach their respective critical thresholds, triggering a high-risk mechanical rating for external and overall debt. However, the Petroleum Fund is large relative to projected debt levels and debt service requirements; and its assets are liquid and accessible, prompting the use of judgment to upgrade the risk assessment. Fiscal plans under the baseline are nonetheless unsustainable in the long term. Staff projects that the Petroleum Fund, which is the main source of funding of fiscal deficits, will be gradually depleted. Staff's alternative scenario illustrates how fiscal and structural reforms can ensure both fiscal and debt sustainability.*

<sup>1</sup> The debt sustainability analysis follows the IMF and World Bank Staff Guidance Note on the Application of the Joint Fund-Bank Debt Sustainability Framework for Low-Income Countries (February 2018). Timor-Leste's debt-carrying capacity is assessed to be "weak" with composite indicator score of 2.669, which is based on the 2021 April World Economic Outlook and the 2019 Country Policy and Institutional Assessment.

## PUBLIC DEBT COVERAGE

**1. The coverage of public sector debt used in this report is public and publicly guaranteed debt.** Timor-Leste's public and publicly guaranteed external debt is held entirely by the central government. The coverage of public sector debt includes state-owned enterprise debt. Under the Public Debt Regime Law<sup>2</sup>, state-owned enterprises are not allowed to borrow for themselves and can only obtain financing via on-lending from the Ministry of Finance. The public sector only borrows externally, given a lack of domestic financing sources. The debt definition of the debt sustainability analysis is currency-based and the legal tender is the U.S. dollar.<sup>3</sup>

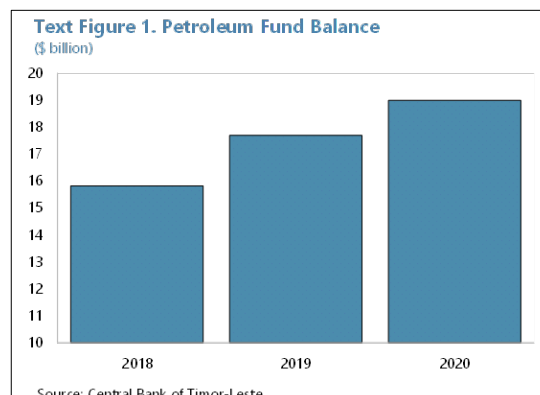
**Text Table 1. Timor-Leste's Coverage of Public Debt**

Subsectors of the public sector	Check box
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	

## BACKGROUND ON DEBT

**2. Timor-Leste's net public asset position is currently strong due to oil-related savings accumulated in Petroleum Fund assets and low levels of public debt.**

- The Petroleum Fund balance at end-2020 stood at \$19 billion (1,213 percent of non-oil GDP), covering 271 months of goods and services imports. The Petroleum Fund balance increased by \$1.3 billion in 2020 as investment income (\$1.9 billion) and oil revenues (\$0.3 billion) more than compensated for transfers to the budget (\$0.9 billion).<sup>4</sup> The average return on Petroleum Fund assets during 2016–20 was 7.2 percent.

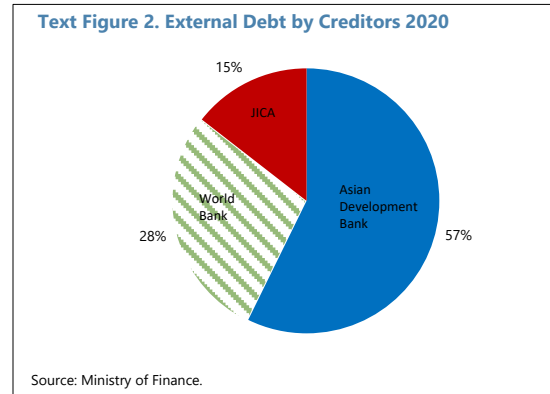


<sup>2</sup> According to the Public Debt Regime Law No. 13/2011, the Government of Timor-Leste, in particular, the Ministry of Finance, is the only entity that may engage in borrowing, motivated by financing needs generated by the need to execute the State's priority tasks relating to the building of strategic infrastructures for the country's development.

<sup>3</sup> Domestically issued local currency-denominated debt held by non-residents and/or locally-issued FX-denominated debt held by residents are insignificant and data is not available.

<sup>4</sup> The Petroleum Fund constitutes the main financing source for the budget. The amount is guided by the estimated sustainable income, which is set at 3 percent of total petroleum wealth (sum of the Petroleum Fund balance and the  
(continued)

- The fiscal deficit fell from 31 percent of non-oil GDP in 2019 to 26 percent in 2020 due to delays in passing the 2020 budget. Outstanding public external debt has steadily increased to \$218 million (13.9 percent of non-oil GDP) in 2020 from \$145 million (9.3 percent of non-oil GDP) in 2018. External loans signed since 2012 to mid-2020 totaled \$475 million—all consisting of concessional loans from the Asian Development Bank, the World Bank Group, and Japan International Cooperation Agency to finance mainly road infrastructure projects. The Asian Development Bank has the largest share of total external debt, comprising nearly 60 percent of total external debt in 2020.



## BACKGROUND ON MACRO FORECASTS

**3. This debt sustainability analysis is based on the macroeconomic projections underlying the 2021 Article IV consultation.** To illustrate the impact of different policy options on debt sustainability, two scenarios—baseline and reform—are considered.

**Text Table 2. Macroeconomic and Fiscal Assumptions: Current and 2019 Article IV**

	Current (2021 Article IV)				Previous (2019 Article IV)			
	2020	2021	2021-26	2027-41	2017	2018	2018-23	2024-38
Real non-oil GDP growth (in percent)	-7.6	1.8	2.7	3.0	-4.6	0.8	4.2	4.8
CPI inflation (eop, percent)	0.8	2.0	2.3	2.0	0.6	2.1	3.2	4.0
Revenue (excl. grants, percent of non-oil GDP)	46.4	47.1	40.6	22.1	39.1	40.0	28.4	14.7
Government expenditure (percent of non-oil GDP)	72.5	93.1	83.5	53.2	69.1	68.7	58.4	28.9
Recurrent	62.3	74.6	60.2	42.5	53.9	47.3	44.0	25.8
Capital	10.2	18.6	23.3	10.8	15.2	21.4	14.4	3.1
Net lending/ borrowing (percent of non-oil GDP)	-26.1	-46.1	-43.0	-31.2	-30.0	-28.7	-30.0	-14.2
Net incurrence of liabilities (percent of non-oil GDP)	1.6	3.8	2.9	0.5	1.1	2.0	2.3	2.6
Petroleum Fund balance (USD million)	18991	18785	17758	10415	16,799	15,803	14,943	7,902
Current account balance (percent of non-oil GDP)	-19.3	-31.6	-38.1	-32.2	-16.4	-15.0	-5.0	-6.5

Sources: Timor-Leste authorities; IMF staff estimates and projections.

**4. The macro-fiscal outlook has worsened compared to the 2019 Article IV debt sustainability analysis.** Macroeconomic and fiscal projections were revised for several reasons. First, the COVID-19-related disruptions to mobility and activity combined with the delays in passing the 2020 budget are estimated to have generated the largest output drop since independence in 2002, at 7.6 percent in 2020. The outbreak in COVID-19 infections since March combined with the floods in early April suggest only a modest recovery in 2021. The floods have caused significant economic

net present value of expected future petroleum revenue). Withdrawals in excess of the estimated sustainable income can be made with the approval of Parliament. According to the Constitution, the President has the right to veto a budget that has been approved by the Parliament.

damage to public infrastructure, private homes and businesses, and have left about 16,000 people without homes and sheltering in refugee centers, further complicating efforts to contain the spread of the pandemic. Second, GDP growth performance in 2017–19 was worse than estimated previously. This was driven by difficulties in reaching political consensus on policies (e.g., the adoption of the 2018 budget was delayed several months) and by a steady decline in the dynamism of the economy in 2010–19 (e.g., the 2019 budget was adopted in time and the economy only grew 1.8 percent). Third, an analysis of the historical growth performance and the sources of growth suggests a less favorable long-term growth outlook. Fourth, the 2021 budget envisages larger and persistent fiscal deficits in the medium and long term mainly financed by withdrawals from the Petroleum Fund.

Text Table 3. Main Macroeconomic Projections, 2017–26

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
				Est.	Proj.	Proj.	Proj.	Proj.	Proj.	Proj.
<b>Real sector</b>										
Nominal Non-oil GDP (in millions of U.S. dollars)	1,599	1,560	1,674	1,565	1,625	1,738	1,854	1,967	2,103	2,253
Real Non-oil GDP growth (percent change)	-4.1	-1.1	1.8	-7.6	1.8	3.8	2.6	2.0	2.8	3.0
CPI (percent change, period average)	0.5	2.3	0.9	0.5	1.6	2.5	2.8	2.3	2.0	2.0
Non-oil GDP deflator growth (percent change)	1.0	-1.4	5.4	1.2	2.0	3.0	4.0	4.0	4.0	4.0
<b>Central government operations</b>										
	(In percent of Non-oil GDP)									
Revenue	53.0	58.5	52.5	58.2	58.8	56.1	53.3	50.7	48.5	46.4
Domestic revenue	11.9	12.2	11.2	11.6	11.7	11.7	11.7	11.7	11.7	11.8
Estimated Sustainable Income (ESI)	30.1	35.3	31.6	34.8	35.4	32.7	29.8	27.3	25.0	22.9
Grants	11.0	11.0	9.7	11.8	11.8	11.8	11.8	11.8	11.8	11.8
Expenditure	86.6	86.7	83.4	84.3	104.9	110.0	102.8	88.5	84.0	81.5
Recurrent expenditure	59.2	53.1	54.9	62.3	74.6	60.5	58.8	57.5	55.9	54.1
Capital expenditure	16.3	22.6	18.8	10.2	18.6	37.8	32.2	19.2	16.3	15.6
Donor project	11.0	11.0	9.7	11.8	11.8	11.8	11.8	11.8	11.8	11.8
Net lending/borrowing	-33.6	-28.2	-30.9	-26.1	-46.1	-53.9	-49.5	-37.8	-35.4	-35.0
<b>Balance of payments</b>										
	(In percent of Non-oil GDP, unless otherwise indicated)									
Current account balance 1/	-17.7	-12.3	7.9	-19.3	-31.6	-41.4	-41.4	-39.3	-37.7	-36.9
Trade balance	-38.4	-37.7	-33.8	-32.6	-27.6	-33.9	-34.5	-33.9	-32.5	-31.5
Exports 2/	1.0	1.6	1.6	1.1	1.8	1.9	2.1	2.3	2.3	2.4
Imports	39.5	39.3	35.4	33.7	36.1	39.7	38.4	36.1	34.8	33.9
Services (net)	-21.5	-22.4	-21.3	-17.2	-19.5	-21.3	-19.0	-16.0	-14.3	-13.0
Primary Income	46.0	54.0	67.3	39.6	20.2	18.4	16.5	14.9	13.3	11.9
Secondary Income	-3.8	-6.1	-4.2	-9.1	-4.6	-4.5	-4.4	-4.4	-4.3	-4.3
<b>Memorandum items</b>										
Public external debt (In millions of U.S. dollars)	106	145	193	218	279	330	381	435	493	554
(In percent of Non-oil GDP)	6.6	9.3	11.5	13.9	17.2	19.0	20.5	22.1	23.4	24.6
Petroleum Fund balance (in millions of U.S. dollars) 3/	16,799	15,803	17,692	18,991	18,785	18,340	17,869	17,537	17,200	16,817
(In months of imports)	189	179	204	271	235	191	183	185	178	169
(In percent of Non-oil GDP)	1050	1013	1057	1213	1156	1055	964	892	818	746
Crude oil prices (U.S. dollars per barrel, WEO) 4/	53	68	61	41	59	55	53	51	51	51

Sources: Timor-Leste authorities; and IMF staff estimates and projections.

1/ Excludes trade in goods and services of entities located in the Joint Petroleum Development Area which are considered non-resident entities until August 2019.

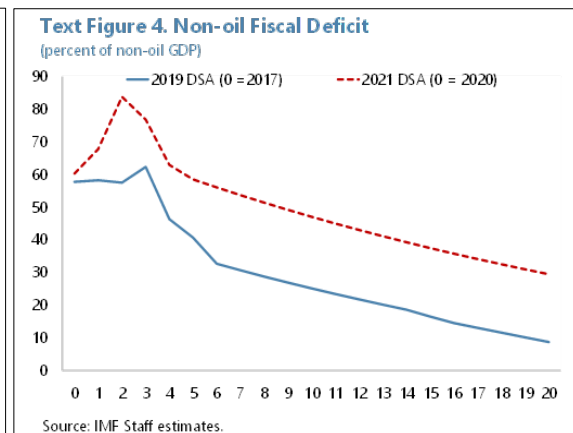
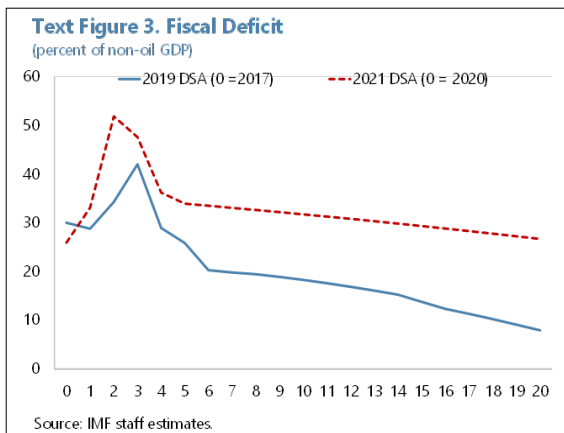
2/ Excludes petroleum exports, the income of which is recorded under the income account.

3/ Closing balance.

4/ Simple average of UK Brent, Dubai, and WTI crude oil prices; April 2021 WEO assumptions.

## Macroeconomic Assumptions:

- **Real non-oil GDP** is projected to recover modestly at 1.8 percent in 2021, underpinned by a large increase in public spending, rebounding private consumption and the vaccination rollout that began in April.<sup>5</sup> Growth is projected to hover in the range of 2–4 percent in the medium term (2021–26), mainly driven by the changes in government spending. Over the long term (2027–2041), growth is projected to stabilize at around 3 percent as structural constraints weigh on growth potential, significantly lower than 4.8 percent projected in the previous debt sustainability analysis, but closer to historical growth performance. Oil production from active fields is projected to cease in 2023.<sup>6</sup>
- **Inflation** is expected to gradually pick up in 2021–23 hand in hand with strong fiscal stimulus and higher oil prices and then converge to 2 percent over the medium and long term. This is a lower level of inflation compared to the previous debt sustainability analysis.
- **The fiscal balance** is projected to remain in a deficit of about 43 percent over 2021–26, reflecting larger spending. The fiscal deficit is projected to increase from 26 percent of non-oil GDP in 2020 to 46 percent in 2021 aiming to respond to rising COVID-19 infections and the recent floods. The fiscal deficit is projected to narrow gradually to about 31 percent on average over 2027–41, at a level significantly higher than the previous debt sustainability analysis.



- **The current account balance** is expected to remain in deficit over 2021–26, reflecting lower oil and gas receipts and higher imports of goods and services generated by higher public investment. Overall, the current account balance deficit over the medium and long term is

<sup>5</sup> The vaccine inoculations started on April 7 and 127,074 people (17 percent of the adult population) were vaccinated by June 20. The vaccine rollout will be sequenced as follows: In the first phase (April), frontline workers, immigration officers, and people with comorbidities; in the second phase (July) people over 60 years old, healthcare workers, community leaders, teachers, and market workers; in the third phase (October), the remaining adult population.

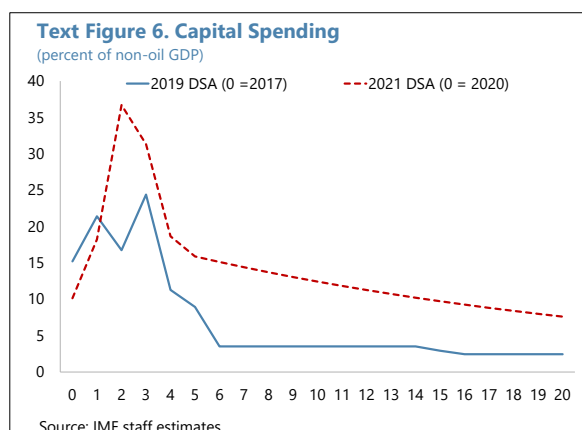
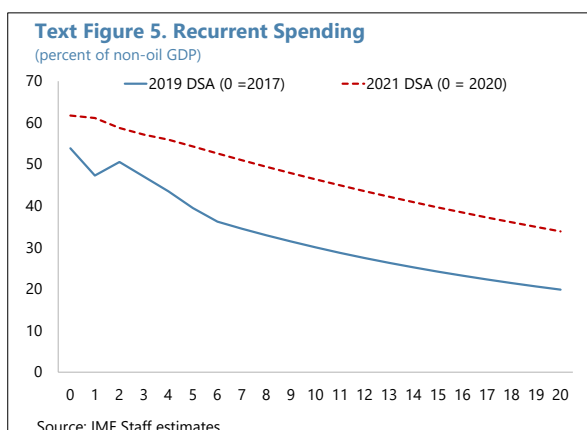
<sup>6</sup> The baseline does not include the development of the Greater Sunrise fields as there are no approved development plans.

projected to be higher compared to the previous debt sustainability analysis, mainly driven by larger imports in line with higher fiscal spending.

- **External financing** consists of concessional loans from official creditors. Private external borrowing is assumed to remain negligible. Timor-Leste does not have exceptional financing such as accumulation of arrears.
- **The grant element of loans** is assumed to decline moderately over the medium term as the economy develops. Other assumptions include that no off-budget debt is accumulated including by state-owned enterprises in line with existing legislation.

**5. The baseline fiscal scenario assumes lower spending than planned under the 2021 budget, reflecting historical execution rates.** Specifically, capital spending in 2021–25 is assumed, on average, to be 70 percent of the planned amount in the 2021 budget.

- Government revenues are projected to decline from 46 percent of non-oil GDP in 2020 to 41 percent on average over 2021–26 and to 22 percent on average over 2027–41. Under current policies, domestic revenues, currently at 12 percent of non-oil GDP, are assumed to grow in line with nominal non-oil GDP. The decline in government revenues is driven by erosion of the Petroleum Fund, which in turn reduces the estimated sustainable income.



- Recurrent spending is projected to increase by 3.8 percent each year in line with historical trends, and capital spending in 2027–41 is projected to increase in line with inflation. This is in line with long-term projections under the 2021 budget, which assumes a continuing policy of frontloading public investment.<sup>7</sup> On the other hand, the previous debt sustainability analysis envisaged a very significant decline in government spending (in percent of non-oil GDP) over the medium term, broadly in line with the 2019 budget.

<sup>7</sup> Although high public investment financed with excess Petroleum Fund withdrawals has been the norm since 2010, the growth dividend has been declining and tepid, implying that public investment managements needs to be improved (see forthcoming World Bank Public Expenditure Review).

- Net external borrowing is projected at about 2.9 percent of non-oil GDP each year during 2021–26 broadly in line with recent trends and with borrowing plans described in the 2021 budget. As a result, outstanding external debt is projected to increase from 14 percent of non-oil GDP in 2020 to 25 percent in 2026.
- As the government relies on Petroleum Fund withdrawals to meet its financing needs, the Petroleum Fund falls to \$16.9 billion (746 percent of non-oil GDP) by 2026 and to \$1.8 billion (28 percent of non-oil GDP) by 2041. This assumes an annual nominal investment return on the Petroleum Fund of around 5 percent, in line with the average returns since its inception.

## 6. The realism tools suggest that macroeconomic and fiscal assumptions are reasonable.

No significant differences exist between the past and projected debt creating flows. A smaller primary deficit in 2015–20 than projected under the previous debt sustainability analysis largely explains the unexpected changes in debt (Figure 3).<sup>8</sup> The three-year primary balance adjustment (between 2021 and 2023) is projected to be 23 percent: this represents significant stimulus to the economy, and lies near the bottom of the distribution of projections across regional peers. Impact of the political uncertainty spillovers to private investment which plunged from 11 percent of non-oil GDP in 2017 to 2 percent in 2019, and is projected to recover gradually from 2021–22 onwards as the effects of the pandemic subside and the economy makes some progress in diversification in the long term (Figure 4).

	Baseline Scenario				Reform Scenario			
	2020	2021	2021-26	2027-41	2020	2021	2021-26	2027-41
Real non-oil GDP growth (in percent)	-7.6	1.8	2.7	3.0	-7.6	1.8	2.8	5.5
Government expenditure (percent of non-oil GDP)	72.5	93.1	83.5	53.2	72.5	93.1	68.5	34.2
Recurrent (percent of non-oil GDP)	62.3	74.6	60.2	42.5	62.3	74.6	52.2	25.7
Capital (percent of non-oil GDP)	10.2	18.6	23.3	10.8	10.2	18.6	16.3	8.6
Revenue (excl. grants, percent of non-oil GDP)	46.4	47.1	40.6	22.1	46.4	47.1	43.5	31.9
Domestic revenue	11.6	11.7	11.7	12.0	11.6	11.7	13.2	17.5
Estimated Sustainable Income	34.8	35.4	28.8	10.1	34.8	35.4	30.2	14.4
Net lending/ borrowing (percent of non-oil GDP)	-26.1	-46.1	-43.0	-31.2	-26.1	-46.1	-25.1	-2.4
Net incurrence of liabilities (percent of non-oil GDP)	1.6	3.8	2.9	0.5	1.6	3.8	2.9	0.5
Petroleum Fund balance (USD billion)	18,991	18,785	17,758	10,415	18,991	18,785	18,877	21,592
Current account balance (percent of non-oil GDP)	-19.3	-31.6	-38.1	-32.2	-19.3	-31.6	-31.2	-11.9

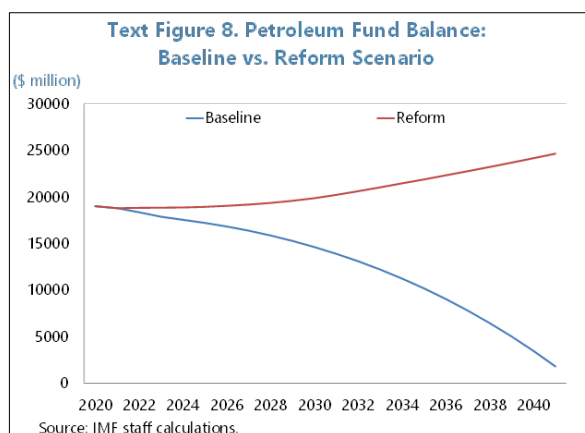
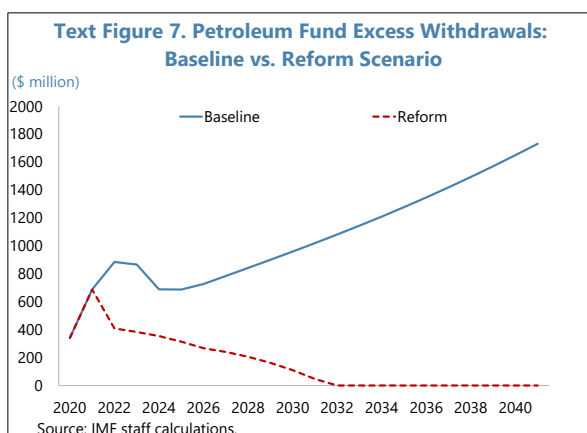
Sources: Timor-Leste authorities; IMF staff estimates and projections.

## 7. Under staff's reform scenario, policy actions are adopted to safeguard long-term fiscal sustainability.

- **Domestic revenue mobilization:** To achieve a domestic revenue of 15 percent of non-oil GDP by 2026, a value-added tax (VAT) should be adopted by 2023 to generate additional revenue of about 3 percent of GDP over the medium term. Strengthening tax compliance through tax administration reforms, and further tax reforms (e.g., revision of excise tax rates, increase in statutory income tax rate, adopting a property tax) are warranted in the long term to increase domestic revenue to about 20 percent of non-oil GDP.

<sup>8</sup> The residual in debt-creating flows is financed through excess withdrawals from the Petroleum Fund.

- Expenditure moderation:** The level of government spending should remain broadly constant in nominal terms at the 2019 level for a decade starting in 2022 to gradually reduce it in percent of non-oil GDP. The focus should be on enhancing the quality of government spending to maximize the growth dividend from it. The findings from the ongoing Public Expenditure Review conducted by the World Bank should help identify spending inefficiencies and prioritize spending adequately. Public investment projects should be subject to thorough and rigorous cost-benefit analysis.
- A target to halt Petroleum Fund excess withdrawals by 2032:** More moderate levels of spending coupled with higher domestic revenue should help gradually unwind fiscal imbalances and the reliance on Petroleum Fund excess withdrawals to secure fiscal sustainability and preserve Petroleum Fund assets. The Petroleum Fund balance will gradually increase to close to \$24.6 billion in the long run, and the estimated sustainable income will decline more slowly in percent of non-oil GDP.<sup>9</sup> Fiscal deficits over the medium-term would be 25 percent of non-oil GDP, instead of 43 percent under the baseline. Overall, in the reform scenario the Petroleum Fund is preserved (in real terms) and generates a permanent level of investment income to support government expenditures, thus putting fiscal and debt sustainability on a solid footing.
- Overall, external borrowing under the reform scenario is projected to be the same as the baseline scenario because the government’s strategy of increasing public external borrowing via concessional loans to finance public investment in infrastructure projects in the medium-term and to preserve the Petroleum Fund wealth continues to hold.



**8. At the same time, structural reforms are implemented to improve the business environment, raise productivity, and promote private sector development.**<sup>10</sup> These include progress in facilitating the ease of doing business, addressing digital infrastructure and connectivity

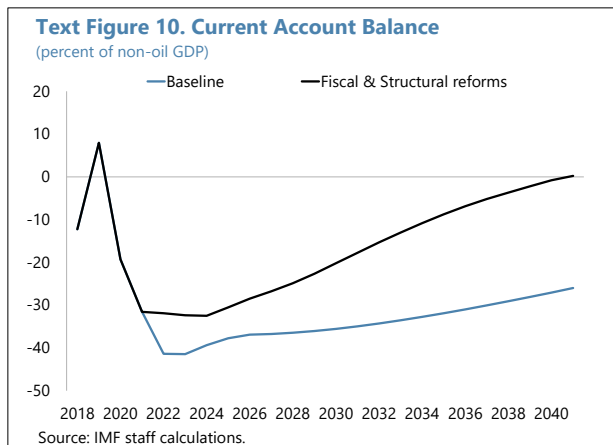
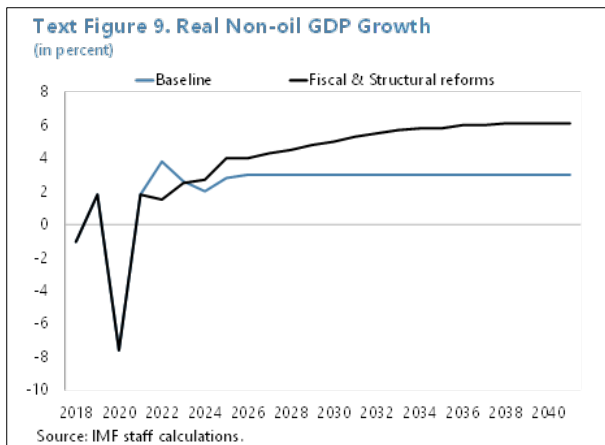
<sup>9</sup> The dynamic of the Petroleum Fund is such that a lower Petroleum Fund balance will reduce the level of estimated sustainable income, resulting in higher excess withdrawals to close a given financing gap, highlighting the need to curb the rapid loss in Petroleum Fund wealth.

<sup>10</sup> Staff estimates suggest the external sector position in 2020 was substantially weaker than implied by medium-term fundamentals and desirable policy settings.

bottlenecks, increasing financial access, building human capacity, closing labor skill gaps, and strengthening the justice sector to improve governance and reduce corruption vulnerabilities.

**9. The macro-fiscal and external sector outlook is significantly stronger under the reform scenario:**

- **Real non-oil GDP** is projected to be broadly similar to the baseline in the medium term (2021–26). Given the low fiscal multipliers,<sup>11</sup> the growth costs of fiscal consolidation are estimated to be almost fully offset by the positive impact of reprioritization (towards growth-enhancing sectors such as health, education, agriculture, tourism, and digitalization) and improvement in the quality of public spending and structural reforms. With sustained improvement in productivity and competitiveness, the economic impact of structural reforms is higher over the long term (2027–2041), where growth is projected to hover around 5–6 percent, significantly higher than under the baseline, driven by higher private investment and the development of the non-oil private sector, reduced import dependence, and a larger export base (see Text Figure 9).



- **The current account balance deficit** over the medium and long term is projected to be considerably smaller in comparison to the baseline scenario, reflecting both higher exports (economic diversification and exports of high value-added agricultural exports) and lower imports of goods and services (in line with lower fiscal spending and lower reliance on food imports)<sup>12</sup> (see Text Figure 10).

<sup>11</sup> Timor-Leste’s fiscal multiplier, measured by the change in real non-oil GDP growth rate induced by a unit change in the primary balance (% GDP), is estimated to be close to 0.1. This is in line with other estimates in the literature which estimate it to be in the range of 0.08–0.17. Low multipliers indicate that much of the spending leaks into imports and/or is low quality to address supply side constraints (Timor-Leste Economic Report: Towards a Sustained Recovery, October 2020, World Bank Group).

<sup>12</sup> Lower public investment contributes to lower excess current account deficits by 2 percent of non-oil GDP by 2031/32.

## COUNTRY CLASSIFICATION AND DETERMINATION OF SCENARIO STRESS TESTS

**10. The debt-carrying capacity is assessed to be weak (Text Table 5).** Timor-Leste's debt carrying capacity is assessed to be weak according to the Composite Indicator index of 2.67 which is calculated based on the April 2021 World Economic Outlook and the 2019 Country Policy and Institutional Assessment. The Composite Indicator is based on a weighted average of the country's real GDP growth, remittances, international reserves, world growth, and the Country Policy and Institutional Assessment score. The calculation is based on 10-year averages of the variables, across 5 years of historical data and 5 years of projections, and the corresponding Country Policy and Institutional Assessment. Accordingly, debt sustainability analysis thresholds applicable for Timor-Leste are: 30 percent for the present value of external debt-to-GDP ratio, 140 percent for the present value of external debt-to-exports ratio, 10 percent for the external debt service-to-exports ratio, 14 percent for the external debt service-to-revenue ratio, and 35 percent for the present value of public debt-to-GDP ratio. This is a downgrade from the previous debt sustainability analysis where Timor-Leste was classified as "medium", largely driven by lower 10-year average of real GDP growth and the world economic growth.<sup>13</sup>

Text Table 5. Timor-Leste Debt Carrying Capacity and Thresholds			
Debt Carrying Capacity and Thresholds			
Country	Timor-Leste		
Country Code	537		
Debt Carrying Capacity	Weak		
Final	Classification based on current vintage	Classification based on the previous vintage	Classification based on the two previous vintage
Weak	Weak 2.67	Weak 2.67	Medium 2.70
<b>APPLICABLE</b>			<b>APPLICABLE</b>
<b>EXTERNAL debt burden thresholds</b>			<b>TOTAL public debt benchmark</b>
<b>PV of debt in % of</b>			<b>PV of total public debt in percent of GDP</b>
Exports	140		35
GDP	30		
<b>Debt service in % of</b>			
Exports	10		
Revenue	14		

Sources: 2019 World Bank Country Policy and Institutional Assessment; April 2021 World Economic Outlook.

<sup>13</sup> The 10-year average of the Country Policy and Institutional Assessment score deteriorated marginally, whereas the reserve coverage remained broadly unchanged and that of remittances increased.

**11. The size of the shock to non-debt creating flows foreign-direct-investment-to-GDP ratio and to exports was customized to account for one-off and structural factors.** In the case of the former, there is a large outflow in foreign direct investment equivalent to \$621 million in 2020 due to Petroleum Fund's investment in Timor-Gap to purchase the 56 percent stake in the Greater Sunrise joint venture.<sup>14</sup> To prevent this one-off deviation in foreign direct investment flows from inflating the foreign direct investment-to-GDP ratio shock, the historical average and the standard deviation corresponds to 2010–19 (i.e., excludes 2020).<sup>15</sup> Moreover, to prevent the structural oil production cycle from inflating the export shock and to account for the fact that petroleum production will cease in 2023, the export stress test was customized in line with the 2019 Article IV debt sustainability analysis.

**12. The contingent liability stress test settings were also customized (Text Table 6).** The default shock to contingent liabilities from state-owned enterprises debt and Public Private Partnerships is reduced to zero. This is because the former is already included in the baseline public debt, and the latter is negligible (see paragraph 1). Timor-Leste's domestic banking sector has high liquidity and capital adequacy ratios, and hence the contingent liabilities from financial market stress is set at the default value of 5 percent of GDP, consistent with the average cost to the government of a financial crisis in a low-income country since 1980.

**13. The commodity price shocks were introduced in a tailored stress test, with adjustments made to the default settings.** Lack of export diversification has resulted in the excessive reliance of Timor-Leste's external position on petroleum and gas receipts—the share of commodity exports in Timor-Leste's total exports was 82 percent on average over 2018–20. However, this is projected to decline to less than 40 percent on average over 2021–23, as the petroleum production from active fields comes to an end in 2023. Hence, we tailor the commodity price shocks by adjusting the share of fuel in total exports of goods and services to match the latter.

**14. A stress test on natural disasters is added to the sensitivity analysis given that Timor-Leste is prone to natural disasters.** The natural disaster scenario uses the default settings which assumes a one-off shock in 2022 of 10 percentage points to debt-GDP ratio with real GDP growth and exports growth lowered by 1.5 and 3.5 percentage points, respectively. These assumptions are more severe than the estimates in the literature, which suggests the macroeconomic impact of natural disasters in Timor-Leste has been much smaller. A recent study estimated the negative impact of natural disasters on Timor-Leste's real GDP growth in the range of 0.04 percent to 0.12 percent.<sup>16</sup>

<sup>14</sup> Timor Gap is an autonomous government agency with the mandate to conduct oil and gas business on behalf of the Timor-Leste Government.

<sup>15</sup> The customization implied that: (1) the historical average of the net non-debt creating flows foreign-direct-investment-to-GDP ratio is revised up from -1.5 to 2.5 and the standard deviation is reduced from 13.5 to 2.3; and (2) the initial standard deviation of 47.3 of the export shock was scaled down to 9.5.

<sup>16</sup> See IMF working paper 18/108.

**Text Table 6. Coverage of Public Debt and Design of Contingent Liabilities (tailored) Stress Tests**

1 The country's coverage of public debt	The central government, government-guaranteed 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	
3 SoE's debt (guaranteed and not guaranteed by the government) 1/	2 percent of GDP	0	Included in the baseline public debt
4 PPP	35 percent of PPP stock	0.00	Negligible PPP stock
5 Financial market (the default value of 5 percent of GDP is the minimum value)	5 percent of GDP	5	
<b>Total (2+3+4+5) (in percent of GDP)</b>		<b>5.0</b>	

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%.

## ASSESSMENT

### External Debt Sustainability Analysis

**15. Under the baseline scenario, two of Timor-Leste's external debt indicators breach their respective debt sustainability analysis thresholds.** First, the present value of external debt in percent of exports breaches the critical threshold of 140 percent between 2023 and 2033. Second, the debt-service-to-exports ratio also breaches the critical threshold of 10 percent between 2022 and 2035 (Figure 1). All the other indicators remain well below their relevant thresholds for the next 20 years. Debt dynamics reflect the following: (1) increase in debt service payments as grace periods on existing loans come to an end; and (2) government's strategy of increasing public external borrowing via concessional loans to reduce the need of tapping the Petroleum Fund from the projected expansion of public investment in infrastructure projects. Over the medium term, the present value of external debt is projected to increase gradually from 10 percent of non-oil GDP in 2020 to 16.8 percent in 2026, and thereafter decline gradually to reach 9.3 percent by 2041. Although the increasing use of concessional loans helps to reduce Petroleum Fund withdrawals, the spending plans combined with very limited domestic sources of revenue make large excess withdrawals from the Petroleum Fund unavoidable, further eroding Petroleum Fund wealth.

**16. Debt dynamics show vulnerability to shocks.** Standardized stress tests show that a shock to the primary balance is the most extreme shock to the debt trajectory, also causing a breach of the debt-service-to-exports, the present value of debt-to-GDP, and the present value of debt-to-exports thresholds. Timor-Leste's high vulnerability to shocks is a reflection of its very small exports and revenue bases, and, therefore, its exposure to high debt services payment risks if its positive Petroleum Fund assets position is not taken into account. While, historically, the government has typically not resorted to debt financing, and instead relied on excess withdrawals from the Petroleum Fund, further use of the Petroleum Fund to meet Timor-Leste's debt servicing needs would hasten Petroleum Fund depletion.

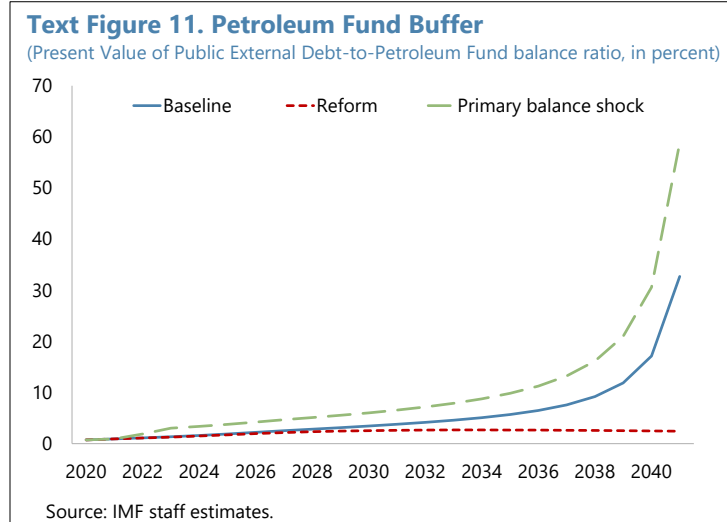
### Public Debt Sustainability Analysis

**17. Under the baseline scenario, the present value of total public and publicly guaranteed debt-to-GDP ratio remains below the threshold level for the next 20 years (Figure 2).** However, this indicator is vulnerable to commodity price shocks and is expected to breach the threshold

under the stress scenario starting in 2023. Among the other indicators, the present value-to-revenue ratio and the debt service-to-revenue ratio are most sensitive to the commodity price shocks as well.

## Reform Scenario

**18. The staff’s reform scenario demonstrates that fiscal reforms coupled with structural reforms can ensure long-term fiscal and debt sustainability.** External concessional loans under the reform scenario are projected to be broadly in line with the baseline. The introduction of reforms significantly improves the debt dynamics—the paths of debt burden indicators are better. The size and duration of the breach of the present value of external debt in percent of exports and the debt-service-to-exports ratio is considerably smaller. Importantly, under the reform scenario, the Petroleum Fund balance will be preserved, and provide a large and sustainable buffer for debt sustainability in the long term.



## RISK RATING AND VULNERABILITIES

**19. While the debt sustainability analysis assigns Timor-Leste a mechanical rating of “high” debt distress risk, judgement is applied to upgrade the rating to “moderate”.** The present value of debt-to-exports and debt-service-to-exports breach the benchmark under the baseline scenario—generating a mechanical debt distress rating of “high”. The judgment reflects the country’s large, liquid, and accessible net foreign assets in the form of the Petroleum Fund, which serves as a strong mitigating factor in Timor-Leste’s ability to carry and service debt in the medium term. Outstanding public debt was 1.1 percent of the Petroleum Fund balance by end-2020. The present value of debt does not exceed more than one-third of the projected value of the Petroleum Fund over the next 20 years under the baseline (see Text Figure 11). Under the scenario of the most extreme shock case (i.e., primary balance shock) where the present value of debt-to-exports breaches the threshold, the present value of debt-to-Petroleum Fund assets reaches close to 59 percent towards the end of the projection periods. Moreover, there is time to adopt a sustainable fiscal strategy (see paragraph 18). The authorities are aware of the challenge and requested extensive technical assistance from the IMF for ambitious fiscal reforms aiming to secure fiscal sustainability. With this, the risk of debt distress is assessed as “moderate” with limited space to absorb shocks (see Figure 5), which is a downgrade from the previous rating of “low” risk. This change is driven by: (1) worse initial conditions (i.e., higher present value of debt and higher debt service) and (2) lower debt carrying capacity (i.e., with lower critical thresholds) which result in the

present value of debt-to-exports ratio and the debt service-to-exports ratio breaching their critical thresholds under the baseline scenario.

**20. Depletion of the Petroleum Fund in the long term under current policies warrants the need for a reform strategy to ensure long-term fiscal sustainability and preserve the Petroleum Fund as an endowment fund.** Although the Petroleum Fund is a buffer against debt distress in the short and medium term, it is essential to protect it to secure long-term debt sustainability. Under current policies, the Petroleum Fund assets will be depleted towards the end of the 20-year projection horizon, leading to a fiscal cliff and sharp adjustment in the current account, which reinforces the need for a reform strategy. This would entail a gradual reduction of excess withdrawals from the Petroleum Fund to zero supported by expenditure rationalization, mobilizing domestic revenue, and committing to protecting Petroleum Fund wealth. Moreover, fiscal reforms should go hand in hand with structural reforms to improve the business environment and governance, to help improve competitiveness and strengthen the external sector position. This will also help restore Timor-Leste's debt carrying capacity back to medium.

**21. At the same time, public debt management needs to be strengthened.**<sup>17</sup> Greater external borrowing should be embedded in a suitable institutional framework, supported by best practice debt management policies and procedures. Strengthening the organization and capacity of the debt management unit, including preparing a medium-term debt management strategy, and upgrading debt recording software are key areas for capacity building. However, in the near term, there is a need to produce comprehensive and realistic debt servicing projections for the existing debt. The monitoring and reporting of fiscal risks—such as contingent liabilities related to credit guarantees, pensions, public corporations, and public-private partnerships—should also be improved.

## AUTHORITIES' VIEWS

**22. The authorities consider the risk of debt distress to be contained and remain committed to long-term fiscal sustainability.** They acknowledged that the Petroleum Fund is a source of confidence for the economy and should be preserved to ensure intergenerational equity. Fiscal reform plans in the pipeline—which include the introduction of the value-added tax (VAT) and a revised tax procedures code—will gradually boost domestic revenue and help to ensure fiscal and debt sustainability. In addition, recent implementation of program-based budgeting will facilitate the prioritization of government spending. The authorities have also requested technical assistance in the design of the VAT implementation plan, tax administration and Public Financial Management.

<sup>17</sup> There have not been any noteworthy improvements in data coverage and public debt management since the 2019 Article IV.

Table 1. Timor-Leste: External Debt Sustainability Framework Baseline Scenario, 2018-2041

(In percent of GDP, unless otherwise indicated)

	Actual			Projections								Average 8/	
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2031	2041	Historical	Projections
External debt (nominal) 1/ of which: public and publicly guaranteed (PPG)	9.3	11.5	13.9	17.2	19.0	20.5	22.1	23.4	24.6	23.2	12.6	5.1	22.7
Change in external debt	2.6	2.2	2.4	3.2	1.8	1.5	1.6	1.3	1.2	-0.8	-0.9	5.1	22.7
Identified net debt-creating flows	9.4	-13.0	59.8	26.6	36.2	36.6	34.7	33.0	31.8	27.8	19.6	2.5	31.5
Non-interest current account deficit	12.3	-8.1	19.0	31.3	41.1	41.1	39.0	37.4	36.5	34.6	25.8	-62.3	36.7
Deficit in balance of goods and services	27.4	10.0	29.1	47.2	55.2	53.5	49.8	46.8	44.6	34.6	18.6	-32.9	44.5
Exports	40.5	52.2	24.7	11.8	11.1	9.5	8.1	8.4	8.6	9.9	13.0		
Imports	67.9	62.1	53.8	59.0	66.3	63.1	58.0	55.1	53.2	44.5	31.6		
Net current transfers (negative = inflow)	6.1	4.2	9.1	4.6	4.5	4.4	4.4	4.3	4.3	6.2	5.4		
of which: official	-6.2	-7.2	-11.8	-11.8	-11.8	-11.8	-11.8	-11.8	-11.8	-6.4	-1.9		
Other current account flows (negative = net inflow)	-21.3	-22.3	-19.2	-20.4	-18.7	-16.8	-15.2	-13.7	-12.3	-6.3	1.8	-20.1	-12.7
Net FDI (negative = inflow)	-3.1	-4.5	39.7	-4.7	-4.6	-4.4	-4.3	-4.1	-4.4	-6.5	-6.0	1.5	-5.1
Endogenous debt dynamics 2/	0.2	-0.5	1.1	0.0	-0.3	-0.1	0.0	-0.2	-0.3	-0.3	-0.2		
Contribution from nominal interest rate	0.0	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.2		
Contribution from real GDP growth	0.1	-0.2	0.9	-0.2	-0.6	-0.5	-0.4	-0.6	-0.7	-0.7	-0.4		
Contribution from price and exchange rate changes	0.1	-0.5	-0.1	...	...	...	...	...	...	...	...		
Residual 3/	-6.7	15.2	-57.4	-23.3	-34.4	-35.0	-33.1	-31.7	-30.6	-28.7	-20.6	-0.6	-30.6
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		
<b>Sustainability indicators</b>													
PV of PPG external debt-to-GDP ratio	...	...	10.1	12.2	13.3	14.2	15.1	16.0	16.8	16.3	9.3		
PV of PPG external debt-to-exports ratio	...	...	41.0	103.4	120.0	148.9	186.8	190.9	194.6	164.6	71.5		
PPG debt service-to-exports ratio	0.1	0.7	2.1	6.8	10.6	13.7	15.7	14.8	14.0	11.0	6.8		
PPG debt service-to-revenue ratio	0.1	0.8	1.1	1.7	2.6	3.1	3.3	3.4	3.5	4.2	6.4		
Gross external financing need (Million of U.S. dollars)	143.8	-204.3	927.2	445.0	654.9	705.2	708.5	725.5	749.6	927.7	1305.4		
<b>Key macroeconomic assumptions</b>													
Real GDP growth (in percent)	-1.1	1.8	-7.6	1.8	3.8	2.6	2.0	2.8	3.0	3.0	3.0	1.4	2.8
GDP deflator in US dollar terms (change in percent)	-1.4	5.4	1.2	2.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.7	3.7
Effective interest rate (percent) 4/	0.0	1.9	2.2	1.9	1.9	1.8	1.8	1.8	1.8	1.7	1.8	0.6	1.8
Growth of exports of G&S (US dollar terms, in percent)	18.9	38.2	-55.7	-50.3	0.2	-8.2	-9.8	10.3	10.2	10.1	10.1	-3.9	0.3
Growth of imports of G&S (US dollar terms, in percent)	-0.8	-1.9	-19.0	13.8	20.1	1.5	-2.5	1.7	3.3	3.4	3.6	-2.8	5.0
Grant element of new public sector borrowing (in percent)	...	...	...	35.3	35.3	35.3	35.3	35.3	35.3	33.2	33.2	...	35.1
Government revenues (excluding grants, in percent of GDP)	47.5	42.8	46.4	47.1	44.3	41.5	39.0	36.8	34.7	25.7	13.8	54.2	35.3
Aid flows (in Million of US dollars) 5/	171.2	161.8	184.0	219.1	230.7	245.5	260.1	277.6	296.9	221.0	136.3		
Grant-equivalent financing (in percent of GDP) 6/	...	...	...	13.3	13.1	13.1	13.0	13.0	13.0	6.9	2.1	...	11.2
Grant-equivalent financing (in percent of external financing) 6/	...	...	...	82.6	84.2	84.4	84.6	84.8	85.0	87.8	83.9	...	85.6
Nominal GDP (Million of US dollars)	1,560	1,674	1,565	1,625	1,738	1,854	1,967	2,103	2,253	3,177	6,321		
Nominal dollar GDP growth	-2.5	7.3	-6.5	3.8	6.9	6.7	6.1	6.9	7.1	7.1	7.1	6.3	6.7
<b>Memorandum items:</b>													
PV of external debt 7/	...	...	10.1	12.2	13.3	14.2	15.1	16.0	16.8	16.3	9.3		
In percent of exports	...	...	41.0	103.4	120.0	148.9	186.8	190.9	194.6	164.6	71.5		
Total external debt service-to-exports ratio	0.1	0.7	2.1	6.8	10.6	13.7	15.7	14.8	14.0	11.0	6.8		
PV of PPG external debt (in Million of US dollars)	...	...	158.6	198.8	231.2	263.2	298.0	335.9	377.5	517.2	589.1		
(PVt-PVt-1)/GDPt-1 (in percent)	...	...	...	2.6	2.0	1.8	1.9	1.9	2.0	0.7	0.0		
Non-interest current account deficit that stabilizes debt ratio	9.6	-10.3	16.6	28.1	39.3	39.6	37.4	36.1	35.3	35.4	26.7		

Sources: Country authorities; and staff estimates and projections.

1/ Includes both public and private sector external debt.

2/ Derived as  $[r - g - \rho(1+g)] / (1+g + \rho + g)$  times previous period debt ratio, with  $r$  = nominal interest rate;  $g$  = real GDP growth rate, and  $\rho$  = growth rate of GDP deflator in U.S. dollar terms.

3/ The residual in debt-creating flows is financed through excess withdrawals from the Petroleum Fund. 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.

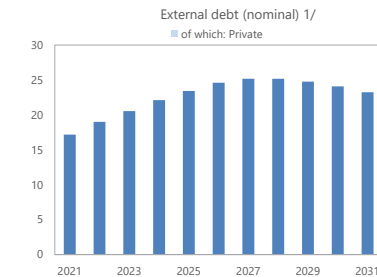
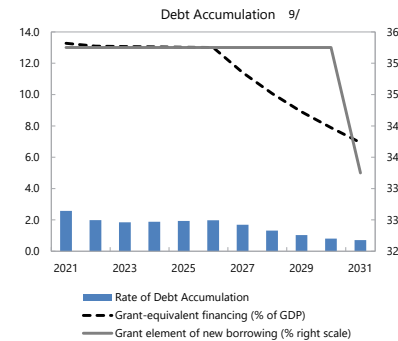
6/ Grant-equivalent financing includes grants provided directly to the government and through new borrowing (difference between the face value and the PV of new debt).

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.

9/ The grant element may be overestimated due to debt projections.

Definition of external/domestic debt	Currency-based
Is there a material difference between the two criteria?	No



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

	Actual			Projections								Average 7/	
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2031	2041	Historical	Projections
<b>Public sector debt 1/</b>	9.3	11.5	13.9	17.2	19.0	20.5	22.1	23.4	24.6	23.2	12.6	5.1	22.7
of which: external debt	9.3	11.5	13.9	17.2	19.0	20.5	22.1	23.4	24.6	23.2	12.6	5.1	22.7
Change in public sector debt	2.6	2.2	2.4	3.2	1.8	1.5	1.6	1.3	1.2	-0.8	-0.9		
Identified debt-creating flows	28.3	27.7	26.9	45.5	52.7	48.3	36.5	33.9	33.4	31.0	26.5	34.6	37.3
Primary deficit	28.2	28.2	25.8	45.8	53.5	49.1	37.4	35.0	34.5	32.3	27.2	32.0	38.3
Revenue and grants	58.5	52.4	58.2	58.8	56.1	53.3	50.7	48.5	46.4	32.1	15.7	69.6	45.5
of which: grants	11.0	9.7	11.8	11.8	11.8	11.8	11.8	11.8	11.8	6.4	1.9		
Primary (noninterest) expenditure	86.7	80.6	84.0	104.6	109.6	102.4	88.1	83.5	81.0	64.4	42.9	101.7	83.8
Automatic debt dynamics	0.2	-0.5	1.1	-0.3	-0.8	-0.9	-0.8	-1.1	-1.2	-1.2	-0.7		
Contribution from interest rate/growth differential	-0.1	-0.2	1.1	-0.2	-0.6	-0.5	-0.4	-0.6	-0.7	-0.8	-0.4		
of which: contribution from average real interest rate	-0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
of which: contribution from real GDP growth	0.1	-0.2	0.9	-0.2	-0.6	-0.5	-0.4	-0.6	-0.7	-0.7	-0.4		
Contribution from real exchange rate depreciation	0.3	-0.3	0.0	...	...	...	...	...	...	...	...		
Other identified debt-creating flows	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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		
<b>Residual 2/</b>	-25.7	-25.5	-24.5	-42.3	-51.1	-47.1	-35.4	-33.0	-32.6	-32.3	-27.7	-32.7	-36.8
<b>Sustainability indicators</b>													
<b>PV of public debt-to-GDP ratio 3/</b>	...	...	10.1	12.2	13.3	14.2	15.1	16.0	16.8	16.3	9.3		
<b>PV of public debt-to-revenue and grants ratio</b>	...	...	17.4	20.8	23.7	26.6	29.9	32.9	36.1	50.7	59.3		
<b>Debt service-to-revenue and grants ratio 4/</b>	0.1	0.7	0.9	1.4	2.1	2.4	2.5	2.6	2.6	3.4	5.6		
Gross financing need 5/	28.2	28.4	26.3	46.6	54.7	50.4	38.6	36.2	35.7	33.3	28.1		
<b>Key macroeconomic and fiscal assumptions</b>													
Real GDP growth (in percent)	-1.1	1.8	-7.6	1.8	3.8	2.6	2.0	2.8	3.0	3.0	3.0	1.4	2.8
Average nominal interest rate on external debt (in percent)	0.0	1.9	2.2	1.9	1.9	1.8	1.8	1.8	1.8	1.7	1.8	0.6	1.8
Average real interest rate on domestic debt (in percent)	1.4	-3.4	1.0	-0.1	-1.1	-2.1	-2.1	-2.1	-2.1	-2.2	-2.1	-1.1	-1.9
Real exchange rate depreciation (in percent, + indicates depreciation)	3.9	-3.5	0.0	...	...	...	...	...	...	...	...	-2.6	...
Inflation rate (GDP deflator, in percent)	-1.4	5.4	1.2	2.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.7	3.7
Growth of real primary spending (deflated by GDP deflator, in percent)	-1.0	-5.3	-3.7	26.8	8.8	-4.2	-12.3	-2.5	-0.1	-1.4	-0.9	-1.1	0.8
Primary deficit that stabilizes the debt-to-GDP ratio 6/	25.5	26.0	23.4	42.6	51.7	47.6	35.8	33.7	33.4	33.1	28.1	25.0	37.4
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. Definition of external debt is Currency-based.

2/ The residual in debt-creating flows is financed through excess withdrawals from the Petroleum Fund.

3/ 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.

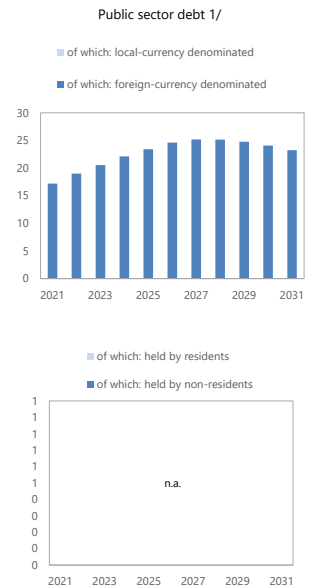
4/ Debt service is defined as the sum of interest and amortization of medium and long-term, and short-term debt.

5/ 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.

6/ 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.

7/ 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	Currency-based
Is there a material difference between the two criteria?	No



**Table 3. Timor-Leste: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External 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
<b>PV of debt-to GDP ratio</b>																					
<b>Baseline</b>	12	13	14	15	16	17	17	17	17	17	16	16	15	14	14	13	12	11	11	10	9
<b>A. Alternative Scenarios</b>																					
A1. Key variables at their historical averages in 2021-2041 2/	12	-54	-120	-183	-243	-302	-360	-413	-461	-505	-545	-581	-614	-642	-668	-690	-710	-726	-740	-751	-760
<b>B. Bound Tests</b>																					
B1. Real GDP growth	12	15	17	18	19	20	21	21	21	20	20	19	18	17	17	16	15	14	13	12	11
B2. Primary balance	12	21	<b>30</b>	<b>31</b>	<b>31</b>	<b>32</b>	<b>32</b>	<b>31</b>	<b>30</b>	29	28	27	26	25	24	22	21	20	19	18	17
B3. Exports	12	14	17	18	18	19	20	20	19	19	18	17	17	16	15	14	13	12	12	11	10
B4. Other flows 3/	12	19	25	26	26	27	27	26	25	24	23	22	21	20	18	17	16	15	14	13	12
B5. Depreciation	12	17	7	8	10	11	12	12	13	13	13	13	13	12	12	12	11	11	10	10	9
B6. Combination of B1-B5	12	20	17	19	20	20	21	21	21	20	20	19	18	17	16	15	14	14	13	12	11
<b>C. Tailored Tests</b>																					
C1. Combined contingent liabilities	12	17	17	18	19	20	20	20	20	19	19	18	18	17	16	15	14	14	13	12	11
C2. Natural disaster	12	17	18	20	21	22	23	23	23	22	22	22	21	20	19	18	17	17	16	15	14
C3. Commodity price	12	14	16	16	16	15	14	12	11	9	7	6	4	3	2	1	0	-1	-2	-2	-3
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.
<b>Threshold</b>	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
<b>PV of debt-to-exports ratio</b>																					
<b>Baseline</b>	103	120	<b>149</b>	<b>187</b>	<b>191</b>	<b>195</b>	<b>195</b>	<b>190</b>	<b>183</b>	<b>174</b>	<b>165</b>	<b>154</b>	<b>144</b>	133	123	113	104	95	87	79	72
<b>A. Alternative Scenarios</b>																					
A1. Key variables at their historical averages in 2021-2041 2/	103	-490	-1257	-2254	-2909	-3510	-4063	-4533	-4927	-5251	-5512	-5717	-5872	-5981	-6050	-6082	-6082	-6054	-6002	-5928	-5835
<b>B. Bound Tests</b>																					
B1. Real GDP growth	103	120	<b>149</b>	<b>187</b>	<b>191</b>	<b>195</b>	<b>195</b>	<b>190</b>	<b>183</b>	<b>174</b>	<b>165</b>	<b>154</b>	<b>144</b>	133	123	113	104	95	87	79	72
B2. Primary balance	103	<b>193</b>	<b>317</b>	<b>381</b>	<b>374</b>	<b>368</b>	<b>358</b>	<b>344</b>	<b>326</b>	<b>306</b>	<b>288</b>	<b>269</b>	<b>250</b>	<b>232</b>	<b>214</b>	<b>198</b>	<b>182</b>	<b>168</b>	<b>154</b>	<b>141</b>	129
B3. Exports	103	<b>149</b>	<b>210</b>	<b>261</b>	<b>264</b>	<b>267</b>	<b>265</b>	<b>258</b>	<b>246</b>	<b>233</b>	<b>219</b>	<b>205</b>	<b>190</b>	<b>175</b>	<b>161</b>	<b>148</b>	135	123	112	102	92
B4. Other flows 3/	103	<b>169</b>	<b>261</b>	<b>316</b>	<b>313</b>	<b>310</b>	<b>303</b>	<b>290</b>	<b>272</b>	<b>254</b>	<b>235</b>	<b>217</b>	<b>199</b>	<b>182</b>	<b>165</b>	<b>150</b>	136	123	111	100	89
B5. Depreciation	103	120	57	81	91	100	105	106	108	107	105	101	97	92	86	81	76	71	66	61	56
B6. Combination of B1-B5	103	<b>172</b>	<b>154</b>	<b>212</b>	<b>216</b>	<b>220</b>	<b>220</b>	<b>212</b>	<b>204</b>	<b>194</b>	<b>183</b>	<b>172</b>	<b>160</b>	<b>148</b>	136	125	115	105	96	87	79
<b>C. Tailored Tests</b>																					
C1. Combined contingent liabilities	103	<b>150</b>	<b>183</b>	<b>226</b>	<b>228</b>	<b>230</b>	<b>228</b>	<b>222</b>	<b>213</b>	<b>202</b>	<b>191</b>	<b>180</b>	<b>168</b>	<b>156</b>	<b>144</b>	133	123	113	104	95	87
C2. Natural disaster	103	<b>159</b>	<b>198</b>	<b>249</b>	<b>254</b>	<b>259</b>	<b>260</b>	<b>255</b>	<b>248</b>	<b>238</b>	<b>228</b>	<b>217</b>	<b>205</b>	<b>193</b>	<b>181</b>	<b>170</b>	<b>159</b>	<b>148</b>	<b>138</b>	<b>129</b>	<b>120</b>
C3. Commodity price	103	<b>144</b>	<b>189</b>	<b>219</b>	<b>199</b>	<b>180</b>	<b>158</b>	138	116	95	76	59	43	29	17	6	-2	-9	-15	-20	-23
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.
<b>Threshold</b>	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
<b>Debt service-to-exports ratio</b>																					
<b>Baseline</b>	7	<b>11</b>	<b>14</b>	<b>16</b>	<b>15</b>	<b>14</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>10</b>	9	8	8	8	7	7
<b>A. Alternative Scenarios</b>																					
A1. Key variables at their historical averages in 2021-2041 2/	7	<b>11</b>	-4	-26	-44	-60	-77	-125	-168	-206	-240	-268	-292	-313	-331	-347	-360	-369	-377	-382	-386
<b>B. Bound Tests</b>																					
B1. Real GDP growth	7	<b>11</b>	<b>14</b>	<b>16</b>	<b>15</b>	<b>14</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>10</b>	9	8	8	8	7	7
B2. Primary balance	7	<b>11</b>	<b>16</b>	<b>21</b>	<b>19</b>	<b>18</b>	<b>15</b>	<b>20</b>	<b>24</b>	<b>23</b>	<b>21</b>	<b>20</b>	<b>19</b>	<b>19</b>	<b>18</b>	<b>16</b>	<b>15</b>	<b>14</b>	<b>14</b>	<b>13</b>	<b>12</b>
B3. Exports	7	<b>12</b>	<b>17</b>	<b>20</b>	<b>19</b>	<b>18</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>17</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>14</b>	<b>14</b>	<b>12</b>	<b>11</b>	<b>10</b>	<b>10</b>	<b>9</b>	<b>9</b>
B4. Other flows 3/	7	<b>11</b>	<b>15</b>	<b>19</b>	<b>18</b>	<b>17</b>	<b>14</b>	<b>17</b>	<b>20</b>	<b>19</b>	<b>17</b>	<b>17</b>	<b>16</b>	<b>16</b>	<b>15</b>	<b>13</b>	<b>12</b>	<b>11</b>	<b>11</b>	<b>10</b>	<b>9</b>
B5. Depreciation	7	<b>11</b>	<b>14</b>	<b>13</b>	<b>12</b>	<b>12</b>	9	10	6	7	6	6	7	7	7	6	5	5	5	5	5
B6. Combination of B1-B5	7	<b>12</b>	<b>16</b>	<b>17</b>	<b>16</b>	<b>16</b>	<b>13</b>	<b>16</b>	<b>14</b>	<b>14</b>	<b>12</b>	<b>13</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>10</b>	9	9	8	8	8
<b>C. Tailored Tests</b>																					
C1. Combined contingent liabilities	7	<b>11</b>	<b>15</b>	<b>17</b>	<b>16</b>	<b>15</b>	<b>12</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>11</b>	<b>11</b>	10	9	8	8	7	7
C2. Natural disaster	7	<b>11</b>	<b>15</b>	<b>18</b>	<b>17</b>	<b>16</b>	<b>13</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>12</b>	<b>12</b>	<b>11</b>	10	9	9	8	8
C3. Commodity price	7	<b>12</b>	<b>16</b>	<b>19</b>	<b>17</b>	<b>15</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>12</b>	9	8	7	7	6	4	2	2	1	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.
<b>Threshold</b>	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
<b>Debt service-to-revenue ratio</b>																					
<b>Baseline</b>	2	3	3	3	3	3	3	4	4	4	4	5	5	5	6	6	5	6	6	6	6
<b>A. Alternative Scenarios</b>																					
A1. Key variables at their historical averages in 2021-2041 2/	2	3	-1	-5	-10	-15	-21	-37	-54	-73	-92	-113	-135	-158	-182	-209	-237	-267	-298	-331	-365
<b>B. Bound Tests</b>																					
B1. Real GDP growth	2	3	4	4	4	4	4	4	5	5	5	6	6	7	7	7	7	7	7	8	8
B2. Primary balance	2	3	4	4	4	5	4	6	8	8	8	9	9	9	10	10	10	10	11	11	12
B3. Exports	2	3	3	3	4	4	3	4	5	5	5	5	6	6	6	6	6	6	7	7	7
B4. Other flows 3/	2	3	3	4	4	4	4	5	6	7	7	7	8	8	8	8	8	8	8	9	9
B5. Depreciation	2	3	4	3	4	4	3	4	2	3	3	3	4	4	5	4	4	5	5	5	6
B6. Combination of B1-B5	2	3	4	4	4	4	4	5	5	5	5	6	6	7	7	7	7	7	7	7	8
<b>C. Tailored Tests</b>																					
C1. Combined contingent liabilities	2	3	3	3	4	4	3	4	4	5	4	5	5	6	6	6	6	6	6	6	7
C2. Natural disaster	2	3	3	4	4	4	3	4	4	5	5	5	6	6	6	6	6	6	7	7	7
C3. Commodity price	2	3	3	4	4	4	3	4	4	4	3	3	3	3	3	2	2	1	1	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.
<b>Threshold</b>	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.

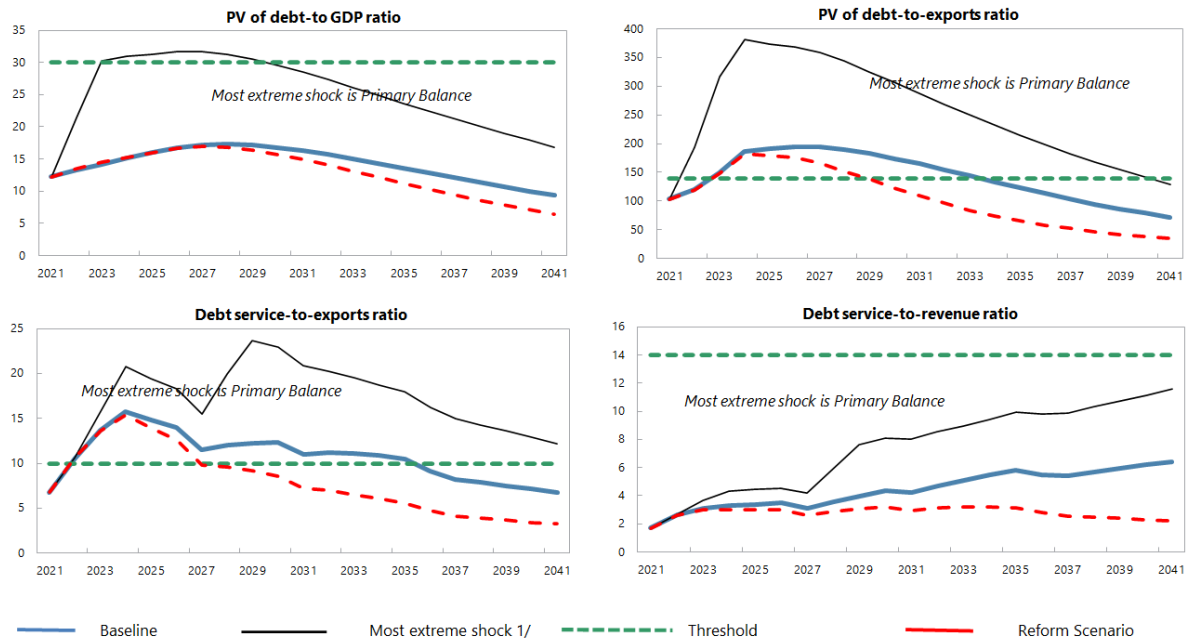
3/ Includes official and private transfers and FDI.

Table 4. Timor-Leste: Sensitivity Analysis for Key Indicators of Public Debt, 2021-2031

	Projections 1/										
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
<b>PV of Debt-to-GDP Ratio</b>											
<b>Baseline</b>	12	13	14	15	16	17	17	17	17	17	16
<b>A. Alternative Scenarios</b>											
A1. Key variables at their historical averages in 2021-2041 2/	12	0	-9	-10	-9	-9	-8	-8	-8	-7	-7
<b>B. Bound Tests</b>											
B1. Real GDP growth	12	18	27	34	<b>40</b>	<b>45</b>	<b>50</b>	<b>54</b>	<b>57</b>	<b>59</b>	<b>61</b>
B2. Primary balance	12	21	30	31	31	32	32	31	30	29	28
B3. Exports	12	14	16	17	18	19	19	19	19	18	18
B4. Other flows 3/	12	19	25	26	26	27	27	26	25	24	23
B5. Depreciation	12	15	13	11	10	9	8	6	5	4	2
B6. Combination of B1-B5	12	19	19	17	18	19	19	19	19	18	18
<b>C. Tailored Tests</b>											
C1. Combined contingent liabilities	12	17	17	18	19	20	20	20	20	19	19
C2. Natural disaster	12	17	18	20	21	22	23	23	23	22	22
C3. Commodity price	12	23	<b>39</b>	<b>52</b>	<b>64</b>	<b>74</b>	<b>82</b>	<b>89</b>	<b>94</b>	<b>99</b>	<b>103</b>
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.
<b>Public debt benchmark</b>	35	35	35	35	35	35	35	35	35	35	35
<b>PV of Debt-to-Revenue Ratio</b>											
<b>Baseline</b>	21	24	27	30	33	36	40	43	46	48	51
<b>A. Alternative Scenarios</b>											
A1. Key variables at their historical averages in 2021-2041 2/	21	0	-17	-19	-19	-19	-19	-20	-20	-21	-22
<b>B. Bound Tests</b>											
B1. Real GDP growth	21	32	48	63	78	92	110	127	145	163	181
B2. Primary balance	21	38	57	61	65	68	74	78	82	85	89
B3. Exports	21	26	31	34	37	40	44	48	51	53	55
B4. Other flows 3/	21	33	47	51	54	57	62	66	68	71	72
B5. Depreciation	21	26	25	23	21	19	18	16	13	10	7
B6. Combination of B1-B5	21	34	35	34	37	40	44	47	50	53	55
<b>C. Tailored Tests</b>											
C1. Combined contingent liabilities	21	30	33	36	39	43	47	50	53	56	59
C2. Natural disaster	21	31	35	39	43	47	52	57	61	65	69
C3. Commodity price	21	42	75	106	134	160	190	218	249	281	314
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.
<b>Debt Service-to-Revenue Ratio</b>											
<b>Baseline</b>	1.4	2.1	2.4	2.5	2.6	2.6	2.4	2.7	3.1	3.4	3.4
<b>A. Alternative Scenarios</b>											
A1. Key variables at their historical averages in 2021-2041 2/	1.4	2.1	1.8	1.4	1.3	1.3	1.0	-0.3	-1.4	-1.5	-1.9
<b>B. Bound Tests</b>											
B1. Real GDP growth	1.4	2.3	3.0	3.4	3.7	4.0	4.1	5.2	6.7	8.3	9.4
B2. Primary balance	1.4	2.1	2.8	3.3	3.4	3.4	3.2	4.5	6.0	6.4	6.4
B3. Exports	1.4	2.1	2.5	2.6	2.7	2.7	2.5	3.0	3.5	3.8	3.8
B4. Other flows 3/	1.4	2.1	2.7	3.0	3.1	3.1	2.9	3.9	5.0	5.3	5.3
B5. Depreciation	1.4	2.4	3.1	3.1	3.0	2.9	2.5	2.4	2.3	2.2	1.6
B6. Combination of B1-B5	1.4	2.1	2.5	2.6	2.6	2.7	2.4	2.8	3.2	3.5	3.5
<b>C. Tailored Tests</b>											
C1. Combined contingent liabilities	1.4	2.1	2.6	2.7	2.7	2.8	2.5	2.9	3.2	3.6	3.6
C2. Natural disaster	1.4	2.1	2.7	2.7	2.8	2.9	2.7	3.0	3.4	3.8	3.8
C3. Commodity price	1.4	2.2	3.1	4.0	4.7	5.3	5.7	7.8	10.8	13.6	16.0
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.

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.

Figure 1. Timor-Leste: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2021-2041



Customization of Default Settings		
	Size	Interactions
<b>Tailored Tests</b>		
Combined CLs	Yes	
Natural Disasters	Yes	No
Commodity Prices <sup>2/</sup>	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 for Stress Tests*		
	Default	User defined
<b>Shares of marginal debt</b>		
External PPG MLT debt	100%	
<b>Terms of marginal debt</b>		
Avg. nominal interest rate on new borrowing in USD	1.8%	1.8%
USD Discount rate	5.0%	5.0%
Avg. maturity (incl. grace period)	26	26
Avg. grace period	5	5

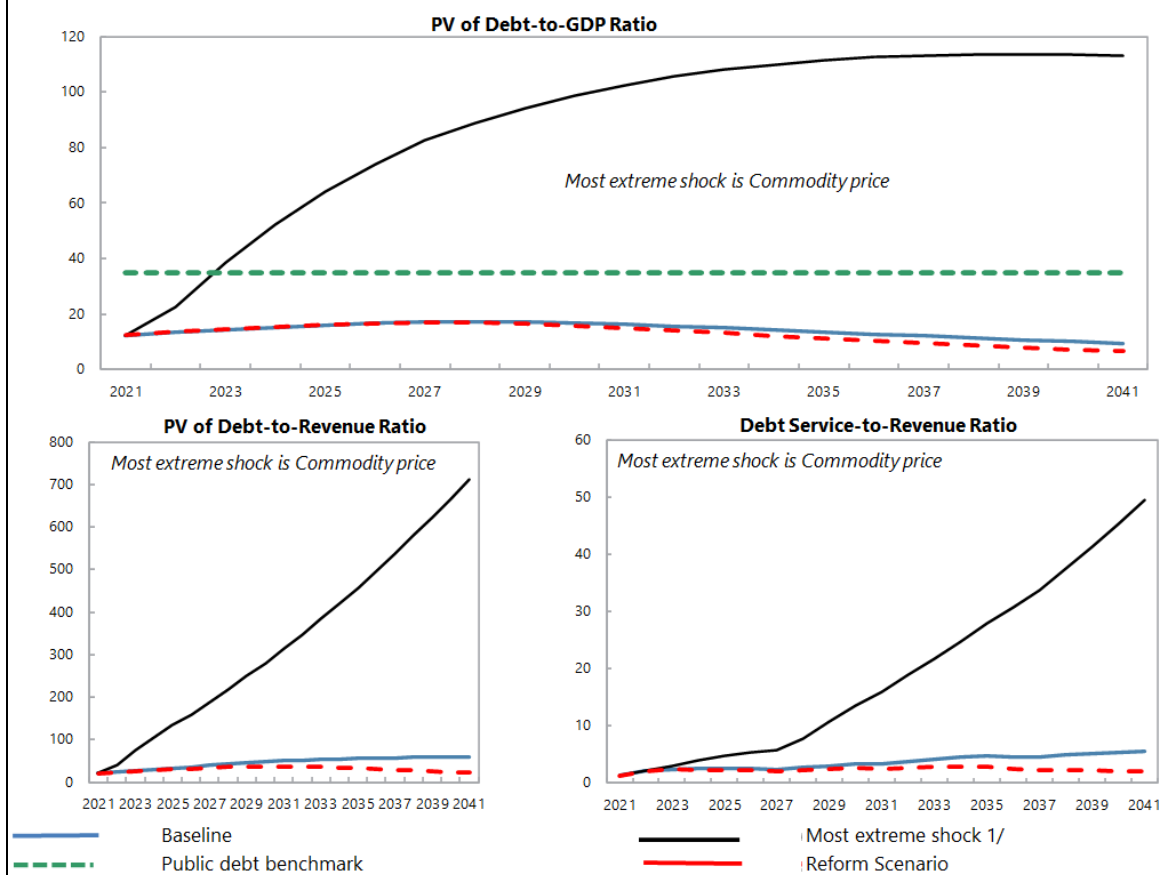
\* Note: All the additional financing needs generated by the shocks under the stress tests are assumed to be covered by PPG external MLT debt in the external DSA. Default terms of marginal debt are based on baseline 10-year projections.

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. Stress tests with one-off breaches are also presented (if any), while these one-off breaches are 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. Timor-Leste: Indicators of Public Debt Under Alternative Scenarios, 2021-2041



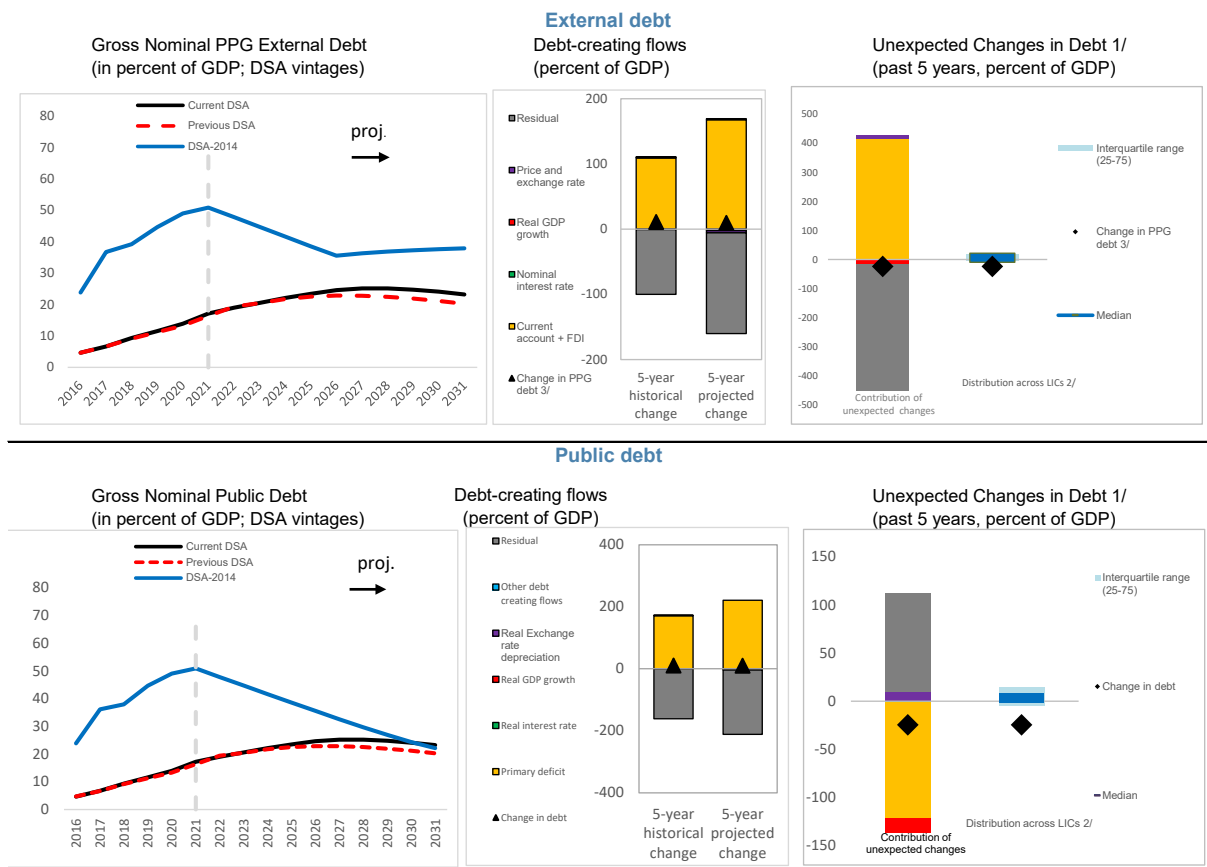
Borrowing Assumptions for Stress Tests*	Default	User defined
<b>Shares of marginal debt</b>		
External PPG medium and long-term	100%	100%
Domestic medium and long-term	0%	0%
Domestic short-term	0%	0%
<b>Terms of marginal debt</b>		
<b>External MLT debt</b>		
Avg. nominal interest rate on new borrowing in USD	1.8%	1.8%
Avg. maturity (incl. grace period)	26	26
Avg. grace period	5	5
<b>Domestic MLT debt</b>		
Avg. real interest rate on new borrowing	0.0%	0.0%
Avg. maturity (incl. grace period)	1	1
Avg. grace period	0	0
<b>Domestic short-term debt</b>		
Avg. real interest rate	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. Timor-Leste: Drivers of Debt Dynamics - Baseline Scenario**

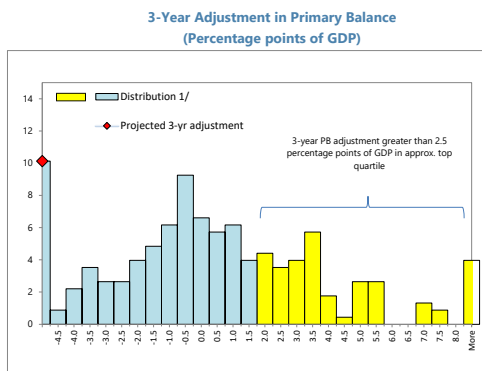


1/ Difference between anticipated and actual contributions on debt ratios.

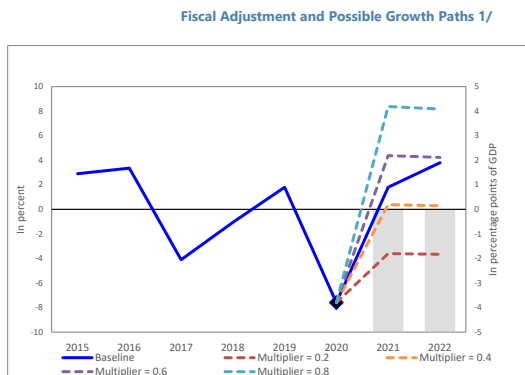
2/ Distribution across LICs for which LIC DSAs were produced.

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. Timor-Leste: Realism Tools**

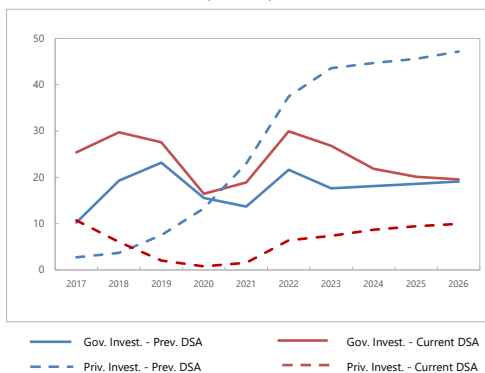


1/ Data cover Fund-supported programs for LICs (excluding emergency financing) approved since 1990. The size of 3-year adjustment from program inception is found on the horizontal axis; the percent of sample is found on the vertical axis.



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).

**Public and Private Investment Rates (% of GDP)**



**Figure 5. Timor-Leste: Qualification of the Moderate Category, 2021-2031 1/**



Sources: Country authorities; and staff estimates and projections.

1/ For the PV debt/GDP and PV debt/exports thresholds, x is 20 percent and y is 40 percent. For debt service/Exports and debt service/revenue thresholds, x is 12 percent and y is 35 percent.