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STAFF REPORT FOR THE 2016 ARTICLE IV CONSULTATION—DEBT SUSTAINABILITY ANALYSIS

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Prepared by Staff of the International Monetary Fund and the International Development Association[1]

The Debt Sustainability Analysis (DSA) indicates that Timor-Leste is at moderate risk of debt distress.[2] This represents a downgrade from a low risk of debt distress at the time of the 2014 DSA. The deterioration in the debt rating reflects a shift in the authorities' financing strategy, namely to increase the use of concessional borrowing to finance frontloaded infrastructure spending in order to reduce financing by the drawdown of the assets of the Petroleum Fund (PF). At end-2015, net public assets (oil-related savings accumulated in the PF and currently negligible debt stock) stood at over $16 billion. The DSA suggests that current fiscal spending plans are unsustainable as the PF will be depleted in the long term given the current rate of withdrawals under existing expenditure plans. Achieving fiscal sustainability requires scaling back large front-loaded public investment plans in line with implementation capacity, rationalizing recurrent spending, and strengthening non-oil revenues. Bold fiscal consolidation measures are needed to safeguard long-term fiscal and debt sustainability. High fiscal spending and inadequate mobilization of domestic revenues are the main sources of risk. Feasibility studies to ensure that public investment is efficient and yields adequate returns would help to ensure fiscal sustainability.

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[1] This DSA has been prepared by the IMF staff with input from World Bank Group staff, using the debt sustainability framework for low-income countries approved by the Boards of both institutions.

[2] The DSA presented in this document is based on the standard low-income countries (LIC) DSA framework. See "Debt Sustainability in Low-Income Countries: Proposal for an Operational Framework and Policy implications" (http://www.imf.org/external/np/pdr/sustain/2004/020304.htm) and "Debt Sustainability in Low-Income Countries: Further Considerations on an Operational Framework, Policy Implications" (http://www.imf.org/external/np/pdr/sustain/2004/091004.htm).

UNDERLYING ASSUMPTIONS

1.   This DSA is based on the macroeconomic framework outlined in the IMF's staff report for the 2016 Article IV consultation. Staff projections are for total nominal GDP to contract through 2016, as oil production declines. Staff projects real non-oil GDP growth to be in the range of 5–6½ percent in the medium term. This growth is expected to be more private-sector led than in the past in Timor-Leste, and is lower than previously projected, reflecting a weaker global outlook. Inflationary pressure is expected to remain low in the medium term due to lower global commodity prices and continued strength of the U.S. dollar against Timor-Leste's trading partners' currencies. However, compared to the 2014 DSA, the external current account balance is expected to deteriorate due to a greater decline in oil and gas prices and diminishing oil exports. Macroeconomic assumptions for this DSA are outlined in Box 1. To illustrate the impact of different policy options on debt sustainability, three scenarios were considered in this DSA which are outlined below.

2.   The 2016 Budget scenario assumes full implementation of frontloaded capital spending in 2017–20. Total capital spending during this period will reach US$3.4 billion consisting of proposed front-loaded infrastructure investments in roads, bridges, ports, and airport deemed essential to lay the foundation for private sector-led development for achieving the Strategic Development Plan 2011-30. On average, 70 percent of the larger financing gap in 2017–20 will be met by withdrawals from the Petroleum Fund (PF), the bulk of which will consist of withdrawals above the Estimated Sustainable Income (ESI), complemented by concessional borrowing (see text table).

3.   The baseline fiscal scenario reflects a reduction in capital spending to reflect implementation capacity. Given capacity constraints and past low implementation rates of large capital projects, the frontloading of capital spending under the baseline scenario is assumed to be two-third of the amount for 2017-20 outlined in the 2016 Budget. The investment plans underlying this scenario (and the adjustment scenario) are proposed mid-sized key infrastructure projects such as roads and bridges, a subset of the infrastructure plans. The baseline scenario also assumes a cap on total withdrawal of the PF of US$1.3 billion, broadly in line with the notional budget envelope proposed during the Yellow Road Workshop discussions of domestic stakeholders that will ensure fiscal sustainability. Despite lower capital spending, the expected borrowing during 2017–20 is comparable to that under the 2016 Budget scenario given lower excess PF withdrawal.

4.   Under staff's proposed adjustment scenario, bold policy actions are adopted to ensure long-term fiscal sustainability. Under this scenario, the increase in capital spending projected by the 2016 Budget over 2017–20 is reduced by one-half. Total spending is kept at under $1.4 billion (excluding donor projects) during 2022–26 and as a constant share of GDP after 2027. This scenario also assumes domestic revenue mobilization measures including the introduction of a value-added tax (VAT) in the medium term to achieve the government's tax revenue goal of 15 percent of non-oil GDP in 2020. Over the long term, the need for concessional borrowing is lower compared to the

baseline and budget scenarios on account of stronger revenue mobilization. Reliance on excess PF withdrawals is lower, and ceases beyond 2025. Figure 1 and the text table show the profile of the PF balance and fiscal funding gaps under the three scenarios.

Box 1. Timor-Leste: Macroeconomic Assumptions Underlying the DSA

- **Real GDP growth is projected to fall in the medium term on account of declining oil production**. Oil production is estimated to run out by 2023. Non-oil GDP growth is projected to be in the range of 5–6½ percent over the medium term in part supported by expected foreign direct investment inflows and to stabilize at around 5.5 percent for 2021–35. Growth assumptions are lower relative to the 2014 DSA reflecting a weaker global outlook.

- **Inflation** is expected to increase steadily over the medium term to about 4 percent on account of some spillovers from public investment activity and is maintained at that level in the long run.

- **The current account balance** is expected to remain in surplus up to 2016, after which it moves into deficit, reflecting lower oil and gas receipts and higher imports generated by infrastructure projects. These current account balance assumptions are substantially weaker relative to the 2014 DSA on account of lower global oil prices.

Key Macroeconomic Assumptions Underlying the DSA

	Current DSA		Previous DSA	
	Medium Term	Long Term	Medium Term	Long Term
	2015-2021	2022-2035	2014-2020	2021-2034
Real GDP Growth (in percent)	5.5	5.5	7.0	7.0
Inflation (in percent)	3.3	4.0	3.5	4.0
Overall fiscal balance (in percent of GDP)	-15.5	-10.5	19.5	-9.0
Current account (in percent of GDP)	-5.4	-15.8	20.7	-5.7
Revenue (in percent of GDP)	50.7	20.7	56.9	26.5
Borrowing (in millions of USD, period average)	171	37	91	50

Source: IMF staff estimates

- **The grant element of loans** is assumed to decline over the medium term reflecting the financing needs of frontloaded infrastructure projects and to stabilize at about 40 percent in the long run after the infrastructure spending peak is over. The average interest rate on concessional loans for 2021–35 is projected at 1.8 percent.

- **External borrowing.** Given the front-loading of capital expenditure projects in 2017-21 under the baseline scenario, borrowing is projected to decline rapidly from $171 million per annum in the medium term to $37 million per annum in the long term.

Figure 1. Timor-Leste: Petroleum Fund Balance Dynamics Under the 2016 Budget, Baseline, and Adjustment Scenarios

PF Dynamics: 2016 Budget Scenario (flow) 1/
(In millions of US dollars)
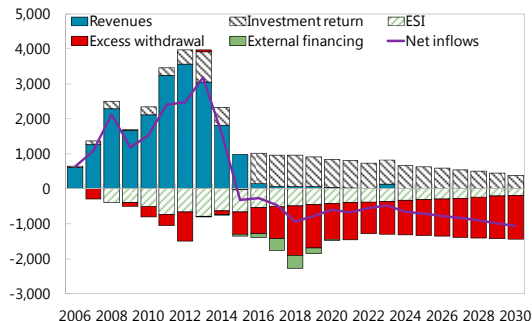
1/ Staff extrapolation from 2021.

PF Dynamics: 2016 Budget Scenario(stock) 1/
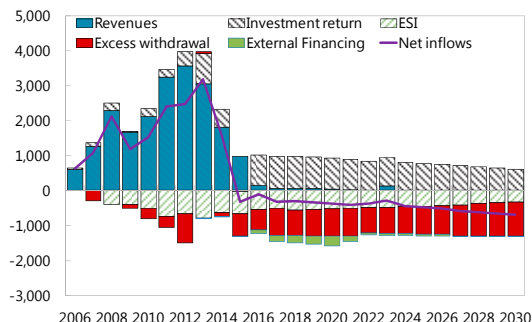(In millions of US dollars)
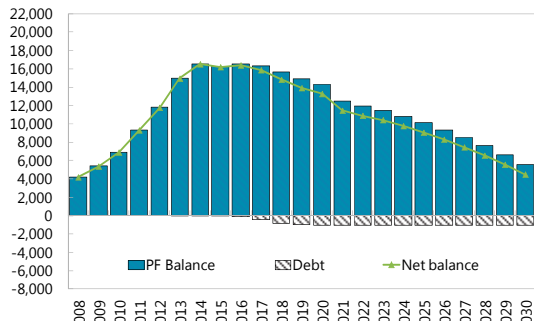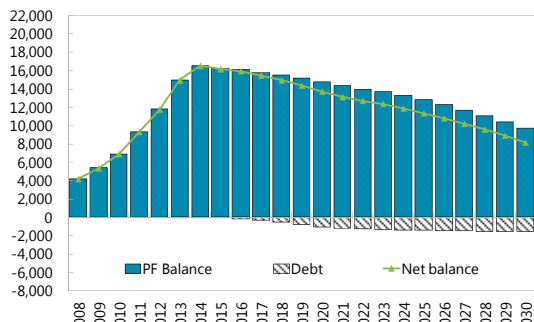

1/ Staff extrapolation from 2021.

PF Dynamics: Baseline Scenario (flow)
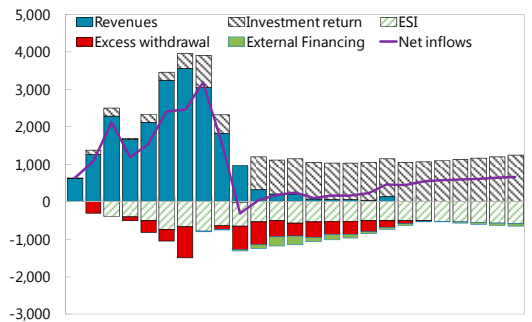(In millions of US dollars)

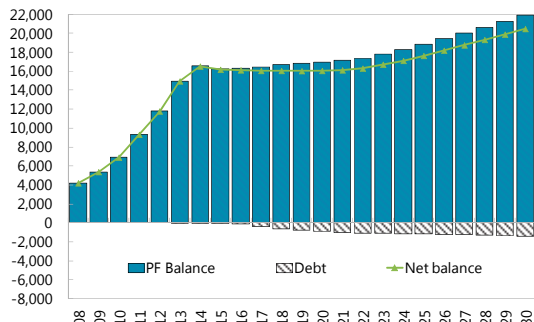**PF Dynamics: Baseline Scenario (stock)**
(In millions of US dollars)

PF Dynamics: Adjustment Scenario (flow)
(In millions of US dollars)

PF Dynamics: Adjustment Scenario (stock)
(In millions of US dollars)

Projected Medium-Term Fiscal Funding Gaps Under the 2016 Budget, Baseline, and Adjustment Scenarios 1/ (In millions of US dollars)						
	2017	**2018**	**2019**	**2020**	**2021**	**Total (2017–21)**
2016 Budget Framework 2/						
Funding gap	1,258	1,784	1,423	1,072	1,012	6,547
Excess PF Withdrawal	909	1,417	1,262	1,033	1,000	5,621
Borrowing	348	366	161	39	12	926
Baseline Scenario						
Funding gap	951	930	999	1,059	951	4,890
Excess PF Withdrawal	778	715	763	777	791	3,824
Borrowing	173	215	237	281	160	1,066
Adjustment Scenario						
Funding gap	675	583	533	491	449	2,730
Excess PF Withdrawal	426	336	409	345	349	1,865
Borrowing	248	246	124	147	100	865
1/ Funding gap is defined as financing need not met by withdrawal of the Estimated Sustainable Income (ESI)						
2/ Timor-Leste 2016 State Budget Book 1 (Approved)						

5.   The DSA is based on the following:

- Timor-Leste has a weak Country Policy and Institutional Assessment (CPIA) performance rating, corresponding to the lowest set of indicative debt thresholds.

- The DSA framework uses a 5 percent discount rate.

- Concessional debt is defined as debt that exceeds a minimum grant element of 35 percent. Semi-concessional debt has a positive grant element that does not meet the minimum grant element.

- The DSA adopts a broad concept of exports which includes exports of goods and services, as well as primary oil-related incomes.

- Total public sector revenue is defined as non-oil domestic revenue plus the estimated sustainable income (ESI) from the PF. The funding gap is met by PF withdrawals in excess of the ESI and external borrowing.

- All debt is undertaken by the central government. No off-balance sheet debt is accumulated, including by state-owned enterprises such as the national oil company, the Timor GAP.

- Debt financing contracted by the central government relating to the funding of infrastructure projects should be on a concessional basis.

- Since the public sector only borrows externally with no domestic liabilities issued and the Timorese private sector does not incur any medium- or long-term external liabilities, the public DSA and external DSA are combined.

BACKGROUND

6.   The government currently holds a strong net asset position due to the accumulation of substantial assets in the PF and limited public debt. However, a combination of higher PF withdrawals in excess of the Estimated Sustainable Income (ESI), lower oil revenues, and negative investment returns saw the PF balance decline in 2015, for the first time since its creation. At end-2015, the PF balance stood at US$16.2 billion or 169 months of imports of goods and services.

7.   The government has adopted a prudent policy of utilizing the most concessional loans available to them. External loans signed as of end-2015 stood at $240 million (9 percent of GDP), consisting of concessional loans from the Asian Development Bank, the World Bank Group, and Japan International Cooperation Agency, and a recently signed semi-concessional loan of $50 million from China EXIM Bank to upgrade Dili's drainage system.

Net Public Sector Assets
(In millions of US dollars)
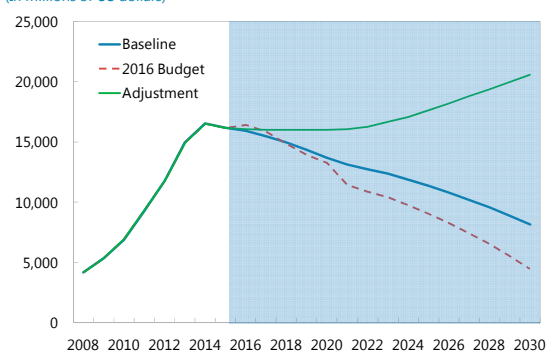
ASSESSMENT

8.   Timor-Leste's risk of debt distress has deteriorated from low to moderate since the 2014 DSA. Although the fiscal projections under the baseline scenario do not lead to breaches of thresholds, stress tests—corresponding to export shock scenarios—resulted in breaches for all but one indicator (Figure 2). The deterioration in the debt rating is mainly driven by the projected front-loading of infrastructure spending, and the associated increase in public external borrowing via concessional loans. Nevertheless, under the baseline scenario, which does not assume substantial fiscal consolidation or domestic revenue mobilization based on new policy, the government will also continue to draw down on the PF in excess of the ESI, further eroding PF wealth.

9.   Net debt remains negative throughout the forecast period under the baseline scenario, but is projected to deteriorate progressively reflecting the reduction in PF assets and increase in external debt. Increased excess PF withdrawals to meet higher financing needs are expected to heighten the loss in investment income in the medium term, accelerating the depletion of PF wealth (Figure 1).

10.   Assessment of the adjustment scenario demonstrates that fiscal consolidation coupled with fiscal reforms could ensure long-term fiscal sustainability. Under this scenario, debt ratios are projected to remain well below indicative thresholds. The lower financing needs associated with a more moderate pace of infrastructure spending would imply lower external borrowing and less

reliance on excess PF withdrawals. With fiscal reforms—including the introduction of a value-added tax aimed at boosting domestic revenues to 15 percent of non-oil GDP—excess PF withdrawals could be gradually reduced to zero in the long term. This would allow PF assets to grow, ensuring the PF's long-term sustainability. In addition, adopting policies to boost growth potential (through infrastructure and human capital investment) and enhance competitiveness (in wages and business conditions), would help to reduce the risks of weaker growth and help enhance fiscal and debt sustainability.

11.   A strong debt management and asset-liability framework is needed to complement a prudent fiscal policy focused on long-term sustainability. The increased use of concessional financing and increased avenues for the government's exposure to contingent liabilities—for instance, through higher use of public-private partnerships (PPPs)— are expected to increase the complexity of the consolidated government balance sheet. Key considerations include**:**

- **New debt liabilities**. Non-concessional debt should be avoided.

- **Public-private partnerships**. Need to be undertaken with realistic and transparent project assessments to reduce contingent liabilities.

- **Off-budget activities.** Major capital-intensive projects tend to have complex financing structures and the cost-benefit of public participation in these projects can be difficult to assess. All such projects should be transparent and subject to full scrutiny.

- **Off-balance sheet activities should be avoided.** This is particularly relevant for state-owned companies such as the oil company, Timor GAP, which should avoid undertaking equity positions in joint venture projects or issue liabilities in overseas markets.

- **Fiscal autonomy**. The extension of a high level of fiscal autonomy to the ZEESM and the Oecusse SAR raises risks of off-budget expenditures and the accumulation of contingent liabilities.

- **Petroleum Fund**. The strategic asset allocation away from purely high quality bonds toward equities with a 50:50 split (60:40 bond-to-equities as at end-2015) may be appropriate from a long-term intergenerational perspective, but the risk-return trade-offs in inherently volatile global financial markets need to be carefully considered. The provision to allow the PF to guarantee government debts (up to 10 percent of the PF's assets) continues to be potentially risky and should be avoided.

AUTHORITIES' VIEWS

12.   The authorities consider the risk of debt distress to be contained despite higher borrowing. Although projected external borrowing to finance government's infrastructure spending over the next few years is considerable, the authorities view the projections under the baseline scenario as close to the upper limit of their expected financing needs. Their view is that actual

borrowing will be determined by the pace of project implementation, which may be slower than projected in the baseline scenario of the DSA. The authorities also pointed out that the accumulated savings in the PF provide an ample buffer against debt distress. Moreover, the authorities highlighted the importance of infrastructure development as part of the Strategic Development Plan to transition Timor-Leste to upper middle income status by 2030. The resulting increase in growth potential is expected to contribute towards ensuring debt sustainability.

13.   The authorities remain committed to long-term fiscal sustainability. Fiscal reform plans in the pipeline—which include the introduction of the value-added tax—will boost domestic revenue and help to ensure fiscal and debt sustainability. The authorities have also expressed interest in Fund TA to strengthen their capacity in debt management.

CONCLUSION

14.   Timor-Leste's debt is at moderate risk of debt distress driven by higher external borrowing. The plan to increase the utilization of external concessional financing reflects the government's frontloaded infrastructure spending and strategy to preserve the wealth of the PF. The PF is a source of confidence for the economy and should be preserved as an endowment fund. The PF assets should be preserved in real terms and generate a permanent level of investment income to support government expenditures. While some drawdown of the assets of the PF is justified for infrastructure investment in order to diversify the economy and boost growth potential, the assets also need to be preserved at a level that is sufficient to provide adequate investment income for future generations. Meeting the financing gap through external loans is warranted, especially if the borrowing cost is lower than the opportunity cost of tapping into the PF as measured by the PF's expected investment return, and guided by the DSA. The discipline of debt sustainability monitoring by creditors may also come with other benefits such as the transfer of knowledge by these multilateral or bilateral institutions.

15.   Bold fiscal consolidation measures are needed to safeguard long-term fiscal and debt sustainability. Achieving fiscal sustainability requires scaling back large front-loaded public investment plans in line with implementation capacity, rationalizing recurrent spending, strengthening non-oil revenues, and adhering to a medium-term fiscal consolidation plan. In addition, better prioritization of public investment plans, focusing on high-return infrastructure projects through rigorous investment appraisal is important. Optimizing the composition and quality of spending to help close Timor-Leste's infrastructure gap is key to long-term fiscal and debt sustainability

Figure 2. Timor-Leste: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2015-2035 2/
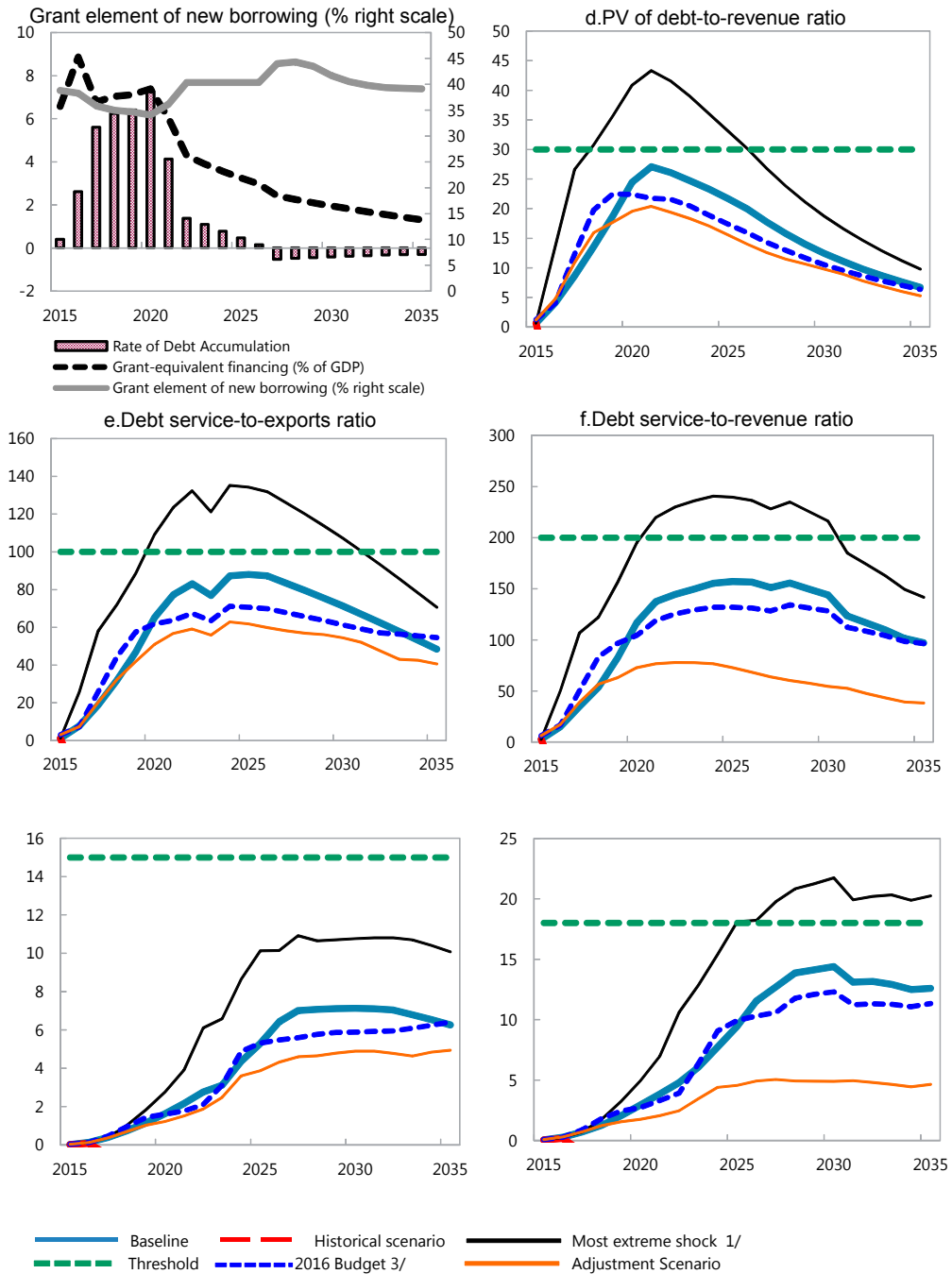
Grant element of new borrowing (% right scale)

- Rate of Debt Accumulation
- Grant-equivalent financing (% of GDP)
- Grant element of new borrowing (% right scale)

d.PV of debt-to-revenue ratio

e.Debt service-to-exports ratio

f.Debt service-to-revenue ratio

- Baseline
- Threshold
- Historical scenario
- 2016 Budget 3/
- Most extreme shock 1/
- Adjustment Scenario

Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio on or before 2025. In figure b. it corresponds to a non-debt flows shock; in c. to a non-debt flows shock; in d. to a non-debt flows shock; in e. to a terms shock and in figure f. to a terms shock.

2/ Under the historical scenario, debt-to-GDP ratio is negative after 2017, due to large current account surpluses. Net debt creating dynamics are assumed to depend on the historical average of non-interest current account balances. However, these do not reflect declining oil production in future.

3/ Staff extrapolation after 2021.

Figure 3.Timor-Leste: Indicators of Public Debt (Net) Under Alternative Scenarios, 2015-2035 1/

Legend:
- Baseline
- Fix Primary Balance
- Most extreme shock 1/
- Historical scenario
- Public debt benchmark
- 2016 Budget 4/
- Adjustment Scenario

PV of Debt-to-GDP Ratio

PV of Debt-to-Revenue Ratio 2/

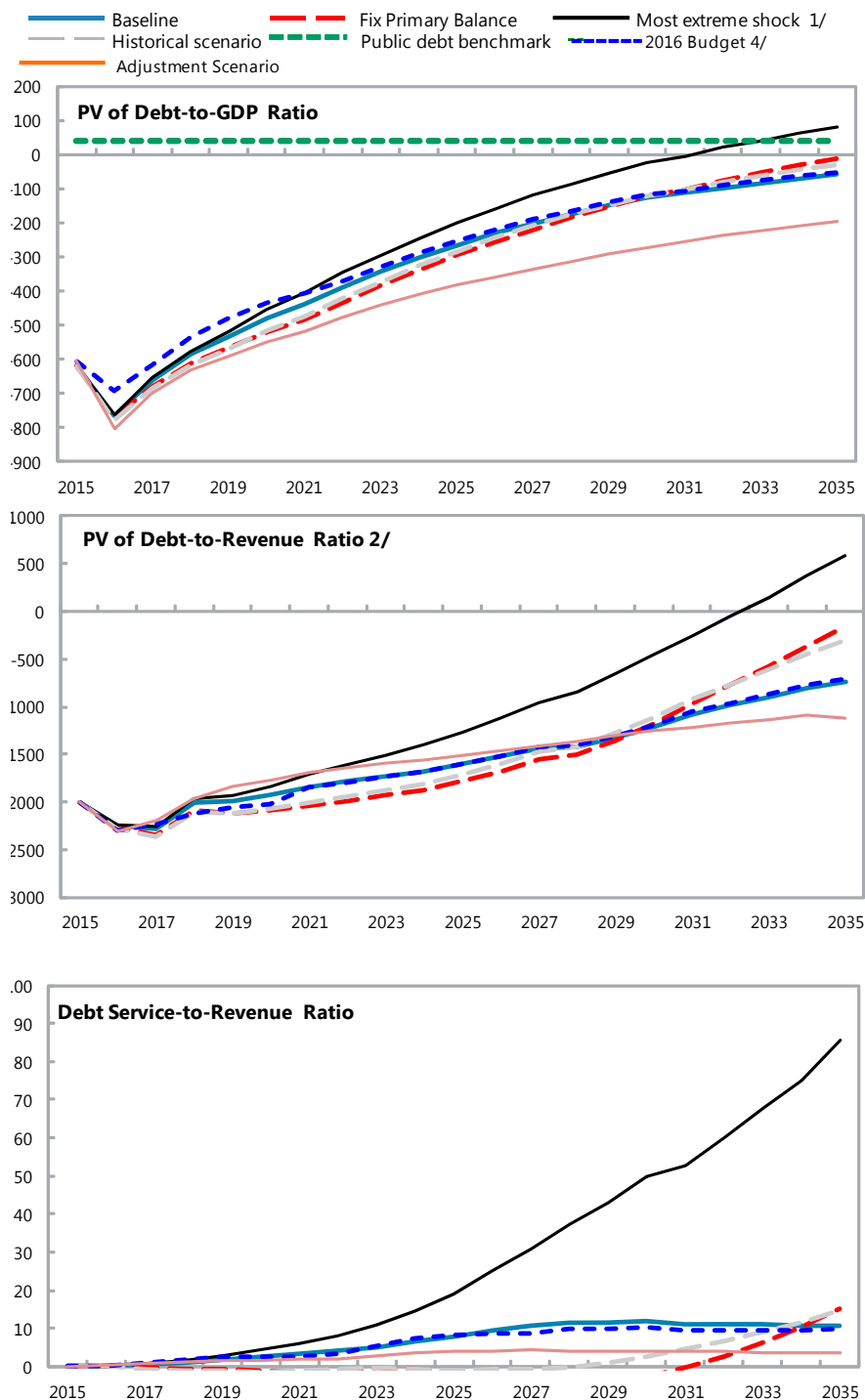Debt Service-to-Revenue Ratio

Sources: Country authorities; and staff estimates and projections.
1/ The most extreme stress test is the test that yields the highest ratio on or before 2025.
2/ Revenues are defined inclusive of grants.
3/ Negative debt burden indicators arise because the strong current account surpluses historically led to the accumulation of net assets.
4/ Staff extrapolation after 2021.

Table 1A.Timor-Leste: External Debt Sustainability Framework, Baseline Scenario, 2012-2035 1/

(In percent of GDP, unless otherwise indicated)

	Actual			Historical [6] Average	Standard [6] Deviation	Projections						2015-2020 Average			2021-2035 Average
	2012	2013	2014			2015	2016	2017	2018	2019	2020		2025	2035	
External debt (nominal) 1/	**0.0**	**0.1**	**0.5**			**1.9**	**7.7**	**14.5**	**21.9**	**29.6**	**37.6**		**31.4**	**9.9**	
of which: public and publicly guaranteed (PPG)	0.0	0.1	0.5			1.9	7.7	14.5	21.9	29.6	37.6		31.4	9.9	
Change in external debt	0.0	0.1	0.4			1.4	5.8	6.8	7.4	7.7	8.0		-2.6	-1.2	
Identified net debt-creating flows	...	...	-26.2			-17.8	-9.8	4.3	5.0	8.5	9.7		5.3	13.6	
Non-interest current account deficit	**-40.2**	**-42.7**	**-25.1**	**-34.9**	**10.9**	**-16.4**	**-2.0**	**11.7**	**11.9**	**11.7**	**11.7**		**12.7**	**20.5**	**14.8**
Deficit in balance of goods and services	-32.6	-38.9	-22.5			-8.0	8.7	21.9	21.8	21.6	21.4		20.6	23.9	
Exports	57.0	60.4	50.6			53.2	53.1	45.8	42.7	40.3	37.5		24.7	13.9	
Imports	24.4	21.5	28.1			45.2	61.8	67.8	64.4	61.8	58.9		45.3	37.8	
Net current transfers (negative = inflow)	-6.3	-3.2	-1.9	-8.2	3.7	-8.6	-11.2	-10.4	-9.9	-9.8	-9.6		-8.1	-5.4	-7.3
of which: official	-6.3	-6.2	-6.2			-6.1	-6.8	-6.1	0.0	0.0	0.0		0.0	0.0	
Other current account flows (negative = net inflow)	-1.3	-0.6	-0.7			0.1	0.6	0.2	0.1	-0.1	-0.2		0.2	2.0	
Net FDI (negative = inflow)	**-0.8**	**-1.1**	**-1.1**	**-0.8**	**0.5**	**-1.3**	**-8.1**	**-8.4**	**-7.7**	**-5.6**	**-5.1**		**-6.5**	**-6.6**	**-6.4**
Endogenous debt dynamics 2/	**...**	**...**	**0.0**			**0.0**	**0.2**	**1.0**	**0.8**	**2.4**	**3.1**		**-1.0**	**-0.4**	
Contribution from nominal interest rate	...	...	0.0			0.0	0.0	0.1	0.3	0.4	0.6		0.6	0.2	
Contribution from real GDP growth	0.0	0.0	0.0			0.0	0.2	0.9	0.5	1.9	2.5		-1.5	-0.6	
Contribution from price and exchange rate changes	0.0	0.0	0.0			...	...	...	...	...	...		...	...	
Residual (3-4) 3/	...	...	26.6			19.2	15.6	2.5	2.4	-0.8	-1.7		-7.9	-14.8	
of which: exceptional financing	...	...	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
PV of external debt 4/	...	...	0.0			0.7	4.1	8.6	13.6	18.9	24.5		21.7	6.7	
In percent of exports	...	...	0.0			1.3	7.7	18.8	31.8	46.8	65.3		88.0	48.4	
PV of PPG external debt	**...**	**...**	**0.0**			**0.7**	**4.1**	**8.6**	**13.6**	**18.9**	**24.5**		**21.7**	**6.7**	
In percent of exports	**...**	**...**	**0.0**			**1.3**	**7.7**	**18.8**	**31.8**	**46.8**	**65.3**		**88.0**	**48.4**	
In percent of government revenues	**...**	**...**	**0.0**			**2.7**	**15.1**	**34.5**	**53.9**	**82.6**	**116.9**		**157.1**	**97.2**	
Debt service-to-exports ratio (in percent)	**0.0**	**0.0**	**0.0**			**0.0**	**0.1**	**0.4**	**0.7**	**1.2**	**1.6**		**5.3**	**6.3**	
PPG debt service-to-exports ratio (in percent)	**0.0**	**0.0**	**0.0**			**0.0**	**0.1**	**0.4**	**0.7**	**1.2**	**1.6**		**5.3**	**6.3**	
PPG debt service-to-revenue ratio (in percent)	**0.0**	**0.0**	**0.0**			**0.0**	**0.3**	**0.7**	**1.3**	**2.0**	**2.9**		**9.5**	**12.6**	
Total gross financing need (Billions of U.S. dollars)	-2.8	-2.5	-1.1			-0.5	-0.2	0.1	0.1	0.2	0.2		0.3	1.6	
Non-interest current account deficit that stabilizes debt ratio	-40.2	-42.8	-25.5			-17.8	-7.7	4.9	4.5	4.0	3.6		15.3	21.7	
Key macroeconomic assumptions															
Real GDP growth (in percent)	5.3	-13.9	-15.8	9.8	24.8	-0.6	-8.8	-12.9	-3.9	-9.4	-9.2	-7.4	4.9	5.6	4.0
GDP deflator in US dollar terms (change in percent)	11.7	-4.6	-7.5	8.0	18.1	-39.6	-12.1	29.5	13.7	17.1	17.6	4.4	4.5	3.5	5.0
Effective interest rate (percent) 5/	...	...	0.0	0.0	0.0	-3.8	0.8	2.0	2.1	2.1	2.1	0.9	1.8	1.8	1.8
Growth of exports of G&S (US dollar terms, in percent)	8.7	-12.8	-34.8	37.8	53.3	-36.9	-20.0	-2.7	8.1	0.1	-0.6	-9.7	1.2	5.5	2.2
Growth of imports of G&S (US dollar terms, in percent)	-11.0	-27.5	1.9	18.9	41.3	-3.4	9.5	23.7	4.0	1.8	1.8	6.2	7.2	7.5	6.0
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	38.8	38.3	35.8	35.0	34.6	34.1	36.1	40.4	39.1	40.6
Government revenues (excluding grants, in percent of GDP)	8.0	11.1	12.2			24.7	27.1	24.9	25.2	22.8	20.9		13.8	6.9	11.7
Aid flows (in Billions of US dollars) 7/	0.3	0.3	0.3			0.2	0.2	0.1	0.2	0.2	0.2		0.1	0.1	
of which: Grants	0.3	0.3	0.3			0.2	0.1	0.1	0.1	0.1	0.1		0.1	0.1	
of which: Concessional loans	0.0	0.0	0.0			0.0	0.0	0.1	0.1	0.1	0.1		0.0	0.0	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			6.6	8.9	6.8	7.0	7.1	7.4		3.3	1.3	2.7
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			90.7	72.9	57.7	55.5	54.8	53.0		82.9	84.3	85.1
Memorandum items:															
Nominal GDP (Billions of US dollars)	6.8	5.6	4.4			2.6	2.1	2.4	2.6	2.7	2.9		4.5	10.8	
Nominal dollar GDP growth	17.6	-17.8	-22.1			-39.9	-19.8	12.8	9.3	6.1	6.8	-4.1	9.6	9.3	9.1
PV of PPG external debt (in Billions of US dollars)			0.0			0.0	0.1	0.2	0.4	0.5	0.7		1.0	0.7	
(PVt-PVt-1)/GDPt-1 (in percent)						0.4	2.6	5.6	6.2	6.4	7.3	4.8	0.5	-0.3	0.3
Gross workers' remittances (Billions of US dollars)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
PV of PPG external debt (in percent of GDP + remittances)	...	...	0.0			0.7	4.1	8.6	13.6	18.8	24.5		21.7	6.7	
PV of PPG external debt (in percent of exports + remittances)	...	...	0.0			1.3	7.7	18.8	31.8	46.8	65.3		87.9	48.4	
Debt service of PPG external debt (in percent of exports + remittances)	...	...	0.0			0.0	0.1	0.4	0.7	1.2	1.6		5.3	6.3	

Sources: Country authorities; and staff estimates and projections.

1/ Includes both public and private sector external debt.
2/ Derived as [r - g - ρ(1+g)]/(1+g+ρ+gρ) times previous period debt ratio, with r = nominal interest rate; g = real GDP growth rate, and ρ = growth rate of GDP deflator in U.S. dollar terms.
3/ Includes exceptional financing (i.e., changes in arrears and debt relief); changes in gross foreign assets; and valuation adjustments. For projections also includes contribution from price and exchange rate changes.
4/ Assumes that PV of private sector debt is equivalent to its face value.
5/ Current-year interest payments divided by previous period debt stock.
6/ Historical averages and standard deviations are generally derived over the past 10 years, subject to data availability.
7/ Defined as grants, concessional loans, and debt relief.
8/ Grant-equivalent financing includes grants provided directly to the government and through new borrowing (difference between the face value and the PV of new debt).

Table 1B. Timor-Leste: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2015-2035
(In percent)

				Projections				
	2015	2016	2017	2018	2019	2020	2025	2035
PV of debt-to GDP ratio								
Baseline	1	4	9	14	19	24	22	7
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2015-2035 1/	1	-13	-32	-49	-65	-79	-137	-209
A2. New public sector loans on less favorable terms in 2015-2035 2	1	5	12	19	26	34	32	14
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2016-2017	1	4	9	15	21	27	24	7
B2. Export value growth at historical average minus one standard deviation in 2016-2017 3/	1	2	9	14	19	25	22	7
B3. US dollar GDP deflator at historical average minus one standard deviation in 2016-2017	1	4	12	19	27	34	30	9
B4. Net non-debt creating flows at historical average minus one standard deviation in 2016-2017 4/	1	14	27	31	36	41	33	10
B5. Combination of B1-B4 using one-half standard deviation shocks	1	-2	-7	-1	4	10	11	4
B6. One-time 30 percent nominal depreciation relative to the baseline in 2016 5/	1	6	13	21	29	37	33	10
PV of debt-to-exports ratio								
Baseline	1	8	19	32	47	65	88	48
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2015-2035 1/	1	-24	-70	-115	-161	-210	-556	-1503
A2. New public sector loans on less favorable terms in 2015-2035 2	1	10	26	44	65	91	128	98
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2016-2017	1	8	19	32	47	65	88	48
B2. Export value growth at historical average minus one standard deviation in 2016-2017 3/	1	4	22	36	53	73	98	54
B3. US dollar GDP deflator at historical average minus one standard deviation in 2016-2017	1	8	19	32	47	65	88	48
B4. Net non-debt creating flows at historical average minus one standard deviation in 2016-2017 4/	1	26	58	72	89	109	134	71
B5. Combination of B1-B4 using one-half standard deviation shocks	1	-3	-10	-2	7	17	30	18
B6. One-time 30 percent nominal depreciation relative to the baseline in 2016 5/	1	8	19	32	47	65	88	48
PV of debt-to-revenue ratio								
Baseline	3	15	35	54	83	117	157	97
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2015-2035 1/	3	-48	-129	-194	-284	-375	-993	-3020
A2. New public sector loans on less favorable terms in 2015-2035 2	3	20	48	75	115	163	229	197
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2016-2017	3	16	38	59	91	129	173	107
B2. Export value growth at historical average minus one standard deviation in 2016-2017 3/	3	8	37	57	85	120	161	100
B3. US dollar GDP deflator at historical average minus one standard deviation in 2016-2017	3	15	49	76	116	164	221	137
B4. Net non-debt creating flows at historical average minus one standard deviation in 2016-2017 4/	3	50	107	122	156	195	240	142
B5. Combination of B1-B4 using one-half standard deviation shocks	3	-7	-28	-5	18	47	82	56
B6. One-time 30 percent nominal depreciation relative to the baseline in 2016 5/	3	23	52	82	125	177	239	148

Table 1B. Timor-Leste: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2015-2035 (continued)

(In percent)

				Projections				
	2015	2016	2017	2018	2019	2020	2025	2035
Debt service-to-exports ratio								
Baseline	0	0	0	1	1	2	5	6
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2015-2035 1/	0	0	-1	-2	-3	-4	-15	-58
A2. New public sector loans on less favorable terms in 2015-2035 2	0	0	0	1	2	3	10	10
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2016-2017	0	0	0	1	1	2	5	6
B2. Export value growth at historical average minus one standard deviation in 2016-2017 3/	0	0	0	1	1	2	6	7
B3. US dollar GDP deflator at historical average minus one standard deviation in 2016-2017	0	0	0	1	1	2	5	6
B4. Net non-debt creating flows at historical average minus one standard deviation in 2016-2017 4/	0	0	1	2	2	3	9	9
B5. Combination of B1-B4 using one-half standard deviation shocks	0	0	0	0	0	0	1	2
B6. One-time 30 percent nominal depreciation relative to the baseline in 2016 5/	0	0	0	1	1	2	5	6
Debt service-to-revenue ratio								
Baseline	0	0	1	1	2	3	9	13
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2015-2035 1/	0	0	-1	-3	-5	-7	-27	-116
A2. New public sector loans on less favorable terms in 2015-2035 2	0	0	1	2	3	5	18	20
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2016-2017	0	0	1	1	2	3	10	14
B2. Export value growth at historical average minus one standard deviation in 2016-2017 3/	0	0	1	1	2	3	10	13
B3. US dollar GDP deflator at historical average minus one standard deviation in 2016-2017	0	0	1	2	3	4	13	18
B4. Net non-debt creating flows at historical average minus one standard deviation in 2016-2017 4/	0	0	2	3	4	5	17	19
B5. Combination of B1-B4 using one-half standard deviation shocks	0	0	0	0	0	1	3	7
B6. One-time 30 percent nominal depreciation relative to the baseline in 2016 5/	0	0	1	2	3	4	14	19
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	34	34	34	34	34	34	34	34

Sources: Country authorities; and staff estimates and projections.

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

2/ Assumes that the interest rate on new borrowing is by 2 percentage points higher than in the baseline., while grace and maturity periods are the same as in the baseline.

3/ Exports values are assumed to remain permanently at the lower level, but the current account as a share of GDP is assumed to return to its baseline level after the shock (implicitly assuming an offsetting adjustment in import levels.)

4/ Includes official and private transfers and FDI.

5/ Depreciation is defined as percentage decline in dollar/local currency rate, such that it never exceeds 100 percent.

6/ Applies to all stress scenarios except for A2 (less favorable financing) in which the terms on all new financing are as specified in footnote 2.

Table 2A. Timor-Leste: Public Sector Debt Sustainability Framework, Baseline Scenario, 2012-2035

(In percent of GDP, unless otherwise indicated)

	Actual			Average 5/	Standard Deviation 5/	Estimate	Projections					2015-20 Average			2021-35 Average
	2012	2013	2014			2015	2016	2017	2018	2019	2020		2025	2035	
Public sector debt 1/	0.0	0.1	0.5			1.9	7.7	14.5	21.9	29.6	37.6		31.4	9.9	
of which: foreign-currency denominated	0.0	0.1	0.5			1.9	7.7	14.5	21.9	29.6	37.6		31.4	9.9	
Change in public sector debt	0.0	0.1	0.4			1.4	5.8	6.8	7.4	7.7	8.0		-2.6	-1.2	
Identified debt-creating flows	...	...	19.0			26.8	40.0	43.3	38.7	39.1	38.2		18.9	9.7	
Primary deficit	10.3	8.2	19.0	11.2	3.3	26.5	39.5	44.0	39.7	40.0	39.5	38.2	21.3	10.5	3.0
Revenue and grants	11.7	15.7	18.3			30.9	34.0	28.9	29.2	26.8	24.9		16.6	8.1	
of which: grants	3.7	4.7	6.2			6.1	6.8	4.0	4.0	4.0	4.0		2.8	1.2	
Primary (noninterest) expenditure	22.0	24.0	37.4			57.3	73.5	73.0	68.9	66.8	64.5		37.9	18.5	
Automatic debt dynamics	...	...	0.0			0.3	0.5	-0.7	-1.0	-0.8	-1.3		-2.4	-0.8	
Contribution from interest rate/growth differential	...	...	0.0			0.0	0.2	1.1	0.6	2.2	3.0		-1.6	-0.6	
of which: contribution from average real interest rate	...	...	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
of which: contribution from real GDP growth	0.0	0.0	0.0			0.0	0.2	1.1	0.6	2.3	3.0		-1.6	-0.6	
Contribution from real exchange rate depreciation	...	...	0.0			0.3	0.3	-1.9	-1.5	-3.1	-4.3		...	...	
Other identified debt-creating flows	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Privatization receipts (negative)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recognition of implicit or contingent liabilities	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Debt relief (HIPC and other)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Other (specify, e.g. bank recapitalization)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Residual, including asset changes	...	...	-18.7			-25.4	-34.3	-36.5	-31.3	-31.4	-30.2		-21.5	-10.9	
Other Sustainability Indicators															
PV of public sector debt	...	...	0.0			0.7	4.1	8.6	13.6	18.9	24.5		21.7	6.7	
of which: foreign-currency denominated	...	...	0.0			0.7	4.1	8.6	13.6	18.9	24.5		21.7	6.7	
of which: external	...	...	...			0.7	4.1	8.6	13.6	18.9	24.5		21.7	6.7	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	10.3	8.2	19.0			26.5	39.6	44.2	40.0	40.4	40.1		22.6	11.3	
PV of public sector debt-to-revenue and grants ratio (in percent)	...	...	0.0			2.2	12.1	29.8	46.5	70.3	98.1		130.6	83.4	
PV of public sector debt-to-revenue ratio (in percent)	...	...	0.0			2.7	15.1	34.5	53.9	82.6	116.9		157.1	97.2	
of which: external 3/	...	...	...			2.7	15.1	34.5	53.9	82.6	116.9		157.1	97.2	
Debt service-to-revenue and grants ratio (in percent) 4/	0.0	0.0	0.0			0.0	0.2	0.6	1.1	1.7	2.5		7.9	10.8	
Debt service-to-revenue ratio (in percent) 4/	0.0	0.0	0.0			0.0	0.3	0.7	1.3	2.0	2.9		9.5	12.6	
Primary deficit that stabilizes the debt-to-GDP ratio	10.3	8.1	18.6			25.1	33.8	37.2	32.3	32.3	31.5		23.9	11.7	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	5.3	-13.9	-15.8	9.8	24.8	-0.6	-8.8	-12.9	-3.9	-9.4	-9.2	-7.4	4.9	5.6	4.0
Average nominal interest rate on forex debt (in percent)	...	...	0.0	0.0	0.0	-3.8	0.8	2.0	2.1	2.1	2.1	0.9	1.8	1.8	1.8
Average real interest rate on domestic debt (in percent)	...	...	...	0.0	0.0	...	...	...	...	...	...	0.0	...	...	0.0
Real exchange rate depreciation (in percent, + indicates depreciation)	-7.6	8.1	0.4	-4.0	15.3	67.2	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	11.7	-4.6	-7.5	8.0	18.1	-39.6	-12.1	29.5	13.7	17.1	17.6	4.4	4.5	3.5	5.0
Growth of real primary spending (deflated by GDP deflator, in percent)	-3.3	-6.3	31.3	2.3	10.4	52.6	16.9	-13.5	-9.3	-12.1	-12.4	3.7	-2.8	-1.7	-4.2
Grant element of new external borrowing (in percent)	...	...	...	...	...	38.8	38.3	35.8	35.0	34.6	34.1	36.1	40.4	39.1	...

Sources: Country authorities; and staff estimates and projections.
1/ [Indicate coverage of public sector, e.g., general government or nonfinancial public sector. Also whether net or gross debt is used.]
2/ Gross financing need is defined as the primary deficit plus debt service plus the stock of short-term debt at the end of the last period.
3/ Revenues excluding grants.
4/ Debt service is defined as the sum of interest and amortization of medium and long-term debt.
5/ Historical averages and standard deviations are generally derived over the past 10 years, subject to data availability.

Table 2B. Timor-Leste: Sensitivity Analysis for Key Indicators of Public Debt, 2015-2035

	Projections							
	2015	2016	2017	2018	2019	2020	2025	2035
PV of Debt-to-GDP Ratio								
Baseline	1	4	9	14	19	24	22	7
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	1	-11	-16	-18	-17	-14	3	37
A2. Primary balance is unchanged from 2015	1	-4	-10	-13	-16	-18	-9	53
A3. Permanently lower GDP growth 1/	1	5	13	23	35	49	87	147
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2016-2017	1	6	12	19	26	34	34	18
B2. Primary balance is at historical average minus one standard deviations in 2016-2017	1	-12	-25	-19	-13	-6	-2	-5
B3. Combination of B1-B2 using one half standard deviation shocks	1	-12	-21	-18	-16	-12	-15	-19
B4. One-time 30 percent real depreciation in 2016	1	4	7	11	15	20	19	6
B5. 10 percent of GDP increase in other debt-creating flows in 2016	1	11	15	19	24	30	26	9
PV of Debt-to-Revenue Ratio 2/								
Baseline	2	12	30	47	70	98	131	83
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	2	-32	-58	-64	-68	-62	21	517
A2. Primary balance is unchanged from 2015	2	-13	-36	-45	-59	-71	-52	660
A3. Permanently lower GDP growth 1/	2	16	44	76	125	187	465	1408
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2016-2017	2	16	42	65	97	133	202	214
B2. Primary balance is at historical average minus one standard deviations in 2016-2017	2	-35	-87	-64	-47	-25	-14	-67
B3. Combination of B1-B2 using one half standard deviation shocks	2	-35	-75	-64	-59	-50	-95	-244
B4. One-time 30 percent real depreciation in 2016	2	11	24	38	57	80	114	77
B5. 10 percent of GDP increase in other debt-creating flows in 2016	2	31	50	66	91	120	156	109
Debt Service-to-Revenue Ratio 2/								
Baseline	0	0	1	1	2	2	8	11
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	0	0	-1	-1	-1	-1	-1	15
A2. Primary balance is unchanged from 2015	0	0	0	-1	-1	-1	-2	15
A3. Permanently lower GDP growth 1/	0	0	1	2	3	4	19	86
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2016-2017	0	0	1	1	2	3	11	19
B2. Primary balance is at historical average minus one standard deviations in 2016-2017	0	0	-1	-2	-1	-1	-4	-2
B3. Combination of B1-B2 using one half standard deviation shocks	0	0	-1	-2	-1	-1	-5	-13
B4. One-time 30 percent real depreciation in 2016	0	0	1	2	3	4	11	17
B5. 10 percent of GDP increase in other debt-creating flows in 2016	0	0	1	2	2	3	10	13

Sources: Country authorities; and staff estimates and projections.

1/ Assumes that real GDP growth is at baseline minus one standard deviation divided by the square root of the length of the projection period.

2/ Revenues are defined inclusive of grants.