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# VANUATU

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

Approved By
**Luc Everaert and Peter Allum (IMF) and John Panzer (IDA)**

Prepared by the Staff of the International Monetary Fund and the International Development Association (IDA).

*This update of the debt sustainability analysis (DSA) shows that Vanuatu's risk rating for debt distress remains moderate, since the evolution of debt indicators remains similar to that obtained in the 2015 DSA. The level of public debt began to rise in 2015 and will continue to increase over the next few years due to the implementation of major public infrastructure projects and reconstruction activities. This is expected to be manageable provided that the financing terms are concessional and the surge in financing needs is temporary. Nonetheless, repayment obligations will likely put pressure on the economy and will require fiscal adjustment over the medium term. The DSA has been extended to include an alternative scenario of a Cyclone Pam-like natural disaster within 5 years, under which debt sustainability deteriorates in the aftermath of the event. The authorities are recommended to pursue prudent fiscal policies, including spending reprioritization and tax reform implementation, and seek grant financing for infrastructure investments in the next few years to ensure debt sustainability over the medium term.*

# BACKGROUND

1. **Vanuatu is recovering from Cyclone Pam that hit the country in March 2015**. The damages from Cyclone Pam had a smaller-than-expected effect on growth, thanks to the resilience of Vanuatu's economy and the swift response from the international community. A number of infrastructure projects started their construction phase after Cyclone Pam, with the bulk of spending boosting public external debt.

2. **In 2015, the face values of external and total public debt, as well as total (public and private) external debt increased steeply.** The country's rapid debt accumulation was attributed to disbursements for infrastructure projects and the IMF's funding support through the Rapid Credit Facility (RCF) and Rapid Financing Instrument (RFI). Total central government debt rose to 25.6 percent of GDP and external public debt increased to 17.9 percent of GDP. Total external debt stood at 34.1 percent of GDP. Due to data limitations, external liabilities of commercial banks are used as a proxy for private external debt.

3. **At the end of 2015, central government domestic debt was estimated at 7.7 percent of GDP.** It constitutes 23.2 percent of total debt and consists of government bonds placed with the Reserve Bank of Vanuatu, commercial banks and other financial institutions (primarily the Vanuatu National Provident Fund).

4. **Vanuatu's public external debt is mostly concessional (17.9 percent of GDP)**. It has been contracted from multilateral lenders (IMF, EIB, WB-IDA and ADB) and via bilateral agreements (China Ex-Im Bank). Typically, the nominal interest rates on these instruments (except for China Ex-Im Bank) are fairly low (0-2 percent) and loan maturity is long (20-40 years), which reflects a relatively high grant element of the debt and a low debt service.

# METHODOLOGY AND ASSUMPTIONS

5. **The DSA is produced using data provided by the authorities and estimates from IMF and World Bank staff**. The DSA framework uses a discount rate of 5 percent. Total public debt includes central government debt, publicly guaranteed debt by Government Business Enterprises (GBEs), and the Fund's RCF/RFI to Reserve Bank of Vanuatu.

6. **The following are the key macroeconomic assumptions under the baseline scenario:**

- *GDP growth*. The economy continues to recover from Cyclone Pam despite some delays due to political uncertainty in the second half of 2015 and airport runway safety issues in early 2016. GDP is projected to increase by 4 percent in 2016, and accelerate to 4.5 percent in 2017 as infrastructure projects and reconstruction gain speed. In the period 2016–2021, growth is expected to average 3.3 percent, supported mainly by public investment, tourism, and agricultural exports. Long-term growth is maintained at 3 percent.

- *Fiscal balance*. The primary balance is projected to be negative at 9.7 percent of GDP in 2016 before widening to -16.2 percent of GDP in 2017, reflecting increases in expenditures due to Cyclone Pam reconstruction and infrastructure projects. We assume a gradual improvement of the fiscal balance to -4.2 percent of GDP in 2021.
- *Capital expenditures*. Many planned public investment projects began in 2015. The road and school reconstruction projects financed by the ADB and the WB are expected to start in 2017. Public capital expenditures are estimated to peak at 12.6 percent of GDP in 2017 and decline to 2.6 percent (close to historical values) in 2021. New external borrowing is expected from the ADB, WB, JICA (with concessional terms), and the China Ex-Im Bank.
- *Imports and exports*. We assume that imports-to-GDP ratio continues above 40 percent of GDP through 2015 to 2017 driven by the high import content of reconstruction and projects (around 30 percent before the cyclone). At the same time, we expect exports to increase to 7.8 percent of GDP in 2016 and to 8.3 percent of GDP in 2017 as recovery is underway for tourism and major agricultural exports.
- *Inflation*. Inflation is projected at 2.2 percent in 2016. We assume a further increase to 2.5 percent in 2017 due to demand pressures from reconstruction activities and infrastructure projects, and a gradual increase to 3 percent by 2019.

**Key Assumptions**

| | Baseline | | Historical | 2015 DSA | |
|---|---|---|---|---|---|
| | 2016-21 | 2022-36 | Avg. (2005-14) | 2015-2020 | 2021-2035 |
| Real GDP growth (percent) | 3.7 | 3.0 | 3.2 | 2.7 | 3.0 |
| Growth of exports of goods and services (US dollar terms) | 6.0 | 6.6 | 6.7 | 6.6 | 6.0 |
| Non-interest current account balance (in percent of GDP) | -12.8 | -1.0 | -6.0 | -14.5 | -4.0 |
| GDP deflator growth (U.S. dollar terms; percent) | 2.5 | 2.9 | 3.5 | 1.7 | 2.9 |
| Primary balance (in percent of GDP) | -9.4 | -0.1 | -0.2 | -7.5 | 0.0 |

# EXTERNAL DEBT SUSTAINABILITY

**7. The baseline scenario indicates that the external debt of Vanuatu remains sustainable**. All external debt ratios stay below the thresholds over the projection periods. Under the baseline, the face value of external public and publicly-guaranteed (PPG) debt peaks in 2021 at 51.6 percent of GDP. Its present value (PV) remains below the DSA threshold, peaking at 29 percent in 2021. Vanuatu's public external debt service ratios are also relatively low, reflecting that most of its public external debt is highly concessional**.**

**8. One threshold for public external debt is breached under standard tests.** In the most extreme shock scenario ("Terms-of-trade shock"), the PV of debt-to-GDP ratio breaches the threshold of 40 percent. However, the breach is temporary, as the effects of the shock wind down. Other indicators of debt sustainability—the PV of debt-to-exports ratio, the PV of debt-to-revenue ratio, the debt service-to-export ratio, and the debt service-to-revenue ratio—remain below their respective thresholds.

**9. The historical scenario yields debt ratios that are below the projections in the baseline case,** reflecting the deterioration of macroeconomic prospects and a widening of medium-term deficits caused by Cyclone Pam and on-going public investments. This historical scenario is produced using the average of the past 10 years for key macroeconomic variables and shows a decline in the PV of the debt-to-GDP ratio compared to the baseline, while all other indicators have the same path.

# PUBLIC DEBT SUSTAINABILITY

**10. Public debt ratios are likely to be sustainable provided that the government continues to seek a mix of grant and highly concessional financing.** Under the baseline scenario, the PV of total public debt is projected to increase from 23.8 percent of GDP to 38.5 percent of GDP by 2021. By 2036 it is expected to decline to 22.4 percent of GDP. Thus the PV of public debt remains significantly below the benchmark. The PV of debt-to-revenue ratio is expected to increase to 230.7 in 2022 and then decline gradually to 136.9 percent by 2035.

**11. The standard tests show one breach of thresholds.** The PV of debt-to-GDP breaches the benchmark of 58 percent of GDP in a scenario in which the primary balance is held fixed at its 2016 level, reflecting risks of maintaining high level of fiscal deficits from debt-financed public investments. This scenario is less realistic as fiscal space is expected to improve in the medium term after infrastructure projects' completion. However, this suggests that prudent selection of future public investment should be made in line with not only the country's development strategy, but also its debt-carrying and implementation capacity.

# ALTERNATIVE SCENARIO OF ANOTHER MAJOR NATURAL DISASTER EVENT

**12. The extreme natural disaster shock replicates Cyclone Pam's estimated impact on the economy.**[1] The shock results in the reduction of real GDP growth by roughly 4 percentage points, a deterioration of fiscal balance of about 4 percent of GDP, and about 6 percent of GDP of additional external public debt in the year of the disaster. Under this scenario, the external and public debt sustainability deteriorates significantly right after the event. Two of the thresholds, the PV of debt-to-GDP ratio and PV of debt service-to- revenue ratio, are breached, suggesting substantial pressures from a major natural disaster on the economy.

[1] In addition to the extreme natural disaster shock scenario we have considered adjusting macro projections to reflect the average impact of natural disasters by calculating the historical annual average damage to the economy as reported by EM-DAT for the period 1990-2014. This was found to be modest at 0.12% of GDP growth – despite Vanuatu's high rate of natural disasters. Given the small magnitude of the average effect, we chose not to incorporate it in the medium-term growth projections.

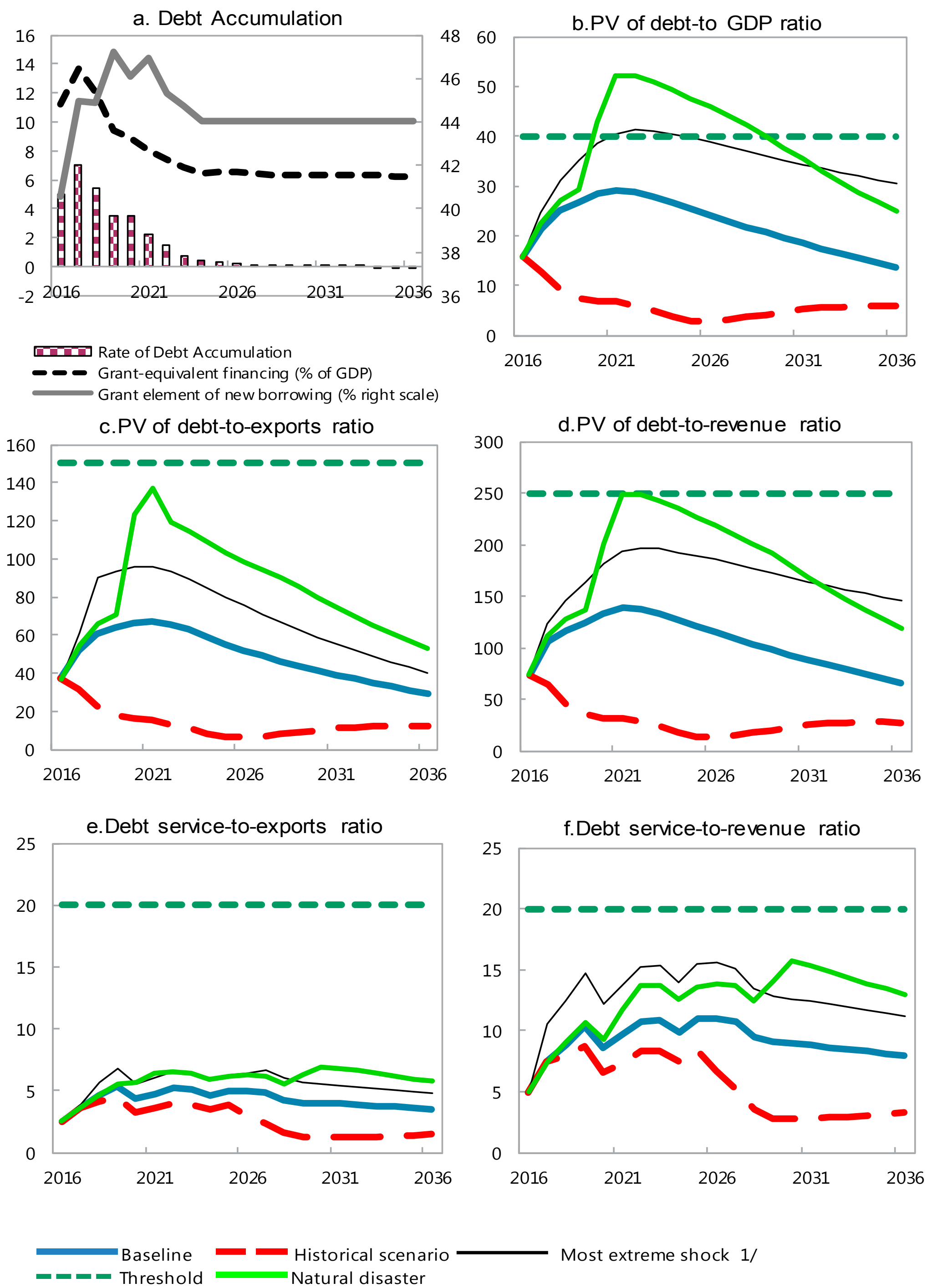
# CONCLUSION

**13. Vanuatu's risk of debt distress remains moderate and the planned trajectory of debt accumulation is similar to that obtained in the 2015 DSA**. The country's debt rating was elevated from "low risk" in 2013 to "moderate risk" as a result of the 2015 cyclone and planned infrastructure spending. In the baseline scenario, external and public debt levels are projected to rise steeply over the next few years and peak at substantially higher levels before starting to decline. In order to set public debt ratios on a downward trajectory while making room for priority social and developmental expenditures, the authorities must continue their cautious borrowing strategy and rebuild fiscal buffers over the medium term through strengthening public finance management, reprioritizing spending, and mobilizing new revenue resources (including with the introduction of income taxes within a comprehensive tax reform). Given Vanuatu's vulnerability to natural disasters, additional extreme weather events are likely to have large adverse cumulative effects on the country's fiscal position and debt sustainability (as indicated by the alternative shock scenario), reinforcing the case for seeking grant financing with bi and multilateral partners for post-disaster reconstruction while pursuing risk reduction investments, and ensuring public investment is efficient.

# AUTHORITIES' VIEWS

**14. The authorities broadly concurred with the assessment of debt sustainability analysis.** They noted that the ambitious development plan and reform agenda may cause more pressure on debt sustainability and agreed with the importance of rebuilding fiscal buffers over the medium term. They conveyed their intention of seeking grant financing for new projects and expected the comprehensive tax reform to yield additional revenues.

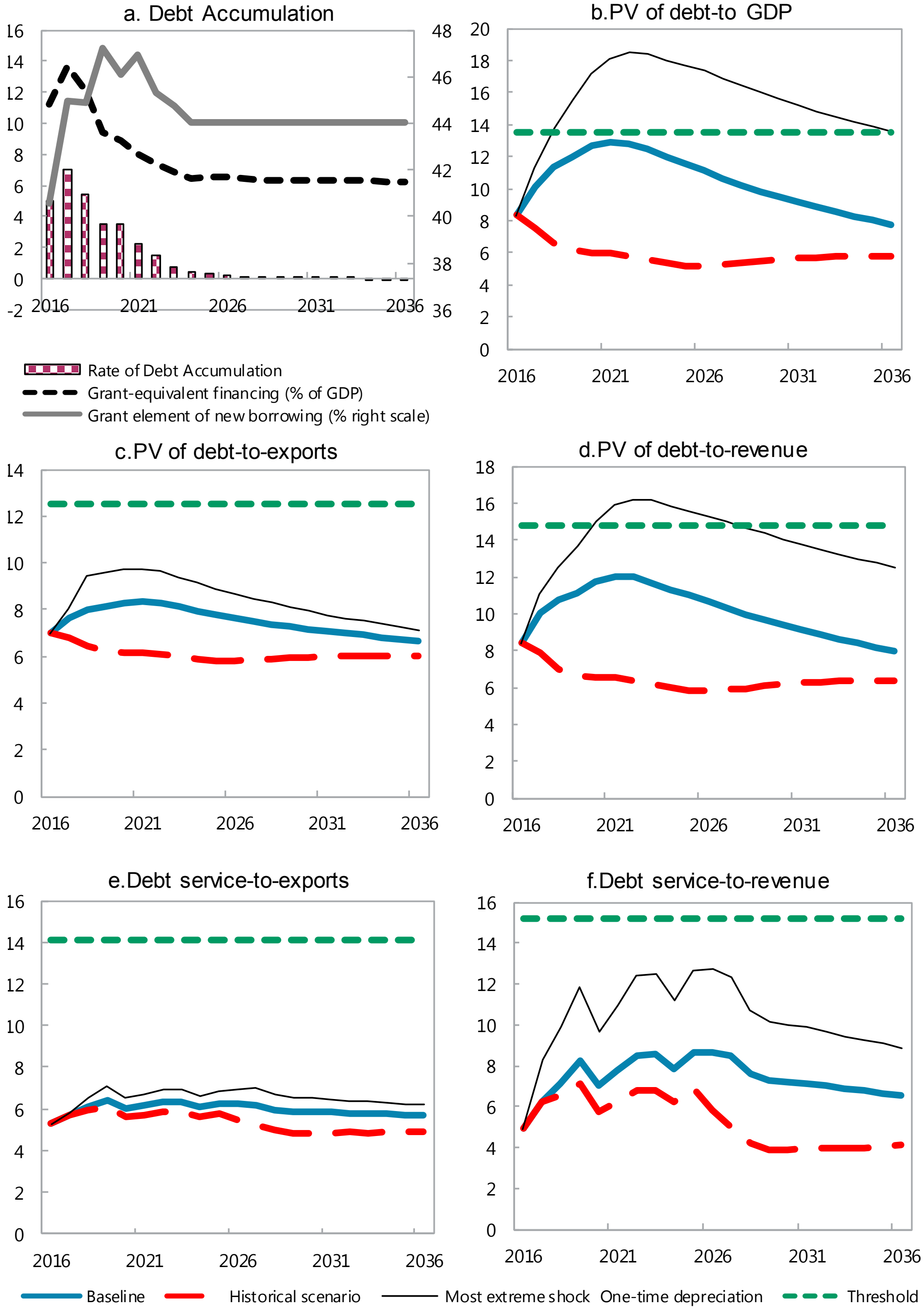
**Figure 1. Vanuatu: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios 2016–2036 [1/]**




Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio on or before 2026. In figure b. it corresponds to a Terms shock; in c. to a Exports shock; in d. to a Terms shock; in e. to a Exports shock and in figure f. to a One-time depreciation shock

**Figure 2. Vanuatu: Probability of Debt Distress of Public and Publicly Guaranteed External Debt under Alternatives Scenarios 2016–2036 1/**




Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio on or before 2026. In figure b. it corresponds to a Terms shock; in c. to a Exports shock; in d. to a Terms shock; in e. to a Exports shock and in figure f. to a One-time depreciation shock

## Table 1. Vanuatu: External Debt Sustainability Framework, Baseline Scenario, 2013–2036 1/

(In percent of GDP, unless otherwise indicated)

| | Actual | | | Historical 6/ | Standard 6/ | Projections | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Average | Deviation | | | | | | | 2016-2021 | | | 2022-2036 |
| | 2013 | 2014 | 2015 | | | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Average | 2026 | 2036 | Average |
| **External debt (nominal) 1/** | **22.8** | **26.3** | **34.1** | | | **41.2** | **52.0** | **59.2** | **63.3** | **66.7** | **67.8** | | **60.1** | **44.0** | |
| *of which: public and publicly guaranteed (PPG)* | 12.7 | 11.5 | 17.9 | | | 24.8 | 35.6 | 42.8 | 47.0 | 50.4 | 51.6 | | 43.9 | 27.6 | |
| Change in external debt | -2.9 | 3.5 | 7.8 | | | 7.1 | 10.8 | 7.2 | 4.2 | 3.4 | 1.1 | | -1.8 | -1.2 | |
| Identified net debt-creating flows | -1.5 | -2.7 | 9.4 | | | 10.0 | 13.6 | 11.5 | 5.7 | 3.7 | 0.4 | | -2.3 | -1.0 | |
| **Non-interest current account deficit** | **2.7** | **-0.5** | **9.8** | **6.0** | **3.2** | **15.6** | **20.1** | **17.8** | **10.5** | **8.3** | **4.4** | | **0.6** | **0.7** | 1.1 |
| Deficit in balance of goods and services | 4.1 | 3.9 | 22.3 | | | 17.4 | 21.1 | 18.7 | 11.5 | 8.9 | 4.9 | | 0.7 | -0.1 | |
| Exports | 46.9 | 45.4 | 43.7 | | | 42.5 | 41.2 | 41.0 | 41.7 | 42.7 | 43.1 | | 46.5 | 47.2 | |
| Imports | 51.0 | 49.2 | 66.0 | | | 60.0 | 62.2 | 59.7 | 53.2 | 51.6 | 48.1 | | 47.2 | 47.2 | |
| Net current transfers (negative = inflow) | -2.3 | -3.1 | -10.3 | -4.2 | 2.5 | -3.7 | -2.8 | -2.1 | -2.0 | -1.9 | -1.8 | | -1.4 | -0.8 | -1.2 |
| *of which: official* | -2.2 | -2.7 | -5.2 | | | -2.6 | -2.5 | -1.8 | -1.7 | -1.6 | -1.5 | | -1.1 | -0.6 | |
| Other current account flows (negative = net inflow) | 0.8 | -1.2 | -2.2 | | | 1.9 | 1.9 | 1.3 | 1.0 | 1.2 | 1.2 | | 1.3 | 1.5 | |
| **Net FDI (negative = inflow)** | **-4.2** | **-2.6** | **-4.4** | **-6.8** | **3.9** | **-5.4** | **-5.8** | **-5.6** | **-4.3** | **-3.9** | **-3.4** | | **-2.3** | **-1.3** | -2.0 |
| **Endogenous debt dynamics 2/** | **0.0** | **0.4** | **4.0** | | | **-0.3** | **-0.7** | **-0.8** | **-0.5** | **-0.6** | **-0.7** | | **-0.6** | **-0.4** | |
| Contribution from nominal interest rate | 0.6 | 0.8 | 1.3 | | | 1.0 | 1.1 | 1.1 | 1.5 | 1.2 | 1.2 | | 1.1 | 0.9 | |
| Contribution from real GDP growth | -0.5 | -0.5 | 0.2 | | | -1.3 | -1.7 | -1.9 | -1.9 | -1.8 | -1.9 | | -1.8 | -1.3 | |
| Contribution from price and exchange rate changes | -0.2 | 0.2 | 2.5 | | | ... | ... | ... | ... | ... | ... | | ... | ... | |
| **Residual (3-4) 3/** | **-1.4** | **6.2** | **-1.6** | | | **-2.9** | **-2.8** | **-4.3** | **-1.6** | **-0.4** | **0.8** | | **0.4** | **-0.2** | |
| *of which: exceptional financing* | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| PV of external debt 4/ | ... | ... | 27.8 | | | 32.1 | 37.6 | 41.3 | 43.0 | 44.7 | 45.2 | | 40.4 | 30.1 | |
| In percent of exports | ... | ... | 63.6 | | | 75.4 | 91.4 | 100.7 | 103.1 | 104.7 | 104.8 | | 87.0 | 63.7 | |
| **PV of PPG external debt** | **...** | **...** | **11.6** | | | **15.7** | **21.3** | **24.9** | **26.7** | **28.4** | **29.0** | | **24.2** | **13.7** | |
| **In percent of exports** | **...** | **...** | **26.5** | | | **36.9** | **51.6** | **60.8** | **64.0** | **66.6** | **67.2** | | **52.1** | **29.1** | |
| **In percent of government revenues** | **...** | **...** | **55.5** | | | **73.5** | **105.6** | **116.8** | **124.1** | **133.3** | **138.2** | | **115.4** | **65.4** | |
| **Debt service-to-exports ratio (in percent)** | **3.7** | **5.3** | **7.3** | | | **5.8** | **7.0** | **8.1** | **9.1** | **7.1** | **7.7** | | **8.6** | **7.7** | |
| **PPG debt service-to-exports ratio (in percent)** | **1.4** | **1.4** | **2.6** | | | **2.5** | **3.6** | **4.6** | **5.4** | **4.3** | **4.7** | | **5.0** | **3.5** | |
| **PPG debt service-to-revenue ratio (in percent)** | **3.4** | **3.3** | **5.4** | | | **5.0** | **7.4** | **8.8** | **10.4** | **8.6** | **9.7** | | **11.0** | **7.9** | |
| Total gross financing need (Millions of U.S. dollars) | 2.1 | -5.6 | 63.4 | | | 98.6 | 142.3 | 138.1 | 94.4 | 73.7 | 46.4 | | 33.2 | 77.1 | |
| Non-interest current account deficit that stabilizes debt ratio | 5.6 | -4.0 | 2.0 | | | 8.6 | 9.3 | 10.6 | 6.3 | 4.9 | 3.3 | | 2.4 | 1.9 | |
| **Key macroeconomic assumptions** | | | | | | | | | | | | | | | |
| Real GDP growth (in percent) | 2.0 | 2.3 | -0.8 | 3.2 | 2.8 | 4.0 | 4.5 | 4.0 | 3.5 | 3.0 | 3.0 | 3.7 | 3.0 | 3.0 | 3.0 |
| GDP deflator in US dollar terms (change in percent) | 0.6 | -0.7 | -8.7 | 3.5 | 7.8 | 0.8 | 2.6 | 2.8 | 2.9 | 2.9 | 2.9 | 2.5 | 2.9 | 2.9 | 2.9 |
| Effective interest rate (percent) 5/ | 2.4 | 3.4 | 4.4 | 2.4 | 0.8 | 3.1 | 2.8 | 2.4 | 2.6 | 2.0 | 1.9 | 2.5 | 2.0 | 2.1 | 1.9 |
| Growth of exports of G&S (US dollar terms, in percent) | -0.1 | -1.6 | -12.8 | 6.7 | 11.0 | 2.0 | 3.7 | 6.4 | 8.3 | 8.6 | 7.0 | 6.0 | 7.1 | 6.0 | 6.6 |
| Growth of imports of G&S (US dollar terms, in percent) | 2.6 | -1.9 | 21.4 | 9.9 | 14.9 | -4.9 | 11.2 | 2.5 | -5.1 | 2.9 | -1.4 | 0.9 | 4.0 | 6.0 | 5.8 |
| Grant element of new public sector borrowing (in percent) | ... | ... | ... | ... | ... | 40.5 | 44.9 | 44.9 | 47.2 | 46.1 | 46.9 | 45.1 | 44.1 | 44.1 | 44.2 |
| Government revenues (excluding grants, in percent of GDP) | 19.2 | 19.3 | 20.8 | | | 21.4 | 20.1 | 21.3 | 21.5 | 21.3 | 21.0 | | 21.0 | 21.0 | 21.0 |
| Aid flows (in Millions of US dollars) 7/ | 17.6 | 34.0 | 136.3 | | | 104.2 | 148.8 | 129.9 | 109.3 | 107.5 | 111.5 | | 112.3 | 182.1 | |
| *of which: Grants* | 17.6 | 33.8 | 82.7 | | | 59.5 | 63.9 | 64.3 | 52.3 | 55.5 | 58.8 | | 78.5 | 140.3 | |
| *of which: Concessional loans* | 0.0 | 0.2 | 53.6 | | | 44.7 | 84.9 | 65.6 | 56.9 | 52.0 | 52.8 | | 33.7 | 41.8 | |
| Grant-equivalent financing (in percent of GDP) 8/ | ... | ... | ... | | | 11.2 | 13.7 | 12.1 | 9.4 | 8.8 | 8.1 | | 6.6 | 6.3 | 6.5 |
| Grant-equivalent financing (in percent of external financing) 8/ | ... | ... | ... | | | 68.6 | 65.1 | 67.1 | 68.5 | 69.6 | 74.0 | | 83.2 | 87.2 | 85.0 |
| *Memorandum items:* | | | | | | | | | | | | | | | |
| Nominal GDP (Millions of US dollars) | 801.8 | 815.0 | 737.9 | | | 773.4 | 829.0 | 886.0 | 943.8 | 1000.2 | 1059.9 | | 1416.6 | 2530.4 | |
| Nominal dollar GDP growth | 2.6 | 1.6 | -9.5 | | | 4.8 | 7.2 | 6.9 | 6.5 | 6.0 | 6.0 | 6.2 | 6.0 | 6.0 | 6.0 |
| PV of PPG external debt (in Millions of US dollars) | | | 84.2 | | | 121.5 | 176.2 | 220.8 | 251.7 | 284.5 | 307.2 | | 342.7 | 347.2 | |
| (PVt-PVt-1)/GDPt-1 (in percent) | | | | | | 5.1 | 7.1 | 5.4 | 3.5 | 3.5 | 2.3 | 4.5 | 0.2 | -0.1 | 0.2 |
| Gross workers' remittances (Millions of US dollars) | 1.0 | 3.5 | 37.3 | | | 8.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.1 | | 3.4 | 4.1 | |
| PV of PPG external debt (in percent of GDP + remittances) | ... | ... | 11.0 | | | 15.5 | 21.2 | 24.8 | 26.6 | 28.4 | 28.9 | | 24.1 | 13.7 | |
| PV of PPG external debt (in percent of exports + remittances) | ... | ... | 23.7 | | | 36.0 | 51.2 | 60.3 | 63.5 | 66.2 | 66.8 | | 51.8 | 29.0 | |
| Debt service of PPG external debt (in percent of exports + remittances) | ... | ... | 2.3 | | | 2.4 | 3.6 | 4.6 | 5.3 | 4.3 | 4.7 | | 4.9 | 3.5 | |

Sources: Country authorities; and staff estimates and projections.

1/ Includes both public and private sector external debt.

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

3/ Includes exceptional financing (i.e., changes in arrears and debt relief); changes in gross foreign assets; and valuation adjustments. For projections also includes contribution from price and exchange rate changes.

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

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

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

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

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

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

(In percent)

| | Projections | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | **2026** | 2036 |
| **PV of debt-to GDP ratio** | | | | | | | | |
| **Baseline** | 16 | 21 | 25 | 27 | 28 | 29 | **24** | 14 |
| **A. Alternative Scenarios** | | | | | | | | |
| A1. Key variables at their historical averages in 2016-2036 1/ | 16 | 13 | 9 | 8 | 7 | 7 | **3** | 6 |
| A2. New public sector loans on less favorable terms in 2016-2036 2/ | 16 | 25 | 31 | 35 | 39 | 41 | **39** | 30 |
| A3. Alternative Scenario : Natural Disaster | 16 | 23 | 27 | 29 | 43 | 52 | **46** | 25 |
| **B. Bound Tests** | | | | | | | | |
| B1. Real GDP growth at historical average minus one standard deviation in 2017-2018 | 16 | 22 | 27 | 29 | 31 | 31 | **26** | 15 |
| B2. Export value growth at historical average minus one standard deviation in 2017-2018 3/ | 16 | 23 | 31 | 32 | 34 | 34 | **29** | 16 |
| B3. US dollar GDP deflator at historical average minus one standard deviation in 2017-2018 | 16 | 23 | 29 | 31 | 33 | 33 | **28** | 16 |
| B4. Net non-debt creating flows at historical average minus one standard deviation in 2017-2018 4/ | 16 | 24 | 29 | 31 | 32 | 33 | **28** | 15 |
| B5. Combination of B1-B4 using one-half standard deviation shocks | 16 | 24 | 32 | 33 | 35 | 36 | **30** | 17 |
| B6. One-time 30 percent nominal depreciation relative to the baseline in 2017 5/ | 16 | 30 | 35 | 38 | 40 | 41 | **34** | 19 |
| **PV of debt-to-exports ratio** | | | | | | | | |
| **Baseline** | 37 | 52 | 61 | 64 | 67 | 67 | **52** | 29 |
| **A. Alternative Scenarios** | | | | | | | | |
| A1. Key variables at their historical averages in 2016-2036 1/ | 37 | 31 | 23 | 18 | 16 | 15 | **6** | 12 |
| A2. New public sector loans on less favorable terms in 2016-2036 2/ | 37 | 60 | 76 | 84 | 90 | 94 | **84** | 65 |
| A3. Alternative Scenario : Natural Disaster | 37 | 55 | 66 | 70 | 123 | 137 | **99** | 53 |
| **B. Bound Tests** | | | | | | | | |
| B1. Real GDP growth at historical average minus one standard deviation in 2017-2018 | 37 | 52 | 61 | 64 | 67 | 67 | **52** | 29 |
| B2. Export value growth at historical average minus one standard deviation in 2017-2018 3/ | 37 | 61 | 90 | 93 | 96 | 96 | **75** | 40 |
| B3. US dollar GDP deflator at historical average minus one standard deviation in 2017-2018 | 37 | 52 | 61 | 64 | 67 | 67 | **52** | 29 |
| B4. Net non-debt creating flows at historical average minus one standard deviation in 2017-2018 4/ | 37 | 57 | 71 | 73 | 76 | 76 | **59** | 32 |
| B5. Combination of B1-B4 using one-half standard deviation shocks | 37 | 56 | 74 | 77 | 80 | 80 | **63** | 34 |
| B6. One-time 30 percent nominal depreciation relative to the baseline in 2017 5/ | 37 | 52 | 61 | 64 | 67 | 67 | **52** | 29 |
| **PV of debt-to-revenue ratio** | | | | | | | | |
| **Baseline** | 74 | 106 | 117 | 124 | 133 | 138 | **115** | 65 |
| **A. Alternative Scenarios** | | | | | | | | |
| A1. Key variables at their historical averages in 2016-2036 1/ | 74 | 64 | 44 | 35 | 32 | 32 | **14** | 27 |
| A2. New public sector loans on less favorable terms in 2016-2036 2/ | 74 | 123 | 146 | 163 | 181 | 193 | **185** | 145 |
| A3. Alternative Scenario : Natural Disaster | 74 | 112 | 127 | 136 | 201 | 249 | **218** | 119 |
| **B. Bound Tests** | | | | | | | | |
| B1. Real GDP growth at historical average minus one standard deviation in 2017-2018 | 74 | 110 | 126 | 134 | 144 | 149 | **124** | 71 |
| B2. Export value growth at historical average minus one standard deviation in 2017-2018 3/ | 74 | 115 | 144 | 150 | 159 | 164 | **138** | 75 |
| B3. US dollar GDP deflator at historical average minus one standard deviation in 2017-2018 | 74 | 113 | 135 | 143 | 154 | 159 | **133** | 75 |
| B4. Net non-debt creating flows at historical average minus one standard deviation in 2017-2018 4/ | 74 | 117 | 136 | 142 | 151 | 156 | **131** | 72 |
| B5. Combination of B1-B4 using one-half standard deviation shocks | 74 | 118 | 148 | 155 | 165 | 171 | **144** | 79 |
| B6. One-time 30 percent nominal depreciation relative to the baseline in 2017 5/ | 74 | 149 | 165 | 175 | 188 | 195 | **163** | 92 |

## Table 2. Vanuatu: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2016–2036 (continued)

(In percent)

| | Projections | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | **2026** | 2036 |
| **Debt service-to-exports ratio** | | | | | | | | |
| **Baseline** | 2 | 4 | 5 | 5 | 4 | 5 | **5** | 4 |
| **A. Alternative Scenarios** | | | | | | | | |
| A1. Key variables at their historical averages in 2016-2036 1/ | 2 | 4 | 4 | 5 | 3 | 4 | **3** | 1 |
| A2. New public sector loans on less favorable terms in 2016-2036 2/ | 2 | 4 | 4 | 5 | 4 | 4 | **5** | 5 |
| A3. Alternative Scenario : Natural Disaster | 2 | 4 | 5 | 5 | 6 | 6 | **6** | 6 |
| **B. Bound Tests** | | | | | | | | |
| B1. Real GDP growth at historical average minus one standard deviation in 2017-2018 | 2 | 4 | 5 | 5 | 4 | 5 | **5** | 4 |
| B2. Export value growth at historical average minus one standard deviation in 2017-2018 3/ | 2 | 4 | 6 | 7 | 6 | 6 | **6** | 5 |
| B3. US dollar GDP deflator at historical average minus one standard deviation in 2017-2018 | 2 | 4 | 5 | 5 | 4 | 5 | **5** | 4 |
| B4. Net non-debt creating flows at historical average minus one standard deviation in 2017-2018 4/ | 2 | 4 | 5 | 6 | 5 | 5 | **5** | 4 |
| B5. Combination of B1-B4 using one-half standard deviation shocks | 2 | 4 | 5 | 6 | 5 | 5 | **6** | 4 |
| B6. One-time 30 percent nominal depreciation relative to the baseline in 2017 5/ | 2 | 4 | 5 | 5 | 4 | 5 | **5** | 4 |
| **Debt service-to-revenue ratio** | | | | | | | | |
| **Baseline** | 5 | 7 | 9 | 10 | 9 | 10 | **11** | 8 |
| **A. Alternative Scenarios** | | | | | | | | |
| A1. Key variables at their historical averages in 2016-2036 1/ | 5 | 7 | 8 | 9 | 7 | 7 | **7** | 3 |
| A2. New public sector loans on less favorable terms in 2016-2036 2/ | 5 | 7 | 9 | 9 | 8 | 9 | **11** | 10 |
| A3. Alternative Scenario : Natural Disaster | 5 | 7 | 9 | 11 | 9 | 12 | **14** | 13 |
| **B. Bound Tests** | | | | | | | | |
| B1. Real GDP growth at historical average minus one standard deviation in 2017-2018 | 5 | 8 | 10 | 11 | 9 | 10 | **12** | 9 |
| B2. Export value growth at historical average minus one standard deviation in 2017-2018 3/ | 5 | 7 | 9 | 11 | 9 | 10 | **12** | 9 |
| B3. US dollar GDP deflator at historical average minus one standard deviation in 2017-2018 | 5 | 8 | 10 | 12 | 10 | 11 | **13** | 9 |
| B4. Net non-debt creating flows at historical average minus one standard deviation in 2017-2018 4/ | 5 | 7 | 9 | 11 | 9 | 10 | **12** | 9 |
| B5. Combination of B1-B4 using one-half standard deviation shocks | 5 | 8 | 10 | 12 | 10 | 11 | **13** | 10 |
| B6. One-time 30 percent nominal depreciation relative to the baseline in 2017 5/ | 5 | 11 | 12 | 15 | 12 | 14 | **16** | 11 |
| *Memorandum item:* | | | | | | | | |
| Grant element assumed on residual financing (i.e., financing required above baseline) 6/ | 44 | 44 | 44 | 44 | 44 | 44 | **44** | 44 |

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.

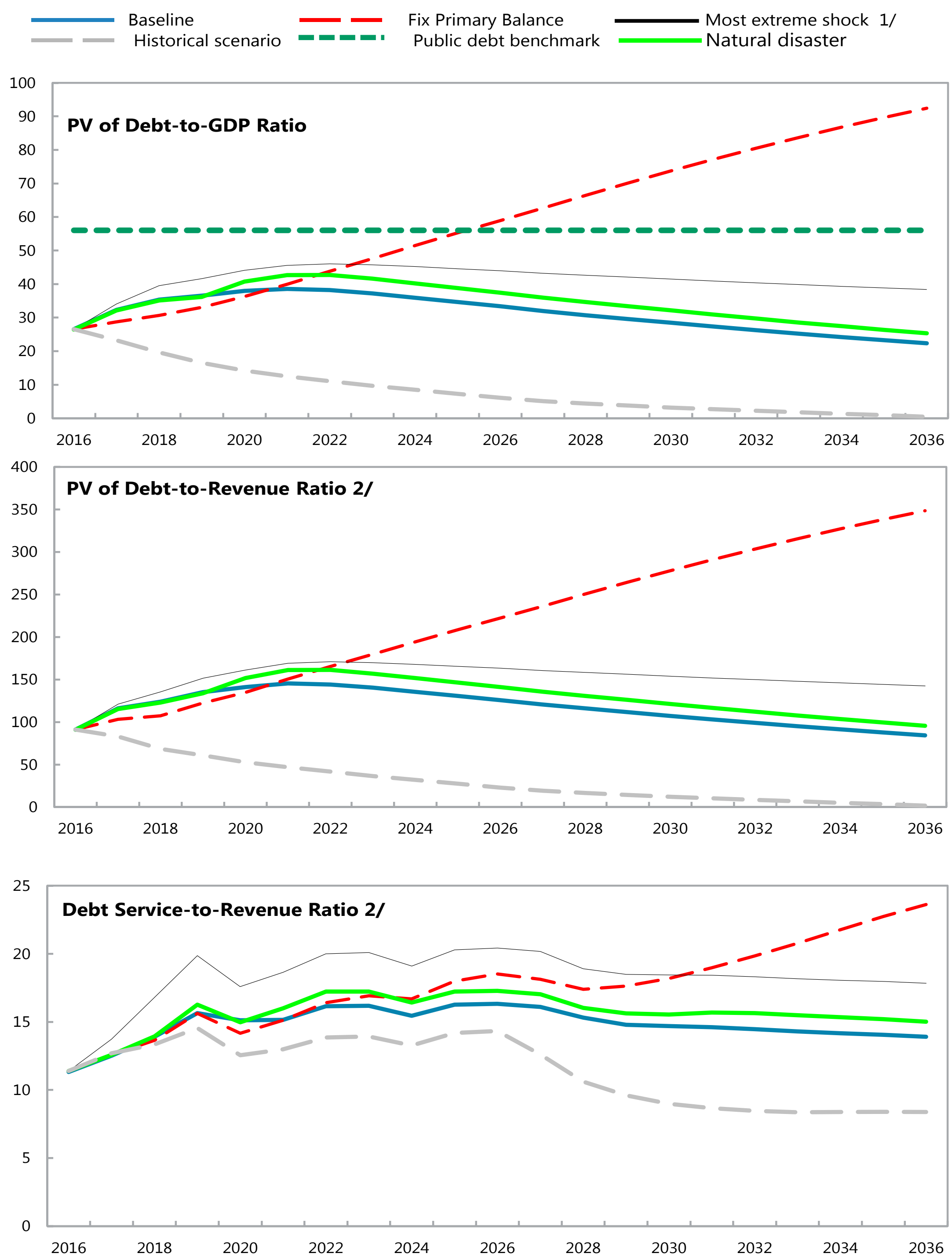
3/ Exports values are assumed to remain permanently at the lower level, but the current account as a share of GDP is assumed to return to its baseline level after the shock (implicitly assuming an offsetting adjustment in import levels).

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.

**Figure 3. Vanuatu: Indicators of Public Debt under Alternatives Scenarios 2016–2036/**




Sources: Country authorities; and staff estimates and projections.
1/ The most extreme stress test is the test that yields the highest ratio on or before 2026.
2/ Revenues are defined inclusive of grants.

## Table 3. Vanuatu: Public Sector Debt Sustainability Framework, Baseline Scenario, 2016–2036

(In percent of GDP, unless otherwise indicated)

| | Actual | | | | | Estimate | Projections | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | Average 5/ | Standard Deviation 5/ | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2016-21 Average | 2026 | 2036 | 2022-36 Average |
| **Public sector debt 1/** | 23.3 | 23.9 | 30.2 | | | 35.6 | 46.6 | 53.3 | 56.9 | 59.9 | 61.2 | | 53.0 | 36.3 | |
| *of which: foreign-currency denominated* | 12.7 | 11.5 | 17.9 | | | 24.8 | 35.6 | 42.8 | 47.0 | 50.4 | 51.6 | | 43.9 | 27.6 | |
| Change in public sector debt | -1.3 | 0.6 | 6.2 | | | 5.5 | 11.0 | 6.6 | 3.7 | 3.0 | 1.2 | | -1.9 | -1.3 | |
| Identified debt-creating flows | -0.1 | -1.0 | -6.7 | | | 8.9 | 14.9 | 10.1 | 5.9 | 4.7 | 2.1 | | -1.9 | -1.3 | |
| Primary deficit | -0.5 | -1.5 | -8.0 | -0.8 | 2.8 | 9.7 | 16.2 | 11.9 | 7.7 | 6.7 | 4.2 | 9.4 | 0.0 | -0.1 | 0.1 |
| Revenue and grants | 21.4 | 23.5 | 32.1 | | | 29.1 | 27.8 | 28.6 | 27.0 | 26.9 | 26.5 | | 26.5 | 26.5 | |
| *of which: grants* | 2.2 | 4.1 | 11.2 | | | 7.7 | 7.7 | 7.3 | 5.5 | 5.5 | 5.5 | | 5.5 | 5.5 | |
| Primary (noninterest) expenditure | 20.9 | 22.0 | 24.0 | | | 38.8 | 44.0 | 40.5 | 34.7 | 33.6 | 30.7 | | 26.5 | 26.4 | |
| Automatic debt dynamics | 0.4 | 0.4 | 1.3 | | | -0.9 | -1.3 | -1.8 | -1.8 | -1.9 | -2.1 | | -1.9 | -1.2 | |
| Contribution from interest rate/growth differential | -0.2 | -0.2 | 0.6 | | | -0.6 | -1.0 | -1.5 | -1.5 | -1.6 | -1.7 | | -1.6 | -1.0 | |
| *of which: contribution from average real interest rate* | 0.2 | 0.3 | 0.4 | | | 0.5 | 0.5 | 0.3 | 0.3 | 0.1 | 0.0 | | 0.0 | 0.1 | |
| *of which: contribution from real GDP growth* | -0.5 | -0.5 | 0.2 | | | -1.2 | -1.5 | -1.8 | -1.8 | -1.7 | -1.7 | | -1.6 | -1.1 | |
| Contribution from real exchange rate depreciation | 0.7 | 0.6 | 0.7 | | | -0.2 | -0.3 | -0.2 | -0.3 | -0.4 | -0.4 | | ... | ... | |
| 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 | -1.3 | 1.6 | 12.9 | | | -3.4 | -3.9 | -3.5 | -2.2 | -1.7 | -0.8 | | 0.0 | 0.0 | |
| **Other Sustainability Indicators** | | | | | | | | | | | | | | | |
| **PV of public sector debt** | ... | 12.4 | 23.8 | | | 26.5 | 32.3 | 35.4 | 36.6 | 37.9 | 38.5 | | 33.4 | 22.4 | |
| *of which: foreign-currency denominated* | ... | 0.0 | 11.6 | | | 15.7 | 21.3 | 24.9 | 26.7 | 28.4 | 29.0 | | 24.2 | 13.7 | |
| *of which: external* | ... | ... | 11.6 | | | 15.7 | 21.3 | 24.9 | 26.7 | 28.4 | 29.0 | | 24.2 | 13.7 | |
| PV of contingent liabilities (not included in public sector debt) | ... | ... | ... | | | ... | ... | ... | ... | ... | ... | | ... | ... | |
| Gross financing need 2/ | 2.1 | 1.0 | -5.3 | | | 13.0 | 19.6 | 15.9 | 11.9 | 10.7 | 8.2 | | 4.3 | 3.6 | |
| PV of public sector debt-to-revenue and grants ratio (in percent) | ... | 53.0 | 74.4 | | | 91.3 | 116.2 | 123.8 | 135.3 | 141.1 | 145.4 | | 125.8 | 84.4 | |
| PV of public sector debt-to-revenue ratio (in percent) | ... | 64.3 | 114.4 | | | 124.1 | 160.6 | 165.9 | 170.2 | 177.8 | 183.8 | | 159.1 | 106.7 | |
| *of which: external 3/* | ... | ... | 55.5 | | | 73.5 | 105.6 | 116.8 | 124.1 | 133.3 | 138.2 | | 115.4 | 65.4 | |
| Debt service-to-revenue and grants ratio (in percent) 4/ | 12.3 | 10.3 | 8.5 | | | 11.3 | 12.5 | 13.9 | 15.6 | 15.1 | 15.2 | | 16.3 | 13.9 | |
| Debt service-to-revenue ratio (in percent) 4/ | 13.7 | 12.6 | 13.1 | | | 15.4 | 17.3 | 18.6 | 19.7 | 19.0 | 19.2 | | 20.7 | 17.6 | |
| Primary deficit that stabilizes the debt-to-GDP ratio | 0.8 | -2.1 | -14.3 | | | 4.3 | 5.1 | 5.3 | 4.0 | 3.7 | 3.0 | | 1.9 | 1.2 | |
| **Key macroeconomic and fiscal assumptions** | | | | | | | | | | | | | | | |
| Real GDP growth (in percent) | 2.0 | 2.3 | -0.8 | 3.2 | 2.8 | 4.0 | 4.5 | 4.0 | 3.5 | 3.0 | 3.0 | 3.7 | 3.0 | 3.0 | 3.0 |
| Average nominal interest rate on forex debt (in percent) | 1.7 | 1.7 | 3.7 | 1.7 | 0.7 | 2.6 | 2.4 | 2.0 | 2.1 | 1.6 | 1.5 | 2.0 | 1.5 | 1.5 | 1.5 |
| Average real interest rate on domestic debt (in percent) | 2.2 | 3.1 | 1.0 | 2.6 | 1.5 | 2.0 | 2.9 | 2.9 | 2.7 | 2.8 | 2.8 | 2.7 | 3.1 | 3.4 | 3.2 |
| Real exchange rate depreciation (in percent, + indicates depreciation) | 5.0 | 5.2 | 6.0 | -1.3 | 7.3 | -1.2 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Inflation rate (GDP deflator, in percent) | 2.7 | 2.0 | 2.5 | 3.2 | 1.9 | 2.2 | 2.6 | 2.8 | 2.9 | 2.9 | 2.9 | 2.7 | 2.9 | 2.9 | 2.9 |
| Growth of real primary spending (deflated by GDP deflator, in percent) | -6.2 | 7.6 | 8.2 | 1.0 | 4.1 | 67.9 | 18.5 | -4.3 | -11.2 | -0.6 | -5.7 | 10.8 | 3.1 | 3.1 | 2.0 |
| Grant element of new external borrowing (in percent) | ... | ... | ... | ... | ... | 40.5 | 44.9 | 44.9 | 47.2 | 46.1 | 46.9 | 45.1 | 44.1 | 44.1 | ... |

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 4. Vanuatu: Sensitivity Analysis for Key Indicators for Public Debt, 2016–2036

| | Projections | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2026 | 2036 |
| **PV of Debt-to-GDP Ratio** | | | | | | | | |
| **Baseline** | 27 | 32 | 35 | 37 | 38 | 39 | 33 | 22 |
| **A. Alternative scenarios** | | | | | | | | |
| A1. Real GDP growth and primary balance are at historical averages | 27 | 23 | 20 | 17 | 14 | 13 | 6 | 0 |
| A2. Primary balance is unchanged from 2016 | 27 | 29 | 31 | 33 | 36 | 40 | 59 | 92 |
| A3. Permanently lower GDP growth 1/ | 27 | 33 | 36 | 38 | 40 | 41 | 39 | 39 |
| A4. Alternative Scenario : Natural Disaster | 26 | 32 | 35 | 36 | 41 | 43 | 37 | 25 |
| **B. Bound tests** | | | | | | | | |
| B1. Real GDP growth is at historical average minus one standard deviations in 2017-2018 | 27 | 34 | 40 | 42 | 44 | 46 | 44 | 38 |
| B2. Primary balance is at historical average minus one standard deviations in 2017-2018 | 27 | 24 | 22 | 24 | 26 | 26 | 22 | 15 |
| B3. Combination of B1-B2 using one half standard deviation shocks | 27 | 24 | 22 | 24 | 26 | 28 | 26 | 23 |
| B4. One-time 30 percent real depreciation in 2017 | 27 | 36 | 37 | 37 | 37 | 37 | 31 | 20 |
| B5. 10 percent of GDP increase in other debt-creating flows in 2017 | 27 | 38 | 41 | 42 | 43 | 44 | 38 | 25 |
| **PV of Debt-to-Revenue Ratio 2/** | | | | | | | | |
| **Baseline** | 91 | 116 | 124 | 135 | 141 | 145 | 126 | 84 |
| **A. Alternative scenarios** | | | | | | | | |
| A1. Real GDP growth and primary balance are at historical averages | 91 | 83 | 68 | 61 | 53 | 47 | 23 | 2 |
| A2. Primary balance is unchanged from 2016 | 91 | 103 | 107 | 122 | 135 | 151 | 222 | 349 |
| A3. Permanently lower GDP growth 1/ | 91 | 117 | 126 | 138 | 146 | 153 | 145 | 142 |
| A4. Alternative Scenario : Natural Disaster | 91 | 115 | 123 | 134 | 152 | 161 | 141 | 96 |
| **B. Bound tests** | | | | | | | | |
| B1. Real GDP growth is at historical average minus one standard deviations in 2017-2018 | 91 | 121 | 136 | 152 | 161 | 169 | 163 | 142 |
| B2. Primary balance is at historical average minus one standard deviations in 2017-2018 | 91 | 88 | 78 | 88 | 95 | 99 | 84 | 57 |
| B3. Combination of B1-B2 using one half standard deviation shocks | 91 | 87 | 75 | 88 | 97 | 104 | 98 | 87 |
| B4. One-time 30 percent real depreciation in 2017 | 91 | 131 | 130 | 135 | 137 | 138 | 116 | 75 |
| B5. 10 percent of GDP increase in other debt-creating flows in 2017 | 91 | 136 | 143 | 154 | 160 | 164 | 143 | 96 |
| **Debt Service-to-Revenue Ratio 2/** | | | | | | | | |
| **Baseline** | 11 | 13 | 14 | 16 | 15 | 15 | 16 | 14 |
| **A. Alternative scenarios** | | | | | | | | |
| A1. Real GDP growth and primary balance are at historical averages | 11 | 13 | 13 | 15 | 13 | 13 | 14 | 8 |
| A2. Primary balance is unchanged from 2016 | 11 | 13 | 14 | 16 | 14 | 15 | 19 | 24 |
| A3. Permanently lower GDP growth 1/ | 11 | 13 | 14 | 17 | 15 | 16 | 17 | 17 |
| A4. Alternative Scenario : Natural Disaster | 11 | 13 | 14 | 16 | 15 | 16 | 17 | 15 |
| **B. Bound tests** | | | | | | | | |
| B1. Real GDP growth is at historical average minus one standard deviations in 2017-2018 | 11 | 13 | 15 | 17 | 16 | 16 | 18 | 17 |
| B2. Primary balance is at historical average minus one standard deviations in 2017-2018 | 11 | 13 | 13 | 15 | 13 | 14 | 15 | 12 |
| B3. Combination of B1-B2 using one half standard deviation shocks | 11 | 13 | 14 | 15 | 13 | 15 | 16 | 13 |
| B4. One-time 30 percent real depreciation in 2017 | 11 | 14 | 17 | 20 | 18 | 19 | 20 | 18 |
| B5. 10 percent of GDP increase in other debt-creating flows in 2017 | 11 | 13 | 14 | 17 | 15 | 16 | 17 | 15 |

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.