INTERNATIONAL DEVELOPMENT ASSOCIATION AND
INTERNATIONAL MONETARY FUND[1]

UNITED REPUBLIC OF TANZANIA

# Joint World Bank/IMF Debt Sustainability Analysis

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May 18, 2010

*Tanzania's risk of debt distress remains low, reflecting large debt relief and sound macroeconomic policies in recent years. In the coming years, the government anticipates borrowing from both domestic and external sources, including on non-concessional terms, to finance a stepping up of infrastructure spending. The additional borrowing will increase the present value (PV) of debt-to-GDP ratio but should not jeopardize long-term debt sustainability, although debt service indicators will increase more significantly, due to an assumption of the most expensive terms. In addition, alternative downside scenarios illustrate that debt indicators would be sensitive to significantly lower long-term growth. This highlights the importance of a sound debt management strategy and rigorous evaluation of the quality and feasibility of infrastructure projects to ensure healthy rates of return on investment.*

## VI. Background

1. **Tanzania's macroeconomic outcomes improved substantially over the last decade with sustained high rates of growth and relatively low inflation.** Prior to the global financial crisis, growth had been accelerating (averaging 7 percent per year during 2002-2009), which, together with a sharp increase in revenue collection and increased donor funding, provided room for a substantial expansion in public spending. Inflation was kept in check for much of this period, but accelerated in 2008 (13.5 percent at end year), driven mainly by lagged effects of the spike in international food and fuel prices, and more recently, by adverse regional food supply shocks. Growth slowed as the global crisis hit, but the government's economic recovery program cushioned the impact on the economy. Economic indicators suggest that growth began to accelerate in the second half of 2009, stemming from good performance in agriculture, construction, and, transport and communication. Tanzania also achieved a large buildup in official international reserves, partly reflecting solid export growth, Fund balance of payments support under the Exogenous Shocks

[1] Prepared by the IMF and World Bank staff in consultation with the authorities. This DSA replaces the one prepared in May (Country Report No. 09/179). Tables and Figures are in fiscal years (July-June). For example, 2009 refers to fiscal year 2009/10.

Facility (ESF), and the SDR allocations. At end-2009, gross international reserves were about US$3.5 billion, more than 5 months of current year imports of goods and services.

2. **Tanzania has benefited from extensive debt relief under the HIPC Initiative and, more recently, the Multilateral Debt Relief Initiative (MDRI).** HIPC and MDRI debt relief reduced Tanzania's debt burden sharply, with all debt indicators declining to levels well below risk thresholds. Debt policy has remained prudent since the provision of debt relief, with total external debt declining from US$7.1 billion, or 57.3 percent of GDP at end-June 2006 before MDRI went into effect, to US$3.7 billion, or 24.9 percent of GDP at end-June 2008. Total external debt increased to US$4.5 billion, or 25.6 percent of GDP by end-June 2009.[2] In present value (PV) terms, the public and publicly guaranteed sector (PPG) external debt stood at about 12 percent of GDP at end-June 2009, or 54½ percent of exports (end-June 2008 figures were 10.6, and 44.9 percent respectively).[3] Public external debt service was around 1.0 percent of exports of goods and services in 2008/9, compared to 1.7 percent in 2007/8. New external borrowing, concentrated on financing social investment primarily in the areas of education and health, was contracted on highly concessional terms. At end-June 2009, the composition of PPG external debt was 61 percent to multilateral and 20 percent to bilateral creditors. Tanzania's public domestic debt increased slightly from TSh 3.3 trillion (14.3 percent of GDP) at end-June 2008 to TSh 3.5 trillion (13.0 percent of GDP) at end-June 2009, about half of which was short-term Treasury bills.

3. **The authorities' medium-term policy is focused on stepping up public investment.** The draft poverty reduction strategy (MKUKUTA II), which will cover 2010-2015, is expected to reinforce emphasis on growth through stepping up the infrastructure investment. Increased infrastructure spending, especially in transportation, power generation, and irrigation, can play a critical role in stimulating sectors vital to growth both in Tanzania and the region. Financing for the additional public spending is expected to come from a combination of domestic and external borrowing. While concessional borrowing and grants will remain the main source of financing for investment spending, these resources are unlikely to be sufficient for a significant scaling up of infrastructure investment. The authorities plan to explore sources for semi-concessional and non-concessional external borrowing, domestic borrowing, and to seek greater participation of the private sector in financing and/or implementing infrastructure projects through Public Private Partnership (PPP) arrangements.

## VII. Baseline Assumptions

4. **Baseline assumptions differ somewhat from those in the previous DSA to reflect additional public investment spending.** The baseline scenario envisages a gradual recovery in private sector activity over the next three years from the current slowdown caused by the global

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[2] The debt stock excludes the estimated amount of interest arrears of about US$560 million, which are expected to be canceled upon conclusion of formal agreements on HIPC debt relief.

[3] PPG debt at this stage only reflects central government debt. The authorities are cataloguing contingent liabilities, including government guarantees to state-owned enterprises.

crisis. Growth in 2009/10 is projected to be 5.8 percent, increasing to 6.5 percent in 2010/11, and 7.1 percent in 2011/12 before reaching 7.5 percent in 2012/13 and thereafter. Compared with the 2009 Joint IMF-World Bank DSA, the current baseline scenario assumes a higher growth path over the long term, 7.5 compared to 6 percent after 2020/21, reflecting the stepping up of infrastructure investment financed via additional domestic and external borrowing on less concessional terms (Box 1). Inadequate infrastructure is considered a key constraint to capacity building, the business environment, productivity and subsequently higher growth in the country and in the region.[4] The authorities have developed a list of priority high return infrastructure projects, which are expected to produce synergistic growth effects on vital sectors. Inflation (GDP deflator) is projected at the Bank of Tanzania's medium-term objective of 5 percent, the real exchange rate is assumed to stay constant at 2009/10 levels throughout the projection period, and export/import price index deflators are assumed to grow 2 percent annually (these assumptions remain unchanged from the previous DSA). The current account deficit is expected to increase slightly in 2010/11, before improving steadily to 3.6 percent of GDP in the long term, due to the supply response to more infrastructure.

**Box 1. Comparison with 2009 DSA**

- **Growth:** The current DSA assumes a higher growth path compared to the 2009 DSA (7.5 compared to 6 percent after 2020/21) on account of the stepping up of infrastructure.
- **Exports and imports:** Growth of exports and imports over the long term is somewhat higher than the 2009 DSA to reflect higher infrastructure spending and growth.
- **Investment spending:** The elevated infrastructure investment is reflected in an initial increase in investment spending from 8.8 percent of GDP in 2008/09 to an average of 9.7 percent during 2010-2013, and thereafter 9.4 percent. The previous DSA reflected a slightly larger percentage in the initial year – due to lower GDP – and smaller percentages in the outer years.
- **Public deficit:** The public sector deficit increases in the near term on account of additional public investment before steadily dropping to 2.8 percent of GDP by 2029/30. In the 2009 DSA the declining path was steeper with the deficit reaching 1.4 percent by end of the projection period.
- **Foreign concessional loans and grants:** In the current baseline scenario external grants decline to about 3 percent of GDP by 2019/20 and thereafter (compared to 4.5 percent in the 2009 DSA) while foreign concessional loans decline at the same rate as in the previous DSA, to reflect gradual reduction in aid dependency.

5. **To finance additional infrastructure spending, the baseline incorporates domestic and external borrowing on non-concessional terms during the upcoming PSI program period.** The additional borrowing includes non-concessional external financing of US$1.5 billion over three years (US$525 million disbursed in 2010/11, 2011/12, and US$450 million in 2012/13) and 1 percent of GDP for the remainder of the projection period. It also includes domestic financing of about 1 percent of GDP for 2010/11–2014/15. The new domestic borrowing is assumed to be at an

[4] See IMF Working Paper 08/256 "Creating Sustainable Fiscal Space for Infrastructure: the Case of Tanzania," IMF Board paper "Public Investment and Fiscal Policy", and *Africa's infrastructure: a time for transformation* (World Bank, 2010).

interest rate of 10 percent (with automatic rollover), while external borrowing is assumed to have an average interest rate of 9 percent, with a 1-year grace period and 10-years' maturity. The terms for external borrowing were set high, at market rates, to mirror a possible premium for a Eurobond. The authorities are planning a Eurobond, likely in FY 2011/12, and will explore other options for semi-concessional financing, e.g. IBRD.

6. **Government revenues as a percent of GDP are assumed to increase—albeit more gradually than in recent years—while external grants and concessional loans will decline.** Domestic revenues are assumed to increase from 15½ percent of GDP in 2009/10 to about 20 percent of GDP by 2017/18 and gradually reach 21.5 percent by 2029/30—within IMF staff estimates of tax potential. On the other hand, external grants are assumed to decline from 6 percent of GDP in 2009/10 to about 3 percent of GDP by 2019/20 and remain roughly at that level.[5,6] External concessional loans (including both program and project loans) are assumed to fall from 4.2 percent of GDP in 2009/10 to about 2.0 percent of GDP by 2029/30, consistent with a gradual reduction in Tanzania's aid dependency. Annual development spending is assumed to increase to 9.7 percent of GDP between 2010 and 2013, reflecting the enhanced public investment, and then stabilize at 9.4 percent of GDP for the rest of the projection period. The baseline also accounts for annual maintenance costs—added to recurrent expenditure—of 5 percent of the total value of the accumulated additional infrastructure spending. The maintenance costs reach about 0.2 percent of GDP in 2014/15, before gradually declining relative to GDP over the remainder of the projection period. Any residual financing need beyond 2014/15 is assumed to be met by domestic borrowing, which under the baseline would not exceed 1.8 percent of GDP.

7. **Institutional mechanisms to ensure the quality and feasibility of new infrastructure spending and an appropriate risk management strategy are called for.** The authorities have developed a list of priority projects consistent with strategic planning documents, including the Medium Term Public Sector Investment Plan and the new PRS. The IMF and World Bank have recently provided technical assistance on debt management and institutional and legal frameworks for PPPs. Drawing on this assistance, the authorities are preparing a new medium-term debt strategy and a new PPP framework, both of which should be in place by end-2010. Similarly, the President has established a task force, which has developed recommendations to improve the business environment, and thus, the private sector response to scaled up infrastructure investment.

## VIII. External Debt Sustainability Analysis

8. **The risk of external debt distress is low under the baseline scenario despite the proposed increase in infrastructure spending.** An increase in non-concessional external borrowing of US$ 1.5 billion over the 3-year period 2010-13, reflecting the authorities' specific

[5] External grants in 2009/10 were significantly higher than the recent historical average of 4-5 percent, reflecting extraordinary support to mitigate the effects of the global crisis.

[6] The assumed path for grants does not build in any additional resources related to climate change initiatives.

investment plan to improve transportation infrastructure, and 1 percent of GDP for the remaining projection period, as an assumption for potential future investment, will increase debt indicators but should not jeopardize long-run sustainability (Figure 1). Debt service indicators increase gradually throughout the projection period, but stay well below risk thresholds. The PV of public external debt-to-GDP ratio would increase from 13.1 percent of GDP in 2009/10 to 22.7 percent by 2015, before falling to 21.5 percent by end of projection period (in the previous DSA, these ratios were 11.7, 16.2, and 7.1, respectively). The PV of debt-to-exports is expected to peak at 90.1 percent of GDP in 2013/14, before declining to 71.1 percent in 2029/30. The debt service-to-exports ratio would reach 9.6 percent by 2029/30 – debt service indicators would continue to increase based on a conservative assumption that new financing would be on the most expensive terms. (In fact, the authorities do plan to maximize concessionality of the new borrowing, even if it does not meet the 35 percent grant element threshold.) The sensitivity analysis indicates that Tanzania's public external debt would remain below risk thresholds applicable to Tanzania under all standard bound tests and extreme shocks.[7] The alternative scenario with less favorable financing terms shows the strongest deterioration in most indicators, but they do not breach the risk thresholds. Indeed, thebaseline already reflect this scenario to some extent, given its highly conservative assumptions on terms for non-concessional financing.

9. **The alternative high investment-low growth scenario indicates, however, that Tanzania's external debt dynamics is sensitive to the assumption on real GDP growth.** An alternative downside scenario that assumes a permanently lower growth rate of 6 percent is considered (A3 in Table 2 and Figure 1). This scenario could also be interpreted as reflecting no measurable impact on growth of the additional infrastructure investment. This alternative scenario results in a PV of debt-to-GDP ratio of 27 percent by 2030, which is higher than the baseline scenario. In addition, the historical scenario (A1 in Table 3), under which key variables are held constant at historical averages, yields indicators that increase substantially towards the end of the projection period. The primary reason for this result is that the baseline builds in higher rates of growth, consistent with higher levels of public investment. These alternative scenarios again highlight the need for institutions to support a sound debt management strategy and strong returns to infrastructure investment.

## IX. Fiscal Debt Sustainability Analysis

10. **The path of total public debt, which includes external debt and domestic debt, also appears to be sustainable, but is sensitive to fiscal adjustment**. The PV of public debt-to-GDP ratio increases from 26.9 in 2009/10 to 34.1 by 2029/30, while debt service-to-revenue increases quite sharply from 7.9 to 19.8 by end of the projection period (Figure 2).

[7] The World Bank's Country Policy and Institutional Assessment (CPIA) ranks Tanzania as a "strong performer," with a 2006-08 CPIA of 3.89. Debt burden thresholds for strong performers are PV of debt to GDP ratio of 50 percent, PV of debt-to-exports ratio of 200 percent, PV of debt-to-revenue ratio of 300 percent, debt-service-to-exports ratio of 25 percent, and debt-service-to-revenue ratio of 35 percent.

11. **Under the alternative scenario with permanently low growth (A3 in Table 4), the PV of public debt would reach 40 percent of GDP by 2029/30**, while the debt service-to-revenue ratio would experience a relatively large and sustained increase reaching 27 percent. Also, compared to the previous DSA, the sensitivity analysis holding the primary deficit at the current level shows relative deterioration in debt indicators, reflecting the FY09/10 fiscal expansion in response to the global crisis. If the primary fiscal balance remained unchanged from 2010 onwards (A2 in Table 4), debt service payments would absorb 51 percent of revenue by 2029/30. It is expected, however, that the expanded fiscal spending will be phased out as the time-bound discretionary components are withdrawn and automatic stabilizers reverse. The most extreme stress test is an exchange rate depreciation shock (one-time 30 percent real depreciation in 2011), resulting in an increase of the PV of public debt-to-GDP ratio from 26.9 in 2009/10 to 43.9 by 2029/30, still below the risk threshold.

## X. Conclusion

12. **Based on the updated baseline scenario, Tanzania's debt indicators are expected to remain well below indicative, country-specific thresholds.** The additional borrowing to finance a stepping up of infrastructure investment over the medium term will increase the present value (PV) of debt-to-GDP and other indicators, but should not jeopardize long-term debt sustainability, particularly assuming a modest growth response to the infrastructure investment. Debt indicators are sensitive to a number of parameters, but in general the downside scenarios and standard sensitivity analysis support the assessment of a low risk of debt distress. Nevertheless, a sound debt management strategy, a conservative approach to non-concessional borrowing, and rigorous evaluation of the quality and feasibility of investment projects are important factors for maintaining debt and fiscal sustainability. For example, should key variables such as donor support or real GDP growth deteriorate excessively, government spending would have to adjust to maintain fiscal and debt sustainability.

Table 1.: External Debt Sustainability Framework, Baseline Scenario, 2007-2030 1/
(In percent of GDP, unless otherwise indicated)

| | Actual | | | Historical 0 Average | 0 Standard Deviation | Projections | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2007 | 2008 | 2009 | | | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2010-2015 Average | 2020 | 2030 | 2016-2030 Average |
| **External debt (nominal) 1/** | **20.8** | **24.9** | **25.6** | | | **26.6** | **29.5** | **32.0** | **33.6** | **34.4** | **35.2** | | **34.4** | **34.7** | |
| o/w public and publicly guaranteed (PPG) | 17.0 | 21.0 | 21.1 | | | 22.4 | 25.3 | 27.6 | 29.1 | 29.7 | 30.3 | | 28.1 | 24.3 | |
| Change in external debt | -33.6 | 4.1 | 0.7 | | | 1.0 | 2.9 | 2.5 | 1.6 | 0.8 | 0.9 | | -0.2 | 0.3 | |
| Identified net debt-creating flows | 2.5 | 2.6 | 4.2 | | | 4.5 | 4.2 | 3.8 | 3.4 | 2.3 | 2.0 | | 0.4 | -2.9 | |
| **Non-interest current account deficit** | **9.7** | **10.3** | **9.6** | **6.6** | **2.7** | **8.1** | **8.4** | **8.3** | **8.1** | **7.5** | **7.4** | | **6.3** | **3.6** | 5.5 |
| Deficit in balance of goods and services | 13.0 | 14.0 | 12.9 | | | 11.3 | 10.5 | 10.3 | 10.1 | 9.5 | 9.5 | | 8.1 | 5.0 | |
| Exports | 24.5 | 23.6 | 22.5 | | | 22.4 | 24.1 | 24.2 | 24.2 | 24.5 | 25.1 | | 26.7 | 30.3 | |
| Imports | 37.4 | 37.6 | 35.4 | | | 33.7 | 34.6 | 34.5 | 34.3 | 34.0 | 34.6 | | 34.8 | 35.3 | |
| Net current transfers (negative = inflow) | -3.5 | -3.6 | -3.4 | -3.0 | 1.3 | -3.3 | -2.5 | -2.4 | -2.2 | -2.1 | -2.0 | | -1.5 | -0.9 | -1.4 |
| o/w official | -3.3 | -3.5 | -3.3 | | | -3.2 | -2.4 | -2.2 | -2.1 | -1.9 | -1.9 | | -1.4 | -0.9 | |
| Other current account flows (negative = net inflow) | 0.2 | -0.1 | 0.1 | | | 0.1 | 0.5 | 0.3 | 0.2 | 0.1 | -0.1 | | -0.2 | -0.5 | |
| **Net FDI (negative = inflow)** | **-4.3** | **-3.7** | **-2.8** | **-3.7** | **0.4** | **-2.4** | **-2.8** | **-2.9** | **-3.0** | **-3.4** | **-3.7** | | **-4.4** | **-5.2** | -4.6 |
| **Endogenous debt dynamics 2/** | **-2.9** | **-4.0** | **-2.6** | | | **-1.2** | **-1.4** | **-1.6** | **-1.7** | **-1.7** | **-1.8** | | **-1.5** | **-1.3** | |
| Contribution from nominal interest rate | 0.2 | 0.2 | 0.2 | | | 0.2 | 0.1 | 0.4 | 0.5 | 0.6 | 0.6 | | 0.8 | 1.1 | |
| Contribution from real GDP growth | -3.6 | -1.2 | -1.4 | | | -1.4 | -1.6 | -1.9 | -2.2 | -2.3 | -2.4 | | -2.4 | -2.4 | |
| Contribution from price and exchange rate changes | 0.5 | -3.0 | -1.4 | | | … | … | … | … | … | … | | … | … | |
| **Residual (3-4) 3/** | **-36.1** | **1.4** | **-3.5** | | | **-3.6** | **-1.3** | **-1.3** | **-1.8** | **-1.5** | **-1.1** | | **-0.6** | **3.2** | |
| o/w 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/ | ... | ... | 16.8 | | | 17.3 | 21.0 | 24.2 | 25.9 | 26.7 | 27.7 | | 29.0 | 32.0 | |
| In percent of exports | ... | ... | 74.5 | | | 76.9 | 86.9 | 100.1 | 106.9 | 109.2 | 110.5 | | 108.4 | 105.4 | |
| **PV of PPG external debt** | **...** | **...** | **12.2** | | | **13.1** | **16.7** | **19.8** | **21.4** | **22.1** | **22.7** | | **22.6** | **21.5** | |
| **In percent of exports** | **...** | **...** | **54.4** | | | **58.4** | **69.4** | **82.1** | **88.2** | **90.1** | **90.6** | | **84.6** | **71.1** | |
| **In percent of government revenues** | **...** | **...** | **80.9** | | | **84.5** | **104.6** | **121.6** | **128.7** | **130.7** | **127.5** | | **111.0** | **100.1** | |
| **Debt service-to-exports ratio (in percent)** | **2.0** | **4.2** | **4.5** | | | **3.2** | **3.3** | **4.3** | **5.5** | **6.4** | **7.3** | | **9.9** | **12.9** | |
| **PPG debt service-to-exports ratio (in percent)** | **1.1** | **1.7** | **1.0** | | | **1.0** | **1.2** | **2.3** | **3.6** | **4.6** | **5.4** | | **7.6** | **9.6** | |
| **PPG debt service-to-revenue ratio (in percent)** | **1.9** | **2.6** | **1.4** | | | **1.5** | **1.9** | **3.4** | **5.3** | **6.7** | **7.6** | | **10.0** | **13.5** | |
| Total gross financing need (Billions of U.S. dollars) | 0.9 | 1.4 | 1.7 | | | 1.5 | 1.7 | 1.8 | 2.0 | 1.9 | 2.0 | | 2.6 | 3.2 | |
| Non-interest current account deficit that stabilizes debt ratio | 43.3 | 6.2 | 8.8 | | | 7.1 | 5.5 | 5.8 | 6.5 | 6.7 | 6.6 | | 6.6 | 3.3 | |
| **Key macroeconomic assumptions** | | | | | | | | | | | | | | | |
| Real GDP growth (in percent) | 6.9 | 7.3 | 6.4 | 7.0 | 0.4 | 5.8 | 6.5 | 7.1 | 7.5 | 7.5 | 7.5 | 7.0 | 7.5 | 7.5 | 7.5 |
| GDP deflator in US dollar terms (change in percent) | -0.9 | 16.7 | 6.0 | 2.5 | 6.8 | 3.6 | 1.9 | 1.7 | 1.9 | 1.9 | 0.4 | 1.9 | 1.9 | 1.9 | 1.9 |
| Effective interest rate (percent) 5/ | 0.3 | 1.1 | 1.1 | 0.8 | 0.4 | 0.8 | 0.6 | 1.4 | 1.8 | 1.9 | 2.0 | 1.4 | 2.6 | 3.4 | 2.8 |
| Growth of exports of G&S (US dollar terms, in percent) | 19.1 | 21.0 | 7.5 | 15.6 | 8.7 | 9.2 | 16.7 | 9.0 | 9.8 | 10.8 | 10.7 | 11.0 | 10.9 | 10.9 | 10.9 |
| Growth of imports of G&S (US dollar terms, in percent) | 21.5 | 25.8 | 6.3 | 13.5 | 12.3 | 4.4 | 11.3 | 8.4 | 9.0 | 8.6 | 9.9 | 8.6 | 9.6 | 9.6 | 9.6 |
| Grant element of new public sector borrowing (in percent) | ... | ... | ... | ... | ... | 49.2 | 18.7 | 16.5 | 18.5 | 21.8 | 17.6 | 23.7 | 4.4 | -2.9 | 2.1 |
| Government revenues (excluding grants, in percent of GDP) | 14.4 | 15.9 | 15.1 | | | 15.5 | 16.0 | 16.3 | 16.6 | 16.9 | 17.8 | | 20.4 | 21.5 | 20.6 |
| Aid flows (in Billions of US dollars) 7/ | 0.8 | 1.3 | 1.0 | | | 2.1 | 1.9 | 1.9 | 2.0 | 2.1 | 2.2 | | 2.5 | 6.1 | |
| o/w Grants | 0.8 | 1.3 | 1.0 | | | 1.4 | 1.2 | 1.3 | 1.3 | 1.4 | 1.5 | | 1.8 | 4.5 | |
| o/w Concessional loans | 0.0 | 0.0 | 0.0 | | | 0.6 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | | 0.7 | 1.5 | |
| Grant-equivalent financing (in percent of GDP) 8/ | ... | ... | ... | | | 7.7 | 5.8 | 5.3 | 5.0 | 5.0 | 4.8 | | 3.3 | 3.1 | 3.4 |
| Grant-equivalent financing (in percent of external financing) 8/ | ... | ... | ... | | | 83.0 | 59.7 | 58.0 | 59.3 | 63.1 | 62.6 | | 52.6 | 44.3 | 50.9 |
| *Memorandum items:* | | | | | | | | | | | | | | | |
| Nominal GDP (Billions of US dollars) | 15.2 | 19.0 | 21.5 | | | 23.5 | 25.5 | 27.8 | 30.5 | 33.4 | 36.0 | | 56.7 | 140.3 | |
| Nominal dollar GDP growth | 6.0 | 25.2 | 12.8 | | | 9.6 | 8.5 | 8.9 | 9.6 | 9.6 | 8.0 | 9.0 | 9.5 | 9.5 | 9.5 |
| PV of PPG external debt (in Billions of US dollars) | | | 2.6 | | | 3.0 | 4.2 | 5.4 | 6.4 | 7.3 | 8.1 | | 12.6 | 29.5 | |
| (PVt-PVt-1)/GDPt-1 (in percent) | | | | | | 2.0 | 5.0 | 4.8 | 3.5 | 2.8 | 2.5 | 3.4 | 1.9 | 2.0 | 2.0 |
| Gross remittances (Billions of US dollars) | … | … | … | | | … | … | … | … | … | … | | … | … | |
| PV of PPG external debt (in percent of GDP + remittances) | ... | ... | 12.2 | | | 13.1 | 16.7 | 19.8 | 21.4 | 22.1 | 22.7 | | 22.6 | 21.5 | |
| PV of PPG external debt (in percent of exports + remittances) | ... | ... | 54.4 | | | 58.4 | 69.4 | 82.1 | 88.2 | 90.1 | 90.6 | | 84.6 | 71.1 | |
| Debt service of PPG external debt (in percent of exports + remittances) | ... | ... | 1.0 | | | 1.0 | 1.2 | 2.3 | 3.6 | 4.6 | 5.4 | | 7.6 | 9.6 | |

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.Tanzania: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2010-2030
(In percent)

| | Projections | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | **2020** | 2030 |
| **PV of debt-to GDP ratio** | | | | | | | | |
| **Baseline** | 13 | 17 | 20 | 21 | 22 | 23 | **23** | 22 |
| **A. Alternative Scenarios** | | | | | | | | |
| A1. Key variables at their historical averages in 2010-2030 1/ | 13 | 13 | 14 | 13 | 13 | 13 | **17** | 46 |
| A2. New public sector loans on less favorable terms in 2010-2030 2 | 13 | 17 | 21 | 25 | 27 | 29 | **32** | 38 |
| A3. Alternative Scenario : Permanently lower GDP growth | 13 | 17 | 20 | 22 | 23 | 24 | 25 | 27 |
| **B. Bound Tests** | | | | | | | | |
| B1. Real GDP growth at historical average minus one standard deviation in 2011-2012 | 13 | 16 | 20 | 21 | 22 | 22 | **22** | 21 |
| B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/ | 13 | 19 | 25 | 26 | 26 | 27 | **25** | 22 |
| B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012 | 13 | 18 | 22 | 24 | 25 | 25 | **25** | 24 |
| B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/ | 13 | 17 | 20 | 22 | 22 | 23 | **22** | 21 |
| B5. Combination of B1-B4 using one-half standard deviation shocks | 13 | 18 | 22 | 23 | 24 | 25 | **24** | 22 |
| B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/ | 13 | 23 | 28 | 30 | 31 | 32 | **31** | 30 |
| **PV of debt-to-exports ratio** | | | | | | | | |
| **Baseline** | 58 | 69 | 82 | 88 | 90 | 91 | **85** | 71 |
| **A. Alternative Scenarios** | | | | | | | | |
| A1. Key variables at their historical averages in 2010-2030 1/ | 58 | 55 | 56 | 53 | 52 | 50 | **65** | 153 |
| A2. New public sector loans on less favorable terms in 2010-2030 2 | 58 | 69 | 89 | 102 | 110 | 115 | **120** | 125 |
| A3. Alternative Scenario : Permanently lower GDP growth | 58 | 68 | 81 | 87 | 89 | 89 | 83 | 69 |
| **B. Bound Tests** | | | | | | | | |
| B1. Real GDP growth at historical average minus one standard deviation in 2011-2012 | 58 | 68 | 81 | 87 | 89 | 89 | **83** | 69 |
| B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/ | 58 | 85 | 113 | 119 | 120 | 119 | **105** | 80 |
| B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012 | 58 | 68 | 81 | 87 | 89 | 89 | **83** | 69 |
| B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/ | 58 | 70 | 83 | 89 | 91 | 91 | **84** | 69 |
| B5. Combination of B1-B4 using one-half standard deviation shocks | 58 | 75 | 88 | 94 | 96 | 96 | **88** | 71 |
| B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/ | 58 | 68 | 81 | 87 | 89 | 89 | **83** | 69 |
| **PV of debt-to-revenue ratio** | | | | | | | | |
| **Baseline** | 85 | 105 | 122 | 129 | 131 | 127 | **111** | 100 |
| **A. Alternative Scenarios** | | | | | | | | |
| A1. Key variables at their historical averages in 2010-2030 1/ | 85 | 83 | 83 | 78 | 75 | 71 | **85** | 215 |
| A2. New public sector loans on less favorable terms in 2010-2030 2 | 85 | 104 | 132 | 149 | 160 | 161 | **157** | 176 |
| A3. Alternative Scenario : Permanently lower GDP growth | 85 | 104 | 122 | 131 | 134 | 133 | 123 | 126 |
| **B. Bound Tests** | | | | | | | | |
| B1. Real GDP growth at historical average minus one standard deviation in 2011-2012 | 85 | 103 | 120 | 127 | 129 | 126 | **109** | 97 |
| B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/ | 85 | 118 | 151 | 156 | 156 | 151 | **123** | 101 |
| B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012 | 85 | 110 | 136 | 144 | 146 | 142 | **123** | 110 |
| B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/ | 85 | 105 | 123 | 130 | 132 | 128 | **110** | 97 |
| B5. Combination of B1-B4 using one-half standard deviation shocks | 85 | 111 | 134 | 141 | 142 | 138 | **118** | 103 |
| B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/ | 85 | 146 | 170 | 180 | 183 | 178 | **154** | 137 |

Table 2.Tanzania: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2010-2030 (continued)
(In percent)

**Debt service-to-exports ratio**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Baseline** | 1 | 1 | 2 | 4 | 5 | 5 | **8** | 10 |
| **A. Alternative Scenarios** | | | | | | | | |
| A1. Key variables at their historical averages in 2010-2030 1/ | 1 | 1 | 2 | 3 | 3 | 4 | **5** | 13 |
| A2. New public sector loans on less favorable terms in 2010-2030 2 | 1 | 1 | 2 | 3 | 3 | 4 | **7** | 13 |
| A3. Alternative Scenario : Permanently lower GDP growth | 1 | 1 | 2 | 4 | 5 | 5 | 8 | 10 |
| **B. Bound Tests** | | | | | | | | |
| B1. Real GDP growth at historical average minus one standard deviation in 2011-2012 | 1 | 1 | 2 | 4 | 5 | 5 | **8** | 10 |
| B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/ | 1 | 1 | 3 | 5 | 6 | 7 | **10** | 11 |
| B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012 | 1 | 1 | 2 | 4 | 5 | 5 | **8** | 10 |
| B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/ | 1 | 1 | 2 | 4 | 5 | 5 | **8** | 10 |
| B5. Combination of B1-B4 using one-half standard deviation shocks | 1 | 1 | 3 | 4 | 5 | 6 | **8** | 10 |
| B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/ | 1 | 1 | 2 | 4 | 5 | 5 | **8** | 10 |

**Debt service-to-revenue ratio**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Baseline** | 1 | 2 | 3 | 5 | 7 | 8 | **10** | 13 |
| **A. Alternative Scenarios** | | | | | | | | |
| A1. Key variables at their historical averages in 2010-2030 1/ | 1 | 2 | 3 | 4 | 5 | 5 | **7** | 18 |
| A2. New public sector loans on less favorable terms in 2010-2030 2 | 1 | 2 | 3 | 4 | 5 | 6 | **9** | 18 |
| A3. Alternative Scenario : Permanently lower GDP growth | 1 | 2 | 3 | 5 | 7 | 8 | 11 | 18 |
| **B. Bound Tests** | | | | | | | | |
| B1. Real GDP growth at historical average minus one standard deviation in 2011-2012 | 1 | 2 | 3 | 5 | 7 | 8 | **10** | 13 |
| B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/ | 1 | 2 | 4 | 7 | 8 | 9 | **11** | 14 |
| B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012 | 1 | 2 | 4 | 6 | 8 | 9 | **11** | 15 |
| B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/ | 1 | 2 | 4 | 5 | 7 | 8 | **10** | 14 |
| B5. Combination of B1-B4 using one-half standard deviation shocks | 1 | 2 | 4 | 6 | 7 | 8 | **11** | 14 |
| B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/ | 1 | 3 | 5 | 8 | 9 | 11 | **14** | 19 |
| *Memorandum item:* | | | | | | | | |
| Grant element assumed on residual financing (i.e., financing required above baseline) 6/ | -13 | -13 | -13 | -13 | -13 | -13 | **-13** | -13 |

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 3.Tanzania: Public Sector Debt Sustainability Framework, Baseline Scenario, 2007-2030
(In percent of GDP, unless otherwise indicated)

| | Actual | | | Average | Standard Deviation | Estimate | Projections | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2007 | 2008 | 2009 | | | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2010-15 Average | 2020 | 2030 | 2016-30 Average |
| **Public sector debt 1/** | 39.4 | 35.3 | 34.4 | | | 36.2 | 37.9 | 39.2 | 40.1 | 40.5 | 41.0 | | 36.8 | 36.9 | |
| o/w foreign-currency denominated | 17.0 | 21.0 | 21.1 | | | 22.4 | 25.3 | 27.6 | 29.1 | 29.7 | 30.3 | | 28.1 | 24.3 | |
| Change in public sector debt | -28.3 | -4.2 | -0.9 | | | 1.8 | 1.7 | 1.3 | 0.9 | 0.5 | 0.5 | | -0.6 | 0.2 | |
| Identified debt-creating flows | -4.8 | -4.6 | -1.1 | | | 2.9 | 2.9 | 2.3 | 1.7 | 1.1 | 1.0 | | -0.7 | -0.7 | |
| Primary deficit | 2.8 | -1.2 | 3.6 | 1.8 | 1.5 | 4.5 | 4.9 | 4.4 | 4.0 | 3.4 | 2.6 | 4.0 | 0.8 | -0.2 | 0.5 |
| Revenue and grants | 19.4 | 22.9 | 19.8 | | | 21.7 | 20.9 | 20.9 | 20.8 | 21.1 | 22.0 | | 23.6 | 24.8 | |
| *of which: grants* | 5.0 | 6.9 | 4.7 | | | 6.1 | 4.9 | 4.5 | 4.2 | 4.2 | 4.2 | | 3.2 | 3.2 | |
| Primary (noninterest) expenditure | 22.2 | 21.7 | 23.4 | | | 26.1 | 25.8 | 25.3 | 24.9 | 24.5 | 24.6 | | 24.4 | 24.6 | |
| Automatic debt dynamics | -7.7 | -3.5 | -4.6 | | | -1.5 | -1.9 | -2.1 | -2.4 | -2.3 | -1.7 | | -1.5 | -0.5 | |
| Contribution from interest rate/growth differential | -4.3 | -4.0 | -2.7 | | | -1.3 | -1.9 | -2.2 | -2.4 | -2.3 | -2.1 | | -1.5 | -0.5 | |
| *of which: contribution from average real interest rate* | 0.1 | -1.4 | -0.5 | | | 0.6 | 0.3 | 0.4 | 0.4 | 0.5 | 0.8 | | 1.1 | 2.1 | |
| *of which: contribution from real GDP growth* | -4.4 | -2.7 | -2.1 | | | -1.9 | -2.2 | -2.5 | -2.7 | -2.8 | -2.8 | | -2.6 | -2.6 | |
| Contribution from real exchange rate depreciation | -3.4 | 0.6 | -1.9 | | | -0.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.4 | | ... | ... | |
| Other identified debt-creating flows | 0.0 | 0.0 | -0.2 | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Privatization receipts (negative) | 0.0 | 0.0 | -0.2 | | | 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 | -23.5 | 0.5 | 0.3 | | | -1.1 | -1.2 | -1.0 | -0.8 | -0.6 | -0.5 | | 0.1 | 0.9 | |
| **Other Sustainability Indicators** | | | | | | | | | | | | | | | |
| **PV of public sector debt** | 22.5 | 14.3 | 25.6 | | | 26.9 | 29.4 | 31.4 | 32.4 | 32.9 | 33.5 | | 31.4 | 34.1 | |
| o/w foreign-currency denominated | 0.0 | 0.0 | 12.2 | | | 13.1 | 16.7 | 19.8 | 21.4 | 22.1 | 22.7 | | 22.6 | 21.5 | |
| o/w external | ... | ... | 12.2 | | | 13.1 | 16.7 | 19.8 | 21.4 | 22.1 | 22.7 | | 22.6 | 21.5 | |
| PV of contingent liabilities (not included in public sector debt) | ... | ... | ... | | | ... | ... | ... | ... | ... | ... | | ... | ... | |
| Gross financing need 2/ | 14.7 | 12.6 | 11.1 | | | 12.7 | 13.2 | 12.2 | 11.4 | 10.9 | 10.4 | | 8.4 | 10.6 | |
| PV of public sector debt-to-revenue and grants ratio (in percent) | 115.9 | 62.6 | 129.1 | | | 124.0 | 140.7 | 150.6 | 155.5 | 156.1 | 152.1 | | 133.2 | 137.6 | |
| PV of public sector debt-to-revenue ratio (in percent) | 156.2 | 89.8 | 168.9 | | | 173.2 | 183.5 | 192.6 | 195.0 | 194.9 | 187.8 | | 154.2 | 158.3 | |
| o/w external 3/ | … | … | 80.9 | | | 84.5 | 104.6 | 121.6 | 128.7 | 130.7 | 127.5 | | 111.0 | 100.1 | |
| Debt service-to-revenue and grants ratio (in percent) 4/ | 7.4 | 6.2 | 9.0 | | | 7.9 | 7.2 | 7.6 | 8.5 | 10.0 | 10.9 | | 13.8 | 19.8 | |
| Debt service-to-revenue ratio (in percent) 4/ | 10.0 | 8.8 | 11.8 | | | 11.0 | 9.4 | 9.7 | 10.7 | 12.4 | 13.4 | | 16.0 | 22.8 | |
| Primary deficit that stabilizes the debt-to-GDP ratio | 31.2 | 3.0 | 4.5 | | | 2.7 | 3.2 | 3.1 | 3.2 | 2.9 | 2.1 | | 1.4 | -0.4 | |
| **Key macroeconomic and fiscal assumptions** | | | | | | | | | | | | | | | |
| Real GDP growth (in percent) | 6.9 | 7.3 | 6.4 | 6.8 | 0.7 | 5.8 | 6.5 | 7.1 | 7.5 | 7.5 | 7.5 | 7.0 | 7.5 | 7.5 | 7.5 |
| Average nominal interest rate on forex debt (in percent) | 0.3 | 1.0 | 0.7 | 0.7 | 0.3 | 0.5 | 0.3 | 1.3 | 1.9 | 2.0 | 2.2 | 1.4 | 3.0 | 4.5 | 3.4 |
| Average real interest rate on domestic debt (in percent) | 7.7 | -5.6 | -2.8 | -0.5 | 5.0 | 6.1 | 4.6 | 4.2 | 3.5 | 4.7 | 6.9 | 5.0 | 10.1 | 13.1 | 11.4 |
| Real exchange rate depreciation (in percent, + indicates depreciation) | -7.4 | 3.6 | -9.9 | -0.2 | 6.0 | -1.0 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Inflation rate (GDP deflator, in percent) | -0.5 | 11.6 | 16.9 | 7.8 | 5.2 | 5.9 | 4.9 | 4.7 | 5.0 | 5.0 | 3.5 | 4.9 | 4.9 | 4.9 | 4.9 |
| Growth of real primary spending (deflated by GDP deflator, in percent) | 0.2 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Grant element of new external borrowing (in percent) | ... | ... | ... | … | … | 49.2 | 18.7 | 16.5 | 18.5 | 21.8 | 17.6 | 23.7 | 4.4 | -2.9 | ... |

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.Tanzania: Sensitivity Analysis for Key Indicators of Public Debt 2010-2030

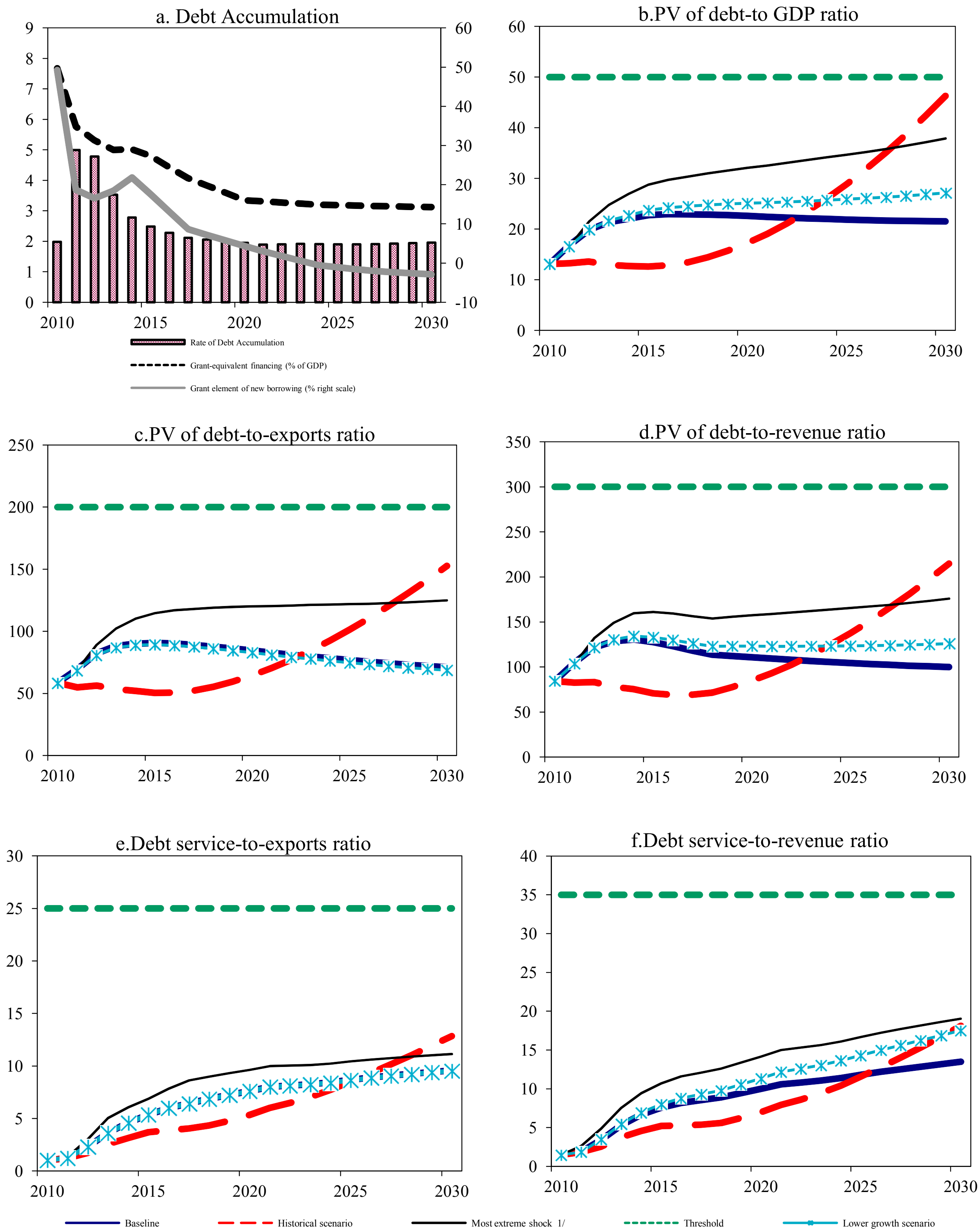
| | Projections | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2020 | 2030 |
| **PV of Debt-to-GDP Ratio** | | | | | | | | |
| **Baseline** | 27 | 29 | 31 | 32 | 33 | 34 | 31 | 34 |
| **A. Alternative scenarios** | | | | | | | | |
| A1. Real GDP growth and primary balance are at historical averages | 27 | 27 | 26 | 26 | 25 | 25 | 28 | 47 |
| A2. Primary balance is unchanged from 2010 | 27 | 27 | 27 | 27 | 26 | 27 | 31 | 51 |
| A3. Permanently lower GDP growth 1/ | 27 | 29 | 32 | 33 | 33 | 34 | 33 | 40 |
| **B. Bound tests** | | | | | | | | |
| B1. Real GDP growth is at historical average minus one standard deviations in 2011-2012 | 27 | 30 | 32 | 33 | 34 | 35 | 34 | 38 |
| B2. Primary balance is at historical average minus one standard deviations in 2011-2012 | 27 | 28 | 29 | 30 | 30 | 31 | 29 | 33 |
| B3. Combination of B1-B2 using one half standard deviation shocks | 27 | 27 | 28 | 29 | 30 | 30 | 29 | 34 |
| B4. One-time 30 percent real depreciation in 2011 | 27 | 35 | 37 | 37 | 37 | 38 | 37 | 44 |
| B5. 10 percent of GDP increase in other debt-creating flows in 2011 | 27 | 38 | 40 | 41 | 41 | 42 | 39 | 39 |
| **PV of Debt-to-Revenue Ratio 2/** | | | | | | | | |
| **Baseline** | 124 | 141 | 151 | 155 | 156 | 152 | 133 | 138 |
| **A. Alternative scenarios** | | | | | | | | |
| A1. Real GDP growth and primary balance are at historical averages | 124 | 127 | 126 | 122 | 118 | 113 | 116 | 188 |
| A2. Primary balance is unchanged from 2010 | 124 | 130 | 131 | 129 | 125 | 122 | 131 | 205 |
| A3. Permanently lower GDP growth 1/ | 124 | 141 | 151 | 157 | 158 | 155 | 140 | 161 |
| **B. Bound tests** | | | | | | | | |
| B1. Real GDP growth is at historical average minus one standard deviations in 2011-2012 | 124 | 141 | 154 | 159 | 161 | 158 | 143 | 155 |
| B2. Primary balance is at historical average minus one standard deviations in 2011-2012 | 124 | 134 | 139 | 144 | 145 | 141 | 124 | 132 |
| B3. Combination of B1-B2 using one half standard deviation shocks | 124 | 131 | 133 | 139 | 140 | 138 | 124 | 137 |
| B4. One-time 30 percent real depreciation in 2011 | 124 | 167 | 176 | 178 | 177 | 172 | 156 | 177 |
| B5. 10 percent of GDP increase in other debt-creating flows in 2011 | 124 | 183 | 193 | 197 | 196 | 190 | 164 | 158 |
| **Debt Service-to-Revenue Ratio 2/** | | | | | | | | |
| **Baseline** | 8 | 7 | 8 | 9 | 10 | 11 | 14 | 20 |
| **A. Alternative scenarios** | | | | | | | | |
| A1. Real GDP growth and primary balance are at historical averages | 8 | 7 | 6 | 6 | 6 | 6 | 11 | 25 |
| A2. Primary balance is unchanged from 2010 | 8 | 7 | 7 | 6 | 7 | 7 | 13 | 27 |
| A3. Permanently lower GDP growth 1/ | 8 | 7 | 8 | 9 | 10 | 11 | 15 | 23 |
| **B. Bound tests** | | | | | | | | |
| B1. Real GDP growth is at historical average minus one standard deviations in 2011-2012 | 8 | 7 | 8 | 9 | 10 | 11 | 15 | 22 |
| B2. Primary balance is at historical average minus one standard deviations in 2011-2012 | 8 | 7 | 7 | 7 | 8 | 9 | 13 | 19 |
| B3. Combination of B1-B2 using one half standard deviation shocks | 8 | 7 | 7 | 6 | 8 | 9 | 13 | 20 |
| B4. One-time 30 percent real depreciation in 2011 | 8 | 8 | 9 | 11 | 13 | 14 | 20 | 32 |
| B5. 10 percent of GDP increase in other debt-creating flows in 2011 | 8 | 7 | 12 | 15 | 16 | 16 | 18 | 23 |

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.

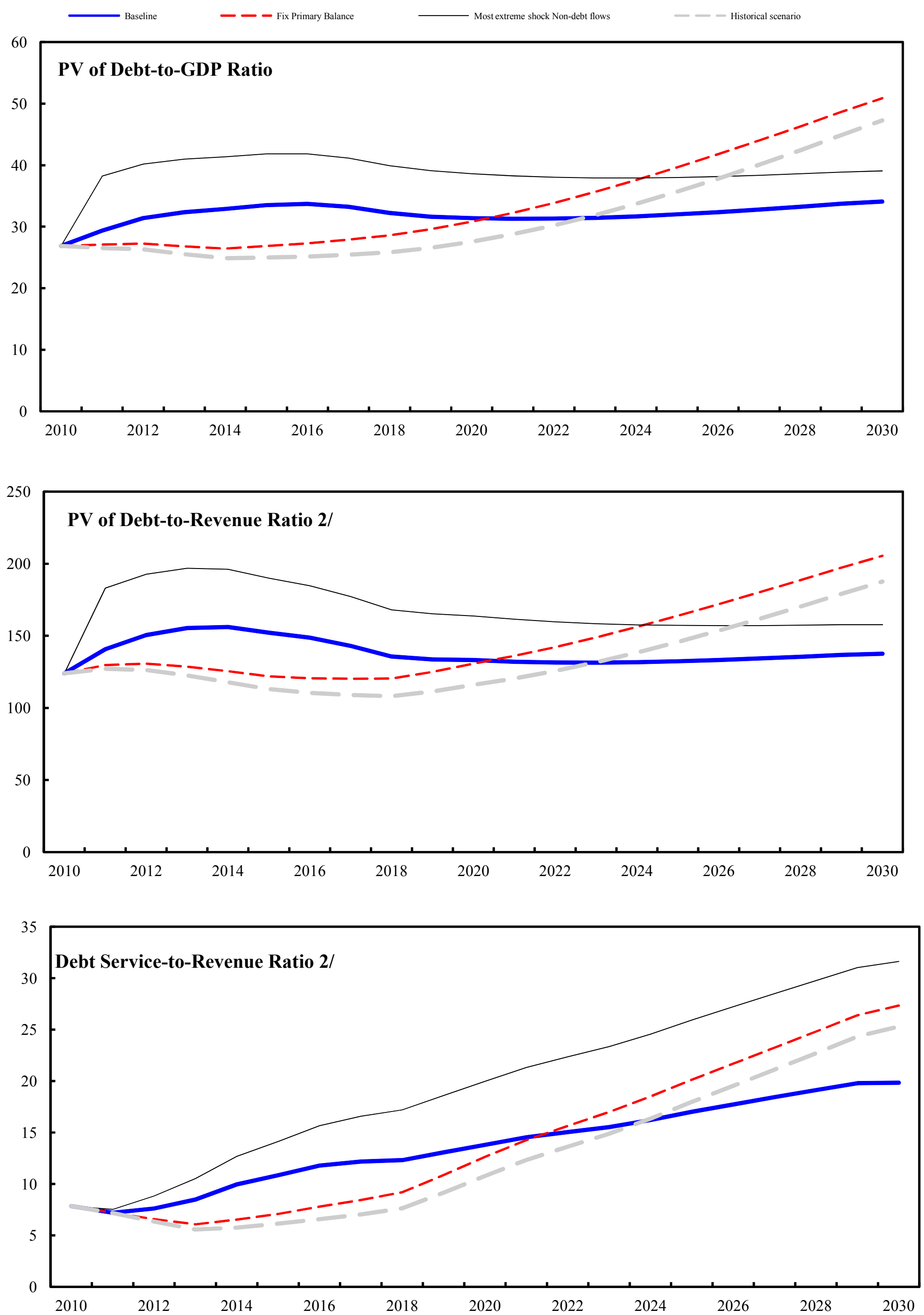
Figure 1. Tanzania: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2010-2030 1/




Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2020. In figure b. it corresponds to a Terms shock; in c. to a Terms 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.Tanzania: Indicators of Public Debt Under Alternative Scenarios, 2010-2030 1/




Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2020.

2/ Revenues are defined inclusive of grants.