INTERNATIONAL MONETARY FUND

REPUBLIC OF TAJIKISTAN

Debt Sustainability Analysis Under the Debt Sustainability Framework for Low-Income Countries

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Based on the external low-income country (LIC) debt sustainability analysis (DSA), Tajikistan's risk of debt distress remains high. [1] *Under the baseline scenario, external debt burden indicators in present value terms remain below their respective thresholds, with the exception of the debt-to-exports ratio. The high level of concessionality of the external public and publicly guaranteed debt is a key factor underlying these projections. A decline in GDP and/or export growth rates, a shortfall in other inflows, or a sharp exchange rate depreciation relative to the baseline, all have the potential to undermine debt sustainability. Likewise, additional lending compared to the baseline, even at concessional terms, would undermine debt sustainability. The public DSA yields similar results in light of the current size and the projected evolution of the domestic debt stock. It also shows that a one-off increase in the government's debt obligations, e.g. related to existing contingent liabilities, would push the debt-to-GDP ratio just above its respective threshold for the first six years, but would not put the country on an unsustainable debt path in the long run. In sum, the DSA suggests that there is little scope for additional borrowing compared to the baseline projections and underlines the need to carefully scrutinize individual investment projects to ensure that they will yield the intended growth dividends.*

III. BACKGROUND

1. **Over the last 10 years, multilateral donors were the main creditors of Tajikistan.** During 1996–2008, lending by multilaterals increased by almost six times in absolute value and reached 50 percent of Tajikistan's external loan portfolio as of end-2008. A debt-for-equity swap with Russia significantly reduced Tajikistan's debt burden.

[1] The DSA has been produced jointly by World Bank and IMF staff, in consultation with Asian Development Bank staff. It updates the last DSA of April 2007 presented in the IMF Staff Report for the 2006 Article IV Consultation. The fiscal year for Tajikistan is January 1–December 31.

2. **Recent developments are marked by increased bilateral borrowing.** Disbursement of loans from China increased the share of bilateral creditors in the last two years. Most of the increase in debt stock during 2008 was due to disbursement of loans from China ($277 million). At the same time, major multilaterals, the World Bank and Asian Development Bank, provided all new financing in the form of grants. As a result, the share of bilateral creditors increased from 35 percent to 47 percent, while multilaterals' share in Tajikistan's debt portfolio decreased from 61 percent to 50 percent at end-2008 (also reflecting early repayment to the IMF).

3. **Domestic debt constitutes only a negligible part of public debt.** This is mostly due to the fact that the general government budget ran continuous surpluses (excluding externally financed public investment program) in recent years. Domestic debt represents 3 percent of total public debt (end-2008) and mostly consists of non-tradable government securities held by the National Bank of Tajikistan (NBT).

4. **The stock of publicly guaranteed debt has further increased.** In addition to the guarantees issued by the NBT for cotton sector financing, the government issued three new guarantees in 2008: two for credits from the European Bank for Reconstruction and Development and one from the government of France. These credits, with total commitments of $29 million, are to be used for rehabilitation of water supply in Khujand province, solid waste management in the city of Dushanbe, and reconstruction of the Dushanbe airport.

5. **New credit agreements of around $80 million were signed in 2008.** These included credit agreements with France, the Islamic Development Bank, KfW, OPEC Fund, and the Saudi Development Fund, all on concessional terms. The government of Tajikistan has also signed a Memorandum of Understanding with Eximbank of China to extend a new credit in the amount of $100 million to finance road and energy projects. The terms of this loan are still being negotiated, but the authorities have committed to borrowing only on concessional terms.

6. **The status of debt obligations to Pakistan is now clarified.** This debt of $13 million was restructured in 2003. In May 2004, the Tajik authorities announced a verbal agreement with the Pakistani authorities, according to which the debt would be converted into a grant with a subsequent write-off of accumulated interest liabilities. Accordingly, the Ministry of Finance of Tajikistan removed the credit from debt register and discontinued its service. However, in 2008 the ministry of finance (MOF) reported the receipt of notification from the government of Pakistan, which requested debt service. Upon clarification from the government of Pakistan, the government of Tajikistan has allocated adequate funds in the 2009 budget for debt service according to the initial restructuring agreement.

IV. Underlying DSA Assumptions

7. **The impact of the global economic slowdown clouds the economic outlook for Tajikistan over the coming two years consistent with current WEO projections.** Thereafter, staff projects that Tajikistan would return to a high growth path under the baseline scenario:

- Tajikistan's underlying growth potential is in the range of 5–7 percent per annum, as suggested by past performance. However, on account of adverse external environment (slowdown of remittances, declining world market prices for tradables, etc.) growth is expected to be subdued in 2009–11.
- The 2009–14 projections are based on a substantial depreciation of the real effective exchange rate, which should return the current account balance towards its equilibrium level of about 3 percent from around 9 percent in 2008.
- Compared to past performance, medium- and long-term projections are based on conservative assumptions about non-debt creating flows such as foreign direct investment, remittances and official transfers (Table 1a).
- Underlying assumption for the fiscal projections is that the government budget deficit (excluding Public Investment Program) will stay at about ½ percent of GDP. This seems feasible based on current spending plans and revenue projections.

Box 1. Tajikistan: Macroeconomic Assumptions

Real GDP growth is projected at 2 percent in 2009, with gradual recovery in 2010 and 2011 (3 and 5 percent, respectively) and in the range of 6 to 7 percent during 2012–14 (when large infrastructure projects are completed) with some slowdown throughout 2028 (to 5 percent). These figures are significantly below their 10-year historical average of 8 percent (1998–2008). The GDP deflator is expected to decline from a projected 19 percent (2009) to 6 percent by 2015—reflecting progress toward a low-inflation environment—and remain at the level of 6 percent through 2028.

Export of goods and services is expected to decline due to a deteriorating external environment. A return to the previous growth path is expected in 2010, reflecting expansion in nontraditional agriculture sectors and a rebounding external demand. An average growth rate of about 9 percent is projected for 2010–28 as the economy is expected to expand following investment in the energy sector and progress with structural reforms.

Current account is expected to deteriorate in 2009, largely reflecting a decline in remittances and exports. Starting 2010 and onward, the current account should improve, following a depreciation of the REER and a recovery in remittances, although the role of the latter is expected to diminish gradually. The **reserve coverage** of imports is projected to build up gradually to about five months by 2028.

Fiscal policy is assumed to aim for an overall balance (excluding the externally financed public investment program) over the medium term, after a modest deficit in 2009–11 on account of the growth slowdown.

External assistance and scaling up. Official external loan financing on concessional terms is estimated to reach its peak in 2009 (6.6 percent of GDP) and then decline to 3.5 percent by 2015 and gradually decline to 2.6 percent of GDP throughout 2028. After 2012, the DSA assumes that no new grants will be disbursed during the projected period.

Public domestic debt. It is assumed that the share of domestic public debt in total public debt will stay at the current level.

Real interest rates. For domestic debt, it is expected that real interest rate becomes positive starting 2013 and then averages 8 percent per annum for the remainder of the projection period.

8. **The baseline scenario shows that Tajikistan remains at a high risk of debt distress.** According to the latest three-year average of the World Bank's CPIA rating (2006-08), Tajikistan's policies and institutions are assessed as those corresponding to a "poor performer."[2] The table below provides the debt-burden thresholds for countries in this category.

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[2] Three-year average of CPIA ratings is used according to recently issued joint Bank-Fund Staff Guidance Note on the Application of the joint Bank-Fund Debt Sustainability Framework (October 2008). These guidelines aim at a less volatile assessment of risk than that based on a single latest CPIA rating.

Debt Burden Thresholds for countries with poor policy performance

	Exports	Revenue	GDP
Present value of debt in percent of	100	200	30
Debt service in percent of	15	25	N/A

V. External DSA

A. Baseline

9. **Under the baseline scenario, only one of Tajikistan's external debt burden indicators, the PV of debt-to-exports ratio, is projected to breach policy-dependent thresholds** (Figure 1 and Table 1a). In particular, by 2009, the debt-to-exports ratio will reach 141 percent, exceeding the threshold of 100 percent by a significant margin. This indicator is expected to deteriorate continuously throughout 2014; after that, it is projected to decrease gradually throughout 2028, however, continuously staying above the threshold.

10. **External debt service ratios are expected to stay below their thresholds over the entire period.** During the projected period, debt service payments continue to be manageable, with the assumption that all of Tajikistan's external public and publicly guaranteed debt is contracted on concessional terms, albeit spiking during the years when principal payments on loans from China fall due.

B. Alternative Scenarios and Stress Tests

11. **The historical scenario is based on averages from 1999 to 2007,[3] and thus reflects a period of macroeconomic consolidation, some progress with structural reforms, and debt reduction.** During 1999–2006, the current account deficit was relatively small—at below 3 percent of GDP, though it significantly increased during 2007–08 due to high import prices and increasing imports associated with implementation of large infrastructure projects. Therefore, under this scenario, all debt burden ratios—excluding the PV of debt-to-exports ratio—remain well below their threshold; these ratios also follow a downward trend throughout the projection period. The scenario illustrates the importance of

[3] For exports and non-interest current account only 2005-2007 historical averages were used due to a break in the export series which reflects a change in the treatment of exports of aluminum in the current account. For the rest of the variables, the usual 10-year historical average was applied.

preserving macroeconomic stability, progress with structural reforms and continued prudent debt management. This will be even more important in the period ahead, when external conditions may be less favorable.

12. **A scenario with increased bilateral borrowing reflects an additional 1 percent of GDP of bilateral borrowing per annum to finance higher capital spending.** This scenario shows a deterioration of all indicators compared to the baseline scenario. In particular, the PV of debt-to-exports and the PV of debt-to-GDP ratios breach relative policy thresholds. Under this scenario, the PV of debt-to-exports is expected to deteriorate continuously and peak at 327 percent in 2028. Similarly, the PV of debt-to-GDP ratio will deteriorate continuously breaching the threshold in 2018 and peaking at 39 percent in 2028. Remaining indicators are also expected to deteriorate (against baseline) but remain under their respective policy thresholds.

13. **A high-investment low-growth scenario underscores the risk to debt sustainability if investment does not yield the expected strong growth (Table 1b).** The scenario demonstrates that, starting in 2013, when growth is reduced by half due to lower than expected productivity of investments, all ratios deteriorate notably, with the ratio of the PV of debt-to-GDP approaching its respective threshold by the end of projection period. The ratio of the PV of debt-to-exports deteriorates even further.

14. **A relaxation of the authorities' current prudent approach to contracting external debt only on concessional terms would lead to a deterioration of Tajikistan's external debt indicators compared to the baseline scenario.** If all new borrowing were to be contracted on less than concessional terms during the projection period, Tajikistan's PV of debt-to-export ratio would rise substantially. Specifically, with the increase in the average interest rate on new disbursements by 2 percentage points, the PV of debt-to-GDP ratio would rise continuously and breach the threshold in 2025, and the PV of debt-to-exports ratio would increase from existing level and stay above the threshold.

15. **Bound tests show that adverse macroeconomic shocks would also have a profound negative impact on Tajikistan's external position.** In the event of a combined shock (to real GDP growth, exports growth, FDI inflows), all ratios, except debt service-to-revenues, exceed the policy-dependent thresholds by a significant margin and almost all of them remain above the thresholds throughout the projection period.

VI. Public DSA

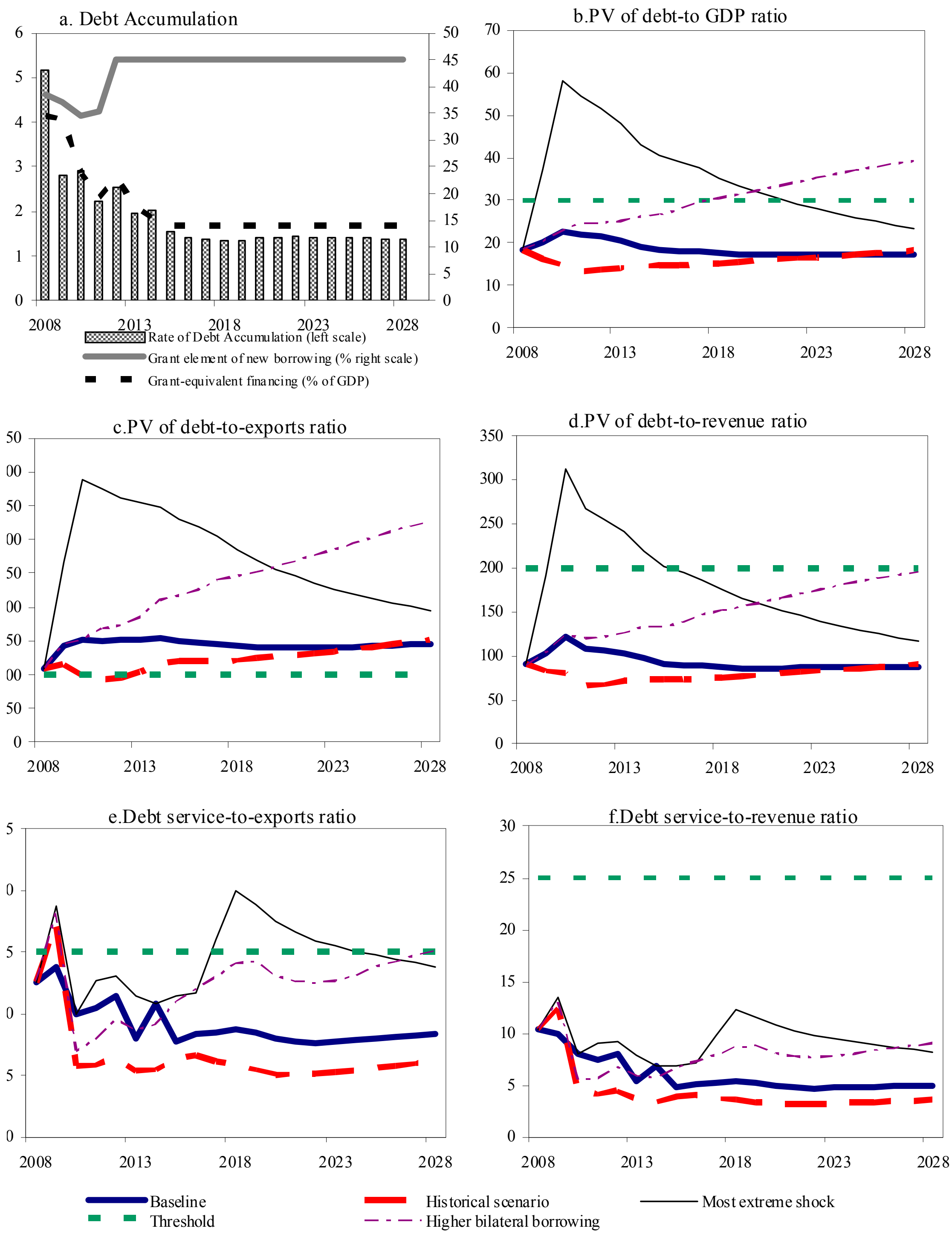
16. **The results of the public sector DSA are very similar to those of the external DSA, given that public sector domestic debt is small.** An important stress test in the public sector DSA models the impact of the government facing a contingent liability equal to 10 percent of GDP. This amount broadly corresponds to the expected possible

recapitalization needs of the central bank and the fiscal costs of resolving the cotton debt problem (estimated at around $500 million). In this scenario, the PV of debt-to-GDP ratio will breach the threshold and stay above it during the six years following the assumption of such liabilities.

VII. Debt Distress Classification and Conclusions

17. **Tajikistan's risk of debt distress remains high, although its resilience to adverse shocks has improved compared to the findings of the 2007 DSA.** The results of the alternative scenarios and stress tests indicate that the debt sustainability situation could further deteriorate with adverse macroeconomic shocks, borrowing on nonconcessional terms or incurring additional debt—even on concessional terms—and could become unsustainable if growth associated with high investment does not materialize. The DSA results thus underscore the need for the authorities to exercise extreme caution in incurring new debt and to carefully vet large-scale investment projects, to make sure that external resources are used productively. Sound macroeconomic policies and acceleration of structural reforms would also be essential for maintaining debt sustainability by strengthening Tajikistan's growth potential and safeguarding external stability.

Figure 1. Tajikistan: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2008-2028 1/

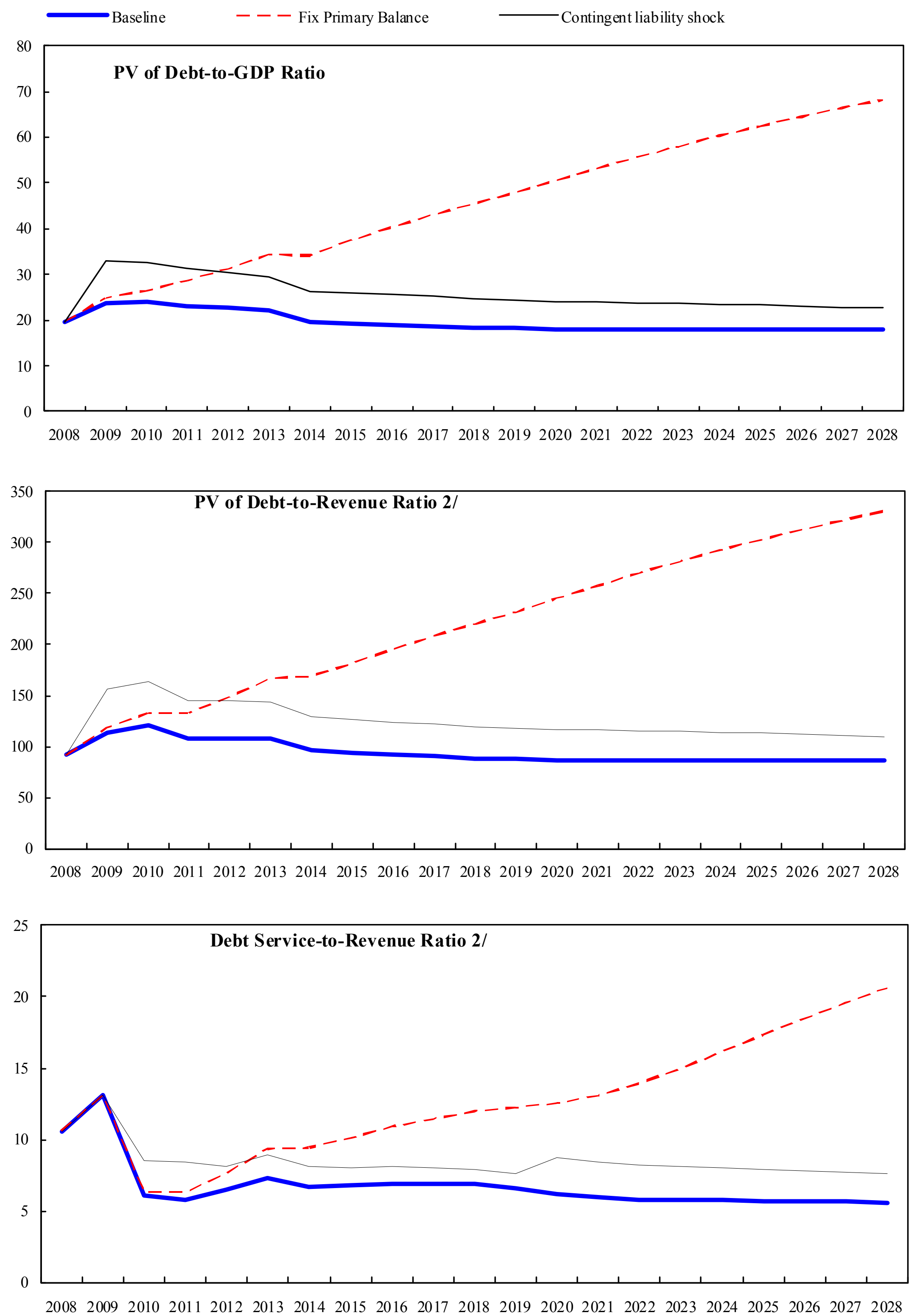


Source: Staff projections and simulations.

1/ The most extreme stress test is the test that yields the highest ratio in 2018. 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 Non-debt flows shock and in picture f. to a Non-debt flows shock

2/ Higher bilateral borrowing assumes additional one percent of GDP in new loans annualy starting 2011.

Figure 2. Tajikistan: Indicators of Public Debt Under Alternative Scenarios, 2008-2028 1/



Sources: Country authorities; and Fund staff estimates and projections.

1/ Contingent liability shock assumes an increase in debt by 10 percent of GDP.

2/ Revenues are defined inclusive of grants.

Table 1a. Tajikistan: External Debt Sustainability Framework, Baseline Scenario, 2005-28 1/
(In percent of GDP, unless otherwise indicated)

	Actual			Projections													
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2008-14 Average	2015	2016	2017	2018	2028	2015-2028 Average
External debt (nominal) 1/	...	...	40.8	43.0	45.3	47.9	44.4	44.2	42.3	38.4	43.6	36.8	35.6	33.6	32.7	29.6	31.8
o/w public and publicly guaranteed (PPG)	...	...	33.4	28.9	34.2	36.9	35.1	34.6	32.8	30.0	33.2	29.4	28.8	27.4	27.0	27.0	27.2
Change in external debt	...	...	...	2.2	2.3	2.6	-3.5	-0.2	-1.9	-3.9	-0.3	-1.5	-1.2	-2.0	-0.9	-0.2	-0.6
Identified net debt-creating flows	...	...	...	2.9	7.0	4.1	2.1	0.5	-1.4	-1.2	2.0	-1.0	-1.1	-1.2	-1.1	-1.4	-1.2
Non-interest current account deficit	0.8	0.5	9.4	7.8	7.9	7.6	6.5	4.8	2.9	2.7	5.7	2.8	2.7	2.6	2.6	2.0	2.4
Deficit in balance of goods and services	26.8	34.2	48.2	53.3	37.8	37.2	34.9	32.7	29.0	25.4	35.8	23.6	22.8	22.0	21.4	17.1	19.9
Exports	26.0	23.3	20.7	16.9	14.1	15.0	14.6	14.3	13.6	12.5	14.4	12.3	12.3	12.3	12.4	12.0	12.3
Imports	52.8	57.5	68.8	70.2	51.9	52.2	49.6	47.0	42.6	37.9	50.2	35.9	35.1	34.3	33.8	29.1	32.2
Net current transfers (negative = inflow)	-27.5	-35.0	-40.0	-46.7	-30.3	-31.1	-29.8	-28.9	-27.0	-23.5	-31.0	-21.5	-20.6	-20.0	-19.4	-15.8	-18.1
o/w official	-3.5	-2.9	-1.8	-1.6	-1.5	-1.6	-1.2	-0.9	-0.6	-0.3	-1.1	-0.2	-0.1	-0.1	-0.1	0.0	-0.1
Other current account flows (negative = net inflow)	1.5	1.3	1.2	1.2	0.3	1.5	1.4	1.0	0.9	0.7	1.0	0.6	0.6	0.6	0.5	0.7	0.6
Net FDI (negative = inflow)	-2.4	-2.3	-4.3	-3.7	-1.9	-2.9	-2.9	-2.8	-2.5	-2.1	-2.7	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5
Endogenous debt dynamics 2/	...	...	...	-1.2	1.0	-0.6	-1.5	-1.5	-1.9	-1.7	-1.1	-1.3	-1.4	-1.3	-1.2	-0.9	-1.1
Contribution from nominal interest rate	...	...	...	1.1	1.8	0.7	0.6	0.9	0.8	0.8	1.0	0.7	0.7	0.6	0.6	0.5	0.6
Contribution from real GDP growth	...	...	...	-2.3	-0.8	-1.3	-2.1	-2.4	-2.7	-2.5	-2.0	-2.0	-2.0	-2.0	-1.8	-1.4	-1.6
Contribution from price and exchange rate changes	...	...	...	…	…	…	…	…	…	…		…	…	…	…		
Residual (3-4) 3/	...	...	...	-0.7	-3.5	-1.8	-2.2	2.1	2.2	-2.8	-0.9	-0.5	-0.2	-0.8	1.2	2.1	1.2
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	0.0	0.0	0.0
PV of external debt 4/	...	...	...	32.4	31.3	33.5	31.1	31.2	30.1	27.5	31.0	25.7	24.9	24.1	23.3	20.0	22.1
In percent of exports	...	...	...	192.1	222.7	224.1	213.1	218.6	221.7	220.8	216.1	209.3	202.1	195.0	188.1	166.4	179.8
PV of PPG external debt	...	...	...	18.4	20.2	22.5	21.9	21.6	20.6	19.2	20.6	18.3	18.1	17.8	17.6	17.4	17.6
In percent of exports	...	...	...	109.0	143.8	150.6	149.9	151.2	152.2	153.6	144.3	149.0	146.9	144.5	141.9	144.8	142.7
In percent of government revenues	...	...	...	90.2	103.5	121.0	107.2	106.4	103.7	97.1	104.2	90.9	89.8	88.6	87.2	86.4	87.2
Debt service-to-exports ratio (in percent)	15.8	30.7	13.2	86.3	46.1	34.0	36.2	21.2	21.5	23.6	38.4	25.9	24.9	23.7	22.5	14.9	19.3
PPG debt service-to-exports ratio (in percent)	12.9	24.8	6.5	12.6	13.8	9.9	10.5	11.5	8.0	10.8	11.0	7.8	8.3	8.5	8.7	8.4	8.1
PPG debt service-to-revenue ratio (in percent)	17.4	30.6	6.5	10.4	10.0	8.0	7.5	8.1	5.4	6.8	8.0	4.8	5.1	5.2	5.4	5.0	5.0
Total gross financing need (billions of U.S. dollars)	0.1	0.1	0.3	1.0	0.7	0.5	0.6	0.4	0.3	0.3	0.5	0.4	0.4	0.4	0.4	0.4	0.4
Non-interest current account deficit that stabilizes debt ratio	...	...	...	5.6	5.5	5.0	10.0	5.0	4.8	6.6	6.1	4.3	4.0	4.6	3.5	2.1	3.0
Key macroeconomic assumptions																	
Real GDP growth (in percent)	6.7	7.0	7.8	7.9	2.0	3.0	5.0	6.0	7.0	7.0	5.4	6.0	6.0	6.0	6.0	5.0	5.4
GDP deflator in US dollar terms (change in percent)	4.5	13.7	22.5	28.2	2.8	-0.5	7.7	6.9	6.5	10.7	8.9	6.6	2.9	2.9	2.9	2.9	3.2
Effective interest rate (percent) 5/	...	...	...	3.8	4.5	1.7	1.5	2.2	2.2	2.2	2.6	2.1	2.0	2.0	2.0	1.6	1.8
Growth of exports of G&S (US dollar terms, in percent) 6/	-50.3	9.1	16.9	13.0	-12.7	9.2	10.4	10.6	8.4	8.9	6.8	11.4	9.3	9.3	9.4	7.6	8.4
Growth of imports of G&S (US dollar terms, in percent)	-15.9	32.5	57.9	41.1	-22.5	3.1	7.4	7.5	3.3	5.3	6.4	7.1	6.6	6.7	7.4	6.3	6.7
Grant element of new public sector borrowing (in percent)	...	...	...	38.6	37.2	34.4	35.3	44.9	44.9	44.9	40.0	44.9	44.9	44.9	44.9	44.9	44.9
Government revenues (excluding grants, in percent of GDP)	19.3	18.9	20.5	20.4	19.5	18.6	20.4	20.3	19.9	19.7	19.8	20.1	20.1	20.1	20.1	20.1	20.1
Aid flows (in billions of US dollars) 7/	0.1	0.2	0.3	0.5	0.4	0.3	0.2	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	1.0	0.6
o/w Grants	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o/w Concessional loans	0.1	0.1	0.3	0.4	0.3	0.2	0.1	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.8	0.5
Grant-equivalent financing (in percent of GDP) 8/	...	...	...	4.1	4.1	2.9	2.3	2.8	2.1	1.9	2.9	1.7	1.7	1.7	1.7	1.7	1.7
Grant-equivalent financing (in percent of external financing) 8/	...	...	...	45.1	47.9	49.2	52.3	52.6	54.3	52.1	50.5	53.2	53.2	53.2	53.2	53.2	53.2
Memorandum items:																	
Nominal GDP (billions of US dollars)	2.3	2.8	3.7	5.1	5.4	5.5	6.2	7.1	8.1	9.5	6.7	10.8	11.8	12.8	14.0	30.7	19.4
Nominal dollar GDP growth	11.5	21.7	32.0	38.3	4.8	2.5	13.1	13.3	13.9	18.5	14.9	13.0	9.1	9.1	9.1	8.1	8.7
PV of PPG external debt (in billions of US dollars)			0.8	0.9	1.1	1.2	1.4	1.5	1.7	1.8	1.4	2.0	2.1	2.3	2.5	5.3	3.4
(PVt-PVt-1)/GDPt-1 (in percent)				**5.2**	2.8	2.9	2.2	2.5	2.0	2.0	2.8	1.5	1.4	1.4	1.3	1.4	1.4

Source: Staff simulations.

1/ Includes both public and private sector external debt.
2/ Derived as [r - g - r(1+g)]/(1+g+r+gr) times previous period debt ratio, with r = nominal interest rate; g = real GDP growth rate, and r = 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/ Rate of change for exports in 2005 reflects the structural break in exports series due to a change in the treatment of aluminium exports in the BOP.
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.Tajikistan: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2008-28
(In percent)

	Projections											
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	**2018**	2028
PV of debt-to GDP ratio												
Baseline	18	20	23	22	22	21	19	18	18	18	**18**	17
A. Alternative Scenarios												
A1. Key variables at their historical averages in 2008-28 1/	18	16	15	13	14	14	14	15	15	15	**15**	18
A2. New public sector loans on less favorable terms in 2008-28 2/	18	22	25	25	25	25	24	23	24	24	**24**	27
A3. Alternative Scenario: Higher bilateral borrowing	18	20	23	25	25	25	26	27	28	30	**31**	39
A4. High investment-Low growth scenario	18	20	22	22	22	22	21	21	21	21	**22**	27
B. Bound Tests												
B1. Real GDP growth at historical average minus one standard deviation in 2009-10	18	20	21	21	20	19	18	17	17	17	**17**	16
B2. Export value growth at historical average minus one standard deviation in 2009-10 3/	18	18	19	18	18	18	17	16	16	16	**16**	17
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-10	18	23	28	27	27	26	24	23	23	22	**22**	22
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-10 4/	18	37	58	55	52	48	43	41	39	38	**35**	23
B5. Combination of B1-B4 using one-half standard deviation shocks	18	34	49	46	44	41	37	35	34	32	**31**	22
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	18	29	32	31	30	29	27	26	26	25	**25**	25
PV of debt-to-exports ratio												
Baseline	109	144	151	150	151	152	154	149	147	145	**142**	145
A. Alternative Scenarios												
A1. Key variables at their historical averages in 2008-28 1/	109	115	99	92	96	104	116	119	120	120	**122**	152
A2. New public sector loans on less favorable terms in 2008-28 2	109	154	165	169	178	184	191	189	191	192	**193**	228
A3. Alternative Scenario: Higher bilateral borrowing	109	145	153	168	173	186	210	217	226	240	**247**	327
A4. High investment-Low growth scenario	109	141	149	150	151	154	155	152	151	148	**145**	149
B. Bound Tests												
B1. Real GDP growth at historical average minus one standard deviation in 2009-10	109	144	151	150	151	152	154	149	147	145	**142**	145
B2. Export value growth at historical average minus one standard deviation in 2009-10 3/	109	106	104	104	107	108	110	107	106	105	**105**	115
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-10	109	144	151	150	151	152	154	149	147	145	**142**	145
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-10 4/	109	266	388	374	362	354	347	330	319	304	**285**	195
B5. Combination of B1-B4 using one-half standard deviation shocks	109	189	263	254	247	242	238	227	220	210	**198**	144
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	109	144	151	150	151	152	154	149	147	145	**142**	145
PV of debt-to-revenue ratio												
Baseline	90	104	121	107	106	104	97	91	90	89	**87**	86
A. Alternative Scenarios												
A1. Key variables at their historical averages in 2008-28 1/	90	83	80	66	67	71	73	73	73	74	**75**	90
A2. New public sector loans on less favorable terms in 2008-28 2	90	111	133	121	125	125	120	115	117	118	**119**	136
A3. Alternative Scenario: Higher bilateral borrowing	90	105	123	120	122	126	133	132	138	147	**152**	195
A4. High investment-Low growth scenario	90	102	120	107	106	108	100	95	94	92	**91**	89
B. Bound Tests												
B1. Real GDP growth at historical average minus one standard deviation in 2009-10	90	100	114	101	100	98	91	86	85	83	**82**	81
B2. Export value growth at historical average minus one standard deviation in 2009-10 3/	90	94	101	90	91	89	84	79	79	78	**78**	83
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-10	90	117	151	134	133	129	121	113	112	110	**109**	108
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-10 4/	90	191	312	267	255	241	219	201	195	186	**175**	116
B5. Combination of B1-B4 using one-half standard deviation shocks	90	172	264	227	217	206	188	173	168	161	**153**	107
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	90	146	171	151	150	146	137	128	127	125	**123**	122

Table 1b.Tajikistan: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2008-28 (continued)
(In percent)

	Projections											
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2028
Debt service-to-exports ratio												
Baseline	13	14	10	10	11	8	11	8	8	9	**9**	8
A. Alternative Scenarios												
A1. Key variables at their historical averages in 2008-28 1/	13	17	6	6	6	5	5	6	7	6	**6**	6
A2. New public sector loans on less favorable terms in 2008-28 2/	13	19	8	8	10	9	9	9	10	10	**11**	14
A3. Alternative Scenario: Higher bilateral borrowing	13	18	7	8	10	9	9	11	12	13	**14**	15
A4. High investment-Low growth scenario	13	14	10	10	11	10	14	10	10	12	**12**	10
B. Bound Tests												
B1. Real GDP growth at historical average minus one standard deviation in 2009-10	13	19	7	8	9	7	7	8	8	9	**9**	8
B2. Export value growth at historical average minus one standard deviation in 2009-10 3/	13	15	6	6	7	6	5	6	7	6	**6**	6
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-10	13	19	7	8	9	7	7	8	8	9	**9**	8
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-10 4/	13	19	10	13	13	12	11	11	12	16	**20**	14
B5. Combination of B1-B4 using one-half standard deviation shocks	13	15	7	9	9	8	8	8	9	11	**14**	10
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	13	19	7	8	9	7	7	8	8	9	**9**	8
Debt service-to-revenue ratio												
Baseline	10	10	8	7	8	5	7	5	5	5	**5**	5
A. Alternative Scenarios												
A1. Key variables at their historical averages in 2008-28 1/	10	12	5	4	4	4	3	4	4	4	**4**	4
A2. New public sector loans on less favorable terms in 2008-28 2	10	14	6	6	7	6	6	6	6	6	**7**	8
A3. Alternative Scenario: Higher bilateral borrowing	10	13	6	6	7	6	6	7	7	8	**9**	9
A4. High investment-Low growth scenario	10	10	8	7	8	7	9	7	7	8	**8**	7
B. Bound Tests												
B1. Real GDP growth at historical average minus one standard deviation in 2009-10	10	13	6	5	6	5	4	4	5	5	**5**	5
B2. Export value growth at historical average minus one standard deviation in 2009-10 3/	10	14	6	5	6	5	4	5	5	5	**5**	5
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-10	10	15	7	7	7	6	5	6	6	7	**7**	6
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-10 4/	10	14	8	9	9	8	7	7	7	10	**12**	8
B5. Combination of B1-B4 using one-half standard deviation shocks	10	14	7	8	8	7	6	6	7	9	**11**	7
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	10	19	8	8	8	7	6	7	7	7	**8**	7
Memorandum item:												
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	43	43	43	43	43	43	43	43	43	43	**43**	43

Source: Staff projections and simulations.

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
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.Tajikistan: Public Sector Debt Sustainability Framework, Baseline Scenario, 2008-28
(In percent of GDP, unless otherwise indicated)

						Projections					
	2008	2009	2010	2011	2012	2013	2014	2008-14 Average	2018	2028	2015-28 Average
Public sector debt 1/	30.3	39.7	38.7	36.8	36.1	34.5	30.1	35.2	27.8	27.5	27.9
o/w foreign-currency denominated	28.9	34.2	36.9	35.1	34.6	32.8	30.0	33.2	27.0	27.0	27.2
Change in public sector debt	-4.7	9.4	-0.9	-2.0	-0.7	-1.6	-4.4	-0.7	-0.5	0.0	-0.2
Identified debt-creating flows	-2.7	8.8	0.7	-1.3	-1.1	-2.0	-3.8	-0.2	0.6	1.1	0.8
Primary deficit	6.6	5.7	5.2	3.2	2.9	2.0	2.3	4.0	2.5	2.7	2.6
Revenue and grants	21.4	21.0	19.9	21.6	21.0	20.6	20.2	20.8	20.6	20.6	20.6
of which: grants	1.0	1.4	1.3	1.2	0.7	0.6	0.5	1.0	0.5	0.5	0.5
Primary (noninterest) expenditure	28.0	26.6	25.1	24.8	23.9	22.6	22.5	24.8	23.2	23.3	23.2
Automatic debt dynamics	-9.3	3.3	-4.4	-4.4	-3.9	-4.0	-6.0	-4.1	-2.0	-1.7	-1.8
Contribution from interest rate/growth differential	-3.0	-0.1	-2.2	-2.5	-2.4	-2.5	-2.5	-2.2	-1.7	-1.4	-1.6
Contribution from real exchange rate depreciation	-6.3	3.4	-2.2	-1.9	-1.5	-1.5	-3.6	-1.9	-0.2	-0.2	-0.2
Other identified debt-creating flows	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	0.0
Residual, including asset changes	-2.0	0.6	-1.6	-0.7	0.4	0.4	-0.6	-0.5	-1.1	-1.0	-1.0
Other Sustainability Indicators											
PV of public sector debt	19.6	23.8	24.0	23.2	22.7	22.0	19.5	22.1	18.2	17.8	18.1
o/w foreign-currency denominated	18.5	22.9	23.2	22.5	22.2	21.1	18.8	21.3	17.8	17.7	17.8
o/w external	18.5	22.9	23.2	22.5	22.2	21.1	18.8	21.3	17.8	17.7	17.8
Gross financing need 2/	8.9	8.4	6.4	4.4	4.2	3.5	3.8	5.7	4.1	3.9	4.0
PV of public sector debt-to-revenue and grants ratio (in percent)	92.0	113.5	120.2	107.3	108.1	107.2	96.7	106.4	88.2	86.3	87.9
PV of public sector debt-to-revenue ratio (in percent)	96.4	122.0	128.7	113.4	112.0	110.6	99.0	111.7	90.3	88.3	90.0
o/w external 3/	90.8	117.2	124.5	110.2	109.3	106.1	95.1	107.6	88.5	87.7	88.5
Debt service-to-revenue and grants ratio (in percent) 4/	10.6	13.1	6.1	5.8	6.5	7.3	6.7	8.0	6.9	5.6	6.2
Debt service-to-revenue ratio (in percent) 4/	11.1	14.1	6.6	6.1	6.7	7.6	6.8	8.4	6.9	5.9	6.5
Primary deficit that stabilizes the debt-to-GDP ratio	11.4	-3.8	6.1	5.1	3.6	3.6	6.6	4.7	3.1	2.7	2.8
Key macroeconomic and fiscal assumptions											
Nominal GDP (local currency)	17.6	21.4	25.6	30.6	36.7	43.9	52.2	32.6	83.2	244.9	133.4
Real GDP growth (in percent)	7.9	2.0	3.0	5.0	6.0	7.0	7.0	5.4	6.0	5.0	5.4
Average real interest rate (in percent)	-1.2	1.6	-2.7	-1.9	-1.0	-0.3	-0.6	-0.9	-0.5	-0.5	-0.5
Average real interest rate on foreign-currency debt (in percent)	-0.4	2.3	-1.4	-1.5	-0.6	-0.7	-0.7	-0.4	-0.7	-0.7	-0.7
Average real interest rate on domestic debt (in percent)	-19.2	-13.6	-10.9	-8.9	-7.6	7.7	0.7	-7.4	5.4	9.1	8.1
Inflation rate (GDP deflator, in percent)	27.7	19.2	16.0	14.0	13.0	12.0	11.0	16.1	6.0	6.0	6.0
US Inflation rate (GDP deflator, in percent)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Growth of real primary spending (deflated by GDP deflator, in percent)	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1
Grant element of new external borrowing (in percent)	38.6	37.2	34.4	35.3	44.9	44.9	44.9	40.0	44.9	44.9	44.9

Sources: Country authorities; and Fund staff estimates and projections.
1/ General government gross debt.
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.

Table 2b.Tajikistan: Sensitivity Analysis for Key Indicators of Public Debt 2008-28

	Projections							
	2008	2009	2010	2011	2012	2013	2018	2028
PV of Debt-to-GDP Ratio								
Baseline	20	24	24	23	23	22	18	18
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	20	19	16	15	14	14	10	7
A2. Primary balance is unchanged from 2008	20	25	26	29	31	34	45	68
A3. Permanently lower GDP growth 1/	20	24	25	24	24	24	25	36
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-10	20	23	21	20	18	17	11	3
B2. Primary balance is at historical average minus one standard deviations in 2009-10	20	24	25	24	24	23	20	20
B3. Combination of B1-B2 using one half standard deviation shocks	20	21	20	18	17	15	8	-2
B4. One-time 30 percent real depreciation in 2009	20	35	34	32	31	30	24	24
B5. 10 percent of GDP increase in other debt-creating flows in 2009	20	33	33	31	30	29	25	23
PV of Debt-to-Revenue Ratio 2/								
Baseline	92	114	120	107	108	107	88	86
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	92	93	82	68	65	66	50	36
A2. Primary balance is unchanged from 2008	92	118	133	133	149	167	220	331
A3. Permanently lower GDP growth 1/	92	115	124	113	116	119	120	176
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-10	92	108	108	92	88	84	52	17
B2. Primary balance is at historical average minus one standard deviations in 2009-10	92	115	126	112	113	113	98	95
B3. Combination of B1-B2 using one half standard deviation shocks	92	102	102	84	79	74	37	-10
B4. One-time 30 percent real depreciation in 2009	92	169	172	150	147	144	118	114
B5. 10 percent of GDP increase in other debt-creating flows in 2009	92	156	164	145	145	143	120	110
Debt Service-to-Revenue Ratio 2/								
Baseline	11	13	6	6	6	7	7	6
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	11	12	5	4	4	5	3	1
A2. Primary balance is unchanged from 2008	11	13	6	6	8	9	12	21
A3. Permanently lower GDP growth 1/	11	13	6	6	7	8	8	10
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-10	11	13	6	5	5	6	5	1
B2. Primary balance is at historical average minus one standard deviations in 2009-10	11	13	6	6	7	7	7	6
B3. Combination of B1-B2 using one half standard deviation shocks	11	13	5	5	5	6	4	-1
B4. One-time 30 percent real depreciation in 2009	11	18	10	10	11	11	11	11
B5. 10 percent of GDP increase in other debt-creating flows in 2009	11	13	8	8	8	9	8	8

Sources: Country authorities; and Fund staff estimates and projections.
1/ Assumes that real GDP growth is at baseline minus one standard deviation divided by the length of the projection period.
2/ Revenues are defined inclusive of grants.