February 2006

Republic of Tajikistan: Joint Bank-Fund Debt Sustainability Analysis

Tajikistan's risk of debt distress is moderate. Under the baseline scenario, all the external debt burden indicators are below their policy-dependent thresholds, but some of the indicators worsen over time. Several indicators breach their thresholds under various stress tests reflecting potential macroeconomic shocks. Given the high concessionality of the external public and publicly guaranteed debt, debt service payments remain low in terms of revenues and exports, at 14.3 percent and 5.6 percent in 2006, respectively. Implementation of the MDRI in January 2006, which would provide debt relief of 69.3 million of SDR from the Fund, would further reduce the risk of debt distress, and the NPV of debt-to-revenues ratio would decrease from 128.8 to 113.7 percent.

I. Data and Methodology[1]

Reflecting limited data availability, the DSA focuses on external public and publicly guaranteed debt. [2] The NBT has recently started compiling inventory of external private sector debt not guaranteed by the government. Reliable information on domestic public debt is also not available at this time, but obtaining it should be a future priority in order to conduct a full debt sustainability analysis. [3] Including information on domestic and private debt could substantially increase Tajikistan's risk of debt distress.

[1] This DSA was conducted jointly by Fund and World Bank staff, using the debt sustainability framework for low income countries. It has benefited from Fund and Bank staff consultations with the Ministry of Finance during missions to Dushanbe in September and November 2005, and included reconciliation of the debt data. The Low-Income Countries (LICs) DSA uses (a) the current year exports as denominators for estimating debt-to-exports ratio; (b) the WEO exchange rate projections for estimating debt stocks and debt service; and (c) a 5 percent discount rate.

[2] Tajikistan has some "disputed" government guaranteed debt from the period prior to 1998, when guarantees were issued in ad hoc manner; the estimated amount of guarantees is about $50 million. In 1999, the issuance of guarantees was centralized at the MoF. The disputed guarantees were not included in the DSA given that exact terms, conditions, and government repayment obligations were not known at the time of this analysis. However, even if these guarantees were recognized as valid, given the small amount involved (about 6 percent of total public and publicly guaranteed debt at end-2004), including them in the DSA would not change the main results.

[3] As also mentioned in the text of the staff report, one of the major issues in the area of the private external sector debt is cotton farm debt, which was tentatively estimated to be $220 million in May 2005. Regarding the domestic public debt, long-term domestic debt to monetary authorities was equivalent of $41 mln at end-2005. However, the government remains a net creditor to the NBT.

II. Tajikistan's External Debt Situation

Tajikistan's past record points to the authorities' overall strong commitment to meeting their external public and publicly guaranteed debt obligations.[4] Since a large share of loans was provided on a concessional basis, debt service obligations have been manageable. Moreover, Tajikistan has actively sought debt relief through bilateral negotiations with its main creditors, taking advantage of its strong ties with them.

Tajikistan's external position has shown a marked improvement with the nominal debt to GDP ratio from 96 percent of nominal debt-to-GDP ratio at end-2000 falling to 40 percent at end-2004. This was due to both decline in the level of debt and rapid real GDP growth. The lower level of indebtedness is also the result of improved debt management (such as restrictions on government public and publicly guaranteed nonconcessional borrowing) and debt rescheduling, write offs and debt-asset swaps after successful negotiations with bilateral creditors.

A major breakthrough in Tajikistan's debt consolidation was the debt-asset swap operation of about $250 million with Russia in October 2004. At end-2003, the debt to Russia amounted to $300 million, carried an interest of 4 percent a year, and constituted almost 30 percent of total external debt. The debt-asset swap reduced Tajikistan's stock of debt to Russia to $50 million at end-2004. [5] This amount will be repaid as investment on behalf of Russia in Sangtuda hydroelectric project by 2008. In 2004, an additional debt reduction was obtained through debt write-off of $13 million from Pakistan. Following these transactions, the total external Public and Publicly Guarantueed (PPG) debt decreased from 64 percent of GDP at end-2003 to 40 percent at end-2004. At the same time, the share of multilateral concessional debt increased from 30 percent of external debt in 2000 to almost 70 percent at end-2004. By end 2004, the debt owed to the IDA constituted about 50 percent of the total debt to multilateral creditors.

III. Baseline Scenario

The baseline scenario, developed on a cautious set of assumptions about economic policies and outcomes (Box 1), shows that Tajikistan is at a moderate risk of debt distress. This scenario assumes no MDRI debt relief. The 2004 World Bank's Country Policy and Institutional Assessment (CPIA) ranks Tajikistan's policies and institutions as those corresponding to a "weak performer." The debt-burden thresholds for countries in this

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[4] There were several incidences of misreporting on accumulation of external arrears, but the amounts involved were small and stemmed from the authorities' inexperience with external debt management.

[5] Under the swap, $242 million was converted into Russia's state ownership of Nurek space tracking station. Further information on this other bilateral negotiations can be found in the "2005 status report on external debt of Tajikistan," prepared by the MoF, as well as in the April 2005 staff report on Tajikistan (EBS/05/38) and the accompanying selected issues paper (SM/05/80).

category are (a) NPV of debt-to-exports of goods and services of 100 percent, (b) NPV of debt-to-GDP of 30 percent, and (c) NPV of debt-to-fiscal revenue of 200 percent. The relevant debt service thresholds are (a) 15 percent of exports of goods and services and (b) 25 percent of revenues.

All of Tajikistan's external debt burden indicators remain below the policy-dependent thresholds during the projection period under the baseline scenario (Table 1 and Figure 1). The NPV of debt-to-exports of goods and services ratio amounts to 52 percent in 2005, well below the threshold of 100 percent. Following a gradual increase until 2015, due to an assumed accelerated disbursement of public investment project finances, and no new bilateral debt relief agreement, this ratio is projected to decline to 49 percent by 2025. Debt service payments continue to be very manageable, reflecting a rapid repayment of the remaining debt to Russia as well as the fact that all Tajikistan's external public and publicly guaranteed debt has been contracted on concessional terms. However, the NPV of debt-to-GDP ratio converges close to its threshold over the years, underscoring the importance of implementing the relevant structural reforms.[6]

Box 1. Macroeconomic Assumptions

Real GDP grows at about 6 percent until 2010, and at 5 percent between 2011 and 2025. This figure is slightly above its ten-year historical average of 4.2 percent, but well below its five-year (post-Russian crisis) average of 9.7 percent. Growth is driven by exports, expanding nontraditional sectors (services, textile, and noncotton agriculture) as well as continued inflows of remittances.

Exports of goods and services are projected to grow at a rate of 6 percent through 2010, at a time when exports of aluminum and cotton, the main export commodities, are relatively low because of declining prices in 2005 and 2006. The authorities have identified other sectors of the economy as key for increasing economic diversification, and the forthcoming investment in the energy sector and ongoing structural reforms support this strategy. As the diversification of exports progresses, export growth is projected to increase to 9 percent between 2011 and 2025.

The current account deficit (including official transfers) between 2005 and 2010 is above its historical average for 1998–2004 of 4.2 percent by 0.3 percent of GDP, mainly due to projected higher FDI-related imports during this period. The current account deficit is projected to gradually decrease further to 2.5 percent of GDP by the end of the projection period, while the **reserve coverage** of imports is projected to build up gradually to slightly over 3 months of imports by 2025. The net foreign transfer inflows (driven by remittances) are assumed to remain strong at 13–15 percent of GDP throughout the projected period.

The fiscal stance continues to be appropriately prudent. Due to improved administration, revenues would increase from 18.1 percent of GDP in 2005 to 19.1 in 2010, and further to almost 21 percent by 2025. Expenditures are projected to increase at the same rate, leaving the fiscal deficit unchanged.

Official external loan financing (on concessional terms) is projected to remain at 4 percent of GDP until 2010 and increase to 4.5 percent thereafter. The DSA assumes that only IDA grants committed before December 2004 will be disbursed.

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[6] Substantially lower than projected net foreign transfer inflows in the outer years (for example, due to a deteriorating regional situation) would likely lower imports, exports, and real GDP growth, with a possibility of the NPV of debt-to-GDP ratio marginally exceeding its policy-releva nt threshold in those years.

External debt indicators relative to government revenues also stay well below their thresholds (Table 2 and Figure 2). The NPV of debt-to-revenue ratio would remain just below 150 percent throughout the projection period, while the associated debt service ratio would exhibit a somewhat declining trend (from 14.8 percent in 2005 to 13.6 percent in 2025).

IV. Alternative Scenarios and Bound Tests

The historical scenario is based on averages from 1998 to 2004, and thus reflects a period of macroeconomic consolidation, some progress with structural reforms, and debt reduction.[7] Under this scenario, not only do all debt burden ratios remain well below the threshold indicators, they also follow a downward trend throughout the projection period. While the conditions of the economy as well as its external environment have changed, this scenario illustrates the importance of preserving macroeconomic stability, progress with structural reforms and continued prudent debt management.

A relaxation of the authorities' prudent approach to contracting external debt would lead to a substantial deterioration of Tajikistan's external debt indicators. If all new borrowing were to be contracted on less than concessional terms during the projection period, Tajikistan's NPV debt-to-GDP ratio would rise substantially. Specifically, increasing the average interest rate on new disbursement by 2 percentage points would bring the NPV of debt-to-GDP ratio to the threshold level of 30 percent by 2011 and to 47 percent by the end of the projection period (Table 3).

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), Tajikistan's NPV of debt-to-GDP ratio would rise to 53 percent in 2007, keeping it above the policy-dependent threshold of 30 percent throughout the entire projection period. The same shock would also significantly worsen the NPV of PPG debt-to-revenues ratio, which would jump to 286 percent in 2007 and stay above the threshold of 200 percent until 2023. [8] If FDI were to grow less by one standard deviation in 2006–07, Tajikistan's NPV of debt-to-exports ratio would be above the 100 percent threshold between 2007 and 2018.

[7] The 1995–97 period has been excluded from historical average scenario due to disruptions from civil war. The average values for the 1998–2004 period are calculated for current account deficit, real GDP growth, GDP deflator in $, export growth, net transfers and FDI to GDP ratios.

[8] Since Tajikistan is a small open economy with a high share of exports-to-GDP, the debt-to-revenue indicator is an important measure of debt vulnerabilities.

V. Effects of MDRI

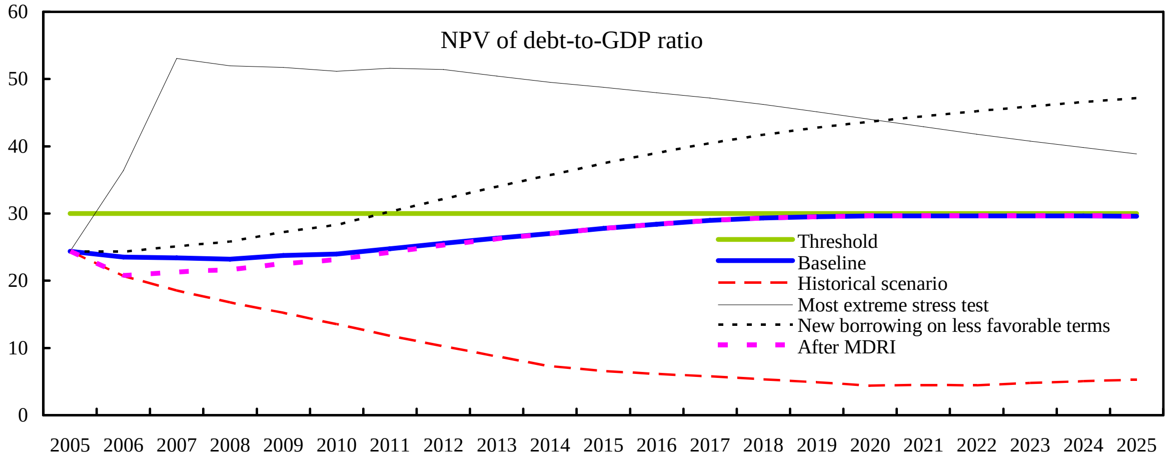
After the Executive's Board approval of the MDRI, Tajikistan qualifies for MDRI debt relief from the Fund amounting to SDR 69.3 million (about $100 million) on January 3, 2006.[9] This debt relief would further decrease Tajikistan's probability of debt distress in the short and medium term. In 2006, the relief under the initiative would lower Tajikistan's NPV of debt-to-revenues ratio from 128.8 percent to 113.7 percent, while the debt-to-exports ratio would decrease from 52.3 percent to 46.2 percent (Table 2). The debt service-to-exports ratio would decrease from 5.6 percent to 4.2 percent. Regarding the dynamics of NPV of debt-to-GDP ratios, the "MDRI path" would start at a lower value in 2006, but converge to the "non-MDRI path" by 2014. The same pattern holds for the paths of NPV of debt-to-exports and debt-to-revenues ratios.

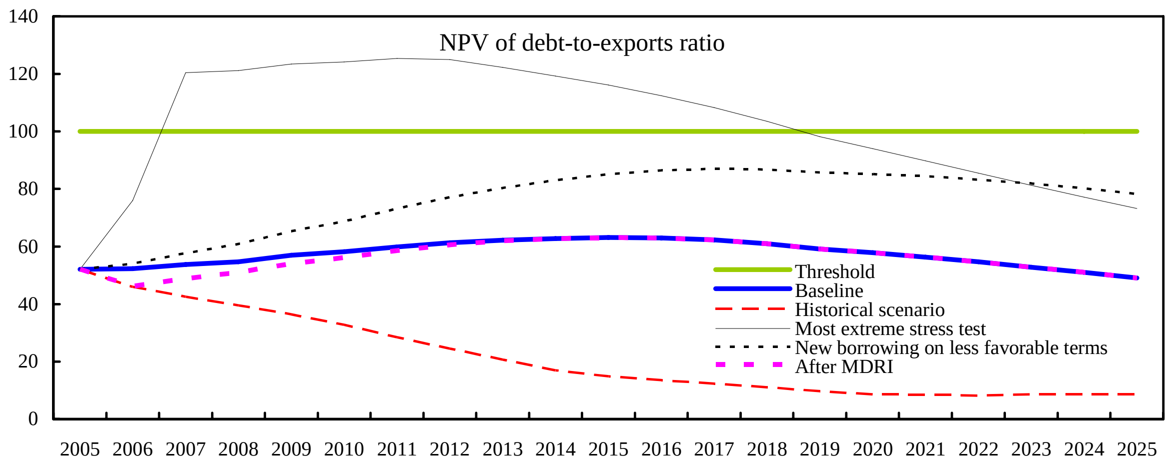
VI. Conclusions

The conclusion of the DSA is that Tajikistan's risk of debt distress is moderate. However, the results of the alternative scenarios and stress tests indicate that the debt sustainability situation would deteriorate with negative macroeconomic shocks and/or borrowing on nonconcessional terms. The DSA results thus underscore the need for the authorities to maintain sound macroeconomic policies and accelerate structural reforms to achieve higher export and output growth. While these measures would reduce Tajikistan's vulnerability to exogenous shocks, staying on sustainable debt path would also require that Tajikistan continues with prudent debt management policies and uses external resources productively.

[9] As of December 21, 2005, the Fund still needed to obtain consents from several contributors to the PRGF Trust Subsidy Account for this debt relief to take effect.

Figure 1. Tajikistan: Indicators of Public and Publicly Guaranteed External Debt
Under Alternative Scenarios, 2005–25
(In percent)





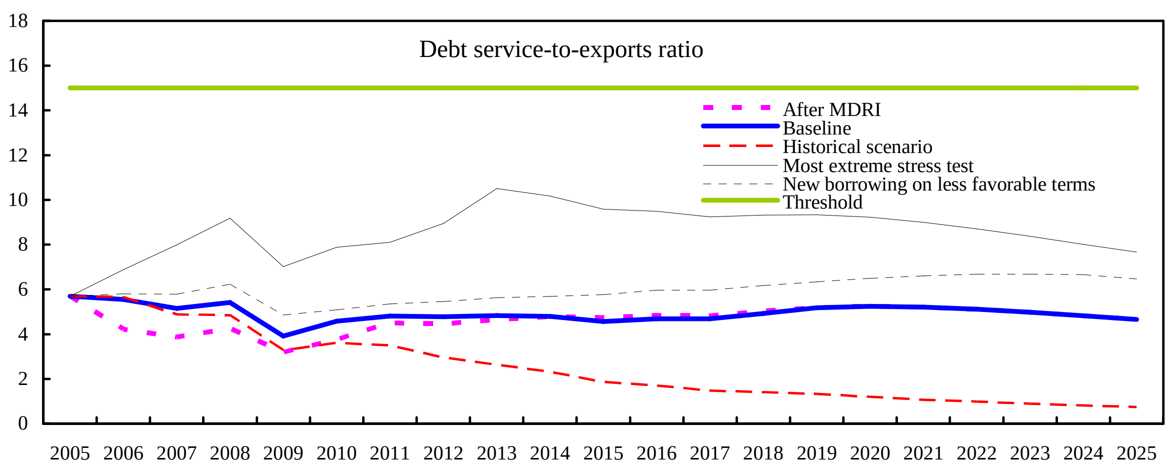
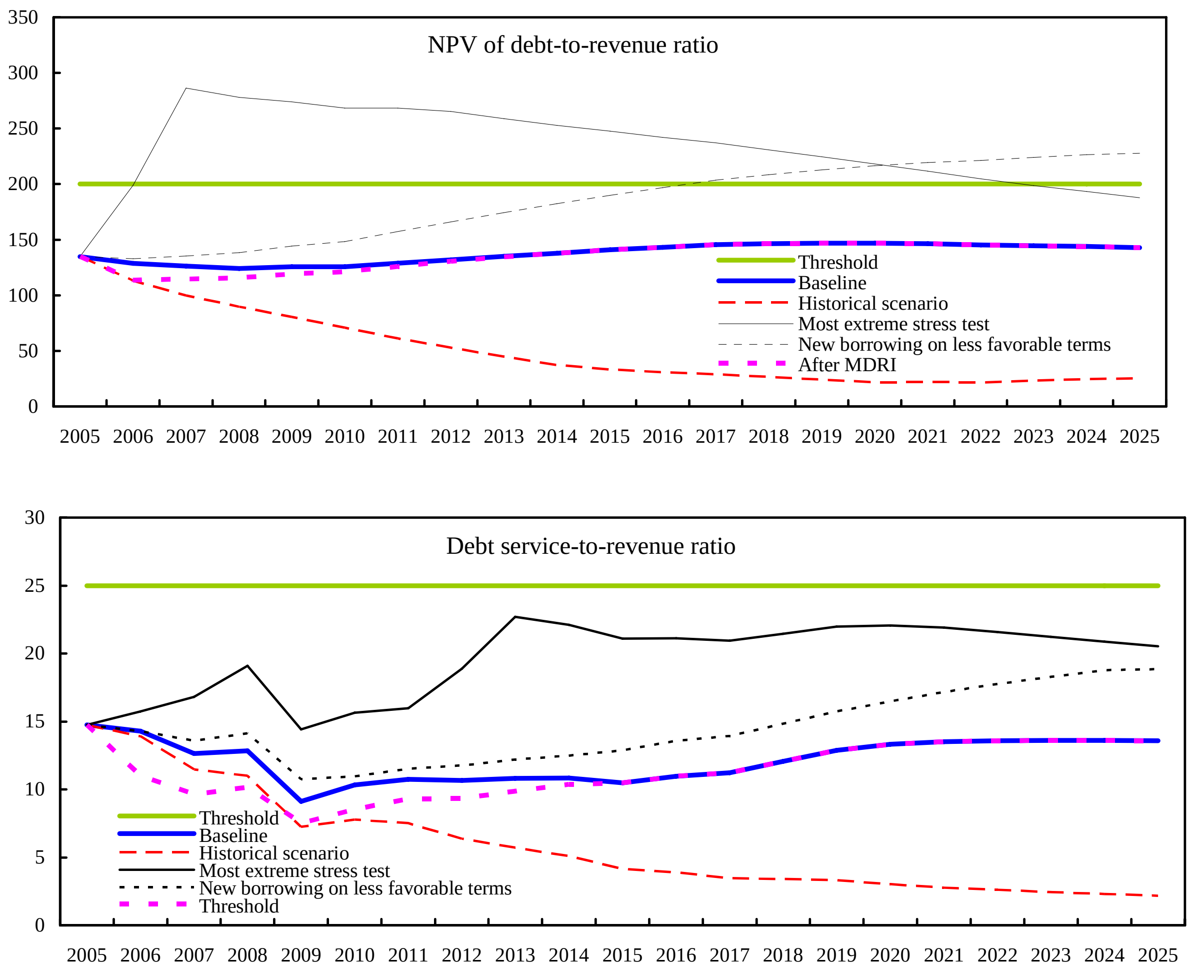


Figure 1. Tajikistan: Indicators of Public and Publicly Guaranteed External Debt Under Alternative Scenarios, 2005–2025 (Concluded)
(In percent)



Sources: Staff projections, and simulations.

Table 1. Tajikistan: External Debt Sustainability Framework, Baseline Scenario, 2004-2025 1/
(In percent of GDP, unless otherwise indicated)

	#	Actual 2002	Actual 2003	Actual 2004	Historical Average 8/	Standard Deviation 8/	Estimate 2005	Projections 2006	Projections 2007	Projections 2008	Projections 2009	Projections 2010	Projections 2005-10 Average	Projections 2015	Projections 2025	Projections 2011-25 Average
External debt (nominal) 1/	#	**96.6**	**66.3**	**41.6**			**38.3**	**37.4**	**36.5**	**35.8**	**35.8**	**35.8**		**40.7**	**47.0**	
o/w public and publicly guaranteed (PPG)	#	90.3	63.7	39.5			36.7	36.0	35.4	34.8	35.0	35.1		40.5	47.0	
Change in external debt	...	-1.8	-30.4	-24.7			-3.2	-0.9	-0.9	-0.8	0.0	-0.1		1.0	0.3	
Identified net debt-creating flows	...	-0.5	-32.4	-14.0			-0.8	-0.3	-1.1	-1.4	-0.5	-0.5		0.2	-1.0	
Non-interest current account deficit	#	**0.5**	**-2.0**	**2.1**	**1.7**	**5.2**	**2.9**	**4.0**	**3.9**	**3.9**	**4.0**	**3.7**		**3.2**	**1.8**	2.7
Deficit in balance of goods and services	#	19.0	15.6	17.5			21.0	22.9	23.4	23.4	23.5	23.3		24.0	18.3	
Exports	#	69.8	57.9	52.5			46.8	45.0	43.5	42.4	41.7	41.2		44.0	60.2	
Imports	#	88.9	73.4	70.0			67.8	67.9	67.0	65.9	65.2	64.5		68.0	78.5	
Net current transfers (negative = inflow)	#	-13.7	-14.6	-11.4	-7.3	4.6	-14.9	-15.4	-15.8	-15.6	-15.6	-15.6		-16.8	-13.2	-15.4
Other current account flows (negative = net inflow)	#	-4.7	-2.9	-4.1			-3.2	-3.6	-3.7	-3.9	-3.9	-4.0		-4.0	-3.3	
Net FDI (negative = inflow) 2/	#	**-3.4**	**-2.0**	**-13.1**	**-1.9**	**0.7**	**-1.5**	**-2.3**	**-3.5**	**-3.9**	**-3.1**	**-2.8**		**-1.8**	**-1.3**	-1.6
Endogenous debt dynamics 3/	...	**2.4**	**-28.4**	**-14.6**			**-2.2**	**-2.0**	**-1.5**	**-1.5**	**-1.4**	**-1.4**		**-1.2**	**-1.4**	
Contribution from nominal interest rate	...	3.6	3.3	1.9			0.6	0.5	0.5	0.6	0.6	0.6		0.7	0.8	
Contribution from real GDP growth	...	-8.9	-6.6	-5.3			-2.9	-2.4	-2.1	-2.0	-2.0	-2.0		-1.9	-2.2	
Contribution from price and exchange rate changes 4/	...	7.7	-25.0	-11.3			…	…	…	…	…	…		…	…	
Residual (3-4) 5/	...	**-1.3**	**2.0**	**1.0**			**-2.4**	**-0.7**	**0.3**	**0.7**	**0.5**	**0.4**		**0.8**	**1.3**	
o/w exceptional financing	...	0.0	0.0	-0.6			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
NPV of external debt 6/	...	...	...	28.9			26.0	24.9	24.6	24.2	24.6	24.6		28.0	29.6	
In percent of exports	...	...	...	55.1			55.6	55.4	56.4	57.0	58.9	59.8		63.6	49.1	
NPV of PPG external debt	...	...	...	**26.9**			**24.4**	**23.5**	**23.4**	**23.2**	**23.7**	**24.0**		**27.8**	**29.6**	
In percent of exports	...	...	...	51.2			52.1	52.3	53.7	54.7	56.9	58.2		63.1	49.1	
Debt service-to-exports ratio (in percent)	#	10.3	7.4	5.7			6.2	6.1	5.7	6.0	4.4	5.0		4.7	4.7	
PPG debt service-to-exports ratio (in percent)	#	7.1	4.1	3.4			5.7	5.6	5.1	5.4	3.9	4.6		4.6	4.7	
Total gross financing need (billions of U.S. dollars)	...	0.0	0.0	0.1			0.1	0.1	0.1	0.1	0.1	0.1		0.2	0.3	
Non-interest current account deficit that stabilizes debt ratio	...	2.3	28.4	26.8			6.2	4.9	4.8	4.7	3.9	3.8		2.2	1.5	
NPV of debt to revenue				155.6			134.8	128.7	126.1	124.2	125.7	125.6		140.9	143.0	
DS to revenue				5.7			14.8	14.3	12.6	12.8	9.1	10.3		10.5	13.6	
Key macroeconomic assumptions																
Real GDP growth (in percent)	...	9.1	10.2	10.6	4.2	7.6	8.0	7.0	6.0	6.0	6.0	6.0	6.5	5.0	5.0	5.0
GDP deflator in US dollar terms (change in percent)	...	-7.2	35.0	20.5	8.8	30.4	7.3	2.7	2.0	2.0	2.0	2.0	3.0	1.7	1.7	1.7
Effective interest rate (percent) 7/	...	3.7	5.1	3.9	4.4	1.4	1.8	1.4	1.5	1.7	1.7	1.8	1.6	1.9	1.7	1.8
Growth of exports of G&S (US dollar terms, in percent)	...	8.6	23.2	20.9	8.4	18.6	3.3	5.7	4.6	5.4	6.2	6.7	5.3	9.1	10.8	9.5
Growth of imports of G&S (US dollar terms, in percent)	...	9.7	22.9	27.1	7.8	13.7	12.3	10.1	6.6	6.3	7.0	6.9	8.2	8.2	8.8	8.2
Grant element of new public sector borrowing (in percent)		...	...	...	...	...	33.3	28.4	27.2	27.2	27.2	27.2	28.4	27.2	27.2	27.2
Memorandum item:																
Nominal GDP (billions of US dollars)	#	1.0	1.6	2.1			2.4	2.6	2.9	3.1	3.3	3.6		5.0	9.7	

Source: Staff simulations.

1/ Includes both public and private sector external debt.
2/ FDI in 2004 included $242 million resulting from debt-equity swap with Russia.
3/ Derived as $[r - g - \rho(1+g)]/(1+g+\rho+g\rho)$ 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.
4/ The large changes in 2003 and 2004 are due to depreciation of U.S. dollar wr.t. to euro and Russian ruble, as well as increase in commodity prices during those years, reflected in the GDP deflators.
5/ 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.
6/ Assumes that NPV of private sector debt is equivalent to its face value.
7/ Current-year interest payments divided by previous period debt stock.
8/ Historical averages and standard deviations are calculated from 1998 to 2004, excluding the period of civil war.

Table 2. Tajikistan: External Debt Sustainability Framework, MDRI Scenario, 2004-2025 1/
(In percent of GDP, unless otherwise indicated)

	Actual			Historical Average 8/	Standard Deviation 8/	Estimate	Projections								
	2002	2003	2004			2005	2006	2007	2008	2009	2010	2005-10 Average	2015	2025	2011-25 Average
External debt (nominal) 1/	**96.6**	**66.3**	**41.6**			**38.3**	**34.2**	**34.1**	**34.0**	**34.5**	**34.8**		**40.7**	**47.0**	
o/w public and publicly guaranteed (PPG)	90.3	63.7	39.5			36.7	32.8	32.9	33.0	33.6	34.1		40.5	47.0	
Change in external debt	-1.8	-30.4	-24.7			-3.2	-4.1	-0.1	-0.1	0.5	0.3		1.0	0.3	
Identified net debt-creating flows	-0.5	-32.4	-14.0			-0.8	-0.3	-0.4	-0.8	-0.1	-0.1		0.3	-1.0	
Non-interest current account deficit	**0.5**	**-2.0**	**2.1**	**1.7**	**3.4**	**2.9**	**4.0**	**3.9**	**3.9**	**4.0**	**3.7**		**3.2**	**1.8**	2.7
Deficit in balance of goods and services	19.0	15.6	17.5			21.0	22.9	23.4	23.4	23.5	23.3		24.0	18.3	
Exports	69.8	57.9	52.5			46.8	45.0	43.5	42.4	41.7	41.2		44.0	60.2	
Imports	88.9	73.4	70.0			67.8	67.9	67.0	65.9	65.2	64.5		68.0	78.5	
Net current transfers (negative = inflow)	-13.7	-14.6	-11.4	-7.3	4.7	-14.9	-15.4	-15.8	-15.6	-15.6	-15.6		-16.8	-13.2	-15.4
Other current account flows (negative = net inflow)	-4.7	-2.9	-4.1			-3.3	-3.6	-3.8	-3.9	-4.0	-4.0		-4.0	-3.3	
Net FDI (negative = inflow) 2/	**-3.4**	**-2.0**	**-13.1**	**-3.1**	**3.6**	**-1.5**	**-2.3**	**-3.0**	**-3.4**	**-2.8**	**-2.5**		**-1.8**	**-1.3**	-1.5
Endogenous debt dynamics 3/	**2.4**	**-28.4**	**-14.6**			**-2.1**	**-2.0**	**-1.4**	**-1.3**	**-1.3**	**-1.3**		**-1.2**	**-1.4**	
Contribution from nominal interest rate	3.6	3.3	1.9			0.7	0.5	0.5	0.6	0.6	0.6		0.7	0.8	
Contribution from real GDP growth	-8.9	-6.6	-5.3			-2.9	-2.4	-1.9	-1.9	-1.9	-1.9		-1.9	-2.2	
Contribution from price and exchange rate changes 4/	7.7	-25.0	-11.3			…	…	…	…	…	…		…	…	
Residual (3-4) 5/	**-1.3**	**2.0**	**1.0**			**-2.5**	**-3.9**	**0.3**	**0.7**	**0.6**	**0.5**		**0.8**	**1.3**	
o/w exceptional financing	0.0	0.0	-0.6			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
NPV of external debt 6/	...	...	28.9			26.0	22.2	22.5	22.6	23.3	23.8		28.0	29.6	
In percent of exports	...	...	55.1			55.6	49.3	51.6	53.4	56.0	57.8		63.6	49.1	
NPV of PPG external debt	**...**	**...**	**26.9**			**24.4**	**20.8**	**21.3**	**21.7**	**22.5**	**23.1**		**27.8**	**29.6**	
In percent of exports	...	...	51.2			52.1	46.2	48.9	51.0	54.0	56.2		63.1	49.1	
Debt service-to-exports ratio (in percent)	10.3	7.4	5.7			6.4	4.8	4.5	4.8	3.7	4.2		4.7	4.7	
PPG debt service-to-exports ratio (in percent)	7.1	4.1	3.4			5.7	4.2	3.9	4.2	3.2	3.8		4.6	4.7	
Total gross financing need (billions of U.S. dollars)	0.0	0.0	0.1			0.1	0.1	0.1	0.1	0.1	0.1		0.2	0.3	
Non-interest current account deficit that stabilizes debt ratio	2.3	28.4	26.8			6.1	8.1	4.0	4.0	3.5	3.4		2.2	1.5	
NPV of debt to revenue			155.6			134.8	113.7	114.7	115.8	119.3	121.2		140.9	143.0	
DS to revenue			5.7			14.8	11.0	9.7	10.1	7.5	8.5		10.5	13.6	
Key macroeconomic assumptions															
Real GDP growth (in percent)	9.1	10.2	10.6	4.2	7.6	8.0	7.0	6.0	6.0	6.0	6.0	6.5	5.0	5.0	5.0
GDP deflator in US dollar terms (change in percent)	-7.2	35.0	20.5	8.8	30.4	7.3	2.7	2.0	2.0	2.0	2.0	3.0	1.7	1.7	1.7
Effective interest rate (percent) 7/	3.7	5.1	3.9	4.4	1.4	2.0	1.4	1.7	1.8	1.8	1.8	1.7	1.9	1.7	1.8
Growth of exports of G&S (US dollar terms, in percent)	8.6	23.2	20.9	8.4	18.6	3.3	5.7	4.6	5.4	6.2	6.7	5.3	9.1	10.8	9.5
Growth of imports of G&S (US dollar terms, in percent)	9.7	22.9	27.1	7.8	13.7	12.3	10.1	6.6	6.3	7.0	6.9	8.2	8.2	8.8	8.2
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	33.3	28.4	27.2	27.2	27.2	27.2	28.4	27.2	27.2	27.2
Memorandum item:															
Nominal GDP (billions of US dollars) #	1.0	1.6	2.1			2.4	2.6	2.9	3.1	3.3	3.6		5.0	9.7	

Source: Staff simulations.

1/ Includes both public and private sector external debt.
2/ FDI in 2004 included $242 million resulting from debt-equity swap with Russia.
3/ 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.
4/ The large changes in 2003 and 2004 are due to depreciation of U.S. dollar wr.t. to euro and Russian ruble, as well as increase in commodity prices during those years, reflected in the GDP deflators.
5/ 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.
6/ Assumes that NPV of private sector debt is equivalent to its face value.
7/ Current-year interest payments divided by previous period debt stock.
8/ Historical averages and standard deviations are calculated from 1998 to 2004, excluding the period of civil war.

Table 3. Tajikistan: Sensitivity Analyses for Key Indicators of Public and Publicly Guaranteed External Debt, 2005–25

(In percent)

	Estimate	Projections						
	2005	2006	2007	2008	2009	2010	**2015**	2025
NPV of debt-to-GDP ratio								
Baseline	24	24	23	23	24	24	**28**	30
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2006-25 1/	24	21	19	17	15	14	**7**	5
A2. New public sector loans on less favorable terms in 2006-25 2/	24	24	25	26	27	28	**37**	47
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2006-07	24	24	24	24	24	24	**28**	30
B2. Export value growth at historical average minus one standard deviation in 2006-07 3/	24	29	38	37	37	37	**37**	32
B3. US dollar GDP deflator at historical average minus one standard deviation in 2006-07	24	29	36	36	36	37	**43**	45
B4. Net non-debt creating flows at historical average minus one standard deviation in 2006-07 4/	24	33	43	42	42	41	**40**	32
B5. Combination of B1-B4 using one-half standard deviation shocks	24	36	53	52	52	51	**49**	39
B6. One-time 30 percent nominal depreciation relative to the baseline in 2006 5/	24	33	33	33	34	34	**39**	42
NPV of debt-to-exports ratio								
Baseline	52	52	54	55	57	58	**63**	49
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2006-25 1/	52	46	43	40	36	33	**15**	9
A2. New public sector loans on less favorable terms in 2006-25 2/	52	54	58	61	65	69	**85**	78
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2006-07	52	52	54	55	57	58	**63**	49
B2. Export value growth at historical average minus one standard deviation in 2006-07 3/	52	76	120	121	123	124	**116**	73
B3. US dollar GDP deflator at historical average minus one standard deviation in 2006-07	52	52	54	55	57	58	**63**	49
B4. Net non-debt creating flows at historical average minus one standard deviation in 2006-07 4/	52	73	98	99	100	100	**91**	54
B5. Combination of B1-B4 using one-half standard deviation shocks	52	79	118	118	120	120	**107**	62
B6. One-time 30 percent nominal depreciation relative to the baseline in 2006 5/	52	52	54	55	57	58	**63**	49
Debt service ratio								
Baseline	5.7	6	5	5	3.9	5	**5**	5
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2006-25 1/	5.7	6	5	5	3	4	**2**	1
A2. New public sector loans on less favorable terms in 2006-25 2/	6	6	6	6	5	5	**6**	6
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2006-07	6	6	5	6	4	5	**5**	5
B2. Export value growth at historical average minus one standard deviation in 2006-07 3/	6	7	8	9	7	8	**10**	8
B3. US dollar GDP deflator at historical average minus one standard deviation in 2006-07	6	6	5	6	4	5	**5**	5
B4. Net non-debt creating flows at historical average minus one standard deviation in 2006-07 4/	6	6	6	7	5	6	**8**	6
B5. Combination of B1-B4 using one-half standard deviation shocks	6	6	7	8	6	7	**9**	7
B6. One-time 30 percent nominal depreciation relative to the baseline in 2006 5/	6	6	5	6	4	5	**5**	5

Table 3. Tajikistan: Sensitivity Analyses for Key Indicators of Public and Publicly Guaranteed External Debt, 2005–25 (Concluded)
(In percent)

	Estimate	Projections						
	2005	2006	2007	2008	2009	2010	2015	2025
NPV of Debt to Revenue'								
Baseline	134.8	128.7	126.1	124.2	125.7	125.6	**140.9**	143.0
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2006-25 1/	134.8	113.2	99.9	89.8	80.6	71.0	**33.3**	25.2
A2. New public sector loans on less favorable terms in 2006-25 2/	135	133	135	138	144	148	**190**	228
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2006-07	135	131	128	126	128	128	**143**	146
B2. Export value growth at historical average minus one standard deviation in 2006-07 3/	135	158	203	198	196	192	**186**	153
B3. US dollar GDP deflator at historical average minus one standard deviation in 2006-07	135	160	194	191	193	193	**217**	220
B4. Net non-debt creating flows at historical average minus one standard deviation in 2006-07 4/	135	179	231	224	221	217	**202**	156
B5. Combination of B1-B4 using one-half standard deviation shocks	135	199	286	278	274	268	**248**	188
B6. One-time 30 percent nominal depreciation relative to the baseline in 2006 5/	135	182	178	175	177	177	**199**	202
Debt Service-to-Revenue Ratio								
Baseline	14.8	14.3	12.6	12.8	9.1	10.3	10.5	13.6
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2006-25 1/	14.8	13.9	11.5	11.0	7.3	7.8	**4.2**	2.2
A2. New public sector loans on less favorable terms in 2006-25 2/	15	14	14	14	11	11	**13**	19
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2006-07	15	14	13	13	9	11	**11**	14
B2. Export value growth at historical average minus one standard deviation in 2006-07 3/	16	15	14	16	12	13	**15**	16
B3. US dollar GDP deflator at historical average minus one standard deviation in 2006-07	15	18	19	20	14	16	**16**	21
B4. Net non-debt creating flows at historical average minus one standard deviation in 2006-07 4/	15	14	14	16	12	13	**17**	17
B5. Combination of B1-B4 using one-half standard deviation shocks	15	16	17	19	14	16	**21**	21
B6. One-time 30 percent nominal depreciation relative to the baseline in 2006 5/	15	20	18	18	13	15	**15**	19
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	25	25	25	25	25	25	**25**	25

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 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.