INTERNATIONAL DEVELOPMENT ASSOCIATION AND
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Kyrgyz Republic—Debt Sustainability Analysis Under the Debt Sustainability Framework for Low Income Countries

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Based on the joint IMF-World Bank Low-Income Country Debt Sustainability Framework, the Kyrgyz Republic is assessed to remain at a moderate risk of debt distress.[1] Stress tests suggest that the country is still vulnerable, particularly to a combination of exogenous shocks. Further improvement of the debt outlook will depend on maintaining sound macroeconomic policies, including fiscal consolidation and prudent borrowing, as well as ensuring continued concessional financing to support the country's large development needs.

I. Background

The Kyrgyz Republic's nominal stock of public and publicly guaranteed (PPG) external debt declined from about 100 percent of GDP in 2003 to 41 percent in 2008. This decline was mainly the result of an acceleration in the pace of economic growth and a nominal appreciation of the domestic currency, but also reflected firm fiscal discipline and Paris Club support.

The Kyrgyz Republic had two debt restructuring agreements with the Paris Club. The first was in December 2002 under Houston terms and provided for flow rescheduling in three phases. The second was in March 2005, under the Evian approach. The Kyrgyz authorities indicated in early 2007 that they did not wish to avail themselves of the HIPC initiative, but subsequently expressed interest in the MDRI.

Since end-2008, the nominal stock of PPG external debt has increased, reaching 57 percent of GDP at end-2010. The increase in this ratio largely reflects the decline in nominal (dollar) GDP in 2009 and 2010 as a result of the international financial crisis and

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[1] This DSA has been produced jointly by Fund and Bank staffs, in consultation with Asian Development Bank and the Kyrgyz authorities. The fiscal year for the Kyrgyz Republic is January 1–December 31. The risk rating would not change with the inclusion of remittances (Figure 2).

domestic political instability which negatively impact real growth, but also reflects an uptick in external borrowing to finance infrastructure development and crisis-related fiscal deficits. The present value (PV) of PPG external debt was equivalent to US$1.5 billion (34 percent of GDP) at end-2010, of which 66 percent is owed to international financial institutions (IFIs), and the remaining 34 percent to bilateral creditors. At end-2010, indebtedness indicators were estimated to be below the applicable HIPC Initiative thresholds, while income levels were estimated to be above the IMF MDRI thresholds.

II. Underlying DSA Assumptions

The macroeconomic assumptions reflect the framework underlying the ECF-supported program and World Bank and IMF staff projections through 2031. They have been updated to incorporate recent developments and changes to the medium-term outlook, but long-term assumptions are broadly similar to the framework used in the last DSA. The data on the stock of external debt at end-2010 and debt payment schedule were provided by the Kyrgyz authorities, except for the data on the World Bank and Asian Development Bank debt, which were provided directly by the two institutions.

The framework assumes implementation of sound macroeconomic policies—including fiscal consolidation and prudent public debt management—as a basis for sustaining growth. Near- and medium-term growth would be underpinned by recovery from the shocks of 2009 and 2010, including a rebound in agricultural production and tourism, and would be supported by infrastructure investments and strong mining production. Long-term growth will be generated by firm implementation of structural reforms to remove impediments to private investment, stimulate economic diversification, and improve the business climate, including increased financial stability and deepened financial intermediation. The energy sector, which has large potential, is also envisioned to add positively to growth in the long run. The framework features average medium-term GDP growth of around 6 percent per year and average long-term growth over 2017–31 of about 5 percent, as in the previous DSA.

The main updates relative to the last DSA reflect new information regarding the authorities' infrastructure development plans and debt relief. Specifically, energy-related investments have been delayed, partly because of the domestic political unrest in 2010. The Kyrgyz government is still in discussions with the Chinese authorities to finance and assist in the construction of substations and transmission lines linking to the south.[2] The latest information indicates total investments in this area to be about US$450 million (compared to

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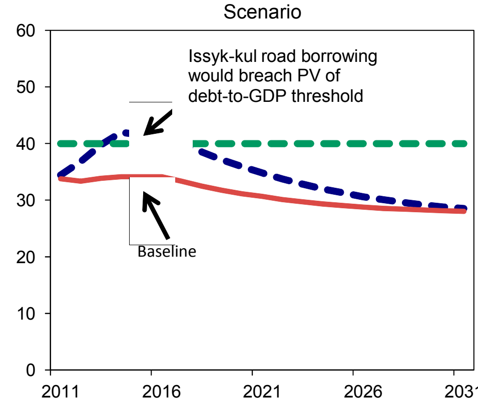
[2] These energy infrastructure projects will expand the potential for exporting electricity, improve reliability of the transmission system and ensure smooth supply of electricity to remote parts of the country. Neighboring Uzbekistan has been threatening repeatedly to withdraw from the regional power grid that would leave the southern part of the Kyrgyz Republic without electricity, given that the only way to supply electricity to the south is through the Uzbek electricity grid.

US$550 million in the previous DSA), including US$208 million likely to be disbursed over the next two to three years. These investments would be financed with loans from China and are expected to contain a grant element slightly less than 35 percent, but not less than 30 percent. This borrowing would be accommodated in the ECF-supported program under a tied, nonzero, nonconcessional debt limit in the equivalent amount. In April 2011, the authorities reached an agreement with Turkey for a debt write-off in the amount of about US$49.5 million, which is likely to be effected in 2011.

Planned energy sector investments will ensure smooth supply of electricity within the country and contribute to economic growth. During the construction period (2012–16), the energy infrastructure projects are estimated to contribute around a quarter of a percentage point to GDP growth annually.[3] The electricity transmission lines, when built, will reduce system overloading and increase the self-sufficiency of supply. The impact on exports and long-term growth from the energy projects would be more significant if new large electricity generation facilities are built.[4]

Text Figure 1. Kyrgyz Republic: Issyk-kul Road Scenario



Note: Issyk-kul road disbursements are assumed to take place over three years starting in 2012.

The authorities have also explored the possibility of investing in transportation infrastructure around a main tourist destination (Lake Issyk-kul). Borrowings in this area could total approximately US$600 million and be financed on terms similar to those of the energy infrastructure projects. Given the uncertain growth effects and the possibility of a significantly worse debt outlook (Text Figure 1), the authorities have decided not to pursue this investment further at this stage. Consequently, this borrowing is not included in the baseline DSA projections.

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[3] The contribution to economic growth will come from increased domestic spending, which is not likely to be significant, as only around 10 percent of the disbursed financing from China will be spent domestically (the rest will be used to purchase imported equipment and labor).

[4] Kambarata-II (hydropower) was put in operation in 2010, but does not generate substantial volumes of electricity. Its contributions to exports and growth are therefore limited. Kambarata-I is a much larger project, but remains highly uncertain and is therefore excluded from this DSA, as from previous DSAs.

Box 1. Kyrgyz Republic: Baseline Macroeconomic Assumptions

Real GDP growth is projected to average about 6 percent over the medium term, underpinned by economic recovery from the shocks of 2009 and 2010, including a rebound in agricultural production and tourism and in line with strong recent growth in the main trading partners. Growth in the medium term would also be supported by infrastructure investments and strong mining production. Long-term growth would be generated by firm implementation of structural reforms to remove impediments to private investment, stimulate economic diversification, and improve the business climate, and is broadly in line with the historical average and with assumptions in the previous DSA.

After two successive years of contraction, exports would rebound somewhat in 2011, in line with developments in the mining and tourism sectors, and reflecting strong growth in the main trading partners. In the medium term, export growth will decelerate as the Kyrgyz Republic joins the Russia-Kazakhstan-Belarus customs union and transit trade declines. Import growth in 2011 would be strong, consistent with growth projections and reflecting the high price of crude oil. In the medium term, import growth will also decelerate with the loss of transit trade, but the high import content of energy infrastructure projects will dampen the deceleration somewhat. In the long-term, import growth would be in line with assumptions in the previous DSA, averaging around 6½ percent. As a result of these trends, the current account deficit would increase in 2011, but gradually improve, averaging about 5 percent of GDP in the long term.

With the exception of the energy infrastructure borrowing from China, medium-term public borrowing is assumed to be on highly concessional terms. Over the longer DSA horizon, concessionality of new external public borrowing would gradually decline from around 38 percent in 2011 to around 20 percent by 2031, as more borrowing is assumed to be contracted at less concessional terms.

In line with the programmed fiscal consolidation, government revenues are projected to increase from about 30 percent of GDP in 2011 to about 32 percent by 2016 and remain broadly stable at that level through 2031. After a wage-related increase in 2011, noninterest current expenditure would increase temporarily to about 33 percent of GDP before declining to about 30 percent of GDP by 2016. As a result, the primary fiscal deficit would deteriorate to 6.3 percent of GDP in 2011, but gradually improve to 2.4 percent of GDP by 2016. Fiscal consolidation and appropriately tight monetary policy will also help to maintain (GDP deflator) inflation at an average of around 7 percent over the medium term.

Text Table 1. Underlying DSA Assumptions

	2010		2011	2012	2013	2014	2015	2016	Long-term average	
	2010 DSA Proj.	Actual	2011 DSA Proj.						2010 DSA Proj.	2011 DSA Proj.
Real GDP growth (in percent)	-3.5	-1.4	6.0	6.0	6.0	5.8	5.8	5.7	5.0	5.1
Growth of exports of G&S (US dollar terms, in percent)	1.9	-6.2	23.9	8.7	8.1	14.6	12.5	12.1	6.1	6.3
Growth of imports of G&S (US dollar terms, in percent)	12.2	6.0	26.7	9.0	6.7	10.9	10.3	10.0	5.7	6.7
Primary deficit (percent of GDP)	10.9	5.5	6.3	6.2	6.0	5.9	3.3	2.4	-1.1	2.2
Inflation rate (GDP deflator, in percent)	9.3	6.9	11.4	7.7	5.5	6.5	5.3	4.8	4.1	4.1

Source: Country authorities and staff projections.

III. EXTERNAL DEBT SUSTAINABILITY ANALYSIS

A. Baseline

The baseline scenario points to a cautiously favorable improvement in the external debt outlook over time. At end-2010, the PV of debt-to-exports and the PV of debt-to-revenue ratios, at 62 and 119 percent respectively, were well below their policy-based indicative thresholds.[5] Only the PV of PPG debt-to-GDP ratio, at 34 percent in 2010, is close to its relevant threshold of 40 percent. This latter ratio then remains broadly stable through the medium term as energy-related disbursements offset growth gains, before returning to a sustainable path underpinned by solid growth, fiscal consolidation, and prudent debt management.

Debt service is expected to remain manageable throughout the DSA horizon. This reflects the high concessionality of both the outstanding multilateral debt and the assumed new borrowing over the medium term. The PPG debt service ratio would decline slightly from 3.6 percent of exports in 2010 to 2.9 percent in 2011 following debt relief from Russia and Turkey, and remain broadly at that level through the medium and long term.[6]

B. Alternative Scenarios and Stress Tests

Stress tests and alternative scenarios show that the Kyrgyz Republic's external debt is vulnerable to large shocks or substantially less favorable assumptions. The PV of the external debt-to-GDP ratio and the PV of the external debt-to-revenue rise above the relevant indicative thresholds under some tests. The PV of debt-to-GDP ratio rises above the indicative threshold of 40 percent in the medium term (or even over the longer term) when (i) export value growth is at historical average minus one standard deviation in 2012−13; (ii) the net non-debt creating inflows over 2012−13 are one standard deviation below their historical average; and (iii) under a shock over 2012−13 combining lower GDP and export growth, a decline in the US dollar GDP deflator, and lower net non-debt creating inflows. The ratio of PV of debt-to-revenue would also approach the relevant indicative threshold of

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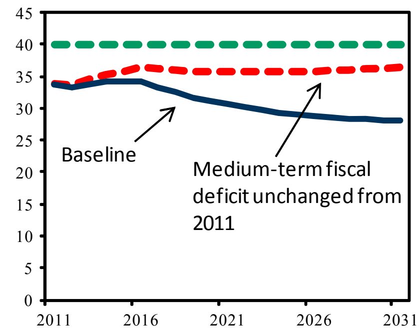
[5] The Kyrgyz Republic is rated as a *medium performer* based on the World Bank's Country Performance and Institutional Assessment Index for low income countries. The relevant policy-dependent thresholds for countries in this category are 40 percent for the PV of the debt-to-GDP ratio, 150 percent for the PV of debt-to-exports ratio, 250 percent for the PV of debt-to-revenue ratio, 20 percent of the debt service-to-exports ratio, and 30 percent of the debt service-to-revenue ratio.

[6] Under the debt-for-equity swap agreement signed between the previous Kyrgyz administration and the Russian authorities in 2009, the Russian side agreed to relinquish claims on the Kyrgyz Republic in the amount of US$193.5 million in exchange for a 100 percent stake in two state-owned companies in the Kyrgyz Republic. However, in early 2010, despite the Kyrgyz Republic appearing to have fulfilled all its obligations, the Russian side called in question the implementation of the agreement and declared the outstanding debt disputed. Since then the parties have been in close consultations to resolve this issue and a settlement is expected in 2011, as also assumed in the previous DSA.

250 percent in the medium term under the last two conditions. However, the PV of debt-to-exports ratio is robust and does not breach its threshold under various tests. Debt service ratios also prove resilient, staying below their indicative threshold levels under various tests. The historical scenario—where key macro variables evolve according to their historic averages—points to a more benign external debt outlook than the baseline scenario. However, an alternative scenario that assumes no fiscal consolidation in the medium term, financed by external borrowing, results in an unsustainable debt outlook, with the PV of debt-to-GDP following an upward trend (Text Figure 2).

Text Figure 2. PV of Debt to GDP with No Fiscal Consolidation



IV. Public Debt Sustainability Analysis

A. Baseline

Domestic debt is projected to increase and will play a more important role in financing the budget deficit in the medium and long term. Domestic debt accounted for around 3 percent of total public debt at end-2010. However, by 2031, domestic debt is projected to reach about 9 percent of total public debt as domestic financial markets deepen.

The Kyrgyz Republic's public debt outlook is projected to be manageable in the medium and long term. Under the baseline scenario, the PV of public debt-to-GDP ratio would increase slightly in the medium term from about 38 percent of GDP at end-2010 to a maximum of about 42 percent of GDP in 2016 following disbursements for energy-sector infrastructure. It would then decline gradually to about 37 percent by 2031 reflecting fiscal consolidation.

B. Alternative Scenarios and Stress Tests

Alternative scenarios and stress tests show that Kyrgyz Republic's public debt remains highly sensitive to shocks that reduce real GDP growth and result in unsustainable debt burden trajectories. The standard sensitivity analysis based on the historical variation of key parameters, including real GDP growth and exchange rate, shows that debt ratios would rise considerably in the long run. Under stress tests and scenarios, the PV debt-to-GDP ratio in 2031 could increase to about 80 percent under the permanent real GDP growth shock scenario and the fixed (at 2011 level) primary deficit scenario. In addition, debt burden trajectories are ever increasing if the long run growth rate turns out 0.8 percentage points below the current estimate.

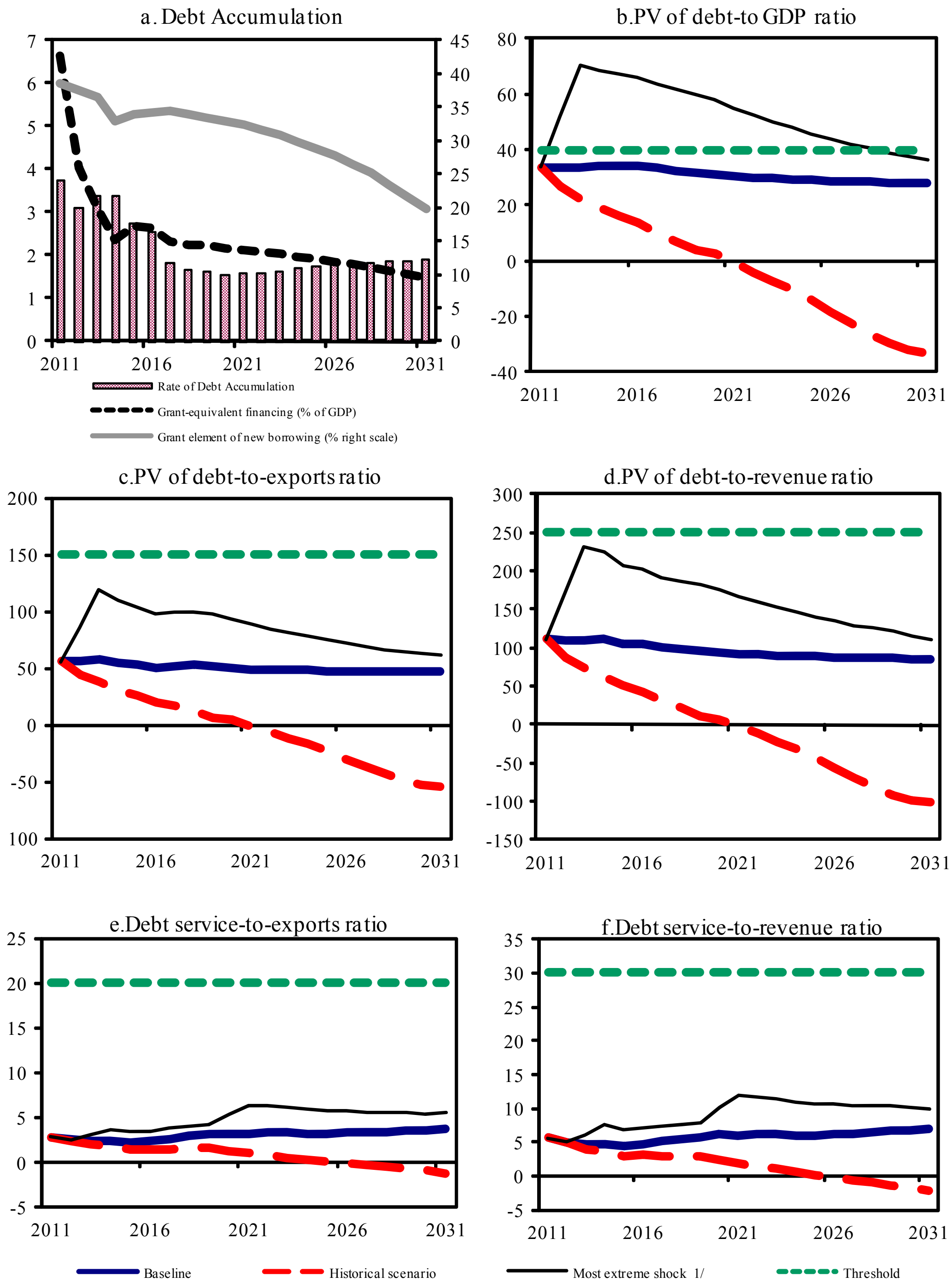
V. DEBT DISTRESS CLASSIFICATION AND CONCLUSIONS

Based on the projected external debt burden indicators, the Kyrgyz Republic is assessed to be at moderate risk of debt distress. All PV-based external debt indicators in the baseline are projected to stay below their indicative thresholds over the DSA horizon. Moreover, the debt service burden would remain well below the thresholds, reflecting the high concessionality of the external debt. Nevertheless, alternative scenarios and stress tests show that the external public debt indicators could approach or breach the thresholds if the Kyrgyz Republic were to experience large adverse exogenous shocks or relax its prudent debt management policy. This conclusion is consistent with the last DSA. When adding domestic debt to the analysis, total public sector debt seems manageable in light of the dynamics of the domestic debt stock. This said, debt burden trajectories are highly sensitive to real GDP shocks and a somewhat smaller long-run real growth rate.

Low-concessionality loans from bilateral and commercial creditors to finance large public investment projects continue to pose a risk to the debt outlook. Staff recognizes that the Kyrgyz Republic has large developmental needs, but considers paramount to lock in the recent progress towards achieving and maintaining debt sustainability. Even if loans have a grant element of at least 35 percent, it would be important to ensure that the underlying projects are viable and that market risks, including exchange rate risk, are accounted for, so as to avoid the buildup of an unsustainable debt burden. Similarly, it would remain important for the government to seek highly concessional loans, including in the energy sector.

The authorities broadly concurred with this analysis. They are highly concerned about maintaining debt sustainability and will remain vigilant on the debt outlook. Indeed, given the uncertain growth benefits and negative debt impact of the potential Issyk-kul road borrowing, the authorities do not plan to pursue that project further at this point. Looking forward, the authorities intend to make every effort to contract only concessional loans.

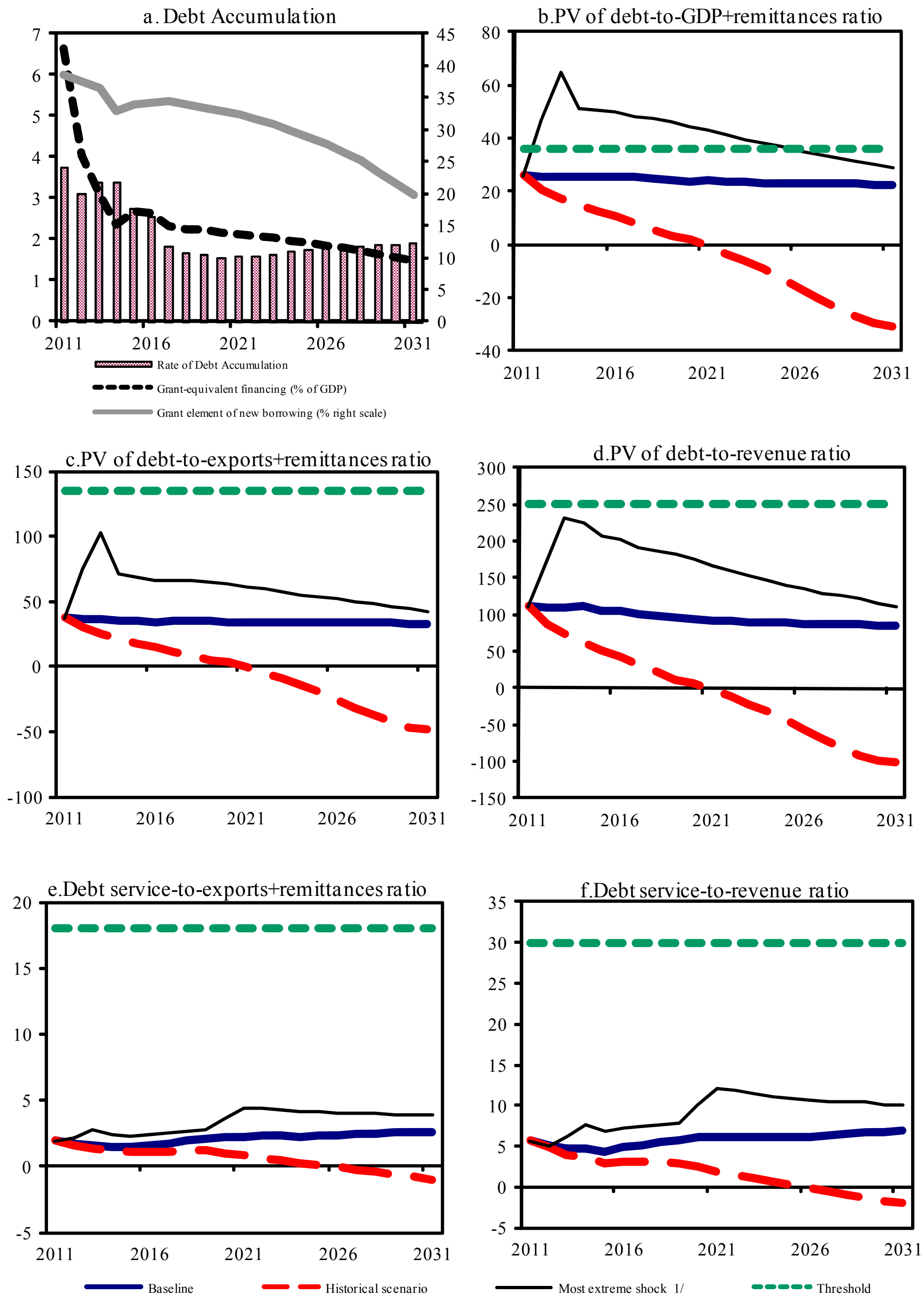
Figure 1. Kyrgyz Republic: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2011-2031 1/



Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2021. 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 figure f. to a Non-debt flows shock

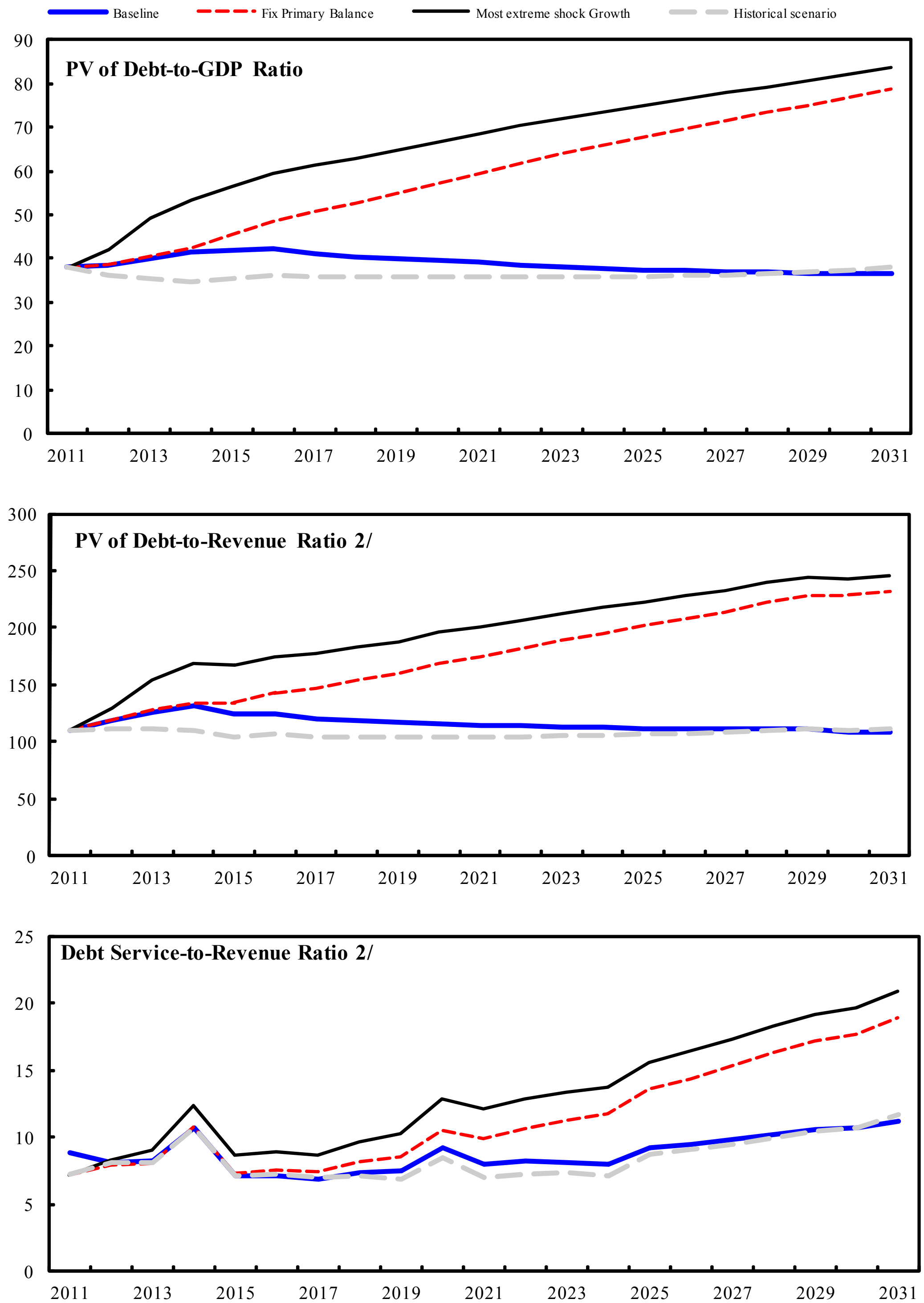
Figure 2. Kyrgyz Republic: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios Including Remittances, 2011-2031



Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2021. 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 figure f. to a Non-debt flows shock

Figure 3. Kyrgyz Republic: Indicators of Public Debt Under Alternative Scenarios, 2011-2031 1/



Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2021.

2/ Revenues are defined inclusive of grants.

Table 1a.Kyrgyz Republic: Public Sector Debt Sustainability Framework, Baseline Scenario, 2008-2031
(In percent of GDP, unless otherwise indicated)

	Actual					Estimate	Projections								
	2008	2009	2010	Average 5/	Standard Deviation	2011	2012	2013	2014	2015	2016	2011-16 Average	2021	2031	2017-31 Average
Public sector debt 1/	45.1	56.6	61.2			55.2	55.4	56.8	57.6	57.4	57.1		51.4	45.8	
o/w foreign-currency denominated	42.2	53.8	58.2			51.8	51.0	51.1	50.7	49.9	49.4		43.1	37.2	
Change in public sector debt	-14.6	11.5	4.6			-6.0	0.2	1.4	0.9	-0.2	-0.3		-0.8	-0.2	
Identified debt-creating flows	-9.9	5.5	7.0			-1.4	0.3	1.2	0.8	-0.6	-1.0		-0.5	-0.2	
Primary deficit	-1.4	3.0	5.5	2.3	1.9	6.3	6.2	6.0	5.9	3.3	2.4	5.0	2.2	2.1	2.2
Revenue and grants	29.9	32.1	31.7			34.6	32.3	31.6	31.2	33.6	33.6		33.8	33.8	
of which: grants	1.8	5.1	2.9			4.3	2.1	1.1	0.7	1.3	1.2		1.0	0.7	
Primary (noninterest) expenditure	28.5	35.1	37.2			41.0	38.4	37.5	37.1	36.9	36.1		36.0	35.9	
Automatic debt dynamics	-8.7	2.4	1.6			-6.2	-4.6	-3.6	-4.1	-3.7	-3.3		-2.7	-2.3	
Contribution from interest rate/growth differential	-5.1	-0.9	1.3			-3.3	-3.2	-3.4	-3.4	-3.5	-3.5		-2.7	-2.3	
of which: contribution from average real interest rate	-0.9	0.4	0.5			0.1	-0.1	-0.2	-0.3	-0.4	-0.4		-0.3	-0.1	
of which: contribution from real GDP growth	-4.2	-1.3	0.8			-3.5	-3.1	-3.2	-3.1	-3.2	-3.1		-2.4	-2.2	
Contribution from real exchange rate depreciation	-3.5	3.3	0.3			-2.8	-1.4	-0.2	-0.7	-0.1	0.1		...	...	
Other identified debt-creating flows	0.1	0.1	-0.1			-1.6	-1.3	-1.1	-1.0	-0.3	-0.1		0.0	0.0	
Privatization receipts (negative)	0.1	0.1	-0.1			-1.6	-1.3	-1.1	-1.0	-0.3	-0.1		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	
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	-4.7	6.0	-2.4			-4.6	-0.1	0.1	0.1	0.4	0.7		-0.3	0.0	
Other Sustainability Indicators															
PV of public sector debt	32.5	37.6	38.1			37.9	38.3	40.0	41.6	42.0	42.2		39.1	36.7	
o/w foreign-currency denominated	29.6	34.7	35.1			34.5	34.0	34.4	34.6	34.5	34.5		30.9	28.1	
o/w external	28.5	33.7	34.2			33.7	33.3	33.8	34.0	34.1	34.1		30.6	28.0	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	1.4	6.6	9.1			10.7	10.4	10.8	12.3	8.8	8.2		8.2	7.0	
PV of public sector debt-to-revenue and grants ratio (in percent)	108.8	116.9	120.1			109.4	118.9	126.8	133.3	125.1	125.6		115.8	108.4	
PV of public sector debt-to-revenue ratio (in percent)	115.9	138.9	132.2			124.8	127.3	131.6	136.4	130.2	130.4		119.4	110.9	
o/w external 3/	101.8	124.7	118.6			110.9	110.6	111.2	111.8	105.5	105.2		93.4	84.7	
Debt service-to-revenue and grants ratio (in percent) 4/	5.5	7.1	7.1			8.7	8.2	8.2	11.1	7.2	7.2		8.1	11.2	
Debt service-to-revenue ratio (in percent) 4/	5.9	8.5	7.8			9.9	8.8	8.5	11.4	7.5	7.5		8.3	11.5	
Primary deficit that stabilizes the debt-to-GDP ratio	13.2	-8.5	0.9			12.3	6.0	4.6	5.0	3.5	2.7		3.0	2.3	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	7.6	2.9	-1.4	4.0	3.7	6.0	6.0	6.0	5.8	5.8	5.7	5.9	4.7	5.1	5.1
Average nominal interest rate on forex debt (in percent)	0.9	1.2	1.1	1.3	0.4	0.7	0.7	0.8	0.8	0.9	1.0	0.8	1.2	1.7	1.3
Average real interest rate on domestic debt (in percent)	-7.8	10.4	5.5	0.1	5.5	3.8	9.6	7.4	3.8	1.7	1.5	4.7	0.1	0.1	0.1
Real exchange rate depreciation (in percent, + indicates depreciation)	-6.9	8.1	0.6	-5.7	7.0	-5.1	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	23.2	4.0	6.9	8.4	6.3	11.4	7.7	5.5	6.5	5.3	4.8	6.9	4.0	4.0	4.1
Growth of real primary spending (deflated by GDP deflator, in percent)	0.0	0.3	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1
Grant element of new external borrowing (in percent)	...	...	...	…	…	38.3	37.5	36.4	32.9	33.9	34.2	35.5	32.3	19.7	...

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 2a.Kyrgyz Republic: Sensitivity Analysis for Key Indicators of Public Debt 2011-2031

	Projections							
	2011	2012	2013	2014	2015	2016	2021	2031
PV of Debt-to-GDP Ratio								
Baseline	38	38	40	42	42	42	39	37
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	38	36	35	35	35	36	35	38
A2. Primary balance is unchanged from 2011	38	39	41	42	45	48	60	79
A3. Permanently lower GDP growth 1/	38	39	41	44	45	47	53	80
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2012-2013	38	42	49	53	57	60	68	83
B2. Primary balance is at historical average minus one standard deviations in 2012-2013	38	37	37	39	39	40	37	35
B3. Combination of B1-B2 using one half standard deviation shocks	38	37	38	42	44	47	53	64
B4. One-time 30 percent real depreciation in 2012	38	52	52	52	52	52	46	43
B5. 10 percent of GDP increase in other debt-creating flows in 2012	38	46	48	49	49	49	44	40
PV of Debt-to-Revenue Ratio 2/								
Baseline	109	119	127	133	125	126	116	108
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	109	111	112	111	104	107	104	110
A2. Primary balance is unchanged from 2011	109	120	128	136	134	144	176	233
A3. Permanently lower GDP growth 1/	109	121	131	140	134	139	155	236
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2012-2013	109	130	155	171	168	176	202	245
B2. Primary balance is at historical average minus one standard deviations in 2012-2013	109	114	118	124	117	118	109	105
B3. Combination of B1-B2 using one half standard deviation shocks	109	115	120	134	132	139	156	189
B4. One-time 30 percent real depreciation in 2012	109	161	165	168	155	153	137	127
B5. 10 percent of GDP increase in other debt-creating flows in 2012	109	144	151	157	146	145	131	118
Debt Service-to-Revenue Ratio 2/								
Baseline	9	8	8	11	7	7	8	11
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	7	8	8	11	7	7	7	12
A2. Primary balance is unchanged from 2011	7	8	8	11	7	8	10	19
A3. Permanently lower GDP growth 1/	7	8	8	11	8	8	10	19
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2012-2013	7	8	9	13	9	9	12	21
B2. Primary balance is at historical average minus one standard deviations in 2012-2013	7	8	8	11	7	7	8	11
B3. Combination of B1-B2 using one half standard deviation shocks	7	8	8	11	8	8	9	16
B4. One-time 30 percent real depreciation in 2012	7	9	10	13	9	10	11	16
B5. 10 percent of GDP increase in other debt-creating flows in 2012	7	8	9	12	8	8	10	12

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.

Table 3a.: External Debt Sustainability Framework, Baseline Scenario, 2008-2031 1/
(In percent of GDP, unless otherwise indicated)

	Actual			Historical 0 Average	0 Standard Deviation	Projections									
	2008	2009	2010			2011	2012	2013	2014	2015	2016	2011-2016 Average	2021	2031	2017-203 Average
External debt (nominal) 1/	**45.1**	**58.2**	**68.3**			**61.2**	**58.6**	**58.2**	**57.6**	**56.9**	**56.2**		**51.4**	**55.0**	
o/w public and publicly guaranteed (PPG)	41.2	52.8	57.3			51.0	50.3	50.5	50.1	49.4	48.9		42.9	37.1	
Change in external debt	-15.1	13.1	10.2			-7.2	-2.5	-0.4	-0.6	-0.7	-0.6		-0.4	1.1	
Identified net debt-creating flows	-12.7	-0.4	-2.1			0.9	0.6	-1.3	-1.9	-2.5	-2.4		-0.2	3.0	
Non-interest current account deficit	**7.5**	**-1.6**	**1.3**	**-0.4**	**4.0**	**7.7**	**7.2**	**5.2**	**4.6**	**3.9**	**3.8**		**5.0**	**7.8**	6.7
Deficit in balance of goods and services	33.3	21.1	29.8			35.0	35.0	33.6	32.1	31.4	30.9		31.3	32.5	
Exports	59.2	57.5	54.8			60.4	59.8	59.5	62.4	64.9	67.6		62.6	60.2	
Imports	92.5	78.6	84.6			95.4	94.8	93.1	94.5	96.3	98.5		94.0	92.7	
Net current transfers (negative = inflow)	-28.8	-25.8	-30.1	-19.1	9.8	-30.1	-31.3	-32.2	-34.2	-32.9	-32.7		-27.9	-26.4	-27.0
o/w official	-0.9	-4.2	-1.7			-0.2	0.0	0.0	0.0	0.0	0.0		-0.4	-0.2	
Other current account flows (negative = net inflow)	2.9	3.1	1.7			2.8	3.5	3.9	6.7	5.3	5.6		1.6	1.7	
Net FDI (negative = inflow)	**-5.2**	**-4.0**	**-5.1**	**-3.6**	**2.4**	**-4.2**	**-4.2**	**-4.2**	**-4.2**	**-4.2**	**-4.0**		**-3.8**	**-3.2**	-3.5
Endogenous debt dynamics 2/	**-15.0**	**5.3**	**1.6**			**-2.6**	**-2.4**	**-2.4**	**-2.3**	**-2.3**	**-2.2**		**-1.5**	**-1.6**	
Contribution from nominal interest rate	0.6	0.9	0.8			1.0	0.9	0.9	0.8	0.8	0.8		0.8	0.9	
Contribution from real GDP growth	-3.4	-1.4	0.8			-3.6	-3.3	-3.3	-3.1	-3.1	-3.0		-2.3	-2.5	
Contribution from price and exchange rate changes	-12.2	5.7	0.1			…	…	…	…	…	…		…	…	
Residual (3-4) 3/	**-2.5**	**13.5**	**12.3**			**-8.0**	**-3.1**	**0.9**	**1.3**	**1.8**	**1.8**		**-0.2**	**-1.9**	
o/w exceptional financing	-0.1	0.0	0.0			-4.7	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
PV of external debt 4/	...	...	45.2			43.8	41.6	41.5	41.5	41.5	41.4		39.2	45.9	
In percent of exports	...	...	82.5			72.6	69.5	69.6	66.5	63.9	61.1		62.5	76.2	
PV of PPG external debt	**...**	**...**	**34.2**			**33.7**	**33.3**	**33.8**	**34.0**	**34.1**	**34.1**		**30.6**	**28.0**	
In percent of exports	**...**	**...**	**62.3**			**55.8**	**55.6**	**56.8**	**54.6**	**52.5**	**50.4**		**48.8**	**46.6**	
In percent of government revenues	**...**	**...**	**118.6**			**110.9**	**110.6**	**111.2**	**111.8**	**105.5**	**105.2**		**93.4**	**84.7**	
Debt service-to-exports ratio (in percent)	**3.6**	**7.1**	**8.1**			**6.1**	**6.4**	**5.5**	**4.6**	**4.5**	**4.8**		**7.2**	**15.1**	
PPG debt service-to-exports ratio (in percent)	**2.5**	**3.2**	**3.6**			**2.8**	**2.5**	**2.4**	**2.3**	**2.2**	**2.3**		**3.2**	**3.8**	
PPG debt service-to-revenue ratio (in percent)	**5.2**	**6.7**	**6.9**			**5.7**	**5.0**	**4.7**	**4.8**	**4.4**	**4.9**		**6.2**	**6.9**	
Total gross financing need (Billions of U.S. dollars)	0.2	-0.1	0.0			0.4	0.4	0.3	0.2	0.2	0.2		0.6	3.0	
Non-interest current account deficit that stabilizes debt ratio	22.6	-14.7	-8.8			14.9	9.8	5.7	5.2	4.6	4.4		5.4	6.7	
Key macroeconomic assumptions															
Real GDP growth (in percent)	7.6	2.9	-1.4	4.0	3.7	6.0	6.0	6.0	5.8	5.8	5.7	5.9	4.7	5.1	5.1
GDP deflator in US dollar terms (change in percent)	25.4	-11.3	-0.1	9.2	10.6	6.0	3.6	2.5	3.4	2.3	1.7	3.2	2.0	2.0	2.0
Effective interest rate (percent) 5/	1.3	1.9	1.3	1.6	0.4	1.7	1.7	1.7	1.5	1.5	1.6	1.6	1.7	1.9	1.8
Growth of exports of G&S (US dollar terms, in percent)	35.4	-11.3	-6.2	17.8	21.5	23.9	8.7	8.1	14.6	12.5	12.1	13.3	7.7	6.5	6.3
Growth of imports of G&S (US dollar terms, in percent)	47.5	-22.4	6.0	22.2	25.7	26.7	9.1	6.7	10.9	10.3	10.0	12.3	7.0	7.6	6.7
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	38.3	37.5	36.4	32.9	33.9	34.2	35.5	32.3	19.7	28.9
Government revenues (excluding grants, in percent of GDP)	28.0	27.1	28.8			30.4	30.1	30.4	30.5	32.3	32.4		32.8	33.1	32.6
Aid flows (in Billions of US dollars) 7/	0.1	0.6	0.3			0.4	0.3	0.3	0.2	0.2	0.3		0.3	0.4	
o/w Grants	0.1	0.2	0.1			0.2	0.1	0.1	0.0	0.1	0.1		0.1	0.2	
o/w Concessional loans	0.0	0.4	0.1			0.2	0.2	0.2	0.2	0.1	0.2		0.2	0.3	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			6.6	4.0	3.1	2.3	2.7	2.6		2.1	1.5	1.9
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			63.8	56.1	47.9	41.3	49.8	49.5		47.8	33.0	43.7
Memorandum items:															
Nominal GDP (Billions of US dollars)	5.1	4.7	4.6			5.2	5.7	6.2	6.8	7.3	7.9		11.2	22.1	
Nominal dollar GDP growth	34.8	-8.7	-1.4			12.4	9.8	8.6	9.4	8.2	7.5	9.3	6.8	7.1	7.1
PV of PPG external debt (in Billions of US dollars)			1.5			1.7	1.9	2.1	2.3	2.5	2.6		3.4	6.1	
(PVt-PVt-1)/GDPt-1 (in percent)						3.6	3.1	3.4	3.4	2.8	2.5	3.1	1.6	1.9	1.7
Gross remittances (Billions of US dollars)	1.4	1.0	1.3			1.5	1.8	2.0	2.3	2.4	2.6		3.1	5.8	
PV of PPG external debt (in percent of GDP + remittances)	...	...	26.6			25.9	25.3	25.6	25.4	25.6	25.7		24.0	22.2	
PV of PPG external debt (in percent of exports + remittances)	...	...	41.0			37.3	36.5	36.8	35.2	34.8	33.9		34.0	32.5	
Debt service of PPG external debt (in percent of exports + remittances)	...	...	2.4			1.9	1.7	1.6	1.5	1.4	1.6		2.2	2.6	

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.
Also includes the effect of the financing gap, which is assumed to create debt, but does not enter the current or financial account.

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 3b.Kyrgyz Republic: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2011-2031
(In percent)

	Projections							
	2011	2012	2013	2014	2015	2016	**2021**	2031
PV of debt-to GDP ratio								
Baseline	34	33	34	34	34	34	**31**	28
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2011-2031 1/	34	26	22	19	16	13	**-1**	-33
A2. New public sector loans on less favorable terms in 2011-2031 2	34	34	36	37	38	39	**40**	45
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2012-2013	34	35	37	37	38	38	**34**	31
B2. Export value growth at historical average minus one standard deviation in 2012-2013 3/	34	38	48	47	47	46	**40**	31
B3. US dollar GDP deflator at historical average minus one standard deviation in 2012-2013	34	34	36	37	37	37	**33**	30
B4. Net non-debt creating flows at historical average minus one standard deviation in 2012-2013 4/	34	52	71	69	67	66	**55**	36
B5. Combination of B1-B4 using one-half standard deviation shocks	34	50	68	67	66	64	**54**	37
B6. One-time 30 percent nominal depreciation relative to the baseline in 2012 5/	34	46	47	47	47	47	**43**	39
PV of debt-to-exports ratio								
Baseline	56	56	57	55	52	50	**49**	47
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2011-2031 1/	56	44	38	31	25	20	**-1**	-55
A2. New public sector loans on less favorable terms in 2011-2031 2	56	57	60	59	59	58	**63**	75
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2012-2013	56	55	56	54	52	50	**48**	46
B2. Export value growth at historical average minus one standard deviation in 2012-2013 3/	56	72	102	96	91	86	**81**	66
B3. US dollar GDP deflator at historical average minus one standard deviation in 2012-2013	56	55	56	54	52	50	**48**	46
B4. Net non-debt creating flows at historical average minus one standard deviation in 2012-2013 4/	56	86	119	110	104	97	**88**	61
B5. Combination of B1-B4 using one-half standard deviation shocks	56	82	111	104	98	92	**84**	60
B6. One-time 30 percent nominal depreciation relative to the baseline in 2012 5/	56	55	56	54	52	50	**48**	46
PV of debt-to-revenue ratio								
Baseline	111	111	111	112	105	105	**93**	85
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2011-2031 1/	111	88	74	63	50	41	**-2**	-100
A2. New public sector loans on less favorable terms in 2011-2031 2	111	113	118	122	118	120	**121**	136
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2012-2013	111	115	122	123	116	116	**103**	94
B2. Export value growth at historical average minus one standard deviation in 2012-2013 3/	111	126	157	155	144	142	**122**	94
B3. US dollar GDP deflator at historical average minus one standard deviation in 2012-2013	111	115	120	120	114	113	**101**	92
B4. Net non-debt creating flows at historical average minus one standard deviation in 2012-2013 4/	111	171	232	226	208	204	**169**	110
B5. Combination of B1-B4 using one-half standard deviation shocks	111	165	225	220	203	199	**166**	112
B6. One-time 30 percent nominal depreciation relative to the baseline in 2012 5/	111	153	154	155	146	146	**130**	118

Table 3b.Kyrgyz Republic: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2011-2031 (continued)
(In percent)

Debt service-to-exports ratio

Baseline	3	3	2	2	2	2	**3**	4
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2011-2031 1/	3	2	2	2	1	1	**1**	-1
A2. New public sector loans on less favorable terms in 2011-2031 2	3	3	2	3	2	3	**4**	5
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2012-2013	3	3	2	2	2	2	**3**	4
B2. Export value growth at historical average minus one standard deviation in 2012-2013 3/	3	3	3	4	3	4	**6**	6
B3. US dollar GDP deflator at historical average minus one standard deviation in 2012-2013	3	3	2	2	2	2	**3**	4
B4. Net non-debt creating flows at historical average minus one standard deviation in 2012-2013 4/	3	3	3	4	3	3	**6**	6
B5. Combination of B1-B4 using one-half standard deviation shocks	3	3	3	4	3	3	**6**	5
B6. One-time 30 percent nominal depreciation relative to the baseline in 2012 5/	3	3	2	2	2	2	**3**	4

Debt service-to-revenue ratio

Baseline	6	5	5	5	4	5	**6**	7
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2011-2031 1/	6	5	4	4	3	3	**2**	-2
A2. New public sector loans on less favorable terms in 2011-2031 2	6	5	5	5	5	6	**7**	9
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2012-2013	6	5	5	5	5	5	**7**	8
B2. Export value growth at historical average minus one standard deviation in 2012-2013 3/	6	5	5	6	5	6	**8**	8
B3. US dollar GDP deflator at historical average minus one standard deviation in 2012-2013	6	5	5	5	5	5	**7**	8
B4. Net non-debt creating flows at historical average minus one standard deviation in 2012-2013 4/	6	5	6	8	7	7	**12**	10
B5. Combination of B1-B4 using one-half standard deviation shocks	6	5	6	8	7	7	**12**	10
B6. One-time 30 percent nominal depreciation relative to the baseline in 2012 5/	6	7	7	7	6	7	**9**	10
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	25	25	25	25	25	25	**25**	25

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 (implicitl 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.