INTERNATIONAL MONETARY FUND

BOLIVIA

External and Public Debt Sustainability Analysis

Prepared by the Staff of the International Monetary Fund[1]

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Following MDRI debt relief, Bolivia's public debt sustainability has continued to improve as a result of overall fiscal surpluses, and the risk of debt distress is low. Debt ratios continue to display ample margins with respect to risk thresholds and are expected to decline further under the baseline scenario. Debt service is projected to remain low, reflecting predominantly long maturities of remaining stocks of both domestic and foreign debt. The path of debt ratios would deteriorate somewhat under standard stress tests, but would remain within manageable bounds over the medium- and long run.

Background

1. **Bolivia's gross public debt (domestic and external) has fallen significantly over the last several years, benefiting from the MDRI and fiscal surpluses.** Between 2004 and 2008, gross debt has fallen by 50 percentage points of GDP to 38 percent of GDP in 2008. While multilateral external debt has fallen sharply, bilateral external debt has increased, driven by higher lending from South American countries, mainly Venezuela.

2. **Bolivia's changing debt structure and the accumulation of significant deposits have further reduced debt vulnerabilities.** Since 2005, average maturities have been successfully extended and foreign currency exposure has been reduced. Moreover, with the accumulation of deposits of the non-financial public sector in the financial system—amounting to about 21 percent of GDP at present—the solvency of the public sector measured by the net public debt (i.e., gross debt minus those deposits) has improved even more significantly. On account of declining gross debt, net debt ratios would reach very low levels during the projection period.

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[1] Since Bolivia is an IDA blend country, this DSA was not conducted jointly with the World Bank.

Baseline Scenario

3. **The main assumptions** of the baseline scenario for the period 2009–29 are:

- ***Average annual real GDP growth***: 4 percent until 2029. Potential growth is subject to significant upside risks, as discussed in Box 7 of the Staff Report.

- ***Average deflator inflation***: 2.4 percent per year on average until 2014, in line with the recent medium-term staff projections, and would increase to 3.5 percent over the long term.

- ***Export and import growth***: in line with the medium-term staff projections and the assumption of stable import and export ratios to GDP over the long term.

- ***Financing strategy:*** commercial debt is expected to remain nil, with CAF expected to remain as the main source of financing. Despite the overall balanced fiscal position, net external financing flows are expected to be positive until 2014. Likewise, complex intergovernmental fiscal relations may require some additional domestic financing. The excess funds at the level of the non-financial sector will continue to be accumulated as deposits.

- ***Average concessionality of the public sector borrowing***: projected to evolve, in the medium-term, based on projected disbursements of official loans.

Bolivia's public and external debt is expected to remain sustainable throughout the projection period, and the risk of debt distress is low. Bolivia is classified as a medium performer in terms of its policy and institutional capacity, measured by the three-year average of the World Bank's Country Policy and Institutional Assessment (CPIA) scores. All the debt burden indicators for Bolivia are well below the specific indicative thresholds for medium performers. Hence, Bolivia's risk of debt distress is low—an assessment that would hold even under significant stress tests. After a projected small deficit in 2010, the fiscal position would return to small surpluses in 2011–2014, with an average overall surplus of about 0.4 percent of GDP, and would remain at this level throughout the projection period. Under the baseline scenario, Bolivia's indebtedness and debt service levels would remain very manageable. Specifically, the gross non-financial sector public debt-to-GDP ratio—39 percent in 2009—is projected to decline gradually to 34 percent by 2014, and to 14 percent in 2029. A temporary increase in 2009 is due to net external financing and additional domestic bond issuance despite an overall surplus. The

Indicative Policy-Dependent Debt Thresholds for Medium Performers

	PV of debt, percent of			Debt service, percent of	
	Exports	GDP	Revenue	Exports	Revenue
Bolivia, 2009	46	14	44	5	5
Indicative thresholds	150	40	250	20	30

total stock of external debt (public and private) is projected to fall to about 22 percent of GDP by 2014, and to stabilize around 9 percent of GDP by 2029.

Stress Tests

4. **Standard stress tests suggest that the sustainability of Bolivia's public and external indebtedness is resilient to a series of shocks**. Under the most extreme stress test to external debt—a combined shock to debt concessionality, GDP growth, export growth, and external inflation—the ratio of the NPV of debt to GDP deteriorates somewhat and eventually returns to a downward trajectory. In all cases, it would remain well below risky levels. Flow indicators also remain manageable under all stress tests. For public debt, the biggest risk stems from a temporary or permanently lower GDP growth, however, tests indicate that ratios remain within manageable levels.

Table 1a.Bolivia: Public Sector Debt Sustainability Framework, Baseline Scenario, 2006-2029
(In percent of GDP, unless otherwise indicated)

	Actual					Estimate					Projections				
	2006	2007	2008	Average	Standard Deviation	2009	2010	2011	2012	2013	2014	2009-14 Average	2019	2029	2015-29 Average
Public sector debt 1/	55.2	40.9	37.5			39.4	37.4	36.1	35.1	34.4	33.5		24.3	14.2	
o/w foreign-currency denominated	37.4	25.0	21.6			22.1	21.3	21.0	20.9	20.9	20.8		15.3	9.0	
Change in public sector debt	-25.1	-14.3	-3.5			1.9	-2.0	-1.3	-1.0	-0.7	-0.8		-2.2	-1.4	
Identified debt-creating flows	-20.0	-11.0	-10.9			-0.8	-2.8	-2.7	-2.7	-2.5	-2.5		-2.3	-1.4	
Primary deficit	-7.0	-5.1	-6.4	-0.1	5.4	-2.7	-1.9	-2.3	-2.5	-2.3	-2.3	-2.3	-1.9	-1.7	-1.8
Revenue and grants	34.3	34.4	38.9			32.5	34.3	34.7	35.1	34.0	34.0		35.6	32.3	
of which: grants	1.8	1.6	1.2			1.0	1.1	1.1	1.1	1.1	1.1		1.2	1.2	
Primary (noninterest) expenditure	27.3	29.3	32.5			29.8	32.4	32.4	32.6	31.7	31.6		33.7	30.6	
Automatic debt dynamics	-10.6	-4.9	-5.6			1.8	-0.8	-0.4	-0.2	-0.2	-0.2		-0.4	0.2	
Contribution from interest rate/growth differential	-4.9	-1.8	-2.1			1.1	-0.3	-0.1	0.0	0.0	0.0		-0.1	0.4	
of which: contribution from average real interest rate	-1.2	0.6	0.3			2.3	1.2	1.3	1.4	1.4	1.3		0.9	1.0	
of which: contribution from real GDP growth	-3.7	-2.4	-2.4			-1.2	-1.5	-1.4	-1.4	-1.4	-1.3		-1.0	-0.6	
Contribution from real exchange rate depreciation	-5.6	-3.0	-3.5			0.7	-0.5	-0.3	-0.2	-0.2	-0.2		...	...	
Other identified debt-creating flows	-2.4	-1.0	1.0			0.1	-0.2	0.0	0.0	0.0	0.0		0.0	0.0	
Privatization receipts (negative)	0.0	0.8	1.6			0.3	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recognition of implicit or contingent liabilities	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Debt relief (HIPC and other)	-2.4	-1.8	-0.5			-0.2	-0.2	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	-5.2	-3.3	7.5			2.7	0.9	1.4	1.7	1.8	1.7		0.0	0.0	
Other Sustainability Indicators															
PV of public sector debt	29.9	26.5	36.3			39.5	39.4	39.2	39.1	39.4	39.4		34.3	20.6	
o/w foreign-currency denominated	12.1	10.5	20.4			22.2	23.3	24.1	24.8	25.9	26.7		25.3	15.4	
o/w external	...	...	11.6			13.9	15.7	17.0	18.2	19.6	20.8		21.2	13.0	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	5.6	9.8	3.6			5.0	5.6	4.8	4.4	4.4	4.3		3.9	3.3	
PV of public sector debt-to-revenue and grants ratio (in percent)	87.1	76.9	93.3			121.4	114.9	112.9	111.4	115.7	116.0		96.5	63.7	
PV of public sector debt-to-revenue ratio (in percent)	92.1	80.8	96.4			125.3	118.7	116.6	115.0	119.5	119.9		99.9	66.2	
o/w external 3/	…	…	30.9			44.1	47.2	50.6	53.5	59.6	63.4		61.7	41.9	
Debt service-to-revenue and grants ratio (in percent) 4/	22.4	35.3	21.9			14.7	13.3	12.5	12.0	11.9	11.8		10.4	11.7	
Debt service-to-revenue ratio (in percent) 4/	23.6	37.0	22.6			15.2	13.8	12.9	12.3	12.3	12.1		10.7	12.1	
Primary deficit that stabilizes the debt-to-GDP ratio	18.1	9.2	-2.9			-4.6	0.1	-1.0	-1.5	-1.6	-1.5		0.4	-0.2	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	4.8	4.6	6.1	3.8	2.3	3.3	4.0	4.0	4.0	4.0	4.0	3.9	4.0	4.0	4.0
Average nominal interest rate on forex debt (in percent)	3.5	4.8	5.7	4.1	1.1	6.1	5.7	6.0	6.0	6.0	6.1	6.0	6.5	8.3	7.1
Average real interest rate on domestic debt (in percent)	-6.8	0.0	-2.7	-2.0	2.9	8.9	2.6	3.3	3.9	4.0	3.9	4.4	1.8	7.1	3.4
Real exchange rate depreciation (in percent, + indicates depreciation)	-10.0	-8.3	-14.5	-4.0	7.9	3.1	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	13.7	7.4	10.4	7.5	3.6	-1.5	4.1	3.4	2.8	2.7	2.8	2.4	3.5	3.5	3.5
Growth of real primary spending (deflated by GDP deflator, in percent)	-0.1	0.1	0.2	0.1	0.1	-0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grant element of new external borrowing (in percent)	...	...	...	…	…	8.3	10.6	13.3	15.6	15.2	13.9	12.8	12.4	10.8	...

Sources: Country authorities; and staff estimates and projections.
1/ Non-financial public sector 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.
5/ Historical averages and standard deviations are generally derived over the past 10 years, subject to data availability.

Table 2a.Bolivia: Sensitivity Analysis for Key Indicators of Public Debt 2009-2029

	Projections							
	2009	2010	2011	2012	2013	2014	2019	2029
PV of Debt-to-GDP Ratio								
Baseline	39	39	39	39	39	39	34	21
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	39	41	43	45	48	50	52	47
A2. Primary balance is unchanged from 2009	39	38	38	37	37	37	28	7
A3. Permanently lower GDP growth 1/	39	40	40	40	41	42	44	50
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2010-2011	39	41	43	45	47	48	50	45
B2. Primary balance is at historical average minus one standard deviations in 2010-2011	39	46	53	53	53	52	45	28
B3. Combination of B1-B2 using one half standard deviation shocks	39	44	49	50	51	51	48	38
B4. One-time 30 percent real depreciation in 2010	39	50	50	50	51	51	47	32
B5. 10 percent of GDP increase in other debt-creating flows in 2010	39	49	49	48	48	48	41	25
PV of Debt-to-Revenue Ratio 2/								
Baseline	121	115	113	111	116	116	97	64
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	121	120	124	129	140	146	145	147
A2. Primary balance is unchanged from 2009	121	112	109	106	109	108	79	22
A3. Permanently lower GDP growth 1/	121	116	115	115	121	124	123	155
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2010-2011	121	120	125	128	137	141	139	138
B2. Primary balance is at historical average minus one standard deviations in 2010-2011	121	135	154	151	155	154	126	86
B3. Combination of B1-B2 using one half standard deviation shocks	121	129	142	142	149	151	136	116
B4. One-time 30 percent real depreciation in 2010	121	145	143	142	149	150	133	100
B5. 10 percent of GDP increase in other debt-creating flows in 2010	121	144	140	138	142	141	116	78
Debt Service-to-Revenue Ratio 2/								
Baseline	15	13	12	12	12	12	10	12
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	15	13	13	12	13	13	12	17
A2. Primary balance is unchanged from 2009	15	13	12	12	12	12	10	10
A3. Permanently lower GDP growth 1/	15	13	13	12	12	12	12	17
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2010-2011	15	14	13	13	13	13	12	17
B2. Primary balance is at historical average minus one standard deviations in 2010-2011	15	13	13	14	14	13	12	14
B3. Combination of B1-B2 using one half standard deviation shocks	15	14	13	13	13	13	12	16
B4. One-time 30 percent real depreciation in 2010	15	15	15	14	14	14	13	16
B5. 10 percent of GDP increase in other debt-creating flows in 2010	15	13	14	13	13	13	11	13

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, 2006-2029 1/
(In percent of GDP, unless otherwise indicated)

	Actual			Historical Average	Standard Deviation	Projections									
	2006	2007	2008			2009	2010	2011	2012	2013	2014	2009-2014 Average	2019	2029	2015-2029 Average
External debt (nominal) 1/	38.4	25.3	22.0			22.6	21.9	21.7	21.6	21.8	21.8		16.0	9.1	
o/w public and publicly guaranteed (PPG)	28.2	16.1	14.3			15.3	15.2	15.4	15.8	16.3	16.6		12.4	7.4	
Change in external debt	-24.6	-13.0	-3.3			0.6	-0.7	-0.2	0.0	0.1	0.0		-1.0	-0.5	
Identified net debt-creating flows	-24.3	-19.0	-19.3			-7.0	-4.6	-3.7	-3.8	-3.9	-3.7		-3.1	-2.1	
Non-interest current account deficit	-13.3	-13.6	-13.1	-6.4	6.9	-4.5	-3.4	-2.9	-3.0	-3.1	-3.1		-2.9	-2.1	-2.7
Deficit in balance of goods and services	-7.7	-6.1	-7.6			-1.1	-0.1	0.2	0.1	0.0	0.3		0.4	0.7	
Exports	37.8	37.3	41.8			30.1	31.5	31.8	31.3	30.9	30.4		30.5	30.9	
Imports	30.0	31.2	34.2			29.0	31.4	31.9	31.3	30.9	30.7		30.9	31.6	
Net current transfers (negative = inflow)	-7.1	-9.5	-7.7	-6.4	1.6	-5.8	-5.7	-5.5	-5.4	-5.3	-5.4		-4.4	-2.9	-4.0
o/w official	-2.6	-1.7	-1.2			-0.8	-1.1	-1.1	-1.1	-1.1	-1.0		-0.8	-0.3	
Other current account flows (negative = net inflow)	1.5	2.1	2.3			2.4	2.4	2.4	2.4	2.2	2.0		1.1	0.1	
Net FDI (negative = inflow)	-2.4	-2.1	-2.2	-2.9	3.8	-2.9	-1.4	-1.2	-1.4	-1.3	-1.2		-0.8	-0.4	-0.7
Endogenous debt dynamics 2/	-8.5	-3.3	-4.0			0.5	0.2	0.4	0.5	0.5	0.5		0.6	0.3	
Contribution from nominal interest rate	2.1	1.8	1.1			1.1	1.1	1.2	1.4	1.4	1.4		1.2	0.7	
Contribution from real GDP growth	-2.5	-1.5	-1.2			-0.7	-0.8	-0.8	-0.8	-0.8	-0.8		-0.6	-0.4	
Contribution from price and exchange rate changes	-8.2	-3.6	-3.8			...	...	...	...	...	...		...	...	
Residual (3-4) 3/	-0.3	5.9	15.9			7.6	3.9	3.5	3.8	4.0	3.7		2.1	1.7	
o/w exceptional financing	0.0	-0.1	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
PV of external debt 4/	...	...	19.4			21.2	22.4	23.3	24.0	25.1	26.0		24.8	14.7	
In percent of exports	...	...	46.3			70.3	71.1	73.3	76.9	81.3	85.4		81.1	47.7	
PV of PPG external debt	...	...	11.6			13.9	15.7	17.0	18.2	19.6	20.8		21.2	13.0	
In percent of exports	...	...	27.8			46.1	49.8	53.6	58.1	63.5	68.6		69.5	42.2	
In percent of government revenues	...	...	30.9			44.1	47.2	50.6	53.5	59.6	63.4		61.7	41.9	
Debt service-to-exports ratio (in percent)	23.5	34.1	19.0			8.2	7.4	7.3	7.3	6.9	6.9		7.6	5.5	
PPG debt service-to-exports ratio (in percent)	16.4	28.0	16.9			5.5	4.9	4.6	4.5	4.2	4.4		5.8	4.6	
PPG debt service-to-revenue ratio (in percent)	19.1	31.8	18.8			5.3	4.6	4.4	4.1	4.0	4.0		5.2	4.6	
Total gross financing need (Billions of U.S. dollars)	-0.1	0.1	-0.8			-0.4	0.0	0.1	0.1	0.0	0.0		0.2	0.2	
Non-interest current account deficit that stabilizes debt ratio	11.3	-0.5	-9.8			-5.1	-2.7	-2.7	-2.9	-3.2	-3.1		-1.9	-1.6	
Key macroeconomic assumptions															
Real GDP growth (in percent)	4.8	4.6	6.1	3.8	2.3	3.3	4.0	4.0	4.0	4.0	4.0	3.9	4.0	4.0	4.0
GDP deflator in US dollar terms (change in percent)	14.9	10.3	17.7	6.3	8.4	2.8	4.1	3.4	2.8	2.7	2.8	3.1	3.5	3.5	3.5
Effective interest rate (percent) 5/	4.1	5.4	5.3	7.9	8.8	5.5	5.1	6.1	6.7	6.7	6.7	6.1	7.6	7.7	7.6
Growth of exports of G&S (US dollar terms, in percent)	32.7	13.9	40.1	18.6	14.8	-23.6	13.2	8.4	5.2	5.6	5.1	2.3	7.8	7.8	7.8
Growth of imports of G&S (US dollar terms, in percent)	20.7	19.8	37.1	10.8	14.5	-10.0	17.3	9.3	4.8	5.4	6.1	5.5	7.9	7.9	7.9
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	8.3	10.6	13.3	15.6	15.2	13.9	12.8	12.4	10.8	11.8
Government revenues (excluding grants, in percent of GDP)	32.5	32.7	37.7			31.5	33.2	33.6	34.0	32.9	32.9		34.4	31.1	33.4
Aid flows (in Billions of US dollars) 7/	0.5	0.4	0.5			0.3	0.4	0.5	0.5	0.6	0.6		0.7	1.2	
o/w Grants	0.2	0.2	0.2			0.2	0.2	0.2	0.2	0.3	0.3		0.4	0.9	
o/w Concessional loans	0.3	0.2	0.2			0.1	0.2	0.3	0.3	0.3	0.3		0.3	0.3	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			1.3	1.5	1.6	1.6	1.6	1.6		1.5	1.3	1.4
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			28.3	29.5	33.7	36.6	35.4	35.5		42.4	56.1	46.4
Memorandum items:															
Nominal GDP (Billions of US dollars)	11.5	13.3	16.6			17.6	19.1	20.5	21.9	23.4	25.0		36.2	75.9	
Nominal dollar GDP growth	20.4	15.3	24.9			6.2	8.3	7.5	6.9	6.8	6.9	7.1	7.7	7.7	7.7
PV of PPG external debt (in Billions of US dollars)			2.0			2.4	3.0	3.5	4.0	4.6	5.2		7.7	9.9	
(PVt-PVt-1)/GDPt-1 (in percent)						2.6	3.1	2.6	2.4	2.8	2.6	2.7	1.2	0.2	0.9

Sources: Country authorities; and staff estimates and projections.

1/ Includes both public and private sector external debt.

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

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

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

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

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

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

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

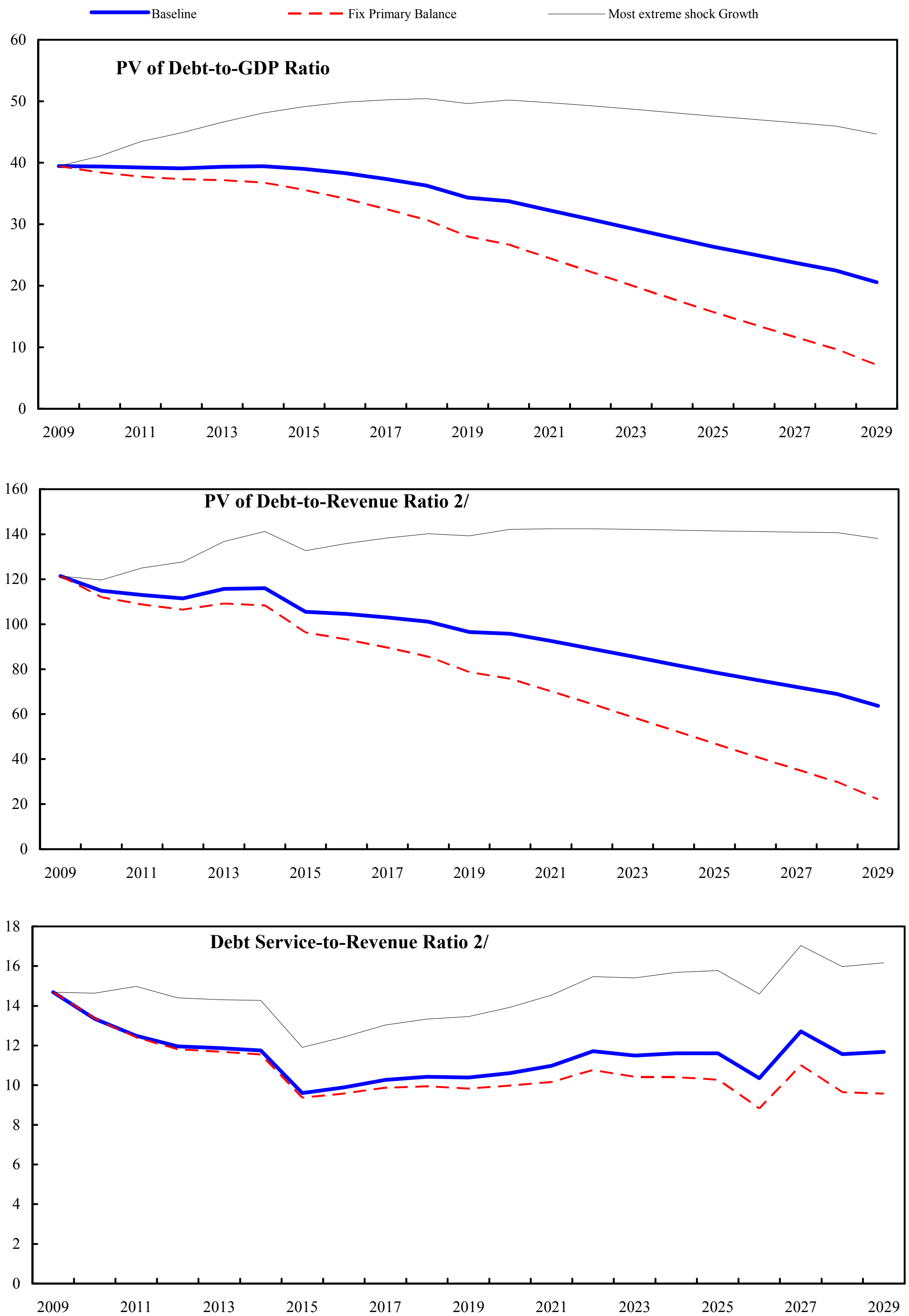
Table 3b.Bolivia: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2009-2029
(In percent)

	Projections							
	2009	2010	2011	2012	2013	2014	**2019**	2029
PV of debt-to GDP ratio								
Baseline	14	16	17	18	20	21	**21**	13
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	14	11	7	3	0	-3	**-21**	-50
A2. New public sector loans on less favorable terms in 2009-2029 2	14	17	19	21	23	25	**28**	22
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	14	16	18	19	20	21	**21**	12
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	14	18	23	24	25	26	**24**	13
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	14	17	19	20	21	23	**23**	13
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010-2011 4/	14	18	22	23	24	25	**23**	13
B5. Combination of B1-B4 using one-half standard deviation shocks	14	17	19	20	21	23	**22**	13
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	14	22	24	25	27	28	**28**	17
PV of debt-to-exports ratio								
Baseline	46	50	54	58	64	69	**69**	42
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	46	35	23	11	1	-10	**-70**	-161
A2. New public sector loans on less favorable terms in 2009-2029 2	46	53	59	67	75	82	**91**	70
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	46	49	53	57	62	66	**66**	38
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	46	62	81	86	91	96	**89**	47
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	46	49	53	57	62	66	**66**	38
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010-2011 4/	46	59	70	73	78	82	**77**	41
B5. Combination of B1-B4 using one-half standard deviation shocks	46	54	56	60	65	69	**68**	39
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	46	49	53	57	62	66	**66**	38
PV of debt-to-revenue ratio								
Baseline	44	47	51	54	60	63	**62**	42
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	44	33	21	10	1	-9	**-62**	-160
A2. New public sector loans on less favorable terms in 2009-2029 2	44	50	56	61	70	76	**81**	69
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	44	48	52	55	61	64	**61**	40
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	44	54	68	69	75	78	**69**	41
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	44	50	56	59	65	69	**66**	43
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010-2011 4/	44	56	66	68	73	76	**68**	41
B5. Combination of B1-B4 using one-half standard deviation shocks	44	52	57	59	65	69	**64**	41
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	44	66	70	74	82	86	**82**	54
Debt service-to-exports ratio								
Baseline	5	5	5	5	4	4	**6**	5
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	5	5	4	3	2	2	**-1**	-9
A2. New public sector loans on less favorable terms in 2009-2029 2	5	5	5	5	5	4	**6**	7
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	5	5	5	4	4	4	**6**	4
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	5	5	6	6	5	6	**8**	6
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	5	5	5	4	4	4	**6**	4
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010-2011 4/	5	5	5	5	5	5	**7**	5
B5. Combination of B1-B4 using one-half standard deviation shocks	5	5	5	5	4	4	**6**	4
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	5	5	5	4	4	4	**6**	4
Debt service-to-revenue ratio								
Baseline	5	5	4	4	4	4	**5**	5
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	5	5	4	3	2	2	**-1**	-9
A2. New public sector loans on less favorable terms in 2009-2029 2	5	5	4	4	4	4	**6**	7
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	5	5	5	4	4	4	**5**	5
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	5	5	5	5	5	5	**6**	5
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	5	5	5	5	4	4	**6**	5
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010-2011 4/	5	5	5	5	4	4	**6**	5
B5. Combination of B1-B4 using one-half standard deviation shocks	5	5	5	4	4	4	**6**	5
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	5	7	6	6	6	6	**7**	6
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	7	7	7	7	7	7	**7**	7

Sources: Country authorities; and staff estimates and projections.

1/ Variables include real GDP growth, growth of GDP deflator (in U.S. dollar terms), non-interest current account in percent of GDP, and non-debt creating flows.
2/ Assumes that the interest rate on new borrowing is by 2 percentage points higher than in the baseline., while grace and maturity periods are the same as in the baseline.
3/ Exports values are assumed to remain permanently at the lower level, but the current account as a share of GDP is assumed to return to its baseline level after the shock (implicitly assuming an offsetting adjustment in import levels).
4/ Includes official and private transfers and FDI.
5/ Depreciation is defined as percentage decline in dollar/local currency rate, such that it never exceeds 100 percent.
6/ Applies to all stress scenarios except for A2 (less favorable financing) in which the terms on all new financing are as specified in footnote 2.

Figure 1.Bolivia: Indicators of Public Debt Under Alternative Scenarios, 2009-2029 1/

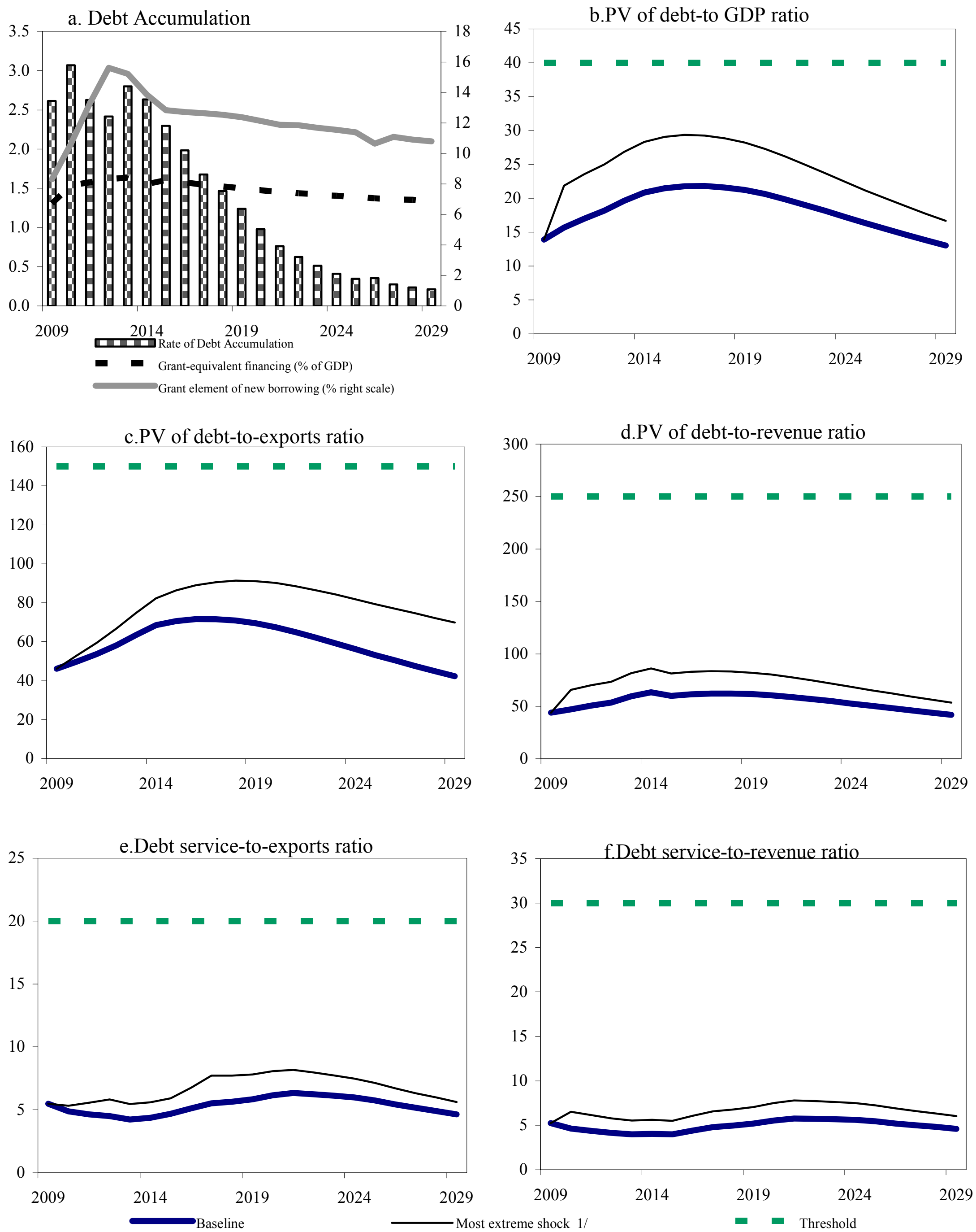


Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2019.

2/ Revenues are defined inclusive of grants.

Figure 2. Bolivia: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2009-2029 1/



Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2019. In figure b. it corresponds to a One-time depreciation shock; in c. to a Terms shock; in d. to a One-time depreciation shock; in e. to a Exports shock and in figure f. to a One-time depreciation shock