

INTERNATIONAL MONETARY FUND AND  
INTERNATIONAL DEVELOPMENT ASSOCIATION

ISLAMIC REPUBLIC OF MAURITANIA

**Debt Sustainability Analysis**

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*The joint IMF-World Bank low-income country debt sustainability analysis (LIC DSA) shows that on the basis of a relatively conservative assumption on the volume of prospective oil exports, a reasonable non-oil growth assumption, and a positive outcome of current negotiations of debt in arrears, Mauritania is at moderate risk of debt distress.<sup>1</sup> Under the baseline scenario, all debt burden indicators remain below their policy-dependent indicative thresholds, except for a marginal breach of threshold for the NPV of debt-to-GDP ratio. However, stress tests indicate that Mauritania is somewhat vulnerable to adverse shocks, notably the risk of lower-than-projected growth of GDP and exports. The public DSA, which takes into account the large accumulation of external assets in the oil fund, suggests that Mauritania's overall public sector debt dynamics are sustainable in light of the current size and the evolution of the domestic debt stock while remaining vulnerable to some shocks.*

**I. BACKGROUND**

1. **The last DSA was undertaken after the country received substantial HIPC and MDRI relief.**<sup>2</sup> This analysis updates the long-term macroeconomic framework presented in the last DSA. In particular, the revised projections reflect new information on (a) the real sector; (b) debt stocks; and (c) the outcome of the Consultative Group Meeting in December 2007.

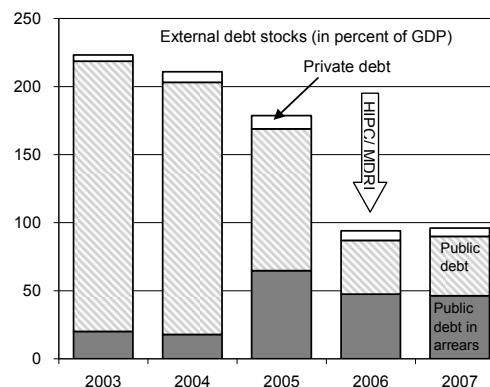
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<sup>1</sup> The external and public sector LIC DSAs presented in this document are based on the common standard LIC DSA framework. See "Debt Sustainability in Low-Income Countries: Proposal for an Operational Framework and Policy Implications" (<http://www.imf.org/external/np/pdr/sustain/2004/020304.htm> and IDA/SECM2004/0035, 2/3/04) and "Debt Sustainability in Low-Income Countries: Further Considerations on an Operational Framework, Policy Implications" (<http://www.imf.org/external/np/pdr/sustain/2004/091004.htm> and IDA/SECM2004/0629, 9/10/04) and "Applying the Debt Sustainability Framework for Low-Income Countries Post Debt Relief" (IDA/SecM2006-0564, 8/11/06).

<sup>2</sup> See IMF Country Report 07/43, Appendix II, and World Bank, "Mauritania: Joint Bank-Fund Debt Sustainability Analysis", February, 2007.

2. **The evolution of the publicly guaranteed external debt over the past years was mainly influenced by the HIPC debt relief and MDRI assistance. Mauritania reached its completion point under the HIPC Initiative in 2002 and received MDRI assistance in 2006.**

**In particular, MDRI assistance brought Mauritania's total external debt down from almost 170 percent of GDP at end-2005 to below 100 percent at end-2006.** However, there remains a large proportion of debt in arrears that has not yet been treated under the HIPC initiative. These arrears were estimated at US\$1.2 billion at end-2007, representing about half of Mauritania's total external nominal debt and contributing disproportionately to its NPV.<sup>3</sup>



3. **After a long process of consolidation of central bank (BCM) claims and domestic arrears, Mauritania's stock of gross domestic public debt stabilized at approximately 19.7 percent of GDP at end-2006,** consisting of central bank claims on the treasury (equivalent to 14.3 percent of GDP), and short-term treasury bills mostly held by banks (equivalent to 5.5 percent of GDP). Most arrears toward domestic suppliers were eliminated in 2006. BCM's consolidated claims on the government comprise two types of instruments: claims repayable over 30 years with an average interest rate of 4.65 percent, and interest-free provision for accumulated foreign exchange losses, repayable over 37 years, with a grace period extending until 2015.

## II. UNDERLYING DSA ASSUMPTIONS

4. **The macroeconomic framework underlying the DSA is consistent with the government's medium-term reform program.** The framework is characterized by a relatively conservative scenario for oil revenues and sustained non-oil GDP growth, and a realistic set of assumptions about economic policies and outcomes (Table 1; Box 1). It is assumed that oil resources are limited and that their extraction will end by 2027. The baseline scenario features a transitory decrease in oil production in 2008–11. As a result of a spur in FDI in extractive industries, production subsequently is expected to peak at 62,000 barrels per day in 2014 and gradually decline to close to zero in 2027. Under this profile, the cumulative oil production reaches about 300 million barrels corresponding to the estimated

<sup>3</sup> These arrears originate from liabilities that were considered to be "passive debt". They were thus excluded from HIPC calculations because there was no indication that the respective creditors (Libya, Kuwait, Algeria, the United Arab Emirates, and the Arab Organization of Petroleum Exporting Countries) were requesting the repayment of these debts. Since the HIPC completion point, these creditors have indicated that the claims have not been waived. There has been no debt service paid on these debts for several years. After resolution with three creditors the largest remaining portion of arrears is owed to Kuwait (about \$1 billion, mostly consisting of late interest charges). The rest is with Libya, amounting to about \$200 million.

cumulative capacity of the existing Chinguetti deep offshore oil field and other fields to be developed, including Tiof. Regarding the non-oil economy, it is assumed that there will be a spurt of growth early on reflecting the ongoing new mining developments and the step-up in public investment. Real GDP growth projections remain moderate, and do not take into account the impact of very large FDI-financed projects currently under discussion and yet to be quantified. Average annual inflation should gradually decline to 5 percent in 2012 and stay at this level during the remainder of the projection period.

5. **Outstanding arrears to Kuwait and Libya are assumed to be treated in 2008 and 2009.**<sup>4</sup> Following this resolution and a surge of disbursements as a consequence of the Consultative Group meeting, the gross external debt is expected to decrease gradually from 63.6 percent to 27.4 percent of GDP between 2008 and 2027. Simultaneously, deposits are assumed to accumulate on the oil fund that could reach 23.4 percent of GDP in 2027.

6. **An ambitious public investment program between 2008 and 2012 is projected to be financed by donor funds pledged at the recent Consultative Group meeting.** The framework underlying this DSA assumes disbursement of \$1.6 billion of loans and grants pledged over 2008–12. This financial aid represents an average annual gross aid inflow of about 12 percent of GDP between 2008 and 2012. Beyond 2012, the framework assumes continued significant but lower foreign borrowing. Some blending with nonconcessional resources is expected to become more prominent over the medium to long term, driving the projected average grant element on new borrowing down from an average of 51.9 percent in 2008–13 to 40.3 percent by 2018 and finally to 22.2 percent by 2027.<sup>5</sup>

7. **As in the previous DSA, the external DSA is presented on a gross basis (i.e., excluding the oil reserve fund from external debt).** The current framework maintains some accumulation of oil reserves, as opposed to an early repayment of external debt as the return on assets in the oil fund is higher than the cost of predominantly concessional external debt, and with a view to maintaining a liquidity buffer to respond to potential adverse shocks, including in oil prices or production. However, the public debt analysis is conducted on a net basis (that is, after netting out the oil reserve fund from external debt), in light of the liquidity of oil reserves deposited at the French Central Bank, the transparency and security of the oil fund, and its nature (for liquidity rather than intergenerational purposes).

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<sup>4</sup> Under the LIC DSA guidelines for post completion point countries, the baseline scenario should incorporate HIPC and MDRI relief. Accordingly, the LIC DSA assumes debt relief by Kuwait and Libya in line with the debt reduction required under HIPC. See “Staff Guidance Note on the Application of the Joint Bank-Fund Debt Sustainability Framework for Low-Income Countries” available at [www.imf.org](http://www.imf.org) and [www.worldbank.org](http://www.worldbank.org).

<sup>5</sup> All NPV calculations are based on a unified discount rate of 5 percent per annum.

### Box 1: Baseline Macroeconomic Assumptions

**Real GDP growth:** Real non-oil GDP growth is projected to be sustained at 6.2 percent per year on average over 2008-12, reflecting the step-up in public investment mobilized at the recent Consultative Group meeting and an increase in mining production capacity. After 2013, growth returns to a sustainable level averaging 4 percent per year.

**Inflation:** After a peak in 2008 resulting from high international food and fuel prices, consumer price inflation is projected to decline gradually to 5 percent by 2012. It is projected to remain at 5 for the remaining projection period.

**Current account balance:** The current account deficit is expected to peak at about 21 percent of GDP in 2011, mainly driven by FDI and aid-financed imports. After that, a reversal of this balance is expected once oil exports pick up bringing the current account to a surplus of 10 percent of GDP in 2015. Thereafter, the current account position is expected to deteriorate gradually, returning to deficits of 6-7 percent of GDP by the end of the projection period.

**Government balances:** The framework assumes the following: (a) non-oil revenue remains stable at about 23 percent of non-oil GDP throughout the period; (b) grants return to their historical average in 2013; and (c) oil revenue including interest on oil fund will peak at 11 percent in 2014 before declining by approximately 10 percent a year until 2027. The government's non-oil deficit including grants is projected to improve gradually from 8 percent to about 2 percent of non-oil GDP between 2008 and 2027. The projected primary balance improves from a deficit of 3.6 percent of GDP in 2014 to a surplus of 0.7 percent of GDP in 2027.

**External assistance and scaling up:** The framework assumes full realization of the additional aid resources pledged at the December 2007 consultative group meeting amounting to an average of 10 percent of GDP of additional inflows, which almost triples previous expectations of aid inflows in this period. 46 percent of the aid inflows between 2008 and 2012 are assumed to come in the form of concessional loans. The remainder consists of grants.

**Domestic borrowing:** Oil revenue should allow reimbursing the consolidated long-term debt to the BCM in full by 2016 and halving the level of short-term debt by 2018.

**Real interest rates:** The compound real interest rate of the consolidated long-term debt vis-à-vis the BCM amounts to 3 percent. The real interest rate of the short-term domestic debt (treasury bills) approaches 10 percent.

### III. EXTERNAL DSA

8. **The analysis shows that Mauritania's external debt is at a moderate risk of debt distress.**<sup>6</sup> The analysis was conducted under the debt sustainability framework for low-income countries (LICs). Throughout, the debt burden thresholds used for the analysis

<sup>6</sup> According to the LIC DSA guidelines, the existence of arrears could suggest that a country is in debt distress, unless there are other reasons than debt-service burden for not servicing its debt. Despite having substantial arrears to external creditors, Mauritania is not assessed as being in debt distress because its arrears are related to debts that were previously categorized as "passive".

are those applying to poor performers. According to the World Bank CPIA rating, Mauritania's policies and institutions are assessed as those corresponding to a "poor performer".<sup>7</sup> The debt-burden thresholds for countries in this category are: (a) the NPV of the debt-to-exports of goods and services of 100 percent; (b) NPV of the debt-to-GDP of 30 percent; and (c) NPV of the debt-to-fiscal revenues of 200 percent. The relevant debt service ratios are: (a) 15 percent of exports of goods and services; and (b) 25 percent of revenues.

9. All indicators of the NPV of the external debt would remain under the policy dependent threshold throughout the period except for a short and slight breach between 2010-13 **of the NPV of debt-to-GDP (Figure 1)**. This outcome critically depends on the resolution of outstanding arrears under Cologne terms. In the absence of such resolution, the NPV of external debt would exceed all thresholds. These ratios are calculated on a gross basis and do not take into account the accumulated external assets in the oil fund. Under the assumption of a return on oil fund assets of 5 percent, the ratios of NPV of *net* external debt would become negative after 2021, indicating that the discounted present value of returns on assets in the oil fund would outweigh the present value of expected external debt service.

10. **The less favorable outcome obtained from the stress tests reflects the moderate vulnerability of external debt solvency to adverse shocks.** Under the historical scenario—which assumes that key macroeconomic variables evolve in line with the record of the past seven years, where oil revenues were limited—all NPV ratios of the external debt would eventually deteriorate above the thresholds. Additional tests assessing the impact of less favorable lending conditions—specifically, new borrowing at 2 percentage points higher interest rates—also yield less favorable sustainability outcomes for the NPV of external debt-to-GDP ratio (Table 3). Under the "most extreme stress test",<sup>8</sup> all indicators except the external debt service-to-revenue ratio would breach their thresholds (Table 3; Figure 1).

#### IV. PUBLIC DSA

11. **Under the baseline assumptions, the NPV of net government debt-to-GDP ratio is projected to decline continuously over the projection period.** The fiscal sustainability

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<sup>7</sup> In the LIC DSA framework, the quality of a country's policies and institutions is measured by the World Bank's Country Policy and Institutional Assessment (CPIA) index, and classified into three categories: strong, medium and poor. The latest CPIA rating for Mauritania in 2006 is 3.28, bringing the 3-year average to 3.23, below the 3.25 threshold (see <http://siteresources.worldbank.org/IDA/Resources/tablesCPR.pdf>). The 2007 CPIA is currently being finalized by the World Bank. A further improvement is expected. However, this would not affect the overall risk assessment which would remain at moderate even with elevated thresholds.

<sup>8</sup> For the NPV of debt-to-GDP and the NPV of debt-to-revenue ratios this corresponds to a combination of real GDP growth at historical average minus half a standard deviation, export value growth at historical average minus half a standard deviation, U.S. dollar GDP deflator at historical average minus half a standard deviation, and net nondebt creating flows at historical average minus one standard deviation in 2009–10. For the NPV of debt-to-exports and the debt service-to-exports ratios, this corresponds to export value growth at historical average minus one standard deviation in 2009–10.

analysis largely mirrors the external DSA: the long-term sustainability of the public debt rests crucially on the resolution of debt arrears and the materialization of oil revenues, and the disbursement of aid pledged at the Consultative Group meeting. Under the current framework, the sharp increase in oil revenue concomitant to the final disbursements from the CG meeting financial aid allows (a) the reimbursement of consolidated long-term debt to the BCM in full by 2016; and (b) the reduction by half of the level of short term debt by 2018. Gross public debt is projected to decrease from 110.5 percent of GDP to 40.4 percent between 2006 and 2017 (eventually reaching 31.1 percent of GDP in 2027). The reduction in public debt net of deposits on the oil fund is even more pronounced in the second decade, with the NPV of net government debt-to-GDP ratio decreasing from 57.1 percent in 2006 to 19.9 percent in 2017, and 8.8 percent in 2027.

12. **The prospects of long-term fiscal sustainability could worsen under adverse circumstances simulated by the stress tests.** Under the “most extreme” stress test (featuring real GDP growth to its historical average minus one standard deviation in 2008–09), the NPV of net public debt-to-GDP and the NPV of the net public debt-to-revenue ratio would exhibit unsustainable upward trends. If GDP growth was about 1 percentage point lower than under the base line over the entire projection period, the NPV of net public debt-to-GDP would hover between 20 percent and 50 percent. If, however, real GDP growth and the primary deficit remained at the average level of the past ten years, the outcome would quite closely reflect projections under the baseline scenario (Table 5).

## V. DEBT DISTRESS CLASSIFICATION AND CONCLUSIONS

13. This LIC DSA presented here shows that on the basis of a relatively conservative assumption on the volume of prospective oil exports, a reasonable non-oil growth assumption, and a positive outcome of current negotiations of debt in arrears, Mauritania’s risk of debt distress remains moderate. The overall risk of debt distress is even lower when the NPV of debt is taken net of assets in the oil fund. This assessment, which is in line with the last DSA, is contingent on a positive outcome of current negotiations of arrears clearances and a realization of the concessionality objective for the recently pledged scaling up of aid. The analysis highlights Mauritania’s vulnerability to GDP and exports shocks. It is thus critical that Mauritania continues to pursue a cautious borrowing strategy, limited exclusively to concessional borrowing, and improves its debt management.

Table 1. Macroeconomic Framework, 2007–27

	Projections 1/									
	2007	2008	2009	2010	2011	2012	2013	2014–20	2021–27	2008–27
<b>Economic growth and prices</b>										
	Percentage change									
Real GDP	1.0	5.0	6.8	5.7	6.0	12.7	6.2	4.0	3.9	4.9
Non oil Real GDP	5.9	5.7	5.9	6.2	6.6	6.8	4.3	4.4	4.8	5.0
Implicit non-oil GDP deflator	13.4	19.0	3.7	1.5	2.2	3.1	4.8	5.1	5.0	5.2
Consumer price index (period average)	7.3	12.5	9.5	6.5	5.5	5.0	5.0	5.0	5.0	5.7
Consumer price index , eop	7.4	12.0	7.0	6.0	5.0	5.0	5.0	5.0	5.0	5.5
<b>Investment and Savings</b>										
	In percent of GDP									
<b>Consumption</b>	92.0	86.8	82.7	86.4	87.4	76.8	73.0	76.5	89.0	82.6
Government	21.7	21.9	18.8	19.0	19.2	15.7	14.6	14.9	16.4	16.4
Nongovernment	70.3	64.9	63.9	67.4	68.2	61.1	58.4	61.6	72.6	66.1
<b>Gross investment</b>	22.4	21.9	21.8	26.6	34.4	22.1	17.5	15.3	16.5	18.3
Oil-related	5.3	4.2	4.7	8.2	15.4	6.3	3.7	0.8	0.4	2.5
Non-oil related investment	17.0	17.8	17.1	18.4	19.0	15.8	13.8	14.5	16.1	15.8
Government	6.0	6.8	6.7	7.2	7.9	6.8	5.4	5.8	6.5	6.4
Nongovernment	16.4	15.1	15.1	19.4	26.5	15.3	12.1	9.5	10.0	12.0
<b>Gross savings</b>	11.0	15.7	18.8	15.4	13.1	19.6	22.9	22.6	13.1	17.8
Government	2.3	-0.3	3.3	2.9	3.9	7.8	7.7	8.8	6.4	6.6
Nongovernment	8.7	16.0	15.5	12.4	9.2	11.8	15.1	13.8	6.7	11.2
<b>Consolidated government operations</b>										
	In percent of non-oil GDP									
Revenue and grants	27.2	27.4	25.9	25.0	25.7	25.1	22.9	23.2	21.4	23.2
<i>Of which</i> : non-oil revenue	25.0	24.6	23.0	21.8	23.1	17.3	13.3	14.5	16.9	17.1
Revenue, excluding grants	24.8	24.3	22.7	22.4	21.9	21.8	21.8	22.6	21.1	22.1
<i>Of which</i> : tax revenue	15.7	15.6	15.5	15.6	15.7	16.0	16.4	18.2	18.0	17.4
non- oil tax revenue	15.7	15.1	15.0	14.5	14.7	13.6	13.5	15.3	16.6	15.5
Expenditure and net lending	32.1	34.1	30.9	31.0	31.2	30.7	28.9	28.5	27.2	28.9
Primary expenditure	30.1	32.7	29.2	29.2	29.7	29.3	27.5	27.7	26.6	27.9
<i>Of which</i> : capital	8.6	9.7	10.1	10.3	11.1	11.4	9.5	10.0	9.7	10.0
Interest (net)	2.0	1.4	1.7	1.8	1.5	1.4	1.4	0.8	0.6	1.0
Non-oil balance excluding grants	-7.3	-9.8	-8.2	-8.6	-9.3	-8.9	-7.1	-5.9	-6.1	-6.8
Non-oil balance including grants	-4.9	-6.7	-5.0	-6.0	-5.5	-5.6	-6.0	-5.3	-5.8	-5.6
	In percent of GDP									
<b>Current account</b> (including official transfers and oil)	-11.4	-6.3	-3.0	-11.2	-21.3	-2.5	5.4	7.3	-3.3	-0.6
Balance of goods and services	-14.4	-8.7	-4.5	-13.0	-21.8	1.1	9.5	8.2	-5.4	-0.9
Exports	54.6	58.6	56.0	51.6	48.7	55.9	55.9	48.4	36.5	46.1
Imports	68.9	67.3	60.4	64.6	70.5	54.8	46.4	40.2	42.0	47.0
Net income	-2.2	-3.8	-4.6	-3.9	-5.5	-8.3	-6.9	-3.6	-0.7	-3.2
Net transfers	5.1	6.2	6.1	5.6	6.0	4.7	2.7	2.8	2.8	3.5
	In percent of non-oil GDP, unless otherwise specified.									
<b>Memorandum items:</b>										
Nominal GDP (in billions of ouguiyas)	734.2	904.8	1,026.4	1,087.9	1,158.7	1,523.8	1,749.0	2,489.6	4,183.7	2,708.2
External public debt outstanding (in US\$ million)	2,536.0	1,816.4	1,877.4	2,236.6	2,545.4	2,831.2	3,078.1	3,370.9	3,786.6	3,224.4
Financial assets of the government net of external debt (US\$ million)	2,595.1	1,870.2	1,948.7	2,335.6	2,652.0	3,085.2	3,545.0	5,103.0	6,881.2	4,966.3
Gross official reserves of the BCM (US\$ million)	208.8	330.4	345.7	416.7	506.1	724.4	941.6	1,271.2	1,729.2	1,213.4
GNP per capita (US\$)	931.6	1,150.5	1,257.9	1,300.6	1,330.2	1,650.2	1,850.0	2,219.8	2,666.2	2,137.1
Population (millions)	3.0	3.0	3.1	3.2	3.3	3.3	3.4	3.8	4.4	3.8
Mauritania's price of oil (US\$/barrel)	65.8	91.1	89.5	88.3	87.8	87.5	87.5	95.6	111.3	99.0
Annual production of oil (millions of barrels)	5.5	3.9	5.5	4.9	4.0	15.4	20.1	20.7	11.4	13.9

Sources: Mauritanian authorities; and staff estimates and projections.

1/ For the last three columns, average unless otherwise specified.

Table 2. External Debt Sustainability Framework, Baseline Scenario, 2007–27 1/

(In percent of GDP, unless otherwise indicated)

	Actual		Historical		Projections							2014–27 Average	
	2007	2008	Average 6/	Standard Deviation 6/	2008	2009	2010	2011	2012	2013	2008–13 Average		2017
<b>External debt (nominal) 1/</b>	<b>96.1</b>	<b>56.9</b>			<b>56.9</b>	<b>53.8</b>	<b>59.7</b>	<b>63.0</b>	<b>53.1</b>	<b>50.7</b>		<b>43.7</b>	<b>32.8</b>
Of which: public and publicly guaranteed (PPG)	89.9	50.1			45.8	45.8	52.0	55.5	47.2	45.4		39.2	28.8
Change in external debt	1.9	-37.2			-5.1	-1.7	6.0	3.3	-9.9	-2.4		-1.2	-1.1
Identified net debt-creating flows	2.5	-0.3			2.4	2.4	2.4	2.4	-6.5	-6.0		-5.2	2.7
<b>Noninterest current account deficit</b>	<b>10.5</b>	<b>5.2</b>	<b>13.2</b>	<b>16.7</b>	<b>2.1</b>	<b>10.2</b>	<b>20.2</b>	<b>1.6</b>	<b>-6.2</b>	<b>-6.2</b>		<b>-8.4</b>	<b>6.5</b>
Deficit in balance of goods and services	14.4	8.7	4.5	13.0	21.8	-1.1	9.5	-8.1	10.4			-8.1	10.4
Exports	54.6	58.6			56.0	51.6	48.7	55.9	55.9	55.9		48.0	31.8
Imports	68.9	67.3			60.4	64.6	70.5	54.8	46.4	39.8		42.2	42.2
Net current transfers (negative = inflow)		-5.1		1.8	-6.2	-6.1	-5.6	-6.0	-4.7	-2.7		-2.7	-2.7
Of which: official	-2.6	-4.1			-4.1	-4.1	-3.5	-3.9	-2.8	-0.9		-0.9	-0.5
Other current account flows (negative = net inflow)	1.3	2.8			3.7	2.8	4.4	7.4	6.0	6.0		2.5	-1.1
<b>Net FDI (negative = inflow)</b>	<b>-4.9</b>	<b>-2.8</b>	<b>-10.6</b>	<b>13.7</b>	<b>-1.1</b>	<b>-5.9</b>	<b>-15.6</b>	<b>-2.8</b>	<b>2.3</b>	<b>2.3</b>		<b>4.2</b>	<b>-3.7</b>
<b>Endogenous debt dynamics 2/</b>	<b>-3.2</b>	<b>-2.7</b>			<b>-2.6</b>	<b>-1.9</b>	<b>-2.3</b>	<b>-5.3</b>	<b>-2.1</b>	<b>-2.1</b>		<b>-0.9</b>	<b>-0.2</b>
Contribution from nominal interest rate	0.9	1.0			0.9	1.0	1.1	0.9	0.8	0.8		0.7	0.7
Contribution from real GDP growth	-0.9	-3.7			-3.5	-2.9	-3.4	-6.1	-2.9	-2.9		-1.7	-0.8
Contribution from price and exchange rate changes	-3.1	...			...	...	...	...	...	...		...	...
<b>Residual (3-4) 3/</b>	<b>-0.5</b>	<b>-36.9</b>			<b>-3.4</b>	<b>3.5</b>	<b>0.9</b>	<b>-3.4</b>	<b>3.6</b>	<b>3.6</b>		<b>4.0</b>	<b>-3.8</b>
Of which: exceptional financing	1.4	-29.5			-5.0	0.3	0.3	0.2	0.0	0.0		0.0	0.0
NPV of external debt 4/	81.3	41.8			37.7	41.8	44.2	37.3	36.0	31.8		31.8	21.9
In percent of exports	148.9	71.3			67.4	81.0	90.8	66.7	64.4	66.2		66.2	69.0
<b>NPV of PPG external debt</b>	<b>75.1</b>	<b>33.0</b>			<b>29.8</b>	<b>34.1</b>	<b>36.8</b>	<b>31.4</b>	<b>30.7</b>	<b>27.2</b>		<b>27.2</b>	<b>18.0</b>
In percent of exports	137.7	56.3			53.2	66.0	75.5	56.2	54.9	56.7		56.7	56.5
<b>Debt service-to-revenue ratio (in percent)</b>	<b>317.7</b>	<b>142.9</b>			<b>145.1</b>	<b>163.6</b>	<b>176.8</b>	<b>182.2</b>	<b>187.9</b>	<b>152.7</b>		<b>152.7</b>	<b>91.8</b>
Debt service-to-exports ratio (in percent)	0.8	3.4			4.0	3.8	4.2	3.0	2.9	2.9		5.1	9.8
PPG debt service-to-exports ratio (in percent)	0.1	2.7			3.4	2.9	3.3	2.4	2.4	2.4		4.5	9.1
PPG debt service-to-revenue ratio (in percent)	0.1	7.0			9.2	7.2	7.7	7.7	8.1	8.1		12.1	14.8
Total gross financing need (billions of U.S. dollars)	0.2	0.2			0.1	0.3	0.3	0.0	-0.2	-0.2		-0.2	0.8
Non-interest current account deficit that stabilizes debt ratio	8.6	42.5			7.1	4.2	17.0	11.5	-3.8	-3.8		-7.2	7.6
<b>Key macroeconomic assumptions</b>													
Real GDP growth (in percent)	1.0	5.0	4.4	3.2	5.0	6.8	5.7	6.0	12.7	6.2	7.1	3.9	2.5
GDP deflator in U.S. dollar terms (change in percent)	3.4	22.5	3.6	13.7	5.8	-0.7	0.5	16.1	6.5	6.5	8.4	0.9	4.0
Effective interest rate (percent) 5/	1.0	0.7	0.5	1.4	1.7	2.0	1.9	1.8	1.8	1.8	1.8	1.7	2.1
Growth of exports of G&S (U.S. dollar terms, in percent)	5.9	16.9	16.9	36.3	38.0	7.9	-3.2	0.6	50.2	13.0	17.8	0.9	2.0
Growth of imports of G&S (U.S. dollar terms, in percent)	23.5	14.7	14.7	26.0	25.5	1.5	12.2	16.4	1.7	-4.3	8.8	5.2	6.3
Grant element of new public sector borrowing (in percent)	...	...	...	...	42.4	38.8	38.4	37.9	41.4	34.2	38.9	30.5	17.0
Aid flows (in billions of U.S. dollars) 7/	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Of which: Grants	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.0
Concessional loans	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grant-equivalent financing (in percent of GDP) 8/	...	...	...	...	6.4	6.3	5.2	6.0	4.8	2.3	1.0	0.7	0.9
Grant-equivalent financing (in percent of external financing) 8/	...	...	...	...	56.2	49.0	47.3	55.4	59.8	43.9	42.5	22.2	35.3
Memorandum items:													
Nominal GDP (billions of U.S. dollars)	2.8	3.6	4.1	4.3	4.3	4.6	6.0	6.8	6.8	6.8	8.7	14.1	0.4
(NPV-NPV <sub>t-1</sub> )/GDP <sub>t-1</sub> (in percent)	-32.7	0.6	6.0	5.1	4.3	3.3	-2.2	0.5	0.3	0.3			

Source: Staff simulations.

- 1/ Includes both public and private sector external debt.
- 2/ Derived as  $[r - g - r(1+g)] / (1+g+r)$  times previous period debt ratio, with  $r$  = nominal interest rate;  $g$  = real GDP growth rate, and  $r$  = growth rate of GDP deflator in U.S. dollar terms.
- 3/ Includes exceptional financing (i.e., changes in arrears and debt relief); changes in gross foreign assets; and valuation adjustments. For projections also includes contribution from price and exchange rate changes.
- 4/ Assumes that NPV 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 NPV of new debt).



Table 3. Sensitivity Analyses for Key Indicators of Public and Publicly Guaranteed External Debt, 2008–27

(In percent)

	Projections								
	2008	2009	2010	2011	2012	2013	2017	2023	2027
<b>NPV of debt-to-GDP ratio</b>									
<b>Baseline</b>	33	30	34	37	31	31	27	22	18
<b>A. Alternative Scenarios</b>									
A1. Key variables at their historical averages in 2009–28 1/	33	31	32	31	34	38	50	46	31
A2. New public sector loans on less favorable terms in 2009–28 2/	33	32	38	42	37	37	35	33	31
<b>B. Bound Tests</b>									
B1. Real GDP growth at historical average minus one standard deviation in 2009–10	33	31	38	41	35	34	30	24	20
B2. Export value growth at historical average minus one standard deviation in 2009–10 3/	33	41	60	62	52	50	40	29	20
B3. U.S. dollar GDP deflator at historical average minus one standard deviation in 2009–10	33	35	44	48	41	40	35	29	23
B4. Net nondebt creating flows at historical average minus one standard deviation in 2009–10 4/	33	33	44	46	39	38	32	25	19
B5. Combination of B1-B4 using one-half standard deviation shocks	33	38	48	51	43	42	36	28	22
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	33	42	48	51	44	43	38	31	25
<b>NPV of debt-to-exports ratio</b>									
<b>Baseline</b>	56	53	66	75	56	55	57	58	56
<b>A. Alternative Scenarios</b>									
A1. Key variables at their historical averages in 2008–27 1/	56	56	62	65	61	68	104	121	97
A2. New public sector loans on less favorable terms in 2008–27 2/	56	57	74	87	66	66	72	88	97
<b>B. Bound Tests</b>									
B1. Real GDP growth at historical average minus one standard deviation in 2009–10	56	53	66	75	56	55	57	58	56
B2. Export value growth at historical average minus one standard deviation in 2009–10 3/	56	98	188	206	149	143	136	121	102
B3. U.S. dollar GDP deflator at historical average minus one standard deviation in 2009–10	56	53	66	75	56	55	57	58	56
B4. Net nondebt creating flows at historical average minus one standard deviation in 2009–10 4/	56	59	85	95	70	68	67	65	59
B5. Combination of B1-B4 using one-half standard deviation shocks	56	65	83	94	69	67	67	67	62
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	56	53	66	75	56	55	57	58	56
<b>Debt service-to-exports ratio</b>									
<b>Baseline</b>	3	3	3	3	2	2	5	8	9
<b>A. Alternative Scenarios</b>									
A1. Key variables at their historical averages in 2009–28 1/	3	4	3	3	3	3	6	12	14
A2. New public sector loans on less favorable terms in 2009–28 2/	3	3	3	4	3	3	5	8	11
<b>B. Bound Tests</b>									
B1. Real GDP growth at historical average minus one standard deviation in 2009–10	3	3	3	3	2	2	5	8	9
B2. Export value growth at historical average minus one standard deviation in 2009–10 3/	3	5	6	8	5	5	13	18	20
B3. U.S. dollar GDP deflator at historical average minus one standard deviation in 2009–10	3	3	3	3	2	2	5	8	9
B4. Net nondebt creating flows at historical average minus one standard deviation in 2009–10 4/	3	3	3	4	3	3	6	9	10
B5. Combination of B1-B4 using one-half standard deviation shocks	3	4	3	4	3	3	6	9	10
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	3	3	3	3	2	2	5	8	9
Memorandum item:									
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	22	22	22	22	22	22	22	22	22

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 nondebt 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.

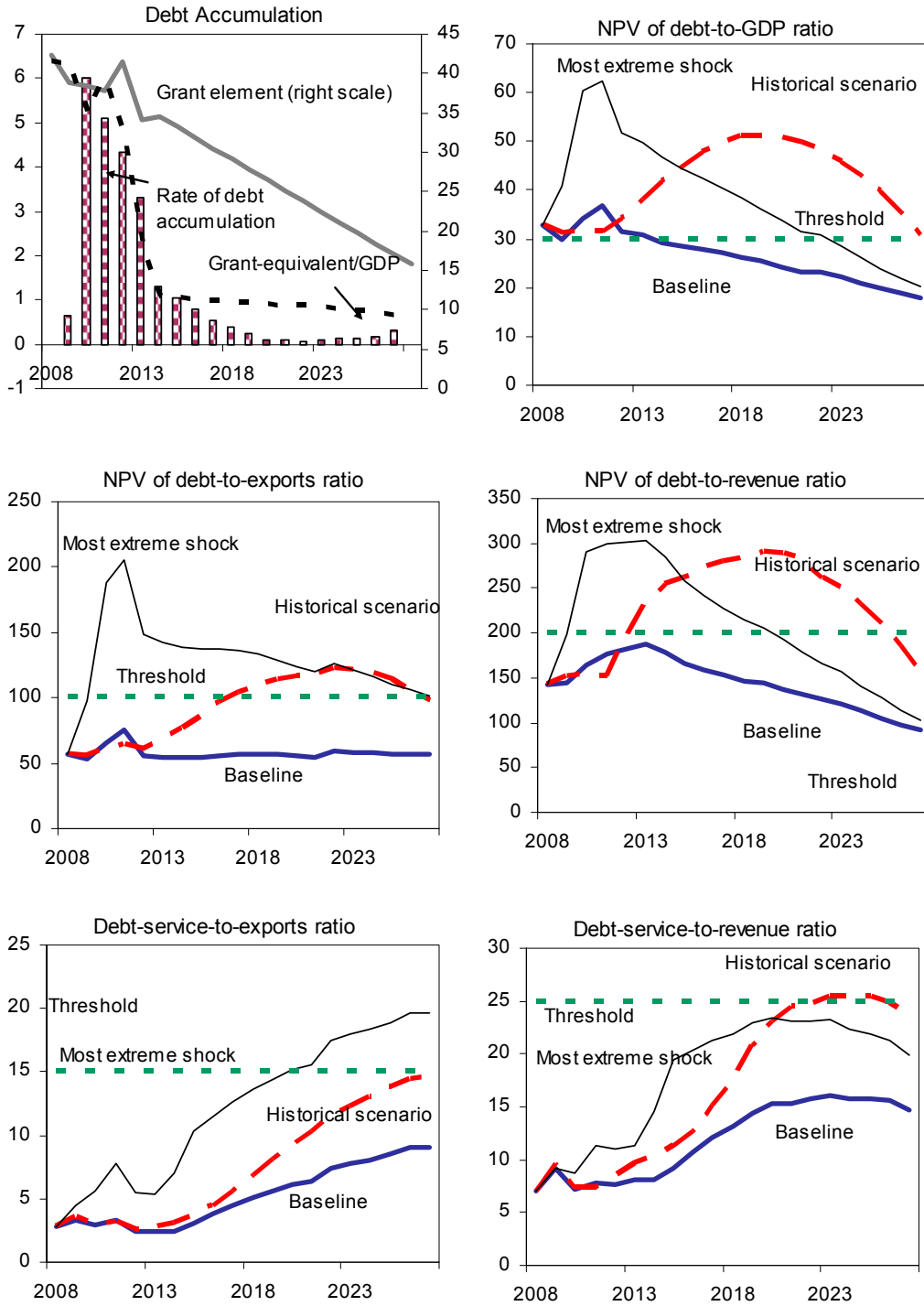
3/ Exports values are assumed to remain permanently at the lower level, but the current account as a share of GDP is assumed to return to its baseline level after the shock (implicitly assuming an offsetting adjustment in import levels).

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. Indicators of Public and Publicly Guaranteed External Debt Under Alternative Scenarios, 2008–27



Source: Staff projections and simulations.

Table 4. Net Public Sector Debt Sustainability Framework, Baseline Scenario, 2007–27  
(In percent of GDP, unless otherwise indicated)

	Actual		Projections														2017–27	
	2007	Historical Average 5/	Standard Deviation 5/	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average	Average		
<b>Public sector debt 1/</b>	110.6			79.6	72.2	75.4	68.6	53.1	46.1	38.2	31.4	24.6	19.9	8.8	65.8	19.9	8.8	10.5
<i>Of which: foreign-currency denominated</i>	85.1			48.3	44.6	49.6	53.2	43.2	39.0	33.3	28.2	23.8	19.2	6.8	46.3	19.2	6.8	9.1
<i>Of which: foreign-currency denominated oil reserve</i>	-1.3			-1.5	-1.7	-2.3	-2.3	-4.2	-6.9	-9.8	-13.4	-17.0	-3.2	-20.5	-3.2	-20.5	-22.3	-25.3
Change in public sector debt	1.9			-31.0	-7.4	3.1	-6.8	-15.5	-6.9	-7.9	-6.9	-6.8	-4.7	2.6	-10.7	-4.7	2.6	-1.4
Identified debt-creating flows	-6.1			11.2	-1.8	-2.1	-2.3	-18.1	-9.0	-7.6	-6.6	-6.2	-3.7	-5.3	-3.7	-5.3	0.9	-1.6
Primary deficit	0.0		-1.0	2.3	0.3	0.8	1.2	-2.9	-4.0	-4.4	-5.0	-5.4	-0.4	-4.7	-0.4	-4.7	0.9	-1.6
Revenue and grants	27.8			28.5	26.4	26.3	27.0	26.2	24.9	25.3	26.0	26.7	26.6	23.5	26.6	23.5	23.5	24.8
<i>Of which: grants</i>	2.2			2.9	2.9	2.4	3.6	2.6	0.9	0.6	0.5	0.5	2.6	0.4	2.6	0.4	0.2	0.3
<i>Of which: oil revenue</i>	8.2			2.8	2.7	3.1	2.6	6.3	7.6	8.1	8.1	8.4	4.2	7.8	4.2	7.8	6.4	7.0
Primary (noninterest) expenditure	27.8			30.8	26.7	27.1	28.2	23.3	20.8	20.8	20.9	21.3	26.2	21.6	26.2	21.6	24.4	23.2
Automatic debt dynamics	-4.7			-20.6	-7.0	-2.5	-3.1	-14.9	-5.0	-3.1	-1.6	-0.8	-8.9	-0.6	-0.8	-0.6	0.0	0.0
Contribution from interest rate/growth differential	-1.0		-15.9	-9.0	-6.1	-3.1	-3.9	-9.4	-3.5	-2.3	-1.5	-1.1	-5.8	-0.8	-1.1	-0.8	0.1	-0.1
<i>Of which: contribution from average real interest rate</i>	0.1			-3.7	-1.0	0.8	0.4	-1.7	-0.4	-0.3	-0.1	0.0	-0.9	0.1	0.0	-0.9	0.1	0.3
<i>Of which: contribution from real GDP growth</i>	-1.1			-5.3	-5.1	-3.9	-4.3	-7.8	-3.1	-2.0	-1.4	-1.1	-4.9	-0.9	-1.1	-4.9	-0.9	-0.2
Contribution from real exchange rate depreciation	-3.7			-11.6	-0.9	0.7	0.7	-5.5	-1.5	-0.9	-0.1	0.3	-3.0	...	-3.0	...	...	...
Other identified debt-creating flows	-1.4		-4.2	29.5	5.0	-0.3	-0.3	-0.2	0.0	0.0	0.0	0.0	5.6	0.0	5.6	0.0	0.0	0.0
Privatization receipts (negative)	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0
Debt relief (HIPC and other)	-1.4			29.5	5.0	-0.3	-0.3	-0.2	0.0	0.0	0.0	0.0	5.6	0.0	5.6	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	0.0	0.0	0.0	0.0	0.0
Residual, including asset changes	8.0		11.7	-42.1	-5.6	5.2	-4.5	2.6	2.1	-0.4	-0.3	-0.6	0.6	1.7	-7.0	0.6	1.7	0.2
<b>NPV of public sector debt</b>	58.0			57.8	51.7	48.6	36.8	26.3	21.8	18.4	15.7	12.7	11.8	6.9	11.8	6.9	6.9	6.9
<i>Of which: foreign-currency denominated</i>	32.5			26.5	24.1	22.9	21.5	16.5	14.7	13.4	12.5	11.9	11.1	4.9	11.1	4.9	4.9	4.9
<i>Of which: external</i>	32.5			26.5	24.1	22.9	21.5	16.5	14.7	13.4	12.5	11.9	11.1	4.9	11.1	4.9	4.9	4.9
NPV of contingent liabilities (not included in public sector debt)	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross financing need 2/	6.0			8.6	15.8	16.1	15.4	1.3	-1.3	-2.5	-3.8	-4.7	-5.2	-0.5	-4.7	-5.2	-0.5	-0.5
NPV of public sector debt-to-revenue and grants ratio (in percent)	208.4			202.5	196.0	184.6	136.3	100.4	87.8	72.7	60.4	47.5	44.8	29.1	44.8	29.1	29.1	29.1
Debt service-to-revenue and grants ratio (in percent) 4/	2.0			1.1	2.4	3.1	2.7	2.1	1.6	1.1	0.5	-0.4	-2.0	-6.5	-2.0	-6.5	-2.0	-6.5
Primary deficit that stabilizes the debt-to-GDP ratio	-1.9			33.3	7.6	-2.4	8.0	12.6	2.9	3.5	1.8	1.4	0.0	-1.7	1.4	0.0	-1.7	-1.7
<b>Key macroeconomic and fiscal assumptions</b>																		
Real GDP growth (in percent)	1.0		4.4	5.0	6.8	5.7	6.0	12.7	6.2	4.5	3.8	3.6	7.1	3.9	7.1	3.9	2.5	3.9
Average nominal interest rate on forex debt (in percent)	0.7		1.0	0.2	0.7	1.5	1.8	1.3	1.2	1.2	1.4	1.6	1.3	1.9	1.3	1.9	6.7	6.3
Average real interest rate on domestic currency debt (in percent)	5.1		-4.5	7.4	-11.1	-2.8	3.0	-9.8	-1.0	0.2	2.5	4.5	-3.1	16.2	-3.1	16.2	4.8	6.3
Real exchange rate depreciation (in percent, + indicates depreciation)	-4.5		-1.5	12.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	0.2		8.8	9.8	17.4	6.2	0.2	0.5	16.6	8.1	7.0	5.1	3.8	8.2	3.8	8.2	3.6	3.8
Growth of real primary spending (deflated by GDP deflator, in percent)	5.8		8.4	15.4	16.3	7.4	10.4	-6.9	-5.1	4.6	4.4	5.5	2.4	5.3	2.4	5.3	2.8	5.2

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

1/ Central government's gross debt, *net of oil fund reserves*.

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 5. Sensitivity Analysis for Key Indicators of Net Public Debt 2008–27

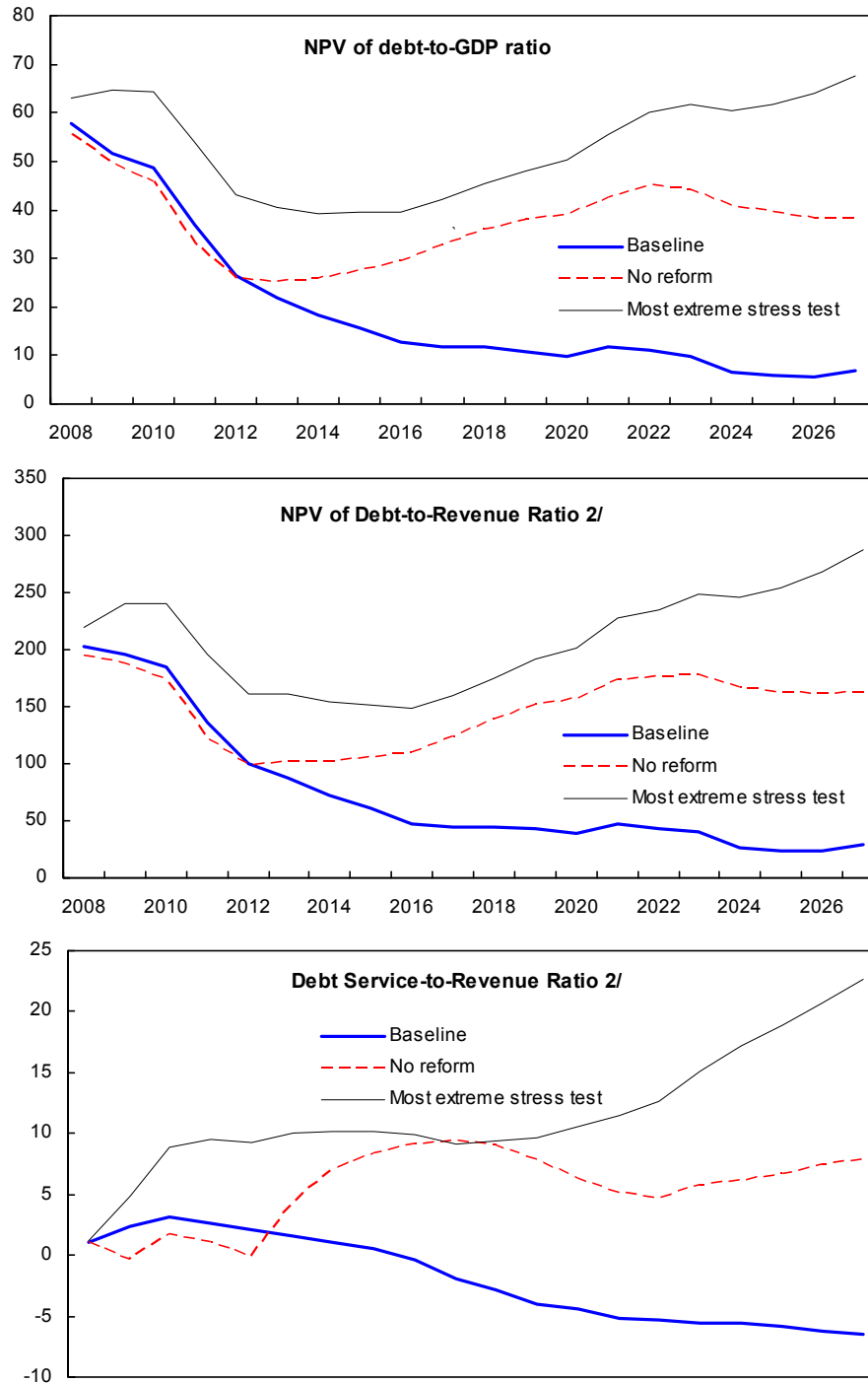
	Projections									
	2008	2009	2010	2011	2012	2013	2017	2023	2027	
<b>NPV of Debt-to-GDP Ratio</b>										
<b>Baseline</b>	58	52	49	37	26	22	12	10	7	
<b>A. Alternative scenarios</b>										
A1. Real GDP growth and primary balance are at historical averages	56	51	47	33	28	27	35	49	39	
A2. Primary balance is unchanged from 2007	56	49	46	33	26	25	33	44	38	
A3. Permanently lower GDP growth 1/	59	53	51	40	30	26	23	40	51	
<b>B. Bound tests</b>										
B1. Real GDP growth is at historical average minus one standard deviations in 2008–09	63	65	64	54	43	40	42	62	68	
B2. Primary balance is at historical average minus one standard deviations in 2008–09	67	71	68	56	41	36	25	23	19	
B3. Combination of B1-B2 using one half standard deviation shocks	63	65	61	47	35	30	20	19	15	
B4. One-time 30 percent real depreciation in 2008	77	69	62	47	33	28	22	22	16	
B5. 10 percent of GDP increase in other debt-creating flows in 2008	67	60	57	45	33	28	18	16	12	
<b>NPV of Debt-to-Revenue Ratio 2/</b>										
<b>Baseline</b>	203	196	185	136	100	88	45	40	29	
<b>A. Alternative scenarios</b>										
A1. Real GDP growth and primary balance are at historical averages	196	191	178	121	103	108	133	195	166	
A2. Primary balance is unchanged from 2007	195	188	174	122	99	101	124	178	162	
A3. Permanently lower GDP growth 1/	205	201	193	147	114	106	89	161	217	
<b>B. Bound tests</b>										
B1. Real GDP growth is at historical average minus one standard deviations in 2008–09	220	241	241	195	161	161	160	248	287	
B2. Primary balance is at historical average minus one standard deviations in 2008–09	235	271	257	206	158	144	95	93	80	
B3. Combination of B1-B2 using one half standard deviation shocks	221	244	230	173	130	118	75	76	63	
B4. One-time 30 percent real depreciation in 2008	271	262	236	174	128	113	84	88	67	
B5. 10 percent of GDP increase in other debt-creating flows in 2008	235	229	217	167	126	113	67	63	52	
<b>Debt Service-to-Revenue Ratio 2/</b>										
<b>Baseline</b>	1	2	3	3	2	2	-2	-6	-7	
<b>A. Alternative scenarios</b>										
A1. Real GDP growth and primary balance are at historical averages	1	-2	0	-1	-2	3	9	1	2	
A2. Primary balance is unchanged from 2007	1	0	2	1	0	4	9	6	8	
A3. Permanently lower GDP growth 1/	1	3	4	4	4	4	3	6	13	
<b>B. Bound tests</b>										
B1. Real GDP growth is at historical average minus one standard deviations in 2008–09	1	5	9	9	9	10	9	15	23	
B2. Primary balance is at historical average minus one standard deviations in 2008–09	1	14	23	11	7	5	1	3	2	
B3. Combination of B1-B2 using one half standard deviation shocks	1	7	12	6	3	3	0	-2	-3	
B4. One-time 30 percent real depreciation in 2008	1	4	5	4	3	3	-1	-3	-4	
B5. 10 percent of GDP increase in other debt-creating flows in 2008	1	14	8	5	4	3	-1	-2	-3	

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

1/ Assumes that real GDP growth is at baseline minus one standard deviation divided by the square root of 20 (i.e., the length of the projection period).

2/ Revenues are defined inclusive of grants.

Figure 2. Indicators of Net Public Debt Under Alternative Scenarios, 2008–27 1/



Source: Staff projections and simulations.

1/ Most extreme stress test is test that yields highest ratio in 2017. In all cases it is the scenario B1 - Real GDP growth is at historical average minus one standard deviations in 2008–09. (-1.4 percent vs. +5.9 percent on average in the baseline, without any fiscal adjustment).