INTERNATIONAL MONETARY FUND AND
INTERNATIONAL DEVELOPMENT ASSOCIATION

HAITI

Joint IMF-World Bank Debt Sustainability Analysis

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Debt Sustainability Analysis

The joint IMF-World Bank low-income country debt sustainability analysis (LIC DSA) indicates that Haiti's risk of debt distress remains classified as high. Under the baseline scenario, before post-completion point debt relief, the net present value (NPV) of debt-to-exports ratio remains above the indicative debt-burden threshold of 100 percent in the medium term, reflecting the country's weak export base. However, debt ratios do not exceed the thresholds for other indicators, even under stress tests. HIPC and MDRI-type debt relief would reduce debt burden indicators below indicative thresholds, suggesting scope for scaling up external financing once Haiti reaches its completion point under the HIPC initiative. However, a careful approach to additional external financing remains advisable, given that debt indicators deteriorate rapidly in the scenarios with large additional concessional borrowing or financing on less concessional terms. In addition, continued strengthening of Haiti's debt management capacity is needed. The inclusion of domestic debt does not alter the assessment of Haiti's risk of debt distress.

I. Background

1. **The DSA presented in this appendix is based on the common standard framework for low-income countries approved by the IDA and IMF Boards in 2005**. It updates the previous LIC DSA, which was undertaken at the HIPC Initiative decision point approval in November 2006.[1]

2. **Haiti's public debt as of end-September 2007 amounted to 30 percent of GDP**. Most of the debt was owed to external creditors (26 percent of GDP), mainly the Inter-American Development Bank (44 percent), the World Bank (34 percent) and bilateral creditors (15 percent). Loans from external creditors had long maturities and were highly concessional. The small stock of domestic debt (4 percent of GDP) was composed of central bank bonds with maturities that did not exceed one year. Apart from the central bank bonds, which were held by the domestic banking system, the Haitian government had no other privately-held domestic or foreign debt.

3. **Haiti's debt management capacity remains weak, although steps are being taken to strengthen it**. The central bank (BRH) and the Ministry of Economy and Finances (MEF) are jointly responsible for debt management, but there is no centralized debt database, and information sharing between the BRH and the MEF is inadequate. This has resulted in differing accounting methodologies and conflicting data. However, Haiti is currently receiving technical assistance from UNCTAD to put together a single database on public

[1] See *Republic of Haiti, Enhanced Heavily Indebted Poor Countries (HIPC) Initiative—Decision Point Document* (IMF Country Report 06/440 and IDA R2006–0206).

external debt.[2] In addition, the Center for Latin American Monetary Studies (CEMLA) provided in late 2007 technical assistance to the MEF to strengthen the institutional aspects of debt management and analysis, in particular debt sustainability analysis.

II. Assumptions

4. **The essence of the macroeconomic framework remains unchanged from the 2006 LIC DSA exercise, although a number of assumptions have been updated (Table A1):**

- Medium-term assumptions (through 2012) reflect actual outcomes in FY 2007 and forward-looking expectations under the PRGF-supported economic program. Key changes include a significantly more appreciated national currency than assumed in the 2006 LIC DSA (by around 20 percent), which raises the U.S. dollar value of GDP. Furthermore, projected exports are higher owing to the estimated impact in 2008 and 2009 of the HOPE Act, which came into effect in mid-2007.[3]

- Assumptions for 2013–27 are mostly unchanged, absent major developments that would have warranted changes to the long-term perspectives of the economy. Overall, the security situation and institutional environment are expected to stabilize further, while fiscal and monetary policies are projected to remain sound and supportive of foreign and domestic investment. Export activity is assumed to be a key driver of economic growth, with the recovery of domestic demand also playing a significant role. In terms of financing assumptions, international support is projected to persist in the long term, albeit declining as a share of GDP. Reflecting a somewhat more conservative assessment, assumptions regarding access to domestic financing have been lowered. Domestic bond issuances are projected to reach 1 percent of GDP per year by 2027, compared to 1.5 percent of GDP in the 2006 LIC DSA.

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[2] The establishment of a such a database is a floating completion point trigger for the HIPC decision point.

[3] The *Haitian Hemispheric Opportunity through Partnership Encouragement (HOPE) Act* provides for preferential access of Haitian apparel exports to the U.S. market.

Box 1. Macroeconomic Assumptions for the LIC DSA

Real GDP is projected to grow by 4.4 percent on average during the projection period (2007–27). Growth would initially rise to about 4 percent, as improvements in security and sustained political and macroeconomic stability provide for an environment that is more conducive to private activity and consumption. In the longer term, growth is projected to rise somewhat faster (4.5 percent), on the assumption that critical infrastructure and human capital bottlenecks that are currently holding the economy back will be gradually overcome.

Private investment is expected to be an important driver of growth, with the level of annual investment increasing by some 5 percentage points of GDP over the projection period. A significant portion of private investment is expected to materialize in the form of foreign direct investment (FDI). Public investment is also projected to rise, by around 2 percentage points of GDP.

Exports are expected to accelerate temporarily in the short term, as a consequence of the HOPE Act, and then rise steadily supported by FDI. Overall, this would translate into average growth rates of 9 percent (dollar value) in the first half of the period, and about 7 percent in the second half.

Imports are also projected to expand, fueled by inputs for the textile export sector and domestic demand from high investment and remittances-driven consumption. However, the pace of imports will be tempered to some extent by import substitution.

Inflation is expected to decline from 7.9 percent in 2007 to 5 percent in 2011 and beyond. This projection is based on an expectation of continued sound monetary policy and public sector financing, as well as gradually increasing domestic supply of goods and services.

The fiscal deficit is projected to stabilize at 2 percent of GDP from 2013 onward, reflecting rising budget execution capacity and a relative decline in grant support. Domestic revenues are projected to rise by about 4–5 percent of GDP as tax administration and tax policy reforms are implemented. However, these revenue gains are outpaced by rising expenditures needed to address critical infrastructure needs and restore the supply of essential social services. Budget financing would remain mostly external, as domestic financing is assumed to be introduced only very gradually in the medium term (it would reach about one percent of GDP in 2027).

The balance of payments is expected to weaken temporarily, as the projected expansion of investment would widen the current account deficit in the first half of the projection period. However, the solid export performance and expected moderation in import growth will help revert part of this deterioration in the long run. Grants are assumed to decline relative to the economy’s size, while private remittances are estimated to grow in line with economic growth in the U.S. The current account deficits are expected to be financed largely by FDI and concessional lending.

III. External Debt Sustainability

Baseline

5. **The baseline scenario assumes interim HIPC debt relief in 2007 and 2008, but no completion point (Table A2 and Figure A1).**[4] In this scenario, external debt indicators remain below the indicative debt-burden thresholds during the entire projection period, with the exception of the NPV of debt-to-exports ratio, which remains above the indicative threshold of 100 percent until 2020 and only falls slightly below it afterwards.[5] Debt service payments do not display a smooth pattern throughout the projection period, partly because of PRGF repayments that are falling due from 2012 to 2015.

Alternative scenarios and stress tests

6. **The alternative scenario based on historical averages of key variables leads to a lower trajectory of debt indicators compared to the baseline scenario (Table A3)**. However, this does not indicate that the baseline projection is overly pessimistic. The historical scenario results in lower debt burden indicators because of exceptionally low levels of external financing in the past 10 years, when donors curbed their assistance in light of high levels of social and political conflict. Over this period, the current account posted an average deficit of only 0.2 percent of GDP, compared to an average deficit of 1.5 percent of GDP assumed in the baseline projection.

7. **Other bound tests confirm that Haiti's debt distress classification is largely a function of its small export sector**. Under the most extreme shock—a combined adverse shock to all key variables: real GDP growth, export growth, US dollar GDP deflator, and non-debt creating capital inflows—all external debt indicators still remain below the indicative debt burden thresholds except for the NPV of debt-to-exports ratio, which reaches 203 percent in 2010 before reverting to 130 percent in 2027.

8. **Large amounts of additional concessional external financing would worsen debt indicators**. For instance, fully spending and absorbing the financing that could potentially become available under the PetroCaribe agreement would keep the NPV of debt-to-exports ratio permanently above the indicative threshold, with a peak of 135 percent in 2014. However, as in the baseline scenario, the PetroCaribe financing would not lead to breaches of the indicative thresholds for other external debt indicators (Box 2).

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[4] See *Staff Guidance Note on the Application of the Joint Bank-Fund Debt Sustainability Framework for Low-Income Countries*, available at www.imf.org and www.worldbank.org.

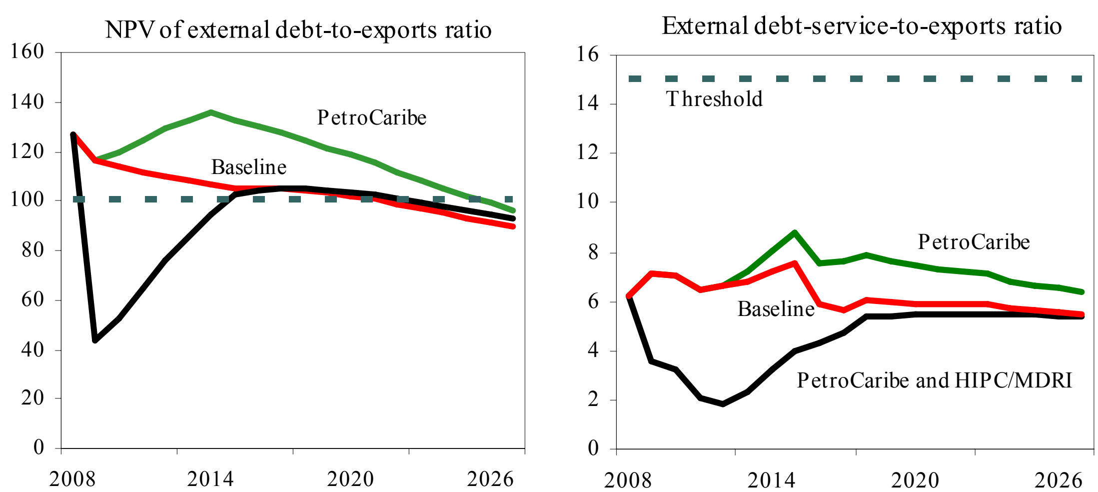
[5] The World Bank's Country Policy and Institutional Assessment (CPIA) rates Haiti as a poor performer. Under the joint IMF-World Bank debt sustainability framework, the corresponding indicative debt burden thresholds are 30 percent for the NPV of debt-to-GDP ratio, 100 percent for the NPV of debt-to-exports ratio, and 15 percent for the debt service-to-exports ratio. See *Operational Framework for Debt Sustainability Framework in Low-Income Countries—Further Considerations*, available at www.imf.org and www.worldbank.org.

9. **Debt relief at the HIPC completion point would substantially improve Haiti's debt situation**. Assuming HIPC and MDRI-type debt relief at the completion point would reduce the NPV of external debt-to-exports ratio well below Haiti's indicative debt burden threshold of 100 percent.[6] However, large scale borrowing, less concessional financing terms, and large adverse shocks could still raise Haiti's NPV of external debt-to-exports ratio above the indicative threshold in the longer term.

Box 2. The Impact of PetroCaribe on Debt Sustainability

Haiti could obtain substantial concessional external financing from Venezuela for its oil purchases under the PetroCaribe agreement. The agreement was ratified by Parliament in March 2007. The authorities are currently working to overcome logistical difficulties that have impeded oil deliveries under PetroCaribe terms so far. At current oil prices, the accord provides for the deferral of 40 percent of oil imports over a period of 25 years (with a two-year grace period), at 1 percent annual interest. The underlying grant element of this facility is estimated at almost 50 percent (using current U.S. dollar discount rates). The agreement specifies that up to a maximum of 14,400 barrels per day could be imported. Haiti's oil needs that could be covered through PetroCaribe deliveries are estimated to be around 10,500 barrels per day in 2008. For the present simulation, it is assumed that refined products imported by Haiti under PetroCaribe will grow in line with total oil imports and that deliveries under PetroCaribe terms will take place for a total of 5 years. This implies additional financing of about 1.6 percent of GDP on average per year.

The additional external borrowing through PetroCaribe could significantly increase external debt and debt service payments in the medium term, notwithstanding its high concessionality. Under a scenario with PetroCaribe financing, the NPV of debt-to-exports ratio would peak at 135 percent in 2014 before converging back to values below the threshold in 2025. In a scenario with completion point debt stock reduction and PetroCaribe financing, the NPV of debt-to-exports ratio would increase quickly to the point that by 2015 its trajectory would be no different from the baseline.



[6] For this scenario the completion point is assumed to be reached in 2009.

IV. Public Sector Debt Sustainability

Baseline

10. **Under the baseline scenario, Haiti's public debt remains little changed throughout the projection period (Table B1 and Figure B1)**. The NPV of public debt-to-GDP ratio would remain broadly constant at about 19 percent. Public expenditure is expected to rise significantly through 2012, but stronger revenue efforts and external grants should contain the need for debt-creating financing. In the long term, the country's relatively low initial public debt burden and economic growth would allow primary deficits of 1.3 percent of GDP on average, without threatening sustainability. Since domestic indebtedness is projected to increase only slightly from 4 to 5 percent of GDP during the projection period, the trajectory of total public debt largely follows the dynamics of external debt.

Alternative scenarios and stress tests

11. **The evolution of public debt remains robust under most alternative scenarios and bound tests, although there is some vulnerability to lower-than-projected growth rates (Table B2)**. Permanently lower real GDP growth would lead to a substantial increase in the NPV of debt-to-GDP ratio between FY2008 and FY2027. Scenarios with macroeconomic assumptions based on historical averages also lead to a gradually rising debt burden, because they imply persistence of the relatively poor growth rates recorded in the past.

V. Main Differences from the 2006 LIC DSA

12. **The trajectories of key debt indicators are lower in the current DSA than at the time of the 2006 DSA exercise (Figure A2).**[7] The more conservative assumption regarding domestic debt issuances with unchanged financing gaps leads to a faster increase in the NPV of external debt. However, the NPV of external debt ratio to both exports and GDP is significantly lower during most of the projection period because of upward revisions in projected exports and U.S. dollar GDP. These improvements are further enhanced in the post-completion point scenario because of some US$ 500 million in HIPC/MDRI-type post-completion point debt relief from the IDB, which was committed in 2007 and thus not included in the 2006 LIC DSA.

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[7] The analysis in the 2006 DSA assumed a HIPC stock of debt reduction in the baseline scenario. In line with most recent guidance on the matter, the baseline in the present DSA includes only interim debt relief. To make both exercises comparable, Figure A2 replicates the 2006 DSA without a stock of debt reduction.

VI. Debt Distress Classification and Conclusion

13. **Haiti's risk of debt distress remains high**. Under the baseline scenario—which includes HIPC interim debt relief, but no irrevocable debt relief at the floating HIPC completion point or MDRI debt relief—the NPV of debt-to-exports ratio remains above the indicative debt burden threshold, and sensitivity analysis shows that Haiti's external debt situation is vulnerable to shocks. This result is partly a reflection of Haiti's small export sector, as other debt indicators are below critical thresholds. Moreover, it is worth noting that Haiti's very high and stable level of private remittances (about 19 percent of GDP in FY2007) provide a reliable inflow of foreign exchange to the country, which reduces its external vulnerability to some extent.

14. **Provision of irrevocable HIPC debt relief and MDRI at the floating completion point would result in a substantial reduction of Haiti's debt burden**. This suggests some scope for additional external borrowing in order to maximize the resource envelope available to achieve the Millennium Development Goals, while limiting the risk of debt distress. However, a careful approach to scaling up external financing would remain advisable, given that debt indicators deteriorate rapidly in scenarios with large additional concessional borrowing—such as the one that may become available under the PetroCaribe agreement—or less concessional financing terms.

15. **Looking ahead, there is a need to further strengthen debt management**. Strengthening debt management capacity will be important, among other things, to prepare for and adequately support the development of an active domestic debt market. Priorities in this area, beyond the establishment of a single debt database, include: (i) clarifying by law the debt management responsibility of the BRH and the MEF; (ii) improving information sharing, including frequent debt reconciliation exercises, between the BRH and the MEF; (iii) shortening the procedures for debt service payments; (iv) improving the tracking of disbursements; and (v) training of staff.

Table A1. Haiti: Long-Term Macroeconomic Assumptions, 2007-27
Fiscal Year Ending September 30

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Averages 2008-17	Averages 2018-27
(Annual percentage change)																							
National income and prices																							
GDP at constant prices	3.2	3.7	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.1	4.5
GDP deflator	9.0	9.7	7.5	6.8	5.6	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.0	5.0
Real GDP per capita (local currency)	1.4	2.0	2.3	2.3	2.3	2.3	2.4	2.4	2.9	3.1	3.1	3.1	3.2	3.2	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.5	3.3
Consumer prices (end of period)	7.9	9.0	7.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.7	5.0
External sector																							
Exports of goods and non-factor services	5.4	17.0	14.7	8.6	8.6	8.2	8.2	7.7	6.9	6.9	6.9	6.9	7.1	7.1	7.3	7.4	7.5	7.5	7.6	7.6	7.6	9.4	7.4
Imports of goods and non-factor services	7.8	16.4	10.4	8.0	8.3	8.0	7.8	6.5	6.9	6.6	6.6	6.7	6.5	6.2	6.0	6.0	6.0	6.0	5.9	5.9	5.9	8.6	6.1
Central government																							
Total revenue and grants	25.8	26.8	16.3	11.9	11.7	10.8	9.3	9.7	10.2	9.7	10.3	10.3	9.7	10.2	9.8	9.8	10.2	9.8	10.2	10.8	9.6	12.7	10.0
Central government revenue 1/	15.4	33.4	15.9	13.3	13.4	12.9	12.5	10.6	11.1	10.3	11.1	11.0	10.3	11.0	11.3	11.3	11.0	11.2	10.9	11.5	10.0	14.4	11.0
Central government expenditure	22.1	30.1	18.1	13.3	12.2	11.5	10.0	9.5	10.4	9.7	10.0	10.2	9.8	10.0	9.8	9.8	10.1	9.8	10.3	10.8	9.9	13.5	10.1
(In percent of GDP, unless otherwise indicated)																							
National income																							
Consumption	102.3	96.6	93.8	92.8	92.1	91.4	90.2	90.4	90.4	90.3	90.2	90.1	90.0	89.9	89.6	89.3	88.9	88.5	88.2	87.7	87.1	91.8	88.9
Private	93.4	86.2	82.8	81.4	80.4	79.2	78.0	78.3	78.2	78.1	78.1	78.0	77.9	77.8	77.5	77.2	76.8	76.4	76.0	75.5	74.9	80.1	76.8
Public	8.8	10.4	11.1	11.4	11.8	12.2	12.1	12.2	12.2	12.2	12.1	12.2	12.1	12.1	12.1	12.1	12.1	12.1	12.2	12.2	12.2	11.8	12.2
Investment	30.0	31.6	32.7	33.8	35.1	36.3	36.5	36.6	36.6	36.7	36.8	36.8	36.9	36.9	37.0	37.0	37.0	37.1	37.1	37.3	37.3	35.3	37.0
Private	23.2	24.0	24.8	25.9	27.2	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	27.2	28.4
Public	6.8	7.6	7.9	7.9	8.0	7.9	8.1	8.2	8.2	8.3	8.4	8.4	8.5	8.5	8.6	8.6	8.6	8.7	8.7	8.9	8.9	8.0	8.6
GDP per capita (US dollars)	660.3	767.3	801.8	835.8	871.2	908.2	948.6	990.8	1,040.1	1,093.9	1,150.7	1,210.6	1,273.9	1,340.7	1,412.3	1,487.8	1,567.6	1,652.0	1,741.0	1,834.5	1,933.3	940.8	1,545.4
External sector																							
Non-interest current account deficit	0.4	0.5	-1.0	-0.9	-1.0	-1.2	-1.4	-1.4	-1.6	-1.7	-1.8	-1.8	-1.7	-1.7	-1.6	-1.6	-1.5	-1.4	-1.3	-1.2	-1.1	-1.1	-1.5
Exports of goods and non-factor services	12.1	12.0	12.9	13.2	13.6	13.9	14.1	14.4	14.4	14.4	14.5	14.5	14.6	14.7	14.8	14.9	15.0	15.1	15.3	15.4	15.6	13.7	15.0
Imports of goods and non-factor services	-37.2	-36.6	-38.1	-38.8	-39.7	-40.4	-41.1	-41.2	-41.4	-41.4	-41.4	-41.4	-41.4	-41.2	-41.0	-40.8	-40.5	-40.3	-40.0	-39.8	-39.5	-40.0	-40.6
External current account balance 1/	-6.6	-7.5	-7.5	-7.4	-7.6	-7.9	-7.9	-7.9	-8.0	-7.6	-7.5	-7.2	-6.9	-6.7	-6.4	-6.2	-5.9	-5.7	-5.3	-5.2	-4.9	-7.7	-6.0
External current account balance 2/	0.2	-1.3	-1.2	-1.3	-1.5	-1.7	-1.7	-1.9	-2.0	-2.1	-2.1	-2.0	-2.0	-2.0	-1.9	-1.8	-1.7	-1.6	-1.5	-1.4	-1.3	-1.7	-1.7
Liquid gross reserves (in months of imports of goods and se	2.5	2.7	2.9	3.0	3.1	3.0	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.3	3.3	3.3	3.3	3.0	3.2
Central government																							
Central government overall balance 2/	-0.5	-1.0	-1.4	-1.6	-1.7	-1.9	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.8	-2.0
Total revenue and grants	15.2	16.9	17.6	17.7	18.0	18.3	18.3	18.4	18.4	18.4	18.5	18.6	18.6	18.7	18.7	18.7	18.8	18.8	18.9	19.1	19.1	18.0	18.8
Central government revenue 1/	10.3	12.1	12.5	12.7	13.2	13.6	14.0	14.2	14.4	14.4	14.6	14.8	14.9	15.0	15.3	15.5	15.7	15.9	16.0	16.3	16.3	13.6	15.6
Central government expenditure	15.7	17.9	18.9	19.3	19.7	20.1	20.3	20.3	20.4	20.4	20.5	20.6	20.6	20.7	20.7	20.7	20.8	20.8	20.9	21.1	21.1	19.8	20.8

1/ Excluding grants
2/ Including grants

Table A 2. Country: External Debt Sustainability Framework, Baseline Scenario, 2007-2027 1/
(In percent of GDP, unless otherwise indicated)

	Actual			Historical Average 6/	Standard Deviation 6/	Projections									
	2005	2006	2007			2008	2009	2010	2011	2012	2013	2007-12 Average	2018	2027	2013-27 Average
External debt (nominal) 1/	**31.0**	**29.7**	**25.6**			**23.0**	**23.0**	**23.3**	**23.6**	**24.0**	**24.3**		**24.8**	**23.3**	
o/w public and publicly guaranteed (PPG)	31.0	29.7	25.6			23.0	23.0	23.3	23.6	24.0	24.3		24.8	23.3	
Change in external debt	-6.2	-1.3	-4.1			-2.6	0.0	0.3	0.3	0.4	0.3		0.0	-0.2	
Identified net debt-creating flows	-9.9	-6.7	-7.4			-0.5	-0.7	-0.6	-0.4	-0.2	-0.1		0.2	-0.9	
Non-interest current account deficit	**-3.4**	**-0.3**	**-0.7**	**0.2**	**1.5**	**1.0**	**0.9**	**1.0**	**1.2**	**1.4**	**1.4**		**1.7**	**1.1**	1.5
Deficit in balance of goods and services	27.0	28.6	23.2			24.7	25.1	25.6	26.1	26.6	26.9		26.9	24.0	
Exports	13.9	14.4	12.1			12.0	12.9	13.2	13.6	13.9	14.1		14.5	15.6	
Imports	40.8	43.0	35.3			36.6	38.1	38.8	39.7	40.4	41.1		41.4	39.5	
Net current transfers (negative = inflow)	-30.5	-28.6	-23.7	-23.8	5.7	-23.5	-24.0	-24.3	-24.5	-24.7	-24.9		-24.7	-22.5	-23.9
o/w official	-7.6	-7.9	-5.4			-6.2	-6.4	-6.2	-6.1	-6.2	-6.2		-5.2	-3.6	
Other current account flows (negative = net inflow)	0.1	-0.3	-0.2			-0.1	-0.2	-0.3	-0.4	-0.4	-0.6		-0.5	-0.4	
Net FDI (negative = inflow)	**-0.6**	**-3.3**	**-1.2**	**-0.7**	**1.0**	**-1.0**	**-1.0**	**-1.0**	**-1.0**	**-1.0**	**-0.9**		**-0.8**	**-1.2**	-1.0
Endogenous debt dynamics 2/	**-5.9**	**-3.0**	**-5.5**			**-0.6**	**-0.6**	**-0.6**	**-0.6**	**-0.6**	**-0.6**		**-0.7**	**-0.7**	
Contribution from nominal interest rate	0.8	0.3	0.3			0.3	0.3	0.3	0.3	0.3	0.3		0.3	0.2	
Contribution from real GDP growth	-0.6	-0.6	-0.7			-0.8	-0.9	-0.9	-0.9	-0.9	-0.9		-1.0	-1.0	
Contribution from price and exchange rate changes	-6.1	-2.7	-5.1			…	…	…	…	…	…		…	…	
Residual (3-4) 3/	**3.7**	**5.4**	**3.3**			**-2.0**	**0.7**	**0.9**	**0.7**	**0.6**	**0.4**		**-0.1**	**0.7**	
o/w exceptional financing	1.0	-0.2	0.7			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
NPV of external debt 4/	...	...	16.9			15.2	15.1	15.1	15.2	15.3	15.3		15.1	13.9	
In percent of exports	...	...	139.1			126.9	116.5	113.9	111.7	110.2	108.4		104.1	89.7	
NPV of PPG external debt	**...**	**...**	**16.9**			**15.2**	**15.1**	**15.1**	**15.2**	**15.3**	**15.3**		**15.1**	**13.9**	
In percent of exports	**...**	**...**	**139.1**			**126.9**	**116.5**	**113.9**	**111.7**	**110.2**	**108.4**		**104.1**	**89.7**	
In percent of government revenues	**...**	**...**	**159.5**			**125.9**	**120.8**	**119.1**	**116.2**	**112.3**	**109.4**		**102.2**	**85.3**	
Debt service-to-exports ratio (in percent)	**17.5**	**7.5**	**8.9**			**6.3**	**7.2**	**7.1**	**6.5**	**6.6**	**6.8**		**6.1**	**5.5**	
PPG debt service-to-exports ratio (in percent)	**17.5**	**7.5**	**8.9**			**6.3**	**7.2**	**7.1**	**6.5**	**6.6**	**6.8**		**6.1**	**5.5**	
PPG debt service-to-revenue ratio (in percent)	**27.6**	**10.2**	**10.2**			**6.2**	**7.4**	**7.4**	**6.7**	**6.7**	**6.8**		**6.0**	**5.2**	
Total gross financing need (billions of U.S. dollars)	-0.1	-0.1	0.0			0.1	0.1	0.1	0.1	0.1	0.1		0.2	0.2	
Non-interest current account deficit that stabilizes debt ratio	2.8	1.0	3.5			3.6	0.9	0.7	0.9	1.0	1.1		1.7	1.2	
Key macroeconomic assumptions															
Real GDP growth (in percent)	1.8	2.3	3.0	0.8	2.0	3.9	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.2
GDP deflator in US dollar terms (change in percent)	19.7	9.7	20.8	6.0	13.4	14.0	2.2	1.9	1.9	1.9	2.0	4.0	2.0	2.0	1.9
Effective interest rate (percent) 5/	2.5	1.3	1.4	1.3	0.6	1.3	1.2	1.3	1.2	1.2	1.2	1.3	1.4	1.1	1.2
Growth of exports of G&S (US dollar terms, in percent)	16.9	16.9	4.7	7.3	11.3	16.6	14.7	8.6	8.6	8.2	8.2	10.8	6.9	7.6	6.8
Growth of imports of G&S (US dollar terms, in percent)	13.7	18.2	2.2	9.6	9.3	22.7	10.4	8.0	8.3	8.0	7.8	10.9	6.7	5.9	5.8
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7
Aid flows (in billions of US dollars) 7/	0.4	0.5	0.5			0.6	0.6	0.7	0.7	0.8	0.8		1.0	1.3	
o/w Grants	0.1	0.2	0.3			0.3	0.4	0.4	0.4	0.4	0.4		0.5	0.6	
o/w Concessional loans	0.1	0.1	0.1			0.1	0.1	0.2	0.2	0.2	0.2		0.3	0.4	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			5.8	6.1	6.0	5.9	5.9	5.5		4.9	3.7	4.5
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			86.2	86.1	84.7	84.4	83.4	82.3		82.4	79.9	81.5
Memorandum items:															
Nominal GDP (billions of US dollars)	4.3	4.8	6.0			7.1	7.6	8.0	8.5	9.0	9.6		13.1	23.2	
(NPVt-NPVt-1)/GDPt-1 (in percent)						1.1	0.8	0.9	1.0	1.0	1.0	1.0	0.9	0.8	0.9

Source: Staff simulations.

1/ Fiscal year ending September 30, includes both public and private sector external debt.

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

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

4/ Assumes that 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 A3. Country: Sensitivity Analyses for Key Indicators of Public and Publicly Guaranteed External Debt, 2008-27
Fiscal year ending September 30
(In percent)

		Projections						
	2008	2009	2010	2011	2012	2013	**2018**	2027
NPV of debt-to-GDP ratio								
Baseline	15	15	15	15	15	15	**15**	14
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-27 1/	15	15	14	14	13	13	**9**	6
A2. New public sector loans on less favorable terms in 2009-27 2/	15	16	16	17	18	18	**21**	22
A3. Petrocaribe agreement	15	15	16	17	18	19	**18**	15
A4. HIPC/MDRI	15	6	6	7	8	9	**12**	13
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2009-10	15	16	17	17	17	17	**17**	15
B2. Export value growth at historical average minus one standard deviation in 2009-10 3/	15	16	18	18	18	18	**17**	15
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-10	15	17	18	18	19	19	**18**	17
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-10 4/	15	19	22	22	22	22	**21**	17
B5. Combination of B1-B4 using one-half standard deviation shocks	15	19	26	25	25	25	**24**	19
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	15	21	21	21	22	22	**21**	20
NPV of debt-to-exports ratio								
Baseline	127	117	114	112	110	108	**104**	90
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-27 1/	127	114	108	102	96	90	**62**	37
A2. New public sector loans on less favorable terms in 2009-27 2/	127	121	122	124	127	129	**141**	143
A3. Petrocaribe agreement	127	117	120	125	129	133	**124**	96
A4. HIPC/MDRI	127	44	47	52	57	61	**79**	85
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2009-10	127	117	114	112	110	108	**104**	90
B2. Export value growth at historical average minus one standard deviation in 2009-10 3/	127	149	182	178	175	172	**162**	131
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-10	127	117	114	112	110	108	**104**	90
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-10 4/	127	145	170	165	162	158	**146**	109
B5. Combination of B1-B4 using one-half standard deviation shocks	127	158	203	197	193	189	**175**	130
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	127	117	114	112	110	108	**104**	90
NPV of debt-to-revenue ratio								
Baseline	126	121	119	116	112	109	**102**	85
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-27 1/	126	118	113	106	98	91	**61**	35
A2. New public sector loans on less favorable terms in 2009-27 2/	126	125	128	129	129	130	**139**	136
A3. Petrocaribe agreement	126	121	125	130	132	134	**122**	92
A4. HIPC/MDRI	126	45	49	54	58	62	**78**	121
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2009-10	126	127	132	129	124	121	**113**	95
B2. Export value growth at historical average minus one standard deviation in 2009-10 3/	126	129	141	137	132	128	**118**	92
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-10	126	133	145	141	136	133	**124**	104
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-10 4/	126	150	178	172	165	159	**143**	103
B5. Combination of B1-B4 using one-half standard deviation shocks	126	156	202	195	187	181	**163**	118
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	126	171	169	164	159	155	**145**	121
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	49	0	0	0	0	0	**0**	0

Source: Staff projections and simulations.

1/ Variables include real GDP growth, growth of GDP deflator (in U.S. dollar terms), non-interest current account in percent of GDP, and non-debt creating flows.
2/ Assumes that the interest rate on new borrowing is by 2 percentage points higher than in the baseline, while grace and maturity periods are the same as in the baseline.
3/ Exports 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.

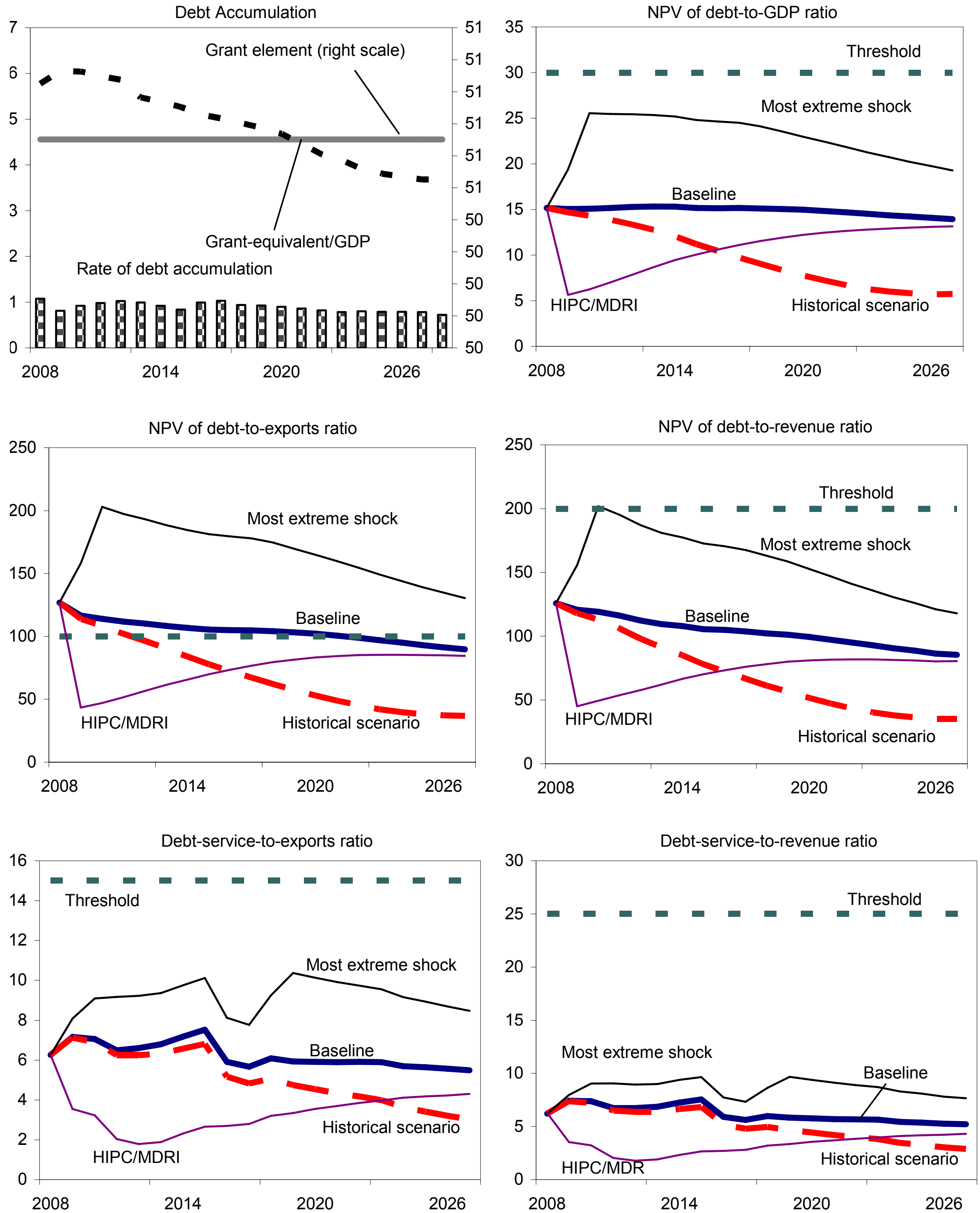
Table A3. Country: Sensitivity Analyses for Key Indicators of Public and Publicly Guaranteed External Debt, 2008-27 (cont.)
Fiscal year ending September 30
(In percent)

	Projections							
	2008	2009	2010	2011	2012	2013	**2018**	2027
Debt service-to-exports ratio								
Baseline	6	7	7	6	7	7	**6**	5
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-27 1/	6	7	7	6	6	6	**5**	3
A2. New public sector loans on less favorable terms in 2009-27 2/	6	7	7	7	7	8	**8**	9
A3. Petrocaribe agreement	6	7	7	6	7	7	**8**	6
A4. HIPC/MDRI	6	4	3	2	2	2	**3**	4
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2009-10	6	7	7	6	7	7	**6**	5
B2. Export value growth at historical average minus one standard deviation in 2009-10 3/	6	9	10	9	9	10	**9**	8
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-10	6	7	7	6	7	7	**6**	5
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-10 4/	6	7	8	8	8	8	**8**	7
B5. Combination of B1-B4 using one-half standard deviation shocks	6	8	9	9	9	9	**9**	8
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	6	7	7	6	7	7	**6**	5
Debt service-to-revenue ratio								
Baseline	6	7	7	7	7	7	**6**	5
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-27 1/	6	7	7	7	6	6	**5**	3
A2. New public sector loans on less favorable terms in 2009-27 2/	6	7	8	7	7	8	**8**	8
A3. Petrocaribe agreement	6	7	7	7	7	7	**8**	6
A4. HIPC/MDRI	6	4	3	2	2	2	**3**	4
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2009-10	6	8	8	7	7	8	**7**	6
B2. Export value growth at historical average minus one standard deviation in 2009-10 3/	6	7	8	7	7	7	**7**	6
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-10	6	8	9	8	8	8	**7**	6
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-10 4/	6	7	8	8	8	8	**8**	7
B5. Combination of B1-B4 using one-half standard deviation shocks	6	8	9	9	9	9	**9**	8
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	6	11	10	10	10	10	**8**	7
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	49	49	49	49	49	49	**49**	49

Source: Staff projections and simulations.

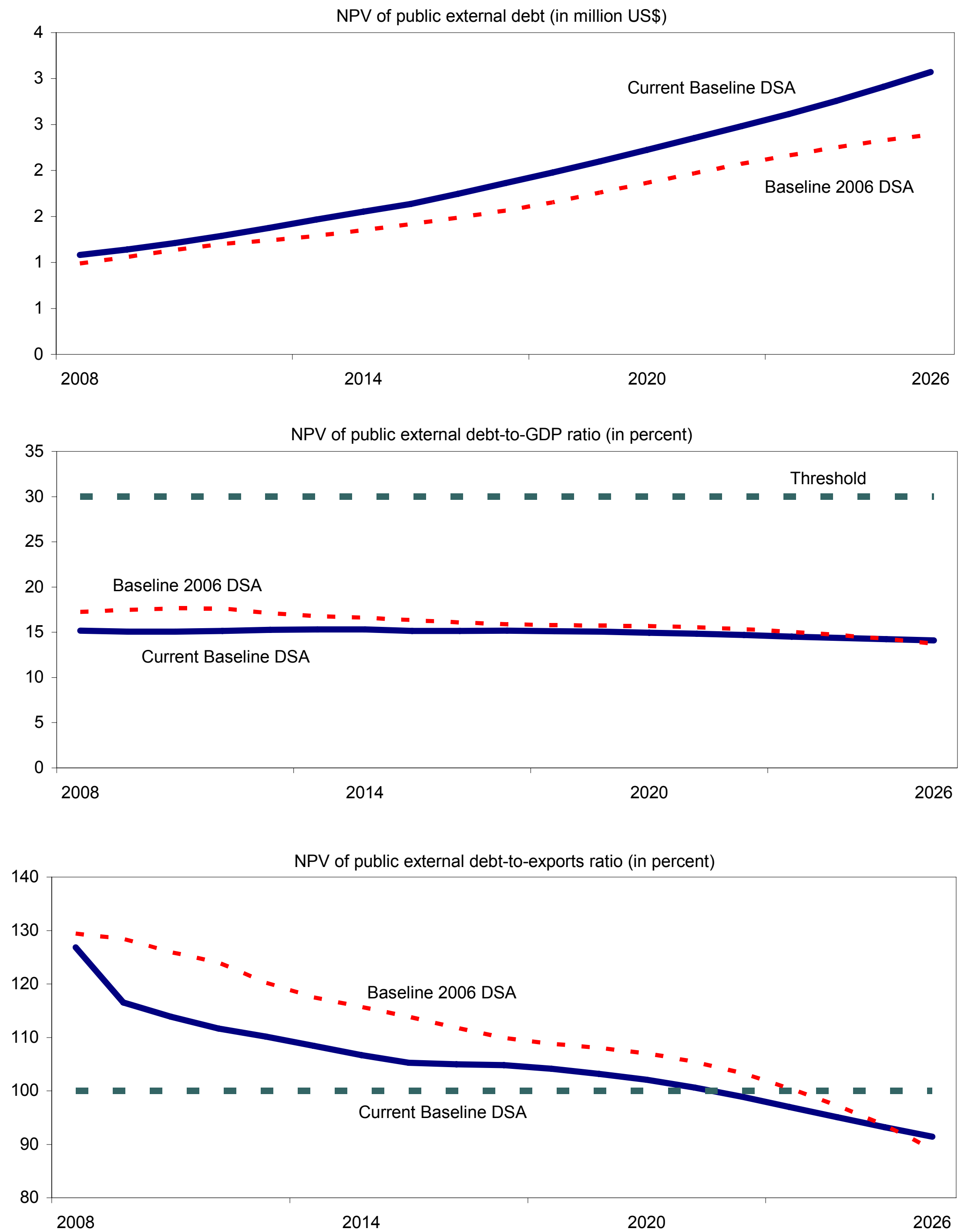
1/ Variables include real GDP growth, growth of GDP deflator (in U.S. dollar terms), non-interest current account in percent of GDP, and non-debt creating flows.
2/ Assumes that the interest rate on new borrowing is by 2 percentage points higher than in the baseline, while grace and maturity periods are the same as in the baseline.
3/ Exports 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 A1. Haiti: Indicators of Public and Publicly Guaranteed External Debt
(In percent)



Source: Staff projections and simulations.

Figure A2. Haiti: Public External Debt Indicators compared to 2006 DSA 1/



Source: Staff projections and simulations.
1/ Includes interim HIPC debt relief in 2007 and 2008 but no completion point.

Table B1. Haiti: Public Sector Debt Sustainability Framework, Baseline Scenario, 2005-2027

(In percent of GDP, unless otherwise indicated)

	Actual 1/					Estimate	Projections								
	2005	2006	2007	Historical Average 6/	Standard Deviation 6/	2008	2009	2010	2011	2012	2013	2008-13 Average	2018	2027	2014-27 Average
Public sector debt 2/	34.3	33.6	29.6			27.0	27.2	27.5	27.6	27.7	28.5		29.0	28.3	
o/w foreign-currency denominated	31.0	29.7	25.6			23.0	23.0	23.3	23.6	24.0	24.3		24.8	23.3	
Change in public sector debt	-5.4	-0.7	-4.0			-2.6	0.2	0.4	0.0	0.2	0.8		-0.1	0.1	
Identified debt-creating flows	-0.5	-7.1	-5.4			-3.0	-0.6	-0.2	0.0	0.4	0.0		0.4	0.0	
Primary deficit	0.0	0.1	-0.5	0.9	1.1	0.2	0.6	0.9	1.1	1.3	1.3	0.9	1.2	1.3	1.3
Revenue and grants	13.1	13.5	15.1			16.9	17.6	17.7	18.0	18.3	18.3		18.6	19.1	
of which : grants	3.5	3.5	4.8			4.8	5.1	5.0	4.9	4.7	4.3		3.8	2.7	
Primary (noninterest) expenditure	13.1	13.6	14.6			17.1	18.2	18.6	19.1	19.6	19.6		19.9	20.4	
Automatic debt dynamics	-0.5	-7.1	-4.6			-3.0	-1.0	-0.9	-1.0	-0.8	-1.4		-0.9	-1.3	
Contribution from interest rate/growth differential	-1.4	-1.3	-1.0			-1.0	-1.0	-1.0	-1.1	-1.1	-1.0		-1.2	-1.1	
of which : contribution from average real interest rate	-0.7	-0.5	0.0			0.1	0.1	0.0	0.0	-0.1	0.0		0.1	0.1	
of which : contribution from real GDP growth	-0.7	-0.8	-1.0			-1.1	-1.0	-1.0	-1.1	-1.1	-1.1		-1.3	-1.2	
Contribution from real exchange rate depreciation	1.0	-5.8	-3.5			-2.0	0.0	0.1	0.0	0.3	-0.3		...	...	
Other identified debt-creating flows	0.0	0.0	-0.3			-0.2	-0.3	-0.2	-0.1	-0.1	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	
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)	0.0	0.0	-0.3			-0.2	-0.3	-0.2	-0.1	-0.1	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	-4.9	6.4	1.4			0.4	0.8	0.5	0.1	-0.3	0.8		-0.5	0.2	
NPV of public sector debt	...	...	20.9			19.2	19.2	19.4	19.2	19.0	19.6		19.3	19.0	
o/w foreign-currency denominated	...	...	16.9			15.2	15.1	15.1	15.2	15.3	15.3		15.1	13.9	
o/w external	...	...	16.9			15.2	15.1	15.1	15.2	15.3	15.3		15.1	13.9	
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	
Gross financing need 3/	2.2	1.6	1.3			1.7	2.0	2.2	2.3	2.4	2.7		2.6	2.9	
NPV of public sector debt-to-revenue ratio (in percent) 4/	...	...	137.9			113.6	109.5	109.4	106.5	104.2	107.0		103.7	99.6	
o/w external	...	...	111.5			89.9	85.7	85.2	84.2	83.6	83.9		81.2	73.1	
Debt service-to-revenue ratio (in percent) 4/ 5/	16.7	11.4	12.0			9.1	7.6	7.5	6.8	6.2	7.3		7.2	8.4	
Primary deficit that stabilizes the debt-to-GDP ratio	5.4	0.8	3.5			2.8	0.4	0.6	1.1	1.2	0.5		1.3	1.2	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	1.8	2.3	3.2	0.9	2.1	3.7	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.5
Average nominal interest rate on forex debt (in percent)	2.5	1.5	1.2	1.1	0.7	1.5	1.4	1.4	1.3	1.3	1.3	1.4	1.5	1.4	1.4
Average real interest rate on domestic currency debt (in percent)	-19.1	-1.4	11.2	3.3	13.4	5.0	4.5	3.8	2.9	2.4	5.6	4.0	4.9	5.4	5.1
Real exchange rate depreciation (in percent, + indicates depreciation)	2.6	-19.6	-12.4	-1.4	23.1	-8.0	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	17.6	16.6	9.0	14.5	6.2	9.7	7.5	6.8	5.6	5.0	5.0	6.6	5.0	5.0	5.0
Growth of real primary spending (deflated by GDP deflator, in percent)	26.5	5.8	10.8	7.7	11.4	21.1	11.0	6.3	6.8	6.6	4.2	9.3	4.8	4.5	4.7
Grant element of new external borrowing (in percent)	0.6	0.7	0.8	0.7	0.3	0.8	0.8	0.7	0.7	0.7	0.8	0.7	0.8	0.8	...

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

1/ Fiscal year ending September 30.

2/ Includes nonfinancial public sector and central bank.

3/ 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.

4/ Revenues including grants.

5/ Debt service is defined as the sum of interest and amortization of medium and long-term debt.

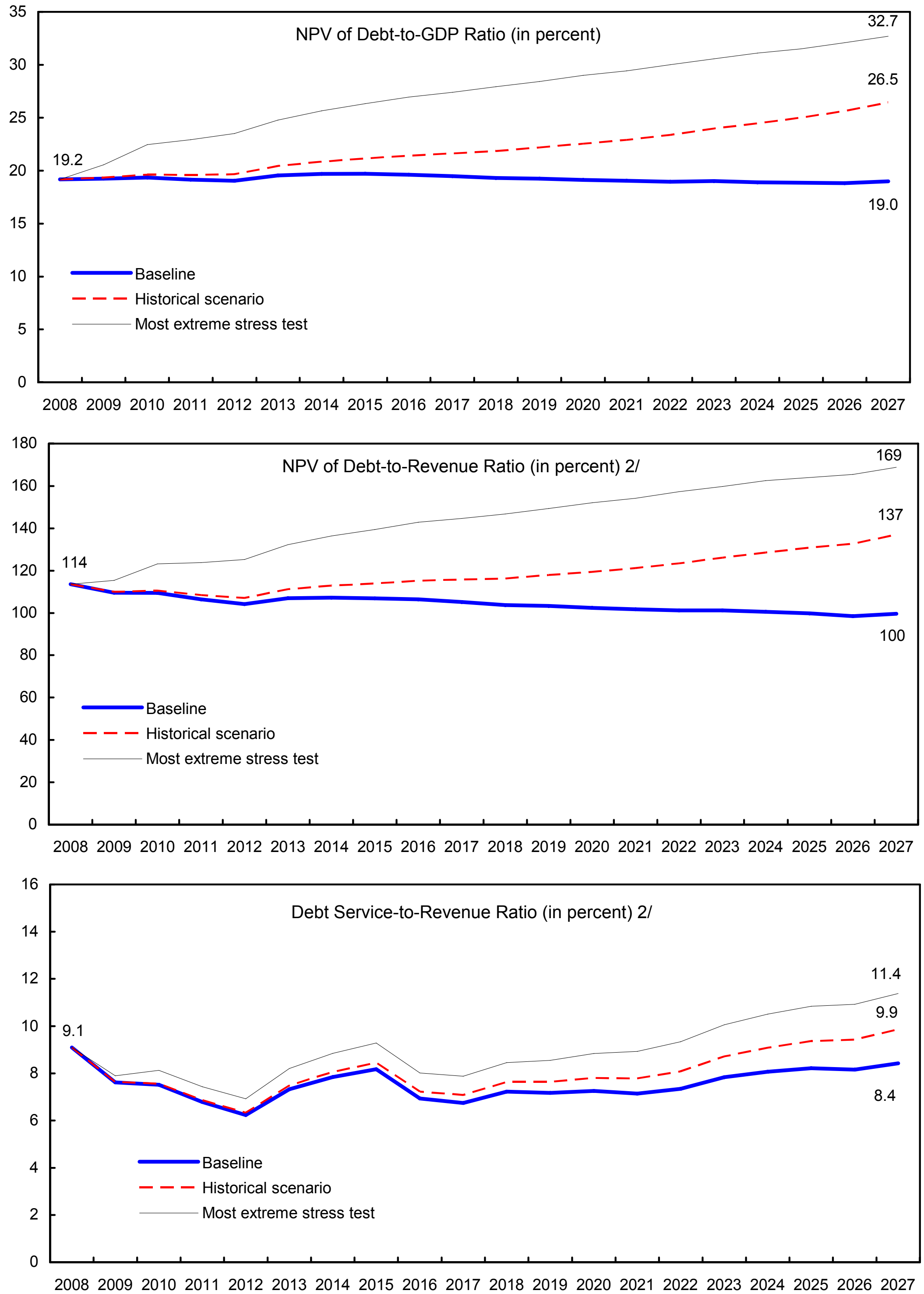
6/ Historical averages and standard deviations are generally derived over the past 10 years, subject to data availability.

Table B2. Haiti: Sensitivity Analysis for Key Indicators of Public Debt 2008-2027
(Fiscal year ending September 30)

	Projections							
	2008	2009	2010	2011	2012	2013	2018	2027
NPV of Debt-to-GDP Ratio								
Baseline	19	19	19	19	19	20	19	19
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	19	20	20	20	20	21	22	24
A2. Primary balance is unchanged from 2008	19	19	19	18	17	17	15	11
A3. Permanently lower GDP growth 1/	19	19	20	20	20	20	22	26
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	19	21	22	23	24	25	28	33
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	19	20	20	20	20	20	20	20
B3. Combination of B1-B2 using one half standard deviation shocks	19	20	21	21	20	21	19	18
B4. One-time 30 percent real depreciation in 2009	19	26	25	25	24	24	22	20
B5. 10 percent of GDP increase in other debt-creating flows in 2009	19	24	24	24	24	24	24	22
NPV of Debt-to-Revenue Ratio 2/								
Baseline	114	110	109	106	104	107	104	100
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	114	112	113	110	108	111	110	111
A2. Primary balance is unchanged from 2008	114	108	106	101	95	95	79	59
A3. Permanently lower GDP growth 1/	114	110	111	108	107	111	116	137
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	114	115	123	124	125	132	147	169
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	114	113	115	112	109	112	108	102
B3. Combination of B1-B2 using one half standard deviation shocks	114	114	118	113	110	112	103	93
B4. One-time 30 percent real depreciation in 2009	114	147	143	137	132	131	119	107
B5. 10 percent of GDP increase in other debt-creating flows in 2009	114	138	137	133	130	132	126	114
Debt Service-to-Revenue Ratio 2/								
Baseline	9	8	8	7	6	7	7	8
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	9	8	8	7	7	8	9	12
A2. Primary balance is unchanged from 2008	9	8	7	7	6	7	7	7
A3. Permanently lower GDP growth 1/	9	8	8	7	6	7	8	10
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	9	8	8	7	7	8	8	11
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	9	8	8	7	6	7	7	9
B3. Combination of B1-B2 using one half standard deviation shocks	9	8	8	7	7	8	8	9
B4. One-time 30 percent real depreciation in 2009	9	8	8	8	7	8	8	9
B5. 10 percent of GDP increase in other debt-creating flows in 2009	9	8	8	7	7	8	8	9

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 B1. Haiti: Indicators of Public Debt Under Alternative Scenarios, 2008-2027 1/
(Fiscal year ending September 30)



Source: Staff projections and simulations.
1/ Most extreme stress test is test that yields highest ratio in 2018.
2/ Revenue including grants.