INTERNATIONAL MONETARY FUND AND
INTERNATIONAL DEVELOPMENT ASSOCIATION

HAITI

Joint Bank-Fund Staff Debt Sustainability Analysis 2012

Prepared by the Staffs of the International Monetary Fund
and the International Development Association

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The updated DSA was prepared jointly by the Fund and Bank staffs in accordance with the Joint Fund-Bank Debt Sustainability Framework (DSF) for low-income countries (LICs).[1] *HIPC and MDRI debt reliefs have been complemented with additional debt relief to help Haiti overcome the devastating earthquake of January 2010. As a result, Haiti's external debt burden has been significantly reduced (with the PV of debt to export ratio—the most critical sustainability measure—falling below 50 percent at end-2011). However, over the medium term rapid debt build up is expected, and the PV of debt to export ratio will reach the sustainability threshold of 100 percent of exports in 2017. Over the long-term, the PV of debt to export ratio will remain above 100 percent (peaking at 129 percent in 2024). Consequently, the staffs continue to assess Haiti's risk of debt distress as being high.*[2] *The narrow export base continues to challenge Haiti's debt sustainability; no standard stress test leads to a breach of any thresholds with the exception of the PV of debt to export threshold which is breached in all six standard stress tests. In the most extreme stress test (the combination shock), the PV of debt to export ratio peaks at 195 percent in 2019. This stress test points to the need to continue to carefully monitor the evolution of external debt.*

I. Background

1. **Haiti's nominal external public debt as of end-2011 was US$657 million (Text Table 1).**[3] In present value (PV) terms, the external public debt was US$479 million or

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[1] World Bank and IMF (2009). "Review of Some Aspects of the Low-Income Country Debt Sustainability Framework." (IDA/SecM2009-0397; SM/09/216; BUFF/09/146).

[2] Haiti is classified as a weak performer based on its three-year 2008-10 average score of 2.90 in the World Bank's Country Policy and Institutional Assessment (CPIA) framework. For weak performers (defined as those with three-year average CPIA ratings below 3.25), the indicative thresholds for external debt sustainability are PV debt-to-GDP ratio of 30 percent, PV debt-to-exports ratio of 100 percent, PV debt-to-revenue ratio of 200 percent, debt service-to-exports ratio of 15 percent, and debt service-to-revenue ratio of 25 percent.

[3] Unless otherwise noted, data are presented on a fiscal year basis. Haiti's fiscal year ends in September.

the equivalent of 48 percent of exports, 50 percent of government revenue, and 7 percent of GDP. Haiti's external creditors are Venezuela (71 percent of total nominal debt), Taiwan Province of China (14 percent), the International Fund for Agricultural Development (IFAD) (10 percent), the IMF (4 percent) and the Organization of the Petroleum Exporting Countries (OPEC) (2 percent). The structure of external debt has undergone a significant change in recent years: the share of debt owed to traditional development partners has dropped owing to debt relief, while the share of debt owed to non-Paris Club bilaterals has increased reflecting continued new disbursements from Venezuela.

Text Table 1. Haiti: Public Sector External Debt
(In millions of U.S. dollars; end of fiscal year)

	2009	2010	2011
Total	1,243	863	657
Multilaterals	677	569	102
IMF	166	13	26
OPEC	7	8	11
IFAD	48	62	66
IDB	418	486	0
IBRD/IDA	39	0	0
Bilaterals	567	294	555
Venezuela	295	134	466
Taiwan Province of China	90	89	89
France	82	71	0
Spain	40	0	0
Italy	58	0	0
Canada	2	0	0

Source: Haitian authorities.

2. **Haiti's external debt burden has been significantly reduced owing to debt relief.** After having earlier benefitted from HIPC/MDRI-related debt relief, Haiti received additional debt relief following the devastating earthquake in January 2010. This debt relief include the following initiatives:

- The **IMF** extended debt relief in July 2010 to Haiti in the amount of SDR 178.13 million (about US$268 million) from the Post-Catastrophe Debt Relief (PCDR) Trust.[4]

[4] Established in June 2010, the PCDR Trust allows the Fund to join international debt relief efforts when poor countries are hit by the most catastrophic of natural disasters. Debt relief under the PCDR Trust frees up additional resources to meet exceptional balance of payments needs that arise from such catastrophes and subsequent economic recovery efforts. The Trust was initially financed by SDR 280 million (equivalent to around $422 million) of the IMF's own resources, and is expected to be replenished through future donor contributions, as necessary.

- The **World Bank** provided debt relief on Haiti's outstanding debt of SDR 24.3 million (about US$36 million as of May 21, 2010). The debt relief became effective in May 2010 when the 14 donors to the Debt Relief Trust Fund agreed to allocate the resources needed to cover the debt cancellation.

- The **IDB** provided debt relief in the amount of US$486 million. The debt relief was approved in March 2010 and delivered in October 2010 upon receipt of committed donor financing.

- The **IFAD** has established a Haiti debt relief account into which donors contribute funds. Pending the receipts of sufficient funds to cancel Haiti's debt to IFAD, current debt service falling due to IFAD is paid from this account. Currently, the debt relief account holds sufficient funds to service Haiti's debt to IFAD through 2020.

- **Venezuela** cancelled all outstanding PetroCaribe-related debt as of January 25, 2010 in the amount of US$395 million. This debt relief included a cancellation of the end-September 2009 stock of debt (US$295 million) and disbursements over the October 2009—January 2010 period (US$100 million).

- **Taiwan Province of China** waived interest payments for a period of five years. It also agreed to shift back the schedule of principal repayments by five years.

3. **The central government's** domestic debt to state-owned enterprises amounted to G 1.9 billion stemming mainly from recent agreements about the settlement of past payments of goods and services received. The non-financial public sector is a net creditor to the consolidated banking system (G 12.3 billion as of end-2011) mainly reflecting the central government's unspent balances in the IMF Post-Catastrophe Debt Relief account (G 10.8 billion) and in the PetroCaribe account (G 11.6 billion).

II. External Debt Sustainability Outlook, 2012-2032

4. **The baseline macroeconomic framework for the long-term debt sustainability analysis has been revised to take into account recent developments.** Key macroeconomic assumptions are summarized in Box 1 and in Text Table 2.

Box 1. Macroeconomic Assumptions

Growth and inflation. In 2011, real GDP recovered from the earthquake-related contraction in 2010. Major reconstruction projects and buoyant exports will jumpstart growth in 2012 and 2013. Over the medium term, several large infrastructure projects and the adoption of efficiency-enhancing reforms of the public sector are expected to foster a more enabling environment for private sector-led growth and buttress the economy's resilience to shocks. Long-run growth is assumed to be 4.5 percent underpinned by an ICOR of 5.1. High food and fuel prices pushed up consumer prices in 2011. Inflation is expected to revert to the low, single-digit level from 2013 onwards.

Fiscal policy. The overall balance deficit is 7.7 percent in 2012 and 5.8 percent in 2013. Over the medium term, it gradually decreases to 2.9 percent in 2032. Domestic revenues will increase gradually from 13.1 percent of GDP in 2011 to 16.9 percent of GDP in 2023 (and remain constant thereafter), thanks to the implementation of a recently launched reform program to overhaul revenue administration, increase excise taxes and streamline direct taxation. Whereas capital expenditures are projected to gradually decline from 26 percent of GDP in 2012 to 10 percent of GDP in 2032, current primary expenditures will remain constant at 10-11 percent of GDP.

Grants and financing. Donor assistance (grants, including humanitarian assistance, and concessional loans, but excluding debt relief) was close to US$3 billion in 2010 and US$2 billion in 2011. This assistance is projected to gradually decrease to US$1.3 billion by 2017. Beyond donors' commitment horizon, it is assumed that assistance will continue at the level of US$1.3 billion annually (with a grant/loan mix of 60/40 percent). Following the introduction of a Treasury-bill market in 2011, residual domestic financing needs—i.e., domestic financing less drawings from the PCDR account (expected to be fully drawn down by 2015) and PetroCaribe account (discussed in Box 2)—will be met through the issuance of Treasury-bills. The majority of those are expected to be bought by local commercial banks, as T-bills are set to replace Central Bank bills currently issued for monetary policy. It is assumed that such debt carries a rate of interest of 5 percent.

Current account. Exports rebounded strongly in 2011 and buoyant growth is expected to continue through 2013 driven by investments into the textile sector. In contrast, import demand will remain subdued as the international support for post-earthquake reconstruction winds down. Over the long term, it is assumed that the real export (real import) elasticity with respect to real GDP is 1.2 (0.8). Workers' remittances are conservatively assumed to increase 4 percent annually (below the expected increase in salaries in the US, which is the main source of remittances). The product-weighted average oil import price is projected to be US$124 per barrel in 2012 and the price is assumed to stay constant over the projection period. Consequently, the current account deficit excluding grants is projected to fall from 30 percent of GDP in 2010 to 20 percent of GDP in 2013, and then to 9½ percent of GDP (the pre-earthquake deficit level) by 2020.

Capital and financial accounts. The capital account surplus is projected to average 4 percent of GDP over medium term. In the early years, the capital account is dominated by public sector inflows, but private sector inflows will dominate the capital account from 2021 onwards. The private sector inflows are expected to be mostly in the form of FDI; by 2032, the stock of private sector external liabilities will be close to 35 percent of GDP.

Text Table 2. Haiti: Macroeconomic Trends and Outlook

	Actual			Medium-term outlook		Long-term outlook	
	Average 2000-09	2010	Preliminary 2011	2012	Average 2013-17	Average 2018-31	2032
	(Annual percentage change; unless otherwise indicated)						
National income and prices							
Real GDP	0.7	-5.4	5.6	7.8	5.9	4.5	4.5
Real GDP per capita	-0.9	-4.8	3.9	6.2	4.4	3.4	3.4
Index (1990 = 100)	80	75	78	83	95	133	169
GDP deflator (in gourdes)	13.6	4.7	5.9	7.2	4.0	2.0	2.0
GDP deflator (in US$)	3.9	5.7	6.8	4.7	3.8	2.0	2.0
Consumer prices (period average)	14.8	4.1	7.4	7.7	4.6	3.0	3.0
External sector							
Exports of goods & services (in US$)	5.8	-14.3	26.8	23.9	8.7	6.5	6.5
Imports of goods & services (in US$)	8.4	45.6	-0.3	11.8	1.9	4.4	4.4
Real exchange rate 1/	1.5	4.5	4.6	3.5	2.5	0.0	0.0
Central government							
Total revenue and grants (in gourdes)	22.2	64.6	13.0	14.9	3.4	5.6	5.9
Of which: Revenue	16.9	5.2	23.8	20.7	13.2	7.2	6.6
Primary expenditure (in gourdes)	25.4	22.3	39.4	29.3	2.0	5.2	6.0
Of which: Capital expenditure	34.5	46.8	52.3	38.4	-1.4	4.0	5.4
	(In percent of GDP; unless otherwise indicated)						
National income and prices							
Nominal GDP (in billions of gourdes)	162.0	264.0	297.7	345.7	475.4	935.9	1,461.7
Nominal GDP (in billions of US$)	4.6	6.6	7.4	8.3	11.3	22.3	34.8
GDP per capita (in US$)	489	665	738	820	1,063	1,861	2,706
Gross investment	28.0	25.4	28.0	32.6	26.5	22.9	22.9
Gross national savings	26.3	22.9	24.5	28.1	22.1	18.7	19.6
Gross domestic savings	0.4	-24.7	-13.4	-7.0	-2.1	4.9	9.5
External sector							
Current account deficit	-1.7	-2.6	-3.5	-4.5	-4.5	-4.2	-3.3
Excluding transfers	-7.4	-29.9	-23.1	-22.9	-14.8	-8.0	-5.5
Exports of goods and services	13.7	12.2	13.7	15.0	14.6	14.1	13.9
Imports of goods and services	-41.2	-62.3	-55.1	-54.6	-43.3	-32.0	-27.3
Gross reserves 2/	1.9	5.3	5.3	4.7	4.5	3.3	3.0
Central government							
Total revenue and grants	12.0	29.7	29.8	29.5	24.0	19.8	18.7
Of which: Revenue	9.4	11.9	13.1	13.6	14.6	16.6	16.9
Primary expenditure	13.5	26.8	33.1	36.9	28.5	22.4	20.6
Of which: Capital expenditure	4.8	16.1	21.7	25.9	18.5	12.2	10.4
Overall balance	-2.5	2.4	-3.7	-7.7	-4.9	-3.4	-2.9

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

1/ GDP deflator-based bilateral US dollars-gourdes real exchange rate.
2/ End of period gross liquid reserves in months of the following year's imports of goods and services.

5. **Following the delivery of debt relief, most bilateral development partners and multilateral development banks have shifted to providing assistance on a grants-only basis.** Major new disbursements are those related to the PetroCaribe agreement with Venezuela (see Box 2). Other disbursements are limited to those financed by OPEC, the ongoing airport renovation project financed by Venezuela's Economic and Social Development Bank (BANDES),[5] and the existing IFAD project pipeline.[6]

6. **Various changes to the baseline macroeconomic framework have been introduced since the previous DSA (Text Table 3) to take into account recent domestic developments, the current more troubling international outlook, and the government's revised long-term strategy.**[7] Exports, imports, gross workers' remittances and official transfers have been revised down. Consistently, the long-run real GDP growth rate has been slightly lowered from 5.0 percent to 4.5 percent. In contrast, the fiscal stance is broadly unchanged, but the projected increase in revenues has been brought forward to reflect the authorities' strong commitment to raise revenue collection, and reduce the country's dependency to donor support.

Text Table 3. Haiti: Comparison with Macroeconomic Projections in Previous DSA
(In percent of GDP; unless otherwise noted)

	2017		2030	
	DSA 2010 1/	DSA 2012	DSA 2010 1/	DSA 2012
Total public sector nominal debt	35.4	25.0	32.1	37.4
Domestic	15.0	5.4	20.8	14.4
External	20.4	19.6	11.4	22.9
GDP (in billions of US dollars)	14.6	13.4	35.3	30.6
GDP per capita (in US dollars)	1,295	1,224	2,642	2,434
Real GDP per capita index (1990 = 100)	102	103	161	158
External current account	-4.5	-3.7	-3.6	-3.6
Exports of goods and services	11.5	14.2	17.5	14.0
Imports of goods and services	-37.8	-37.4	-37.5	-28.4
Official transfers	6.6	7.0	3.4	2.5
Gross workers' remittances	13.9	14.9	11.3	10.8
Central government overall balance	-3.8	-4.0	-2.6	-2.8
Government domestic revenue	14.8	15.6	16.9	16.9
Grants	5.3	6.0	2.4	2.1
Primary expenditures	-23.2	-25.1	-20.7	-20.9
Interest payments	-0.8	-0.5	-1.1	-0.9

Sources: Haitian authorities; and staff estimates.

1/EBS/10/139, Supplement 1 (July 8, 2010) as corrected on July 19 and July 20, 2010.

[5] As the BANDES loan is non-concessional a waiver on the performance criterion on the contracting of external non-concessional debt was granted during the previous ECF arrangement (Country Report No. 10/14).

[6] This pipeline is expected to have become fully disbursed by 2013. It is assumed that new IFAD projects are financed by grants.

[7] Plan Stratégique de développement d'Haïti; Haïti pays émergent en 2030.

Box 2. PetroCaribe

Under the PetroCaribe Agreement, Venezuela finances part of Haiti's fuel import bill. The oil import bill is divided into a portion that is paid for in cash (the 'cash' portion) and a portion that is paid for through an extension of a loan (the 'loan' portion).

- The 'cash' portion represents a suppliers' credit that must be settled within 90 days (that credit is interest free the first 30 days and carries a two percent annual interest rate over the remaining 60 days).
- The 'loan' portion is a function of the oil price; this portion varies from 5 percent of the value of the oil shipment at oil prices up to US$15 per barrel to 50 percent at oil prices of US$100 per barrel or more. Shipping charges have to be prepaid and the 'cash' and 'loan' portions are then determined based on fob prices on a shipment –by–shipment basis. The terms of the 'loan' portion is also a function of the oil price. At oil prices up to US$40 per barrel, the loans have a 17 year maturity and carry a two percent rate of interest. At higher oil prices, the maturity is extended to 25 years and the rate of interest is lowered to one percent. At any oil price, the maturity of the loans includes a two year grace period.

Terms of Venezuelan's Loans under the Petrocaribe Agreement

International oil price (U.S.$/bbl, FOB, VZLA)	Share of value that is lent to Haiti (percent)	Loan maturity (in years)
≧ 15	5	15
≧ 20	10	15
≧ 22	15	15
≧ 24	20	15
≧ 30	25	15
≧ 40	30	23
≧ 50	40	23
≧ 100	50	23

Source. Petrocaribe Agreement between Haiti and Venezuela.

The local currency counterpart of the PetroCaribe credits is deposited in the domestic banking system. The funds are under the control of the central government and all transactions are fully captured in the fiscal accounts. Disbursements are recorded as external financing of the budget with an offsetting negative domestic bank financing entry. When the central government draws down the funds to finance its capital expenditure budget the (negative) domestic financing line is reduced accordingly. The authorities have committed to only use PetroCaribe resources to finance growth-enhancing investment projects; however, funds have also been used to finance transfers to the loss-making energy company EDH. In 2012-13, projected disbursements from the account are based on the expected rate of implementation of the existing project pipeline and a phasing out of electricity subsidies. From 2014 onwards, no electricity subsidies are envisaged and project disbursements are assumed to remain constant in real terms subject to availability of financing (by 2020 the PetroCaribe account has been fully drawn down). General budgetary resources are used to service the debt to PetroCaribe.

The PetroCaribe agreement allows for the financing of up to 14,000 barrels per day (on an annual basis). As Haiti currently exceeds this level of imports, financing is solely a function of price. With an assumed constant oil price over the medium term (at the projected product-weighted average oil price of US$124 per barrel in 2012), PetroCaribe disbursements remain constant at US$330 million a year. These disbursements will lead to a significant build up of new debt over time. The steady-state level of debt to PetroCaribe will be US$4,620 million from 2036 onwards.

7. **The outlook for the debt built up has also been updated.** Over the 2012-17 period, total disbursements have been revised up from US$1.8 billion to US$2.1 billion to incorporate larger PetroCaribe-related inflows (US$2 billion). Beyond donors' commitment horizon, projections are more speculative. The current DSA maintains the assumption that international assistance over the long run will continue at a level of US$1.3 billion annually. However, in light of the current pressures on aid budgets, the average grant element of this assistance has been lowered from 89 percent to 74 percent by changing the grants/loan mix from 83/17 percent to 60/40 percent. The assumptions on future borrowing are realistic given that the expected improvement in Haiti's economic outlook and the resulting buoyancy of the economy will stretch ODA needs (and opportunities) beyond what pure grant funding can cover, and the projected increases in ODA will not breach the concessionality criteria.

8. **Haiti's debt situation has significantly improved as a result of debt relief operations.**[8] The outlook for Haiti's debt, however, has not improved as prospects now are for a more rapid build-up of debt in the context of a weaker capacity to carry such debt. Over the long run, the PV of debt to export ratio will consistently exceed 100 percent (peaking at 129 percent in 2024) and all six standard stress tests lead to a breach of the PV of debt to export sustainability threshold. In the most extreme stress test (the combination shock), the PV of debt to export ratio peaks at 195 percent in 2019. Among the four standard shocks that constitute the combination shock, the export shock is the more serious. In contrast, the PV of debt to GDP and PV of debt to government revenue sustainability thresholds are not breached not even in the most extreme stress test. The debt service sustainability thresholds are also not breached even in the most extreme stress test.

III. PUBLIC SECTOR DEBT SUSTAINABILITY ANALYSIS

9. **In the baseline scenario, the public sector PV debt burden continue to increase over the projection period reaching 32 percent of GDP or 189 percent of revenue by 2032.** The external debt to GDP ratio falls from 2024 onwards reflecting increasing repayments to PetroCaribe. In contrast, domestic debt increases gradually over the projection period from less than 1 percent of GDP in 2011 to 16 percent of GDP by 2032.

IV. DEBT MANAGEMENT

10. **The Public Debt Directorate—located in the Ministry of Finance's Directorate-General for the Budget—is the focal point for public debt management.** The January 2010 earthquake seriously disrupted the functioning of the debt management office: the building was destroyed, some data were lost and computer systems were impaired. Staff has now been relocated to new prefabricated offices. While computer systems have been partially restored there are ongoing problems with network connectivity.

[8] The extended debt relief was anticipated and the current baseline DSA is broadly similar to the debt relief scenario included in the previous DSA report.

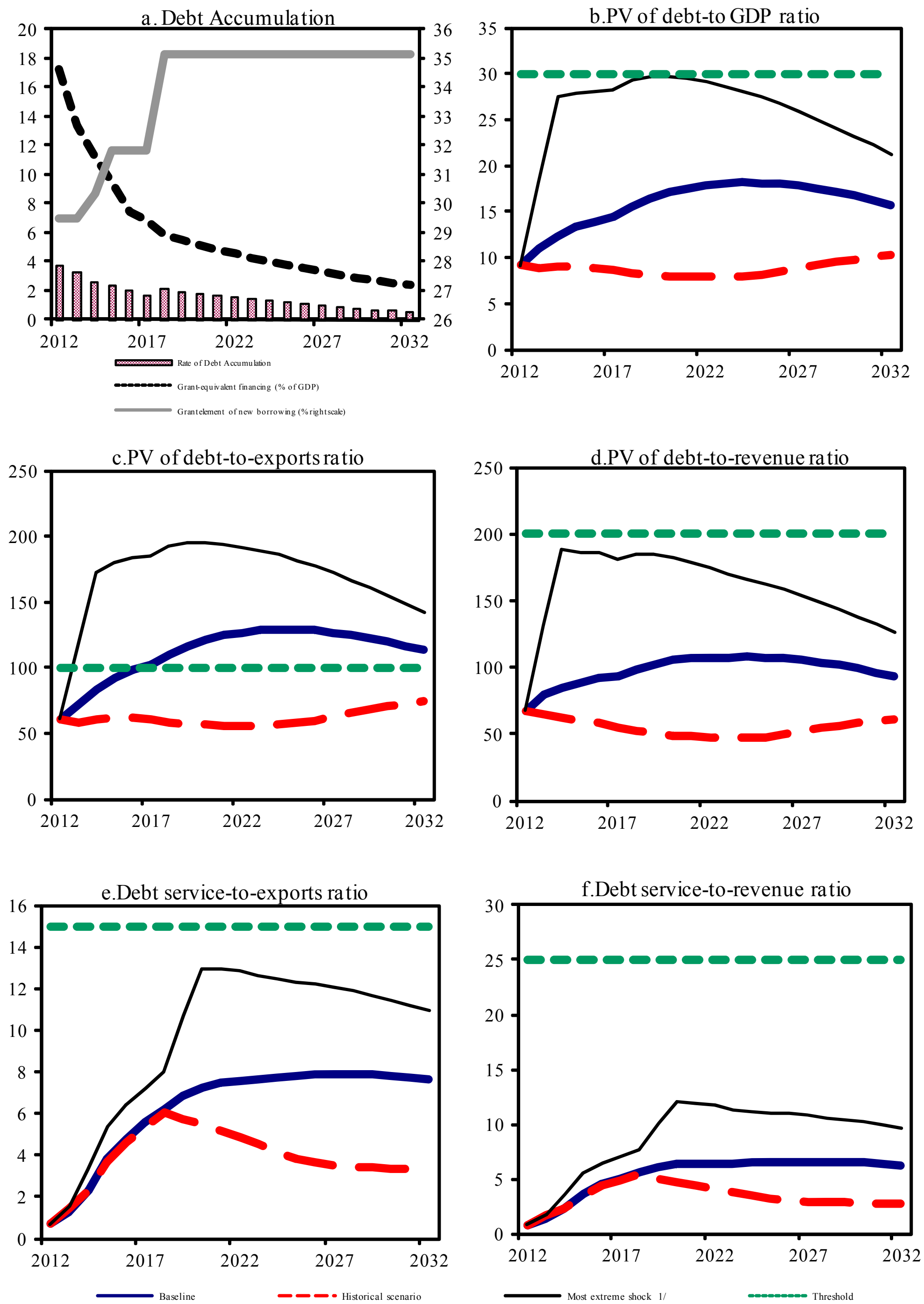
11. **Steady progress is being made to enhance the Public Debt Directorate's operational capacity.** The Directorate uses the electronic UNCTAD's Debt Management and Financial Analysis System (DMFAS) debt recording system and its capacity to produce debt sustainability analyses has been enhanced through the delivery of technical assistance from the Center for Latin American Monetary Studies (CEMLA). Work is ongoing to establish fully operational middle and back office functions within the Directorate. The legal framework for borrowing is not clearly defined, but the government is currently receiving technical assistance from CEMLA as well as the Caribbean Regional Technical Assistance Centre (CARTAC) to set up such a framework. A public debt law establishing a sound legal and institutional framework for public debt management is expected soon to be submitted to parliament (a structural benchmark for end-March in the ECF-supported program).

12. **The Public Debt Directorate and the External Debt Unit in the Central Bank's International Affairs Directorate collaborate closely.** The two organizational units exchange information frequently and jointly prepare debt service projections. The Central Bank is currently receiving technical assistance from UNCTAD to improve compilation of statistics on external private commercial debt.

V. Conclusion

13. **As a result of debt relief Haiti's external debt burden has been significantly reduced since 2009.** However, the outlook is for a significant build up of new external debt. The narrow export base remains the Achilles' heel of Haiti's debt sustainability: the PV of debt to export ratio exceeds the 100 percent sustainability threshold from 2017 onwards. Thus, Haiti's debt situation still remains vulnerable, and, consequently, the staffs continue to assess Haiti's risk of debt distress as being high.

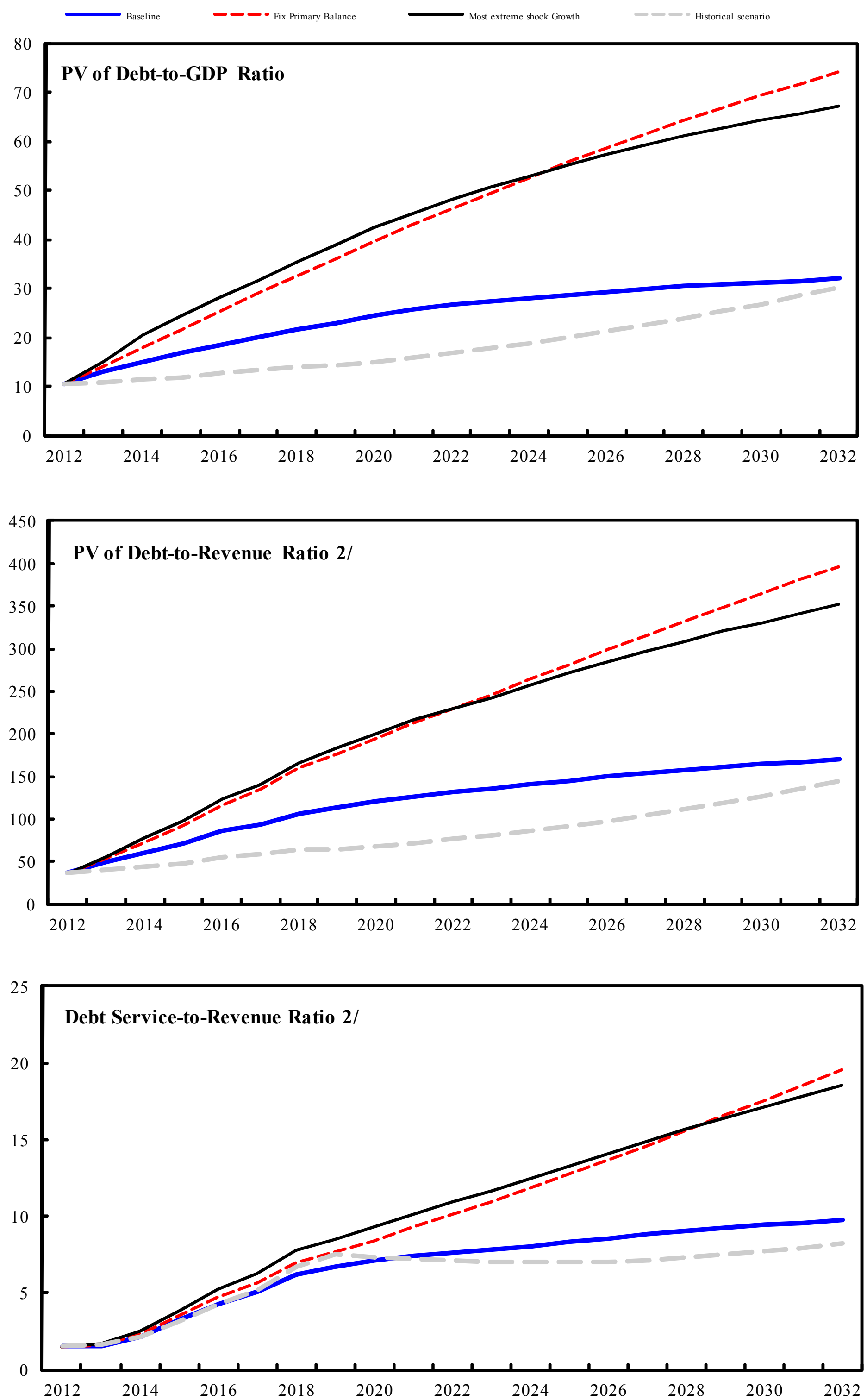
Figure 1. Haiti: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2012-2032 1/



Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2022. In figure b. it corresponds to a Combination shock; in c. to a Combination shock; in d. to a Combination shock; in e. to a Combination shock and in figure f. to a Combination shock

Figure 2. Haiti: Indicators of Public Debt Under Alternative Scenarios, 2012-2032 1/



Sources: Country authorities; and staff estimates and projections.
1/ The most extreme stress test is the test that yields the highest ratio in 2022.
2/ Revenues are defined inclusive of grants.

Table 1. Haiti: Public Sector Debt Sustainability Framework, Baseline Scenario, 2009-2032
(In percent of GDP, unless otherwise indicated)

	Actual			Average 5/	Standard Deviation 5/	Estimate	Projections								
	2009	2010	2011			2012	2013	2014	2015	2016	2017	2012-17 Average	2022	2032	2018-32 Average
Public sector debt 1/	19.5	13.2	9.7			14.0	16.9	19.2	21.4	23.4	25.0		33.5	37.7	
o/w foreign-currency denominated	19.5	13.1	9.0			12.5	15.0	16.7	17.9	18.9	19.6		24.9	21.5	
Change in public sector debt	-10.1	-6.3	-3.4			4.3	2.9	2.3	2.1	2.0	1.6		1.1	0.2	
Identified debt-creating flows	3.7	-3.5	2.5			6.6	4.2	3.2	3.0	2.5	2.2		1.5	0.6	
Primary deficit	4.0	-2.9	3.3	1.3	2.1	7.3	5.4	4.5	4.4	3.9	3.5	4.8	2.8	1.9	2.6
Revenue and grants	17.9	29.7	29.8			29.5	26.1	24.7	23.5	21.6	21.5		20.2	18.7	
of which: grants	6.7	17.8	16.8			15.9	12.2	10.2	8.5	6.5	6.0		3.5	1.9	
Primary (noninterest) expenditure	21.9	26.8	33.1			36.9	31.5	29.2	27.9	25.5	25.1		23.0	20.6	
Automatic debt dynamics	-0.3	-0.6	-0.8			-0.7	-1.3	-1.3	-1.4	-1.4	-1.3		-1.3	-1.3	
Contribution from interest rate/growth differential	-0.9	1.0	-0.5			-0.4	-0.7	-0.8	-1.0	-1.0	-1.1		-1.3	-1.3	
of which: contribution from average real interest rate	-0.1	-0.1	0.2			0.3	0.2	0.1	0.1	0.1	0.0		0.1	0.3	
of which: contribution from real GDP growth	-0.8	1.1	-0.7			-0.7	-0.9	-1.0	-1.1	-1.1	-1.1		-1.4	-1.6	
Contribution from real exchange rate depreciation	0.6	-1.6	-0.3			-0.3	-0.6	-0.4	-0.4	-0.3	-0.2		...	...	
Other identified debt-creating flows	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	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	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Other (specify, e.g. bank recapitalization)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Residual, including asset changes	-13.8	-2.8	-5.9			-2.4	-1.2	-0.9	-0.9	-0.5	-0.6		-0.4	-0.4	
Other Sustainability Indicators															
PV of public sector debt	...	...	7.3			10.6	13.0	14.9	16.7	18.5	19.9		26.5	31.9	
o/w foreign-currency denominated	...	...	6.6			9.2	11.1	12.3	13.3	14.0	14.5		17.9	15.7	
o/w external	...	...	6.6			9.2	11.1	12.3	13.3	14.0	14.5		17.9	15.7	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	5.0	-2.3	3.8			8.4	7.1	6.7	7.5	8.0	8.8		11.9	18.1	
PV of public sector debt-to-revenue and grants ratio (in percent)	…	…	24.4			36.0	49.7	60.3	71.2	85.5	92.4		131.3	170.4	
PV of public sector debt-to-revenue ratio (in percent)	…	…	55.7			78.2	93.4	102.4	111.4	122.0	128.0		159.2	189.3	
o/w external 3/	…	…	50.3			67.5	79.8	84.7	88.5	92.2	93.0		107.4	93.4	
Debt service-to-revenue and grants ratio (in percent) 4/	5.5	2.1	1.5			1.5	1.6	2.2	3.2	4.3	5.1		7.6	9.7	
Debt service-to-revenue ratio (in percent) 4/	8.7	5.2	3.5			3.2	3.0	3.7	5.1	6.1	7.0		9.3	10.8	
Primary deficit that stabilizes the debt-to-GDP ratio	14.1	3.4	6.7			3.1	2.5	2.1	2.3	1.9	1.9		1.7	1.7	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	2.9	-5.4	5.6	0.8	3.3	7.8	6.9	6.2	6.0	5.5	5.0	6.2	4.5	4.5	4.5
Average nominal interest rate on forex debt (in percent)	0.7	0.6	0.5	1.1	0.7	0.8	0.9	1.0	1.1	1.1	1.1	1.0	1.0	1.0	1.0
Average real interest rate on domestic debt (in percent)	...	...	342.8	342.8	#DIV/0!	44.3	10.5	7.5	4.8	4.1	4.1	12.5	4.2	3.3	4.0
Real exchange rate depreciation (in percent, + indicates depreciation)	2.2	-7.7	-2.1	-3.9	12.0	-3.6	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	3.4	4.7	6.8	12.7	7.6	7.7	5.6	4.0	4.0	3.5	3.0	4.6	2.0	2.0	2.0
Growth of real primary spending (deflated by GDP deflator, in percent)	0.3	0.2	0.3	0.2	0.2	0.2	-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)	...	...	...	…	…	29.5	29.5	30.3	31.8	31.8	31.8	30.8	35.2	35.2	...

Sources: Country authorities; and staff estimates and projections.
1/ Indicate coverage of public sector, e.g., general government or nonfinancial public sector. Also whether net or gross debt is used.
2/ Gross financing need is defined as the primary deficit plus debt service plus the stock of short-term debt at the end of the last period.
3/ Revenues excluding grants.
4/ Debt service is defined as the sum of interest and amortization of medium and long-term debt.
5/ Historical averages and standard deviations are generally derived over the past 10 years, subject to data availability.

Table 2. Haiti: Sensitivity Analysis for Key Indicators of Public Debt 2012-2032

	Projections							
	2012	2013	2014	2015	2016	2017	2022	2032
PV of Debt-to-GDP Ratio								
Baseline	11	13	15	17	18	20	27	32
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	11	11	11	12	13	13	17	30
A2. Primary balance is unchanged from 2012	11	14	18	22	25	29	46	74
A3. Permanently lower GDP growth 1/	11	13	15	17	20	22	32	50
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2013-2014	11	15	21	24	28	32	48	67
B2. Primary balance is at historical average minus one standard deviations in 2013-2014	11	12	13	15	17	18	25	31
B3. Combination of B1-B2 using one half standard deviation shocks	11	12	13	17	21	24	39	57
B4. One-time 30 percent real depreciation in 2013	11	16	17	19	20	21	26	31
B5. 10 percent of GDP increase in other debt-creating flows in 2013	11	20	21	22	24	25	31	34
PV of Debt-to-Revenue Ratio 2/								
Baseline	36	50	60	71	85	92	131	170
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	36	40	44	47	55	58	76	144
A2. Primary balance is unchanged from 2012	36	54	73	92	117	134	229	396
A3. Permanently lower GDP growth 1/	36	50	62	74	90	99	157	265
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2013-2014	36	55	77	97	123	139	230	352
B2. Primary balance is at historical average minus one standard deviations in 2013-2014	36	45	53	64	78	85	125	166
B3. Combination of B1-B2 using one half standard deviation shocks	36	43	50	68	91	106	190	302
B4. One-time 30 percent real depreciation in 2013	36	62	70	79	92	98	128	164
B5. 10 percent of GDP increase in other debt-creating flows in 2013	36	75	85	96	111	117	152	184
Debt Service-to-Revenue Ratio 2/								
Baseline	1	2	2	3	4	5	8	10
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	1	2	2	3	4	5	7	8
A2. Primary balance is unchanged from 2012	1	2	2	4	5	6	10	20
A3. Permanently lower GDP growth 1/	1	2	2	3	4	5	8	14
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2013-2014	1	2	2	4	5	6	11	19
B2. Primary balance is at historical average minus one standard deviations in 2013-2014	1	2	2	3	4	5	7	9
B3. Combination of B1-B2 using one half standard deviation shocks	1	2	2	3	4	6	9	16
B4. One-time 30 percent real depreciation in 2013	1	2	3	4	6	7	10	13
B5. 10 percent of GDP increase in other debt-creating flows in 2013	1	2	3	4	5	5	9	11

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 3. Haiti: External Debt Sustainability Framework, Baseline Scenario, 2009-2032 1/
(In percent of GDP, unless otherwise indicated)

	Actual			Historical Average 6/	Standard Deviation 6/	Projections									
	2009	2010	2011			2012	2013	2014	2015	2016	2017	2012-2017 Average	2022	2032	2018-2032 Average
External debt (nominal) 1/	**19.5**	**13.1**	**9.0**			**12.5**	**15.0**	**16.7**	**17.9**	**18.9**	**19.6**		**24.9**	**21.5**	
o/w public and publicly guaranteed (PPG)	19.5	13.1	9.0			12.5	15.0	16.7	17.9	18.9	19.6		24.9	21.5	
Change in external debt	-10.1	-6.4	-4.0			3.5	2.5	1.6	1.3	0.9	0.7		0.5	-0.7	
Identified net debt-creating flows	2.9	0.3	-0.4			2.7	3.5	2.1	1.8	1.5	1.2		0.9	-0.6	
Non-interest current account deficit	**3.3**	**2.4**	**3.5**	**1.7**	**1.6**	**4.4**	**5.4**	**4.6**	**4.2**	**3.8**	**3.6**		**4.3**	**3.1**	3.9
Deficit in balance of goods and services	28.6	50.2	41.4			39.6	35.5	31.4	28.3	25.0	23.2		19.5	13.4	
Exports	14.2	12.2	13.7			15.0	15.5	14.8	14.4	14.2	14.2		14.1	13.9	
Imports	42.8	62.3	55.1			54.6	50.9	46.2	42.7	39.3	37.4		33.6	27.3	
Net current transfers (negative = inflow)	-25.0	-47.3	-37.3	-30.3	7.2	-34.7	-29.6	-26.5	-23.8	-21.0	-19.5		-15.3	-11.1	-14.0
o/w official	-6.0	-27.3	-19.6			-18.4	-14.4	-12.1	-10.2	-8.1	-7.0		-4.2	-2.2	
Other current account flows (negative = net inflow)	-0.4	-0.4	-0.6			-0.5	-0.4	-0.3	-0.3	-0.3	-0.2		0.1	0.8	
Net FDI (negative = inflow)	**-0.6**	**-2.3**	**-2.4**	**-1.2**	**1.1**	**-1.2**	**-1.3**	**-1.8**	**-1.7**	**-1.6**	**-1.6**		**-2.6**	**-3.0**	-2.8
Endogenous debt dynamics 2/	**0.2**	**0.1**	**-1.4**			**-0.6**	**-0.7**	**-0.7**	**-0.7**	**-0.7**	**-0.7**		**-0.8**	**-0.7**	
Contribution from nominal interest rate	0.2	0.1	0.1			0.1	0.1	0.1	0.2	0.2	0.2		0.2	0.2	
Contribution from real GDP growth	-0.9	1.1	-0.6			-0.6	-0.8	-0.8	-0.9	-0.9	-0.9		-1.0	-0.9	
Contribution from price and exchange rate changes	0.8	-1.1	-0.8			…	…	…	…	…	…		…	…	
Residual (3-4) 3/	**-13.0**	**-6.7**	**-3.6**			**0.8**	**-1.0**	**-0.4**	**-0.5**	**-0.5**	**-0.5**		**-0.4**	**-0.1**	
o/w exceptional financing	-2.4	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
PV of external debt 4/	...	...	6.6			9.2	11.1	12.3	13.3	14.0	14.5		17.9	15.7	
In percent of exports	...	...	48.1			61.1	71.5	83.2	92.1	98.1	102.0		126.9	113.1	
PV of PPG external debt	**...**	**...**	**6.6**			**9.2**	**11.1**	**12.3**	**13.3**	**14.0**	**14.5**		**17.9**	**15.7**	
In percent of exports	**...**	**...**	**48.1**			**61.1**	**71.5**	**83.2**	**92.1**	**98.1**	**102.0**		**126.9**	**113.1**	
In percent of government revenues	**...**	**...**	**50.3**			**67.5**	**79.8**	**84.7**	**88.5**	**92.2**	**93.0**		**107.4**	**93.4**	
Debt service-to-exports ratio (in percent)	**3.9**	**1.6**	**0.6**			**0.7**	**1.3**	**2.3**	**3.8**	**4.8**	**5.5**		**7.6**	**7.6**	
PPG debt service-to-exports ratio (in percent)	**3.9**	**1.6**	**0.6**			**0.7**	**1.3**	**2.3**	**3.8**	**4.8**	**5.5**		**7.6**	**7.6**	
PPG debt service-to-revenue ratio (in percent)	**4.9**	**1.7**	**0.6**			**0.8**	**1.4**	**2.3**	**3.7**	**4.5**	**5.1**		**6.4**	**6.3**	
Total gross financing need (Millions of U.S. dollars)	212.6	23.3	82.8			277.2	404.0	318.7	344.1	352.8	360.8		508.7	403.9	
Non-interest current account deficit that stabilizes debt ratio	13.4	8.9	7.5			0.9	2.9	3.0	2.9	2.8	2.9		3.8	3.8	
Key macroeconomic assumptions															
Real GDP growth (in percent)	2.9	-5.4	5.6	0.8	3.3	7.8	6.9	6.2	6.0	5.5	5.0	6.2	4.5	4.5	4.5
GDP deflator in US dollar terms (change in percent)	-2.8	5.7	6.8	7.3	12.0	4.7	4.3	4.0	4.0	3.5	3.0	3.9	2.0	2.0	2.0
Effective interest rate (percent) 5/	0.7	0.6	0.5	1.1	0.7	0.8	0.9	1.0	1.1	1.1	1.1	1.0	1.0	1.0	1.0
Growth of exports of G&S (US dollar terms, in percent)	11.6	-14.3	26.8	9.1	11.1	23.9	15.0	5.8	7.0	7.8	7.9	11.2	6.5	6.5	6.5
Growth of imports of G&S (US dollar terms, in percent)	-1.7	45.6	-0.3	12.9	14.5	11.8	4.0	0.2	1.8	0.4	3.0	3.5	4.4	4.4	4.4
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	29.5	29.5	30.3	31.8	31.8	31.8	30.8	35.2	35.2	35.2
Government revenues (excluding grants, in percent of GDP)	11.2	11.9	13.1			13.6	13.9	14.6	15.0	15.1	15.6		16.7	16.9	16.7
Aid flows (in Millions of US dollars) 7/	663.2	1393.3	1576.1			1669.1	1479.9	1380.0	1319.0	1160.0	1160.0		1170.0	1170.0	
o/w Grants	438.4	1169.2	1238.7			1329.0	1135.0	1045.0	959.0	800.0	800.0		650.0	650.0	
o/w Concessional loans	224.8	224.0	337.5			340.1	344.9	335.0	360.0	360.0	360.0		520.0	520.0	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			17.3	13.4	11.2	9.5	7.4	6.8		4.5	2.4	3.9
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			84.4	82.5	83.1	81.4	78.8	78.8		71.2	71.2	71.2
Memorandum items:															
Nominal GDP (Millions of US dollars)	6552.0	6551.2	7388.4			8335.3	9293.8	10264.8	11315.9	12354.5	13361.4		18383.8	34801.6	
Nominal dollar GDP growth	0.0	0.0	12.8			12.8	11.5	10.4	10.2	9.2	8.2	10.4	6.6	6.6	6.6
PV of PPG external debt (in Millions of US dollars)			478.7			754.6	1028.9	1266.8	1501.6	1723.7	1934.1		3288.9	5479.3	
(PVt-PVt-1)/GDPt-1 (in percent)						3.7	3.3	2.6	2.3	2.0	1.7	2.6	1.5	0.5	1.2
Gross workers' remittances (Millions of US dollars)	1375.6	1473.8	1552.7			1636.8	1702.3	1770.4	1841.2	1914.8	1991.4		2422.9	3586.4	
PV of PPG external debt (in percent of GDP + remittances)	...	...	5.4			7.7	9.4	10.5	11.4	12.1	12.6		15.8	14.3	
PV of PPG external debt (in percent of exports + remittances)	...	...	18.9			26.5	32.8	38.5	43.3	46.9	49.8		65.6	65.0	
Debt service of PPG external debt (in percent of exports + remittances)	...	...	0.2			0.3	0.6	1.1	1.8	2.3	2.7		3.9	4.4	

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 4. Haiti: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2012-2032 (Continued)
(In percent)

	Projections							
	2012	2013	2014	2015	2016	2017	**2022**	2032
PV of debt-to GDP ratio								
Baseline	9	11	12	13	14	14	**18**	16
A. Alternative Scenarios								
A2. New public sector loans on less favorable terms in 2012-2032 2	9	12	14	15	17	18	**24**	25
A3. Alternative Scenario :[Costumize, enter title]	9	9	9	8	6	5	**0**	-5
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013-2014	9	12	15	16	17	17	**21**	19
B2. Export value growth at historical average minus one standard deviation in 2013-2014 3/	9	13	16	17	17	17	**20**	16
B3. US dollar GDP deflator at historical average minus one standard deviation in 2013-2014	9	12	15	16	17	17	**21**	19
B4. Net non-debt creating flows at historical average minus one standard deviation in 2013-2014 4/	9	16	21	21	21	22	**23**	17
B5. Combination of B1-B4 using one-half standard deviation shocks	9	18	27	28	28	28	**29**	21
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	9	16	17	19	20	20	**25**	22
PV of debt-to-exports ratio								
Baseline	61	72	83	92	98	102	**127**	113
A. Alternative Scenarios								
A2. New public sector loans on less favorable terms in 2012-2032 2	61	77	93	107	117	124	**172**	177
A3. Alternative Scenario :[Costumize, enter title]	60	60	61	56	45	34	**0**	-36
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013-2014	61	71	83	92	98	102	**127**	113
B2. Export value growth at historical average minus one standard deviation in 2013-2014 3/	61	95	135	146	152	156	**179**	149
B3. US dollar GDP deflator at historical average minus one standard deviation in 2013-2014	61	71	83	92	98	102	**127**	113
B4. Net non-debt creating flows at historical average minus one standard deviation in 2013-2014 4/	61	105	140	147	151	153	**162**	123
B5. Combination of B1-B4 using one-half standard deviation shocks	61	117	172	180	183	185	**192**	142
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	61	71	83	92	98	102	**127**	113
PV of debt-to-revenue ratio								
Baseline	68	80	85	88	92	93	**107**	93
A. Alternative Scenarios								
A2. New public sector loans on less favorable terms in 2012-2032 2	68	86	95	103	110	113	**146**	146
A3. Alternative Scenario :[Costumize, enter title]	67	67	62	54	43	31	**0**	-30
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013-2014	68	88	101	106	110	111	**128**	111
B2. Export value growth at historical average minus one standard deviation in 2013-2014 3/	68	91	109	111	113	112	**120**	97
B3. US dollar GDP deflator at historical average minus one standard deviation in 2013-2014	68	87	101	106	110	111	**128**	112
B4. Net non-debt creating flows at historical average minus one standard deviation in 2013-2014 4/	68	118	143	141	142	139	**137**	102
B5. Combination of B1-B4 using one-half standard deviation shocks	68	131	188	186	185	181	**175**	126
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	68	112	119	124	129	131	**151**	131

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.

Table 4. Haiti: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2012-2032 (Concluded)
(In percent)

	Projections							
	2012	2013	2014	2015	2016	2017	**2022**	2032
Debt service-to-exports ratio								
Baseline	1	1	2	4	5	6	**8**	8
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2012-2032 1/	1	1	2	4	5	5	**5**	3
A2. New public sector loans on less favorable terms in 2012-2032 2	1	1	3	4	6	7	**10**	13
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013-2014	1	1	2	4	5	5	**8**	8
B2. Export value growth at historical average minus one standard deviation in 2013-2014 3/	1	2	3	5	6	7	**11**	11
B3. US dollar GDP deflator at historical average minus one standard deviation in 2013-2014	1	1	2	4	5	5	**8**	8
B4. Net non-debt creating flows at historical average minus one standard deviation in 2013-2014 4/	1	1	3	5	5	6	**11**	9
B5. Combination of B1-B4 using one-half standard deviation shocks	1	2	3	5	6	7	**13**	11
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	1	1	2	4	5	5	**8**	8
Debt service-to-revenue ratio								
Baseline	1	1	2	4	4	5	**6**	6
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2012-2032 1/	1	2	2	4	4	5	**4**	3
A2. New public sector loans on less favorable terms in 2012-2032 2	1	2	3	4	5	6	**8**	10
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013-2014	1	2	3	4	5	6	**8**	8
B2. Export value growth at historical average minus one standard deviation in 2013-2014 3/	1	2	3	4	5	5	**8**	7
B3. US dollar GDP deflator at historical average minus one standard deviation in 2013-2014	1	2	3	4	5	6	**8**	8
B4. Net non-debt creating flows at historical average minus one standard deviation in 2013-2014 4/	1	2	3	4	5	6	**9**	8
B5. Combination of B1-B4 using one-half standard deviation shocks	1	2	4	6	6	7	**12**	10
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	1	2	3	5	6	7	**9**	9
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	33	33	33	33	33	33	**33**	33

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.