INTERNATIONAL MONETARY FUND

GRENADA

Debt Sustainability Analysis

Prepared by the Staff of the International Monetary Fund

In consultation with the World Bank Staff

June 20, 2008

Grenada's debt sustainability outlook has deteriorated relative to the active scenario in the previous debt sustainability analysis (DSA),[1] reflecting fiscal slippages in 2007, the revised fiscal projection for 2008 (including bank restructuring costs), and larger PetroCaribe borrowing as a result of higher fuel prices.[2] The ECCU benchmark of 60 percent for the ratio of nominal public debt to GDP would be achieved in 2018, two years ahead of the target date. Possible additional borrowing from Export-Import Bank of China to finance the construction of the port and marina project could—depending on the loan size and concessionality—undermine efforts to secure debt sustainability. Based on Grenada's 2004–06 average Country Policy and Institutional Assessment (CPIA)[3] rating of "medium," Grenada currently exceeds the thresholds for the ratio of the net present value (NPV) of external debt to GDP and to exports. Under the program, the ratio of the NPV of external debt to GDP will fall below the 40 percent indicative threshold only in 2020. Thus, Grenada is at ***high risk*** *of debt distress.*

I. Context

1. **While Grenada's outlook remains favorable, economic growth is expected to slow somewhat in 2008 (to 3.7 percent), in part due to the projected slowdown in the global economy**. Growth in 2007 was 4.3 percent, driven by tourism, the Cricket World Cup, and expansion of St. George's University. Annual average inflation is projected at 7.8 percent in 2008, reflecting rising world fuel and food prices.

2. **In the aftermath of the hurricanes, the authorities recognized that Grenada's public sector debt was unsustainable, and undertook a collaborative debt restructuring**.

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[1] See IMF Country Report No. 08/351.

[2] The authorities plan to place a share of PetroCaribe's disbursements in a special account to repay related obligations. The gross external debt figures used in this DSA do not net out amounts in the special account.

[3] The World Bank's CPIA rates countries against a set of 16 criteria grouped in four clusters: (i) economic management; (ii) structural policies; (iii) policies for social inclusion and equity; and (iv) public sector management and institutions.

- **A highly successful exchange for commercial debt was concluded in November 2005**. Overall participation reached 91 percent of eligible debt, or about US$237 million (about 40 percent of total public debt). The restructuring involved an increase in the maturity of liabilities that implied a reduction of 40–45 percent in net present value terms (for exit yields in the 9–10 percent range), and reduced debt servicing costs by 83 percent during 2005–08.[4]

- **For official debt, a Paris Club agreement was reached in May 2006**. This agreement reduces debt service to Paris Club creditors by more than 90 percent through 2008. The authorities have signed bilateral agreements with all but one Paris Club creditor (Russian Federation), and have been working to reach agreement with non-Paris Club creditors. The government has been seeking an out-of-court settlement with Export-Import Bank of Taiwan Province of China for outstanding liabilities of US$20.3 million (3.4 percent of 2007 GDP).

II. Underlying DSA Assumptions

3. **The baseline (program) scenario is based upon the government's current fiscal policies**.[5] The main assumptions of the DSA are described in the following table and in Box 1.

Grenada: Key Assumptions and Indicators in the DSA, 2007-28

(In percent of GDP, unless otherwise indicated)

	Prelim.	Projections					
	2007	2008	2009	2010	2013	2018	2028
Total revenues and grants	39.3	41.9	41.2	41.0	40.3	39.6	39.1
Primary (noninterest) expenditure	45.5	43.2	39.4	37.7	37.2	37.2	37.1
Primary balance (including grants)	-6.2	-1.3	1.9	3.2	3.0	2.4	2.0
Overall balance	-8.5	-4.1	-0.6	0.7	0.4	-0.8	-0.1
Public debt	112.0	106.5	98.7	93.4	78.8	59.6	35.4
External current account	-32.6	-36.4	-35.1	-32.5	-24.4	-22.7	-21.1
Exports of goods and services	34.6	31.7	32.2	32.5	34.5	35.0	36.0
Real GDP growth (in percent) 1/	4.3	3.7	4.2	4.4	4.2	4.0	4.0
Inflation rate (average; in percent)	3.9	7.8	4.5	3.1	2.3	2.0	2.0

Sources: Ministry of Finance of Grenada; and Fund staff estimates and projections.

[4] The government incurred EC$20.3 million arrears on unrestructured domestic debt to the nonbank public due on June 30, 2007. The government has cleared over half of these arrears, including almost all arrears to individuals. The remainder is owed primarily to insurance companies.

[5] The baseline program scenario assesses the implications of the authorities' program under the PRGF arrangement, which focuses on securing debt sustainability through fiscal consolidation, and on implementing structural reforms. The accompanying Staff Report includes an extensive description of the authorities' program.

Box 1. Baseline Macroeconomic Assumptions (2008–28)

- Real **GDP growth** is projected at above 4 percent a year during 2009–13 and at 4 percent subsequently. In the near term, this growth projection is underpinned by the recent sharp increase in investor interest; the strong growth in Grenada's largest private employer, St. George's University; and the gradual recovery of the agricultural sector. In the longer run, the projection assumes that the authorities undertake the structural reforms needed to sustain growth.

- After rising to 7.8 percent in 2008, annual average **inflation** is projected to fall gradually to 2 percent by 2014, and remain at this level thereafter.

- The **primary balance** (including grants) of the central government improves from the average deficit of 2.2 percent of GDP during 1998–2007 to a surplus of about 2 percent by 2018, consistent with annual capital expenditure of about 8 percent of GDP.

- **Grants** gradually decline from high post-hurricane levels to 1 percent of GDP by 2020, and the interest rate on new borrowing increases from 2 percent through 2010 to about 6 percent by 2028, as concessional financing tapers off; with a discount rate of 5 percent, this implies a negative grant element for new borrowing in later years.

- The projection assumes that Grenada receives **concessional financing** under the PetroCaribe initiative during 2008–12 (paragraph 7 below), and that the grant element is used to finance programs already in the budget, replacing more expensive forms of financing. The interest rate on debt restructured in 2005 increases from 1 percent through 2008 to 9 percent by 2019, in line with the restructuring agreement.

- The **external current account** deficit is assumed to decline gradually from 32.6 percent of GDP in 2007 to about 24 of GDP by 2013 due to strong growth in tourism and a falloff in imports from high post-hurricane levels. Ongoing adjustment of the economy (reflected in a growing share of tourism receipts) would help the current account deficit stabilize at just over 20 percent of GDP in the outer years.[1] **Exports** of goods are assumed to stabilize to their historical norm of 6 percent of GDP by 2013, and remain at this level thereafter. Buoyant net **FDI** flows (averaging 23 percent of GDP in 2008–13, and 16 percent of GDP in the outer years) as well as other non-debt creating inflows (averaging close to 3 percent of GDP over the projection period) would provide most of the financing.

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[1] This current account deficit is consistent with estimates of the current account norm for ECCU countries (see Emilio Pineda and Paul Cashin, *Assessing Exchange Rate Competitiveness in the Eastern Caribbean Currency Union*, IMF Country Report No. 08/96).

III. Evaluation of Public Sector Debt Sustainability

Grenada's public debt as of end-2007

4. **Public sector debt fell by 5 percentage points of GDP during 2007 to 112 percent of GDP** (Tables 1 and A1a). External debt accounted for 71 percent of total debt, almost all owed by the central government. Commercial debt accounted for about 40 percent of external debt, and multilateral debt, mostly from the Caribbean Development Bank, accounted for another one-third, with the remainder owed to bilateral (Paris and non-Paris Club) creditors. In NPV terms, public sector debt stood at 108 percent of GDP, reflecting the concessional element of multilateral and restructured debt, and assuming that bilateral debt to non-Paris Club creditors will be restructured on Paris Club terms.

The baseline (program) scenario

5. **Grenada's debt sustainability outlook has deteriorated relative to the previous DSA's active scenario**. The deterioration reflects fiscal slippages in 2007, the revised projection for 2008 (including bank restructuring costs estimated at 1.5 percent of GDP), and larger PetroCaribe borrowing as a result of higher fuel prices. The baseline does not include a proposed loan from Export-Import Bank of China that is discussed below.[6]

6. **As a result, the authorities' nominal debt target of 60 percent of GDP will now be achieved in 2018 under the baseline (program) projection, four years later than in the previous DSA's active scenario.**[7] The NPV of debt falls to 43 percent of GDP by 2028, compared with 35 percent of GDP in nominal terms, reflecting growing commercial borrowing at above the discount rate of 5 percent (Figure 1a). The NPV of public sector debt-to-revenue ratio falls from 275 percent in 2007 to 109 percent in 2028.[8] The debt service-to-revenue ratio would fall from 13 percent in 2007 to 8 percent in 2028, with the ratio rising to 14–17 percent during 2021–25 as restructured debt amortizes.

7. **The baseline projection incorporates debt accumulated under the PetroCaribe Agreement during 2008–12**.[9] Based on current WEO oil prices, this agreement would

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[6] The baseline is consistent with the program ceiling on bilateral concessional debt, which does not accommodate this loan.

[7] Since the 2007 Article IV consultation, the authorities have revised GDP upward to incorporate the contribution of St. George's University. The revision for 2006 has been 7 percent. Under the 2007 Article IV active scenario, and with the revised GDP, the 60 percent of GDP target would be reached in 2014, rather than 2017 as reported in the Article IV staff report based on the previous GDP series.

[8] These ratios are stated with revenue inclusive of grants, consistent with Table A1b.

[9] The PetroCaribe agreement extends for a 14-year period, but is assumed to operate for only five years reflecting the possibility that committed concessional financing might not be delivered.

provide concessional financing of 2.5 percent of GDP in 2008.[10] The financing terms are highly concessional, with an interest rate of 1 percent and a maturity of 25 years (including a two-year grace period), implying a grant element of 47 percent**.**

Alternative scenarios and stress tests

Policy scenarios

8. **The debt outlook is highly sensitive to departures from the policy framework assumed in the baseline projections.** In the context of large fiscal slippages in 2006 and 2007, the risks of delaying or not undertaking needed fiscal adjustment, or of proceeding with possible new borrowing are illustrated by the following scenarios.

9. **A scenario in which adjustment still takes place but with a delay of five years would be a significant setback to debt sustainability** (Table A1b, Alternative Scenario A5). If the primary fiscal balance remains at the 2007 level for five years, and delays in structural reforms reduce growth by 0.5 percentage point a year relative to the baseline in the same period, then the NPV of debt to GDP would fall to 55 percent by 2028 (48 percent in nominal terms), rather than 43 percent in the baseline scenario (Figure 1b). The 60 percent of GDP target for nominal debt is reached only in 2024 rather than 2018 in the baseline. The NPV of debt to revenue would fall to 139 percent, rather than 109 percent in the baseline scenario.

10. **Under a scenario in which the primary fiscal balance remains unchanged at the 2008 level throughout the projection period, the authorities would not achieve their nominal debt-to-GDP target of 60 percent of GDP within this period** (Table A1b, Alternative Scenario A2).[11] With an unchanged primary balance, this ratio remains close to 100 percent of GDP, with the NPV of debt-to-GDP ratio rising to 101 percent by 2028 (98 percent in nominal terms).

11. **Proposed borrowing from Export-Import Bank of China in 2009–11 to finance the construction of the port and marina project could—depending on the loan size and concessionality—undermine debt sustainability.** The size and terms of the loan have yet to be finalized, and this scenario assumes a loan amount of US$85 million disbursed over 2009–11 with a 37 percent grant element, no private co-financing, and no impact on growth. With these assumptions, the NPV of debt-to-GDP ratio in 2028 is 50 percent (40 percent in nominal terms; Table A1b, Alternative Scenario A6). The 60 percent of GDP target for nominal debt is reached only in 2021 rather than 2018 in the baseline. If the project raises GDP growth by 0.5 percentage point during 2012–28, the NPV of debt-to-GDP ratio in 2028

[10] The PetroCaribe agreement finances 50 percent of diesel imports (up to a ceiling) when the international price of oil is above US$100 per barrel. The May 2008 WEO oil price baseline projects that oil prices will remain above this level over the medium term.

[11] Incorporating even a small negative impact of an unchanged primary balance on growth, the 60 percent of GDP target for nominal debt would not be achieved in the projection period.

is 45 percent (36 percent in nominal terms), and the 60 percent of GDP target is reached in 2020.

Other scenarios

12. **The outlook is highly sensitive to natural disasters.** Hurricanes Ivan and Emily precipitated a debt restructuring in 2005, and Grenada remains vulnerable to future such events. For example, with a natural disaster in 2009 that would reduce GDP growth to zero for three years, raise growth (compared to the baseline) in 2012–13 during the recovery, and increase the primary deficit by 3 percentage points of GDP during 2009–11, the NPV of debt would be 57 percent of GDP (50 percent in nominal terms), compared to 43 percent in the baseline (Table A1b, Alternative Scenario A4). The 60 percent of GDP target for nominal debt would be achieved only in 2024. Grenada's participation in the World Bank's Caribbean Catastrophe Insurance Facility, which is not incorporated in this analysis, could help cushion the financial impact of further disasters.

13. **Sensitivity analysis also points to vulnerability related to the need to contain expenditure if growth does not materialize**. In Bound Test B1, real GDP contracts by 2.2 percent in 2009 and 2010, the share of fiscal revenue in GDP follows the same trajectory as in the baseline, while expenditure is held constant in nominal terms. In this scenario, the NPV of debt rises sharply to 129 percent of GDP (127 percent in nominal terms), and the 60 percent of GDP target for nominal debt would not be achieved in the projection period. This is the most extreme scenario in 2018 for the ratios of NPV of debt to GDP and to revenue, and for the debt service to revenue ratio (see Figure 1a).

IV. Evaluation of External Debt Sustainability

14. **Grenada currently exceeds the thresholds—based on the Debt Sustainability Framework for Low-Income Countries—for the ratio of the NPV of external debt to GDP and to exports**. Based on Grenada's 2004–06 average CPIA rating of "medium,"[12] the thresholds are 40 percent and 150 percent for the ratios to GDP and exports, respectively, while for 2007, Grenada's ratios were 75 percent and 218 percent, respectively.[13]

15. **Although Grenada's external public debt would fall significantly in the baseline scenario, it would remain above the NPV of debt-to-GDP threshold for an extended period** (Table A2a). The ratio of the NPV of external public debt to GDP would not fall below the 40 percent threshold until 2020, while the NPV of debt to exports would not fall below the 150 percent threshold until 2015 (Figure 2). The debt service-to-exports ratio breaches the 20 percent threshold in 2009 and during 2021–28, the latter reflecting service on restructured debt.

[12] The previous three-year average (2003–05) CPIA rating for Grenada's performance was "strong." Even with this higher rating, Grenada would still exceed the indicative thresholds for the debt ratios to GDP and exports.

[13] See *Staff Guidance Note on the Application of the Joint Fund-Bank Debt Sustainability Framework for Low-Income Countries (Public Information Notice (PIN) No. 05/59 (May 4, 2005))*.

16. **Under a scenario that includes possible borrowing from Export-Import Bank of China, debt dynamics are even less favorable**. The NPV of external public debt to GDP would not fall below the 40 percent threshold until 2023, while the NPV of debt to exports would fall below the 150 percent threshold in 2017, three and two years, respectively, later than under the baseline.

17. **Bound tests show significant sensitivity in the short term, but much less sensitivity by 2028** (Table A2b). Under an alternative scenario with key variables (GDP growth, the current account deficit, and FDI) at historical averages, the NPV of external public debt to GDP ratio would fall to 28 percent by 2028 (Scenario A1), one percentage point higher than in the baseline scenario, and well under the threshold of 40 percent of GDP. Under this scenario, the NPV of debt-to-exports ratio would fall to 77 percent by 2028 (two percentage points higher than in the baseline scenario), while the debt service-to-exports ratio would remain above the 20 percent threshold for most of the projection period (see lower panel of Figure 2). Under a scenario of a natural disaster in 2009, Grenada would face an initially large deterioration in the NPV of debt-to-exports ratio and debt-service-to-exports ratio, and the NPV of external public debt to GDP would fall under the threshold two years later than in the baseline.

V. Conclusions

18. **Owing in large part to fiscal slippages in 2007, Grenada's debt sustainability has deteriorated**. Under the baseline (program) scenario, the analysis indicates that with continued fiscal consolidation Grenada's public debt is sustainable, but vulnerable to shocks. The alternative scenarios underscore that this assessment is contingent on policies to enhance growth and raise the primary fiscal balance. In particular, the potential large loan from Export-Import Bank of China, could—depending on the loan size and concessionality—undermine the authorities' efforts to secure debt sustainability.

19. **On the external front, Grenada is at high risk of debt distress, with key debt indicators above their indicative thresholds**. Under the baseline (program) scenario, a determined and prolonged effort will be required to bring debt down to more sustainable levels. Furthermore, this favorable outcome would be affected adversely by an external shock, such as a hurricane or a decline in tourism, or the possible borrowing from Export-Import Bank of China.

Table 1. Grenada: Public Sector Debt, 2007

(Year end, in millions of U.S. dollars)

		Percent of	
	Stock	Total Debt	GDP
Public sector debt 1/	677.6	100.0	112.0
Central government debt	603.2	89.0	99.7
Central-government guaranteed debt	53.9	8.0	8.9
Other public sector debt	20.5	3.0	3.4
External debt	478.8	70.7	79.2
A. Central government	437.1	64.5	72.3
1. Multilateral	154.8	22.9	25.6
CDB	95.0	14.0	15.7
IDA	35.0	5.2	5.8
IBRD	12.0	1.8	2.0
IMF	7.6	1.1	1.3
Other multilateral	5.2	0.8	0.9
2. Official bilateral	82.9	12.2	13.7
Paris Club	19.3	2.8	3.2
Belgium	7.3	1.1	1.2
France	4.3	0.6	0.7
Russian Federation	0.2	0.0	0.0
United Kingdom	4.6	0.7	0.8
United States	2.9	0.4	0.5
Non-Paris Club	63.6	9.4	10.5
Kuwait	17.8	2.6	2.9
Taiwan Province of China	20.3	3.0	3.3
Trinidad and Tobago	17.0	2.5	2.8
Venezuela	2.9	0.4	0.5
Other bilateral	5.6	0.8	0.9
3. Commercial, total	199.4	29.4	33.0
Restructured bonds	193.5	28.6	32.0
Unrestructured bonds	5.8	0.9	1.0
B. Central government guaranteed	21.3	3.1	3.5
Of which:			
Paris Club	7.8	1.1	1.3
C. Other public sector	20.5	3.0	3.4
Domestic debt	198.7	29.3	32.9
A. Central government	166.1	24.5	27.5
Restructured Bonds	68.1	10.1	11.3
Unrestructured bonds	8.5	1.3	1.4
Treasury bills	28.9	4.3	4.8
Commercial bank loans	22.4	3.3	3.7
Overdraft	9.0	1.3	1.5
Domestic arrears	13.8	2.0	2.3
Compensation claims	14.8	2.2	2.4
Other	0.6	0.1	0.1
B. Central-government guaranteed	32.6	4.8	5.4
Memorandum item:			
Nominal GDP	604.9		

Sources: Grenada authorities; and Fund staff estimates.

1/ Includes central government liabilities to the National Insurance Scheme.

Table A1a.Grenada: Public Sector Debt Sustainability Framework, Baseline Scenario, 2005-2028

(In percent of GDP, unless otherwise indicated)

	Actual					Projections										
	2005	2006	2007	Historical Average 1/	Standard Deviation 1/	2008	2009	2010	2011	2012	2013	2008-13 Average	2018	2028	2014-28 Average
Public sector debt 2/	111.2	117.2	112.0			106.5	98.7	93.4	88.5	84.6	78.8		59.6	35.4	
o/w foreign-currency denominated	79.5	81.3	79.2			77.9	72.5	69.1	65.9	63.0	58.0		41.5	19.8	
Change in public sector debt	-10.1	6.0	-5.1			-5.6	-7.8	-5.3	-4.9	-3.9	-5.8		-3.1	-2.2	
Identified debt-creating flows	-18.7	3.3	-1.9			-6.6	-12.0	-7.7	-7.2	-6.0	-5.6		-2.8	-2.0	
Primary deficit	**-2.5**	**4.3**	**6.2**	**2.2**	**4.4**	**1.3**	**-1.9**	**-3.2**	**-3.1**	**-3.0**	**-3.0**	**-2.2**	**-2.4**	**-2.0**	**-2.3**
Revenue and grants	44.8	44.7	39.3			41.9	41.2	41.0	40.6	40.4	40.3		39.6	39.1	
of which: grants	10.5	8.7	1.1			3.7	2.6	2.0	1.9	1.8	1.6		1.2	0.7	
Primary (noninterest) expenditure	42.3	49.0	45.5			43.2	39.4	37.7	37.5	37.4	37.2		37.2	37.1	
Automatic debt dynamics	**-16.3**	**-0.4**	**-5.9**			**-6.2**	**-6.3**	**-4.5**	**-4.1**	**-3.0**	**-2.6**		**-0.4**	**0.0**	
Contribution from interest rate/growth differential	-14.5	-0.2	-5.5			-4.1	-4.3	-3.6	-3.7	-2.7	-2.2		-0.4	0.0	
of which: contribution from average real interest rate	-2.0	-1.5	-0.8			-0.1	0.0	0.6	0.4	1.1	1.2		2.0	1.4	
of which: contribution from real GDP growth	-12.5	1.3	-4.8			-4.0	-4.3	-4.2	-4.1	-3.7	-3.4		-2.4	-1.4	
Contribution from real exchange rate depreciation	-1.7	-0.2	-0.4			…	…	…	…	…	…		…	…	
Other identified debt-creating flows	**0.0**	**-0.6**	**-2.2**			**-1.7**	**-3.8**	**0.0**	**0.0**	**0.0**	**0.0**		**0.0**	**0.0**	
Privatization receipts (negative)	0.0	-0.6	-2.2			-3.2	-3.8	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 (bank restructuring)	0.0	0.0	0.0			1.5	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Residual, including asset changes 3/	8.7	2.7	-3.2			1.0	4.2	2.4	2.3	2.2	-0.2		-0.2	-0.1	
NPV of public sector debt	**…**	**35.8**	**108.2**			**101.9**	**91.6**	**87.4**	**83.5**	**80.3**	**76.0**		**60.9**	**42.6**	
o/w foreign-currency denominated	0.0	0.0	75.3			73.4	65.5	63.1	60.9	58.6	55.3		42.8	27.1	
o/w external	...	...	75.3			73.4	65.5	63.1	60.9	58.6	55.3		42.8	27.1	
Gross financing need 4/	5.9	12.4	15.4			10.1	6.8	4.6	4.4	4.7	5.3		5.0	2.2	
NPV of public sector debt-to-revenue and grants ratio (in percent)	**…**	**…**	**275.3**			**243.4**	**222.2**	**213.3**	**205.4**	**198.7**	**188.7**		**153.8**	**108.9**	
NPV of public sector debt-to-revenue ratio (in percent)	…	…	282.9			266.7	237.0	224.3	215.3	207.7	196.8		158.7	110.9	
o/w external 5/	…	…	197.0			191.9	169.4	162.0	157.0	151.7	143.1		111.6	70.4	
Debt service-to-revenue and grants ratio (in percent) 4/	**8.1**	**7.8**	**12.6**			**11.5**	**12.2**	**11.0**	**10.8**	**11.8**	**13.9**		**13.5**	**8.0**	
Debt service-to-revenue ratio (in percent) 6/	10.6	9.7	12.9			12.6	13.1	11.6	11.3	12.3	14.5		14.0	8.1	
Primary deficit that stabilizes the debt-to-GDP ratio	7.6	-1.7	11.3			6.9	5.9	2.0	1.8	0.8	2.8		0.6	0.2	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	11.5	-1.1	4.3	4.2	6.4	3.7	4.2	4.4	4.6	4.4	4.2	4.3	4.0	4.0	4.0
Average nominal interest rate on forex debt (in percent)	1.3	1.8	2.0	4.9	3.5	2.3	2.2	2.8	2.8	3.3	3.2	2.8	5.3	6.0	5.4
Average real interest rate on domestic currency debt (in percent)	-1.6	-1.3	-0.8	2.3	3.0	-1.1	-1.0	-0.3	0.1	1.2	1.5	0.1	3.7	3.9	3.7
Real exchange rate depreciation (in percent, + indicates depreciation)	-2.2	-0.3	-0.5	-0.3	1.4	…	…	…	…	…	…		…	…	
Change in GDP deflator (in percent)	5.6	3.5	3.2	2.6	1.8	4.8	4.7	3.1	2.8	2.5	2.3	3.4	2.0	2.0	2.0
Growth of real primary spending (deflated by GDP deflator, in percent)	27.3	14.6	-3.3	6.8	11.6	-1.6	-5.0	0.1	4.0	4.0	3.8	0.9	4.0	4.0	4.0
Grant element of new external borrowing (in percent)	…	…	…	…	…	7.7	10.4	5.3	4.9	6.1	2.9	6.2	-3.3	-7.5	-4.3

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

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

2/ The coverage of public sector is public and publicly guaranteed debt, including debt of public enterprises and the debt of the central government to the National Insurance Scheme.

3/ The residual during 2008-12 reflects PetroCaribe borrowing.

4/ 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.

5/ Revenues excluding grants.

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

Table A1b.Grenada: Sensitivity Analysis for Key Indicators of Public Debt 2008-2028
(In percent)

	Projections							
	2008	2009	2010	2011	2012	2013	**2018**	2028
NPV of Debt-to-GDP Ratio								
Baseline	102	92	87	83	80	76	**61**	43
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	102	95	96	97	99	99	**102**	112
A2. Primary balance is unchanged from 2008	102	95	94	94	95	94	**95**	101
A3. Permanently lower GDP growth 1/	102	93	91	90	90	89	**98**	168
A4. Natural disaster in 2009	102	98	101	104	99	93	**77**	57
A5. Delayed adjustment	102	95	95	96	97	96	**76**	55
A6. With China loan	102	97	96	93	90	85	**70**	50
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	102	100	107	107	108	107	**112**	129
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	102	100	104	100	96	91	**75**	54
B3. Combination of B1-B2 using one half standard deviation shocks	102	100	106	102	98	93	**77**	56
B4. One-time 30 percent real depreciation in 2009	102	120	115	110	106	102	**86**	68
B5. 10 percent of GDP increase in other debt-creating flows in 2009	102	101	96	92	89	84	**69**	49
NPV of Debt-to-Revenue Ratio 2/								
Baseline	243	222	213	205	199	189	**154**	109
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	243	231	235	239	244	245	**258**	287
A2. Primary balance is unchanged from 2008	243	229	230	232	235	234	**241**	259
A3. Permanently lower GDP growth 1/	243	226	223	221	222	220	**246**	427
A4. Natural disaster in 2009	243	238	245	255	244	230	**194**	146
A5. Delayed adjustment	243	230	233	235	239	239	**191**	139
A6. With China loan	243	235	233	229	222	212	**176**	128
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	243	241	259	261	265	265	**282**	330
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	243	241	254	245	238	227	**190**	139
B3. Combination of B1-B2 using one half standard deviation shocks	243	243	258	249	242	231	**193**	143
B4. One-time 30 percent real depreciation in 2009	243	292	281	271	263	253	**218**	173
B5. 10 percent of GDP increase in other debt-creating flows in 2009	243	245	235	227	220	209	**173**	125
Debt Service-to-Revenue Ratio 2/								
Baseline	12	12	11	11	12	14	**14**	8
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	12	12	14	17	19	22	**24**	30
A2. Primary balance is unchanged from 2008	12	12	14	15	17	20	**22**	26
A3. Permanently lower GDP growth 1/	12	12	12	12	14	18	**24**	43
A4. Natural disaster in 2009	12	13	15	16	18	18	**17**	12
A5. Delayed adjustment	12	12	14	16	18	21	**15**	13
A6. With China loan	12	12	11	12	13	15	**15**	9
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	12	13	15	17	20	23	**26**	34
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	12	12	18	21	17	17	**16**	13
B3. Combination of B1-B2 using one half standard deviation shocks	12	13	17	20	16	17	**16**	13
B4. One-time 30 percent real depreciation in 2009	12	13	13	13	15	17	**18**	13
B5. 10 percent of GDP increase in other debt-creating flows in 2009	12	12	19	14	14	15	**15**	11

Sources: Grenadian 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.

Table A2a. Grenada: External Debt Sustainability Framework, 2005-28 1/

(In percent of GDP, unless otherwise indicated)

	Actual			Historical	Standard	Projections									
	2005	2006	2007	Average 1/	Deviation 1/	2008	2009	2010	2011	2012	2013	2008-13 Average	2018	2028	2014-28 Average
External debt (nominal) 2/	**80.0**	**82.0**	**79.2**			**77.3**	**69.8**	**66.8**	**64.1**	**61.8**	**57.4**		**43.6**	**26.2**	
Change in external debt	-9.4	2.0	-2.8			-1.8	-7.6	-2.9	-2.7	-2.3	-4.4		-2.2	-1.7	
Identified net debt-creating flows	5.1	16.1	4.1			9.8	3.1	8.0	4.9	3.4	1.9		3.4	6.3	
Non-interest current account deficit	**29.6**	**30.9**	**30.4**	**20.2**	**9.4**	**33.8**	**32.4**	**30.7**	**27.2**	**24.7**	**22.6**		**20.3**	**19.5**	20.3
Deficit in balance of goods and services	44.6	41.4	34.3			37.8	35.1	31.4	27.9	25.4	23.5		20.6	17.3	
Exports	27.1	28.9	34.6			31.7	32.2	32.5	33.1	33.7	34.5		35.0	36.0	
Imports	71.7	70.3	68.9			69.5	67.3	63.9	60.9	59.1	58.0		55.6	53.4	
Net current transfers (negative = inflow)	-18.9	-13.9	-7.3	-12.4	6.7	-7.0	-5.7	-5.0	-4.8	-4.6	-4.4		-3.7	-2.0	-2.8
Other current account flows (negative = net inflow)	3.8	3.4	3.3			3.0	3.0	4.4	4.2	3.9	3.5		3.5	4.2	
Net FDI (negative = inflow)	**-12.8**	**-15.2**	**-22.7**	**-14.3**	**3.9**	**-24.0**	**-29.1**	**-21.7**	**-21.1**	**-20.6**	**-20.1**		**-17.6**	**-13.8**	-16.3
Endogenous debt dynamics 3/	**-11.7**	**0.4**	**-3.6**			**-0.1**	**-0.2**	**-1.1**	**-1.2**	**-0.7**	**-0.6**		**0.6**	**0.6**	
Contribution from nominal interest rate	1.8	2.2	2.2			2.6	2.7	1.8	1.7	1.9	1.9		2.3	1.6	
Contribution from real GDP growth	-8.8	0.9	-3.2			-2.7	-3.0	-2.9	-2.8	-2.6	-2.4		-1.7	-1.1	
Contribution from price and exchange rate changes	-4.7	-2.7	-2.6			…	…	…	…	…	…		…	…	
Residual 4/	**-14.6**	**-14.1**	**-6.9**			**-11.6**	**-10.6**	**-10.9**	**-7.7**	**-5.8**	**-6.3**		**-5.6**	**-7.9**	
o/w exceptional financing	0.0	-2.3	-0.2			-0.2	-0.1	-0.1	0.0	0.0	0.0		0.0	0.0	
NPV of external debt 5/	...	...	75.3			73.4	65.5	63.1	60.9	58.6	55.3		42.8	27.1	
In percent of exports	...	...	218.0			231.5	203.7	193.9	184.1	173.9	160.3		122.3	75.1	
NPV of PPG external debt	**...**	**...**	**75.3**			**73.4**	**65.5**	**63.1**	**60.9**	**58.6**	**55.3**		**42.8**	**27.1**	
In percent of exports	**...**	**...**	**218.0**			**231.5**	**203.7**	**193.9**	**184.1**	**173.9**	**160.3**		**122.3**	**75.1**	
Debt service-to-exports ratio (in percent) 6/	**12.5**	**14.1**	**12.0**			**14.8**	**22.6**	**9.7**	**9.3**	**10.2**	**13.3**		**17.7**	**23.3**	
Total gross financing need (billions of U.S. dollars)	111.2	111.5	71.9			95.5	75.8	94.3	76.4	67.1	67.0		114.0	324.0	
Non-interest current account deficit that stabilizes debt ratio	39.1	28.9	33.2			35.6	39.9	33.7	30.0	27.1	26.9		22.5	21.2	
Key macroeconomic assumptions															
Real GDP growth (in percent)	11.5	-1.1	4.3	4.2	6.4	3.7	4.2	4.4	4.6	4.4	4.2	4.3	4.0	4.0	4.0
GDP deflator in US dollar terms (change in percent)	5.6	3.5	3.2	2.4	1.6	4.8	4.7	3.1	2.8	2.5	2.3	3.4	2.0	2.0	2.0
Effective interest rate (percent) 7/	2.3	2.8	2.9	5.5	2.8	3.6	3.8	2.8	2.7	3.2	3.2	3.2	5.4	6.2	5.4
Growth of exports of G&S (US dollar terms, in percent)	-23.6	9.0	28.8	5.7	18.6	-0.4	10.7	8.9	9.3	9.1	9.0	7.8	6.4	6.4	6.4
Growth of imports of G&S (US dollar terms, in percent)	24.0	0.3	5.4	7.4	10.5	9.6	5.6	2.3	2.5	3.8	4.5	4.7	5.2	6.1	5.5
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	7.7	10.4	5.3	4.9	6.1	2.9	6.2	-3.3	-7.5	-4.3
Memorandum items:															
Nominal GDP (in millions of US dollars)	549.4	562.1	604.9			657.3	716.9	771.8	829.7	888.0	946.7		1,271.7	2,294.6	

Source: Fund staff simulations.

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

2/ Includes public sector, and publicly guaranteed external debt.

3/ 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.

4/ In addition to (i) exceptional financing (i.e., changes in arrears and debt relief), (ii) changes in gross foreign assets, and (iii) valuation adjustments, this item includes capital transfers and other investments (net), which have been substantial historically. For projections, this item also includes the contribution from price and exchange rate changes.

5/ Assumes that NPV of private sector debt is equivalent to its face value.

6/ Excludes debt service on government-guaranteed and other public sector debt.

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

Table A2b. Grenada: Sensitivity Analyses for Key Indicators of External Public Debt, 2008-28
(In percent)

	Projections							
	2008	2009	2010	2011	2012	2013	**2018**	2028
NPV of debt-to-GDP ratio								
Baseline	73	66	63	61	59	55	**43**	27
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-28 1/	73	70	64	62	62	61	**54**	28
A2. New public sector loans on less favorable terms in 2009-28 2/	73	67	65	64	62	59	**50**	41
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2009-10	73	70	72	69	67	63	**49**	31
B2. Export value growth at historical average minus one standard deviation in 2009-10 3/	73	73	81	76	70	64	**43**	27
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-10	73	68	67	65	62	59	**46**	29
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-10 4/	73	85	90	82	75	67	**44**	27
B5. Combination of B1-B4 using one-half standard deviation shocks	73	71	77	73	69	65	**48**	30
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	73	92	88	85	82	77	**60**	38
NPV of debt-to-exports ratio								
Baseline	232	204	194	184	174	160	**122**	75
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-28 1/	232	216	196	187	182	178	**155**	77
A2. New public sector loans on less favorable terms in 2009-28 2/	232	207	200	192	184	172	**142**	114
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2009-10	232	204	194	184	174	160	**122**	75
B2. Export value growth at historical average minus one standard deviation in 2009-10 3/	232	287	396	363	331	295	**197**	119
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-10	232	204	194	184	174	160	**122**	75
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-10 4/	232	263	276	249	223	196	**124**	75
B5. Combination of B1-B4 using one-half standard deviation shocks	232	239	274	257	239	218	**159**	97
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	232	204	194	184	174	160	**122**	75
Debt service-to-exports ratio 6/								
Baseline	15	23	10	9	10	13	**18**	23
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-28 1/	15	23	12	9	10	14	**27**	25
A2. New public sector loans on less favorable terms in 2009-28 2/	15	23	12	15	20	23	**20**	35
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2009-10	15	23	10	9	10	13	**18**	23
B2. Export value growth at historical average minus one standard deviation in 2009-10 3/	15	29	22	33	33	37	**30**	37
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-10	15	23	10	9	10	13	**18**	23
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-10 4/	15	23	22	27	27	28	**19**	23
B5. Combination of B1-B4 using one-half standard deviation shocks	15	26	14	17	17	21	**23**	30
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	15	23	10	9	10	13	**18**	23
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 7/	-2	-2	-2	-2	-2	-2	**-2**	-2

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 2 percentage points higher than in the baseline, while grace and maturity periods are the same as in the baseline.

3/ Export 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).

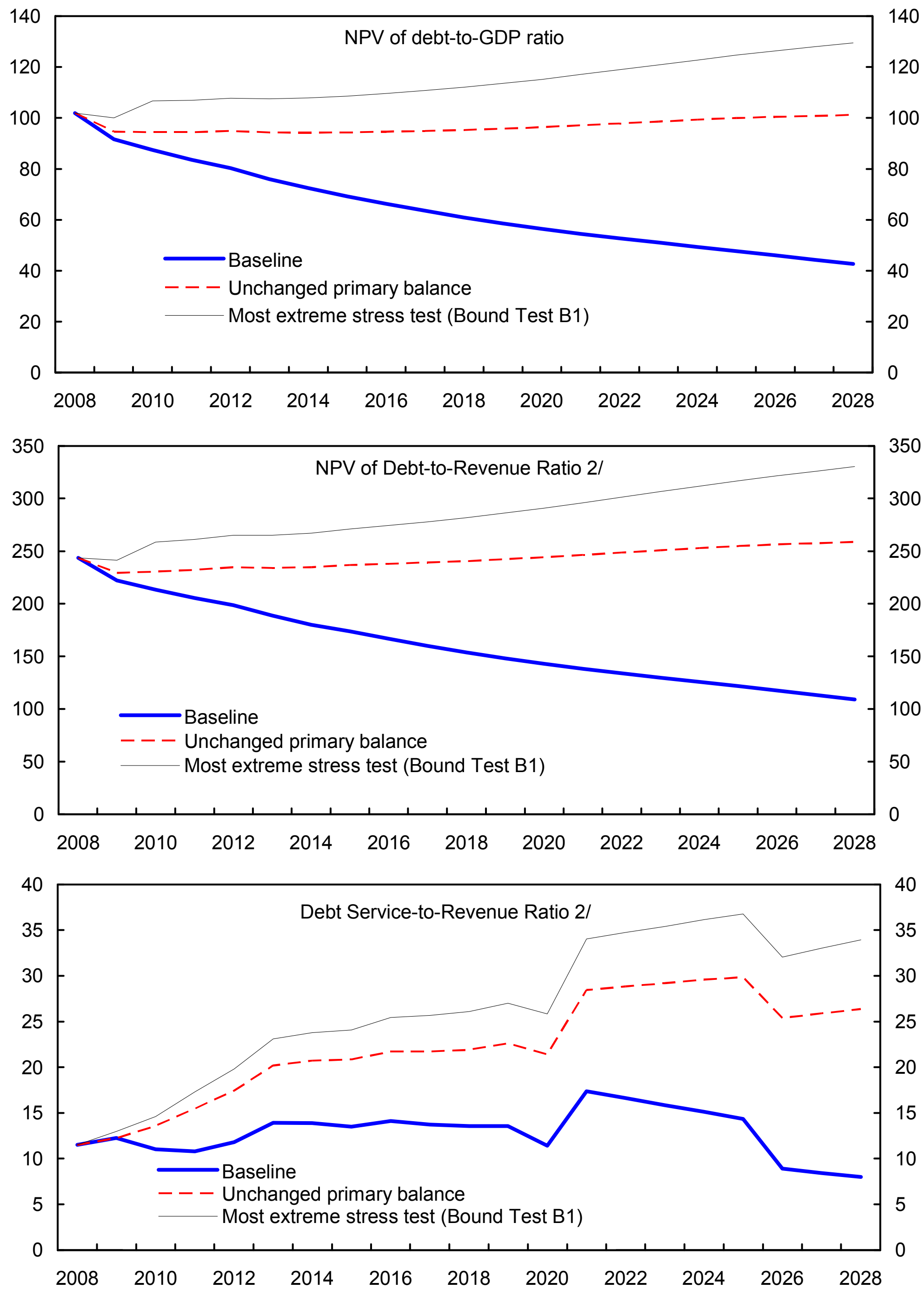
4/ Includes official and private transfers, and FDI.

5/ Depreciation is defined as percentage decline in dollar/local currency rate, such that it never exceeds 100 percent.

6/ Excludes debt service on government-guaranteed and other public sector debt.

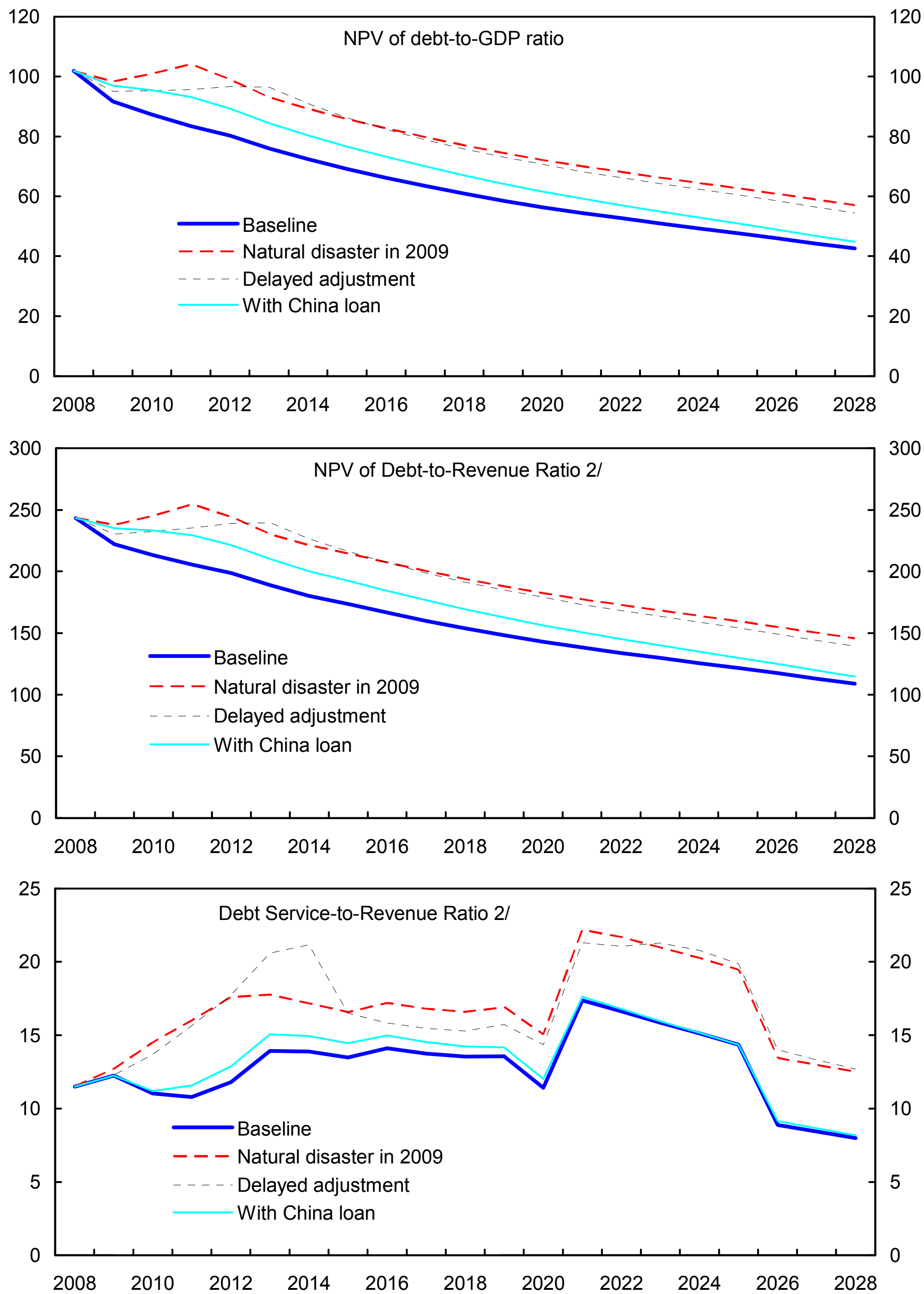
7/ Applies to all stress scenarios except for A2 (less favorable financing) in which the terms on all new financing are as specified in footnote 2.

Figure 1a.Grenada: Indicators of Public Debt Under Alternative Scenarios, 2008–28 1/
(In percent)



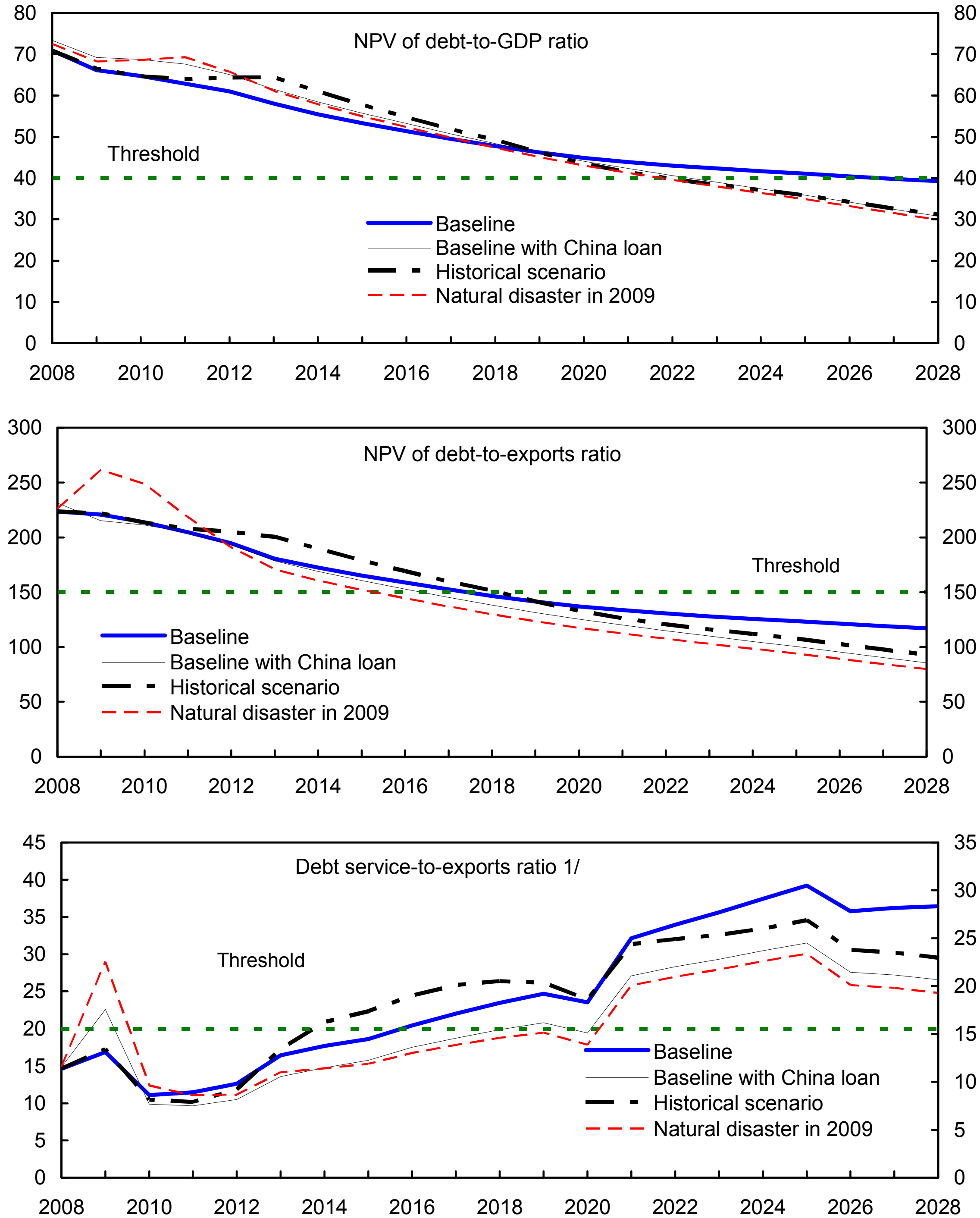
Source: Fund staff projections and simulations.
1/ Most extreme stress test is test that yields highest ratio in 2018.
2/ Revenue including grants.

Figure 1b.Grenada: Indicators of Public Debt Under Alternative Scenarios, 2008–28 1/
(In percent)



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

Figure 2. Grenada: Indicators of External Debt
Under Alternative Scenarios, 2008–28
(In percent)



Source: Fund staff projections and simulations.
1/ Excludes debt service on government-guaranteed and other public sector debt.