



# NIGER

## STAFF REPORT FOR THE 2011 ARTICLE IV CONSULTATION—DEBT SUSTAINABILITY ANALYSIS

November 16, 2011

Approved By  
**Marcelo Giugale and  
Jeffrey Lewis (IDA) &  
Seán Nolan and  
Thomas Dorsey (IMF)**

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

*Since the previous Debt Sustainability Analysis, conducted at the time of the third ECF review (Country Report No. 10/146, May, 2010), Niger's risk of debt distress has moved from a low to a moderate level. The medium-term economic framework underpinning the analysis has been revised to reflect new information on the financing of large oil and mining projects, including the contracting of a public guarantee on a large loan to finance the state's share in an oil refinery. While the various debt measures lie below the relevant thresholds for the baseline scenario, the present value (PV) of debt to exports, to revenue, and to GDP breach the thresholds under the most extreme stress test.*

## I. BACKGROUND

**1. This joint IMF-World Bank debt sustainability analysis (DSA) updates the 2009 DSA of the external and total public debt of Niger.** It is based on estimated end-2010 data, using the standard debt dynamics template for low-income countries. The debt data covers external and domestic debt of the central government, debt of public enterprises and parastatals, and a state guarantee.<sup>1</sup> Domestic debt includes arrears, debt to the central bank (BCEAO) for statutory advances and the SDR allocation, and government securities.

**2. As discussed in the 2009 DSA, Niger's debt ratios have been significantly reduced by debt relief, most recently under the MDRI.**

Niger reached the completion point under the Enhanced HIPC Initiative in April 2004 and in 2006 benefited from Multilateral Debt Relief Initiative (MDRI) assistance from the African Development Fund, IDA, and the IMF. Nominal external debt has thus fallen from more than 90 percent of GDP at end-2000 to about 17½ percent of GDP at end-2010.

## II. UNDERLYING DSA ASSUMPTIONS

**3. Staff has updated the medium- and long-term projections for Niger (Box 1, and Appendix III of the Article IV Staff Report).** Revenue projections have been revised upward to reflect the results of a new Niger-specific revenue model for natural resources and ongoing improvements in revenue collection. Assuming the higher revenue will be used for productive public investment, overall GDP growth projections for 2012–31 have been raised compared with the 2009 DSA by about ½ to 1½ percentage points a year (Text Table 1).

**4. External public borrowing is projected to rise in 2012 and remain broadly stable, with a moderate decline, during the projection period.** Besides debt-creating flows and foreign direct investment, (FDI), the current account deficit is expected to be financed by significant flows of

project grants and private capital flows.

Text Table 1. Niger: Key Macroeconomic Assumptions (1)  
2010-2031 (DSA 2011 vs DSA 2009)

	2010-11	2012-15	2016-31
Real GDP growth (percent)			
<i>DSA 2011</i>	5.9	8.7	6.2
<i>DSA 2009</i>	4.8	7.1	5.6
Total Revenue (percent of GDP) /2			
<i>DSA 2011</i>	14.6	18.6	20.9
<i>DSA 2009</i>	13.7	14.4	14.8
Exports of goods and services (percent of GDP)			
<i>DSA 2011</i>	21.8	28.0	33.2
<i>DSA 2009</i>	19.7	24.5	25.1

Sources: Nigerien authorities; and IMF and World Bank staffs estimates.

1. Previous DSA covers the period 2009-29

2. Total revenue, excluding grants

**5. The macroeconomic outlook is subject to various risks.** The country is very vulnerable to exogenous shocks, including frequent weather-related food crises and fluctuations in commodity prices. The deteriorating security situation in the region is another factor adding to Niger's economic vulnerability.

<sup>1</sup>A description of the large investment projects in oil and uranium and information related to their financing arrangements can be found in the accompanying Article IV Staff Report, Boxes 2 and 3.

### III. EXTERNAL DSA

**6. Niger's debt exposure has increased significantly since 2009 as a result of government involvement in the financing of projects in natural resources.** In 2011, the government contracted a 650 million yuan loan for the financing of its share in the construction of the new Azelik uranium mine, followed by a state guarantee of 40 percent of a US\$880 million loan to the Soraz refinery. As a result, the stock of external debt (including guarantees) has moved from 19.2 percent of GDP at end-2009 to a projected 25.8 percent of GDP at end-2011. The inclusion of the guarantee is also projected to lead to a sharp deterioration of the grant element of financing in 2011. In 2012, the grant element would return to its highly concessional pre-2011 level, and then gradually decline over time (Figure 1a).

**7. In the baseline scenario, the external debt ratios remain below their policy-dependent thresholds throughout the projection period (2011–31).** The present value (PV) of debt-to-GDP, debt-to-exports, and debt-to-revenue ratios are forecast to decline somewhat initially, before increasing over the medium term. They are projected to remain below the relevant thresholds (Figure 1).<sup>2</sup>

**8. The stress test built on the historical scenario shows a very substantial improvement in debt ratios.** The scenario shows that if the current account deficit and FDI inflows

were to stay at their historical averages, the capital grants forecasted in the current baseline scenario would lead to a significant reduction in debt.

**9. The thresholds for all the three indicators used to measure solvency (debt to GDP, debt to exports, debt to revenue) are breached in the case of a combination shock.**

This scenario assumes that in 2012 and 2013, key macroeconomic variables (including real GDP growth, exports, net official transfers, net FDI) are fixed at one-half standard deviation below their historical levels (Figures 1a, 1b, 1c). The combined shock would result in a higher current account deficit, which would have to be financed in the context of substantially lower FDI flows, resulting in about a doubling of debt indicators in 2021 relative to the baseline. The PV of debt to GDP and to exports remains above the thresholds for the projection period.

**10. A Niger-specific alternative scenario has been built, to analyze the impact on debt of lower GDP growth.** In this scenario (Figure 1), GDP growth is set at 5 percent from 2017, assuming a return to the pre-oil historical trend after the initial resource-led higher growth period. At the same time, the external borrowing and imports related to the megaprojects are kept at their baseline levels. This scenario shows a modest deterioration of the key indicators (debt-to-GDP; debt-to-revenue, debt-to-export ratios) relative to the baseline.

<sup>2</sup> The large residuals shown in Table 1a and 1b reflect capital grants that the country is projected to receive thanks to the more stable political and economic environment.

## IV. PUBLIC DSA

**11. As was the case in previous DSA, the consideration of total public debt, including domestic debt, does not significantly alter the assessment.** Niger's domestic debt is low (7.1 percent of GDP at end-2010, see Table 1.b) and is projected to fall over the medium term under the baseline scenario. The nominal interest rate on domestic debt is also low, because the bulk of domestic debt is non-interest bearing arrears, which are projected to be fully repaid by 2017.

**12. Public debt ratios remain relatively low under most sensitivity tests, except for the most extreme shock.** Under the most extreme shock, real GDP growth is set at the historical average minus one standard deviation in 2012–13. In this scenario, the PV of debt to GDP nearly doubles during the projection period.

**13. The historical scenario in the public debt exercise assumes the primary fiscal deficit**

**and GDP growth are kept at historical levels.**

Because the historical primary deficit is higher than projected in the baseline, and average GDP growth was lower in the past 10 years, the debt-to-GDP ratio would increase over time, and the debt to revenue would also have an upward trend, particularly in the second part of the projection period.

**14. The bound tests also show that public debt becomes unsustainable in the case of a GDP growth shock.** With real GDP growth at one standard deviation below the historical average in the first two years of projections, 2012–2013, the debt-to-GDP ratio increases by 120 percent, while the debt-to-revenue ratio increases by more than 80 percent. Furthermore, all five bound tests for debt to GDP and debt to revenue show an increase in the last 10 years (Table 2.b).

## V. CONCLUSION

**15. New financing arrangements for large oil and uranium projects in 2010 and 2011 have led to a deterioration of debt ratios compared to the 2009 DSA.** Although the projects are expected to generate net revenue and lead to an improvement in the fiscal and external accounts, the increased debt levels have made Niger more vulnerable to adverse shocks. In light of this, Niger is now classified as at moderate risk of debt distress.

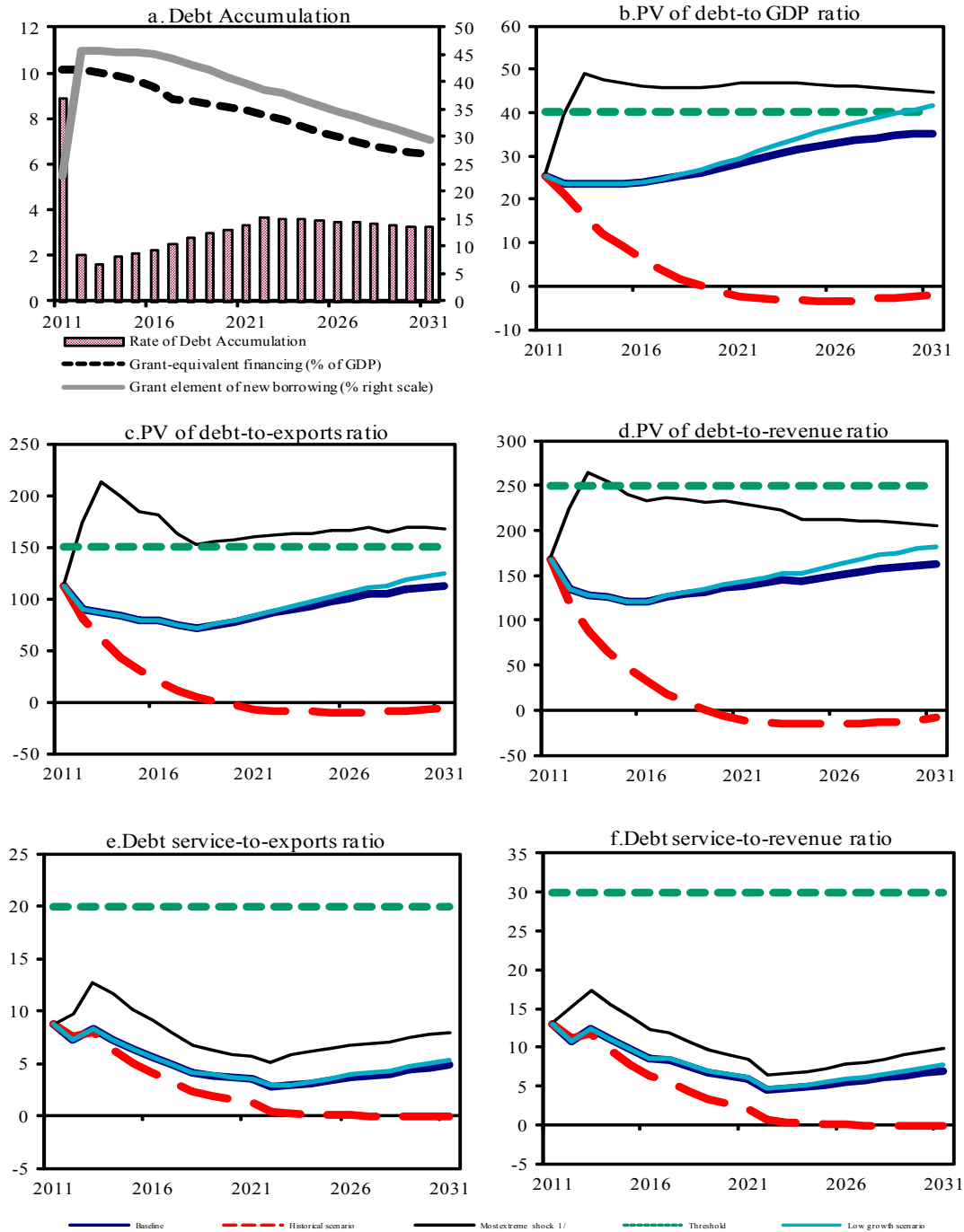
**16. Niger's increased risk of debt distress underlines the need to minimize borrowing on commercial terms for public investment projects** and limit, as much as possible, the government's involvement in the financing of natural resources projects.

### Box 1. Baseline Scenario Assumptions

The baseline macroeconomic scenario for 2011–31 is based on the following assumptions:

- Real GDP growth is projected to increase to an average of about 6¾ percent a year in 2012–31, reflecting growing production of minerals and higher non-resource GDP growth, as Niger steps up public investment and makes progress in improving the business climate. Inflation is projected to remain stable at 2 percent over the projection period.
- The revenue-to-GDP ratio is projected to rise from about 15 percent in 2011 to 21¾ percent in 2031, reflecting rising revenue from natural resources and ongoing improvements in the revenue collection effort.
- Expenditure is expected to increase from 26 percentage points of GDP in 2011, to more than 30 ½ percent of GDP in 2031, driven by higher current and capital expenditure. The basic balance (the fiscal balance net of grants and externally-financed capital expenditure) remains in surplus from 2017 onward (complying with the WAEMU regional convergence criterion).
- The current account deficit is projected to decline from 27½ percent of GDP in 2011 to about 11½ percent at the end of the projection period. Exports would increase, before stabilizing at around 29½ percent of GDP at the end of the period, as a result of increasing oil and uranium production and the expected impact of gradual economic diversification. Imports would slow initially, in line with the decline of foreign direct investment (FDI)-related imports, before rebounding as imports increase with higher GDP per capita.
- Net FDI is projected to decrease from a peak of 16 percent of GDP in 2011 as the large investment projects come to completion, and the newly established natural resource companies reimburse FDI loans received from their parent companies; these payments lead to an FDI outflow from 2016 to 2021.
- The average interest rate on new external borrowing is projected at 1.5 percent. Total external financing is expected to gradually decrease, from 12½ percent of GDP in 2012 to 9 percent by 2031. This decline relates to the reduction in Niger’s borrowing needs and the expected increase in per capita GDP. Grants would represent about 65 percent of total external financing on average during the period.
- The domestic debt profile assumes the outstanding stock of domestic arrears is paid off by 2017, and there is no new accumulation of arrears.

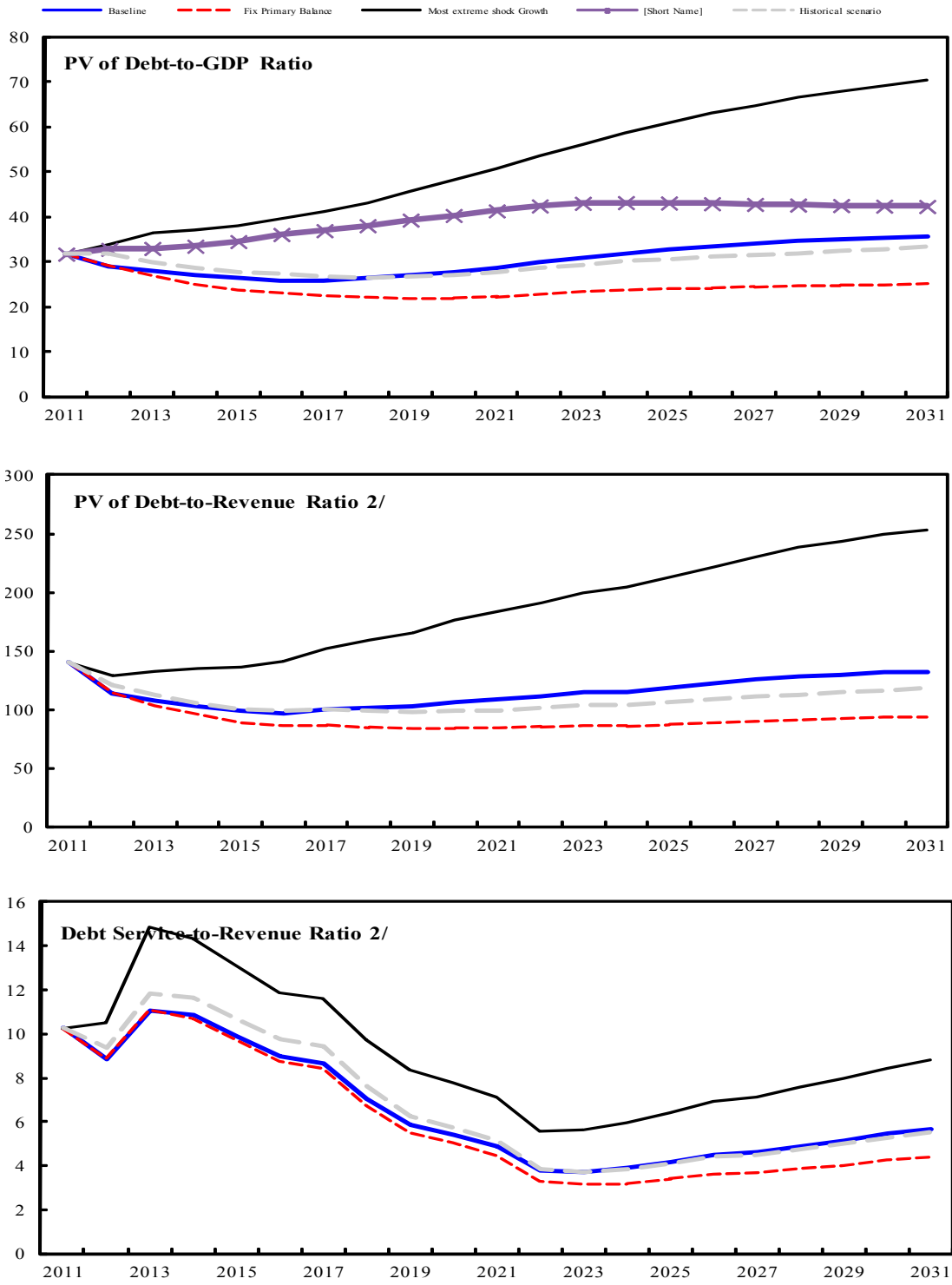
Figure 1. Niger: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2011-2031 1/



Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2021. 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 Exports shock and in figure f. to a One-time depreciation shock

Figure 2.Niger: Indicators of Public Debt Under Alternative Scenarios, 2011-2031 1/



Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2021.

2/ Revenues are defined inclusive of grants.

Table 1a.: External Debt Sustainability Framework, Baseline Scenario, 2008-2031 1/  
(In percent of GDP, unless otherwise indicated)

	Actual			Historical Average <sup>6/</sup>	Standard Deviation <sup>6/</sup>	Projections						2011-2016		2017-2031	
	2008	2009	2010			2011	2012	2013	2014	2015	2016	Average	2021	2031	Average
<b>External debt (nominal) 1/</b>	<b>15.1</b>	<b>19.2</b>	<b>17.4</b>			<b>25.8</b>	<b>27.1</b>	<b>29.5</b>	<b>31.8</b>	<b>34.1</b>	<b>36.1</b>			<b>45.0</b>	<b>51.0</b>
o/w public and publicly guaranteed (PPG)	15.1	19.2	17.4			25.8	27.1	29.5	31.8	34.1	36.1			45.0	51.0
Change in external debt	0.1	4.1	-1.8			8.4	1.3	2.5	2.3	2.2	2.0			1.6	-0.1
Identified net debt-creating flows	-1.1	11.5	1.9			10.7	8.4	10.7	10.3	9.1	9.7			9.1	6.0
<b>Non-interest current account deficit</b>	<b>12.6</b>	<b>24.9</b>	<b>20.8</b>	<b>10.2</b>	<b>7.5</b>	<b>26.1</b>	<b>24.8</b>	<b>19.2</b>	<b>12.2</b>	<b>11.3</b>	<b>9.4</b>			<b>10.3</b>	<b>10.8</b>
Deficit in balance of goods and services	16.9	23.8	28.5			31.9	28.1	21.1	14.1	12.0	9.5			10.2	12.9
Exports	19.4	20.9	21.0			22.6	26.4	27.2	28.3	30.1	30.2			34.5	31.5
Imports	36.3	44.7	49.5			54.5	54.5	48.3	42.4	42.2	39.6			44.7	44.5
Net current transfers (negative = inflow)	-4.3	-2.9	-8.8	-4.5	1.8	-5.3	-4.5	-4.4	-4.2	-4.1	-4.0			-3.1	-2.7
o/w official	-2.2	-0.7	-5.9			-4.0	-3.4	-3.3	-3.1	-3.0	-2.8			-2.0	-1.5
Other current account flows (negative = net inflow)	0.0	4.0	1.2			-0.5	1.3	2.5	2.4	3.4	3.9			3.2	0.5
<b>Net FDI (negative = inflow)</b>	<b>-11.0</b>	<b>-13.9</b>	<b>-18.2</b>	<b>-5.1</b>	<b>6.7</b>	<b>-16.2</b>	<b>-14.8</b>	<b>-8.2</b>	<b>-1.2</b>	<b>-1.2</b>	<b>1.5</b>			<b>0.6</b>	<b>-2.7</b>
<b>Endogenous debt dynamics 2/</b>	<b>-2.7</b>	<b>0.6</b>	<b>-0.7</b>			<b>0.9</b>	<b>-1.6</b>	<b>-0.3</b>	<b>-0.8</b>	<b>-0.9</b>	<b>-1.2</b>			<b>-1.8</b>	<b>-2.2</b>
Contribution from nominal interest rate	0.4	0.2	0.1			1.4	1.5	1.3	1.2	1.1	1.0			0.6	0.8
Contribution from real GDP growth	-1.1	0.1	-1.5			-0.6	-3.1	-1.6	-2.0	-2.0	-2.2			-2.4	-3.0
Contribution from price and exchange rate changes	-1.9	0.2	0.6			...	...	...	...	...	...			...	...
<b>Residual (3-4) 3/</b>	<b>1.2</b>	<b>-7.4</b>	<b>-3.7</b>			<b>-2.3</b>	<b>-7.1</b>	<b>-8.2</b>	<b>-8.0</b>	<b>-6.9</b>	<b>-7.7</b>			<b>-7.5</b>	<b>-6.1</b>
o/w exceptional financing	-0.2	-0.3	-0.3			-0.2	-0.2	-0.2	-0.1	-0.1	-0.1			0.0	0.0
PV of external debt 4/	...	...	20.6			25.4	23.7	23.5	23.5	23.6	23.9			28.1	35.2
In percent of exports	...	...	97.8			112.0	89.9	86.6	83.0	78.4	79.3			81.5	111.7
<b>PV of PPG external debt</b>	<b>...</b>	<b>...</b>	<b>20.6</b>			<b>25.4</b>	<b>23.7</b>	<b>23.5</b>	<b>23.5</b>	<b>23.6</b>	<b>23.9</b>			<b>28.1</b>	<b>35.2</b>
In percent of exports	...	...	97.8			112.0	89.9	86.6	83.0	78.4	79.3			81.5	111.7
In percent of government revenues	...	...	145.3			167.9	134.4	127.5	125.2	121.4	121.1			138.4	161.8
<b>Debt service-to-exports ratio (in percent)</b>	<b>3.8</b>	<b>2.5</b>	<b>2.6</b>			<b>8.7</b>	<b>7.2</b>	<b>8.3</b>	<b>7.3</b>	<b>6.3</b>	<b>5.6</b>			<b>3.5</b>	<b>4.8</b>
<b>PPG debt service-to-exports ratio (in percent)</b>	<b>3.8</b>	<b>2.5</b>	<b>2.6</b>			<b>8.7</b>	<b>7.2</b>	<b>8.3</b>	<b>7.3</b>	<b>6.3</b>	<b>5.6</b>			<b>3.5</b>	<b>4.8</b>
<b>PPG debt service-to-revenue ratio (in percent)</b>	<b>4.0</b>	<b>3.5</b>	<b>3.9</b>			<b>13.0</b>	<b>10.8</b>	<b>12.3</b>	<b>11.0</b>	<b>9.8</b>	<b>8.6</b>			<b>5.9</b>	<b>6.9</b>
Total gross financing need (Billions of U.S. dollars)	0.1	0.6	0.2			0.8	0.9	1.1	1.1	1.1	1.3			1.8	3.2
Non-interest current account deficit that stabilizes debt ratio	12.5	20.7	22.6			17.7	23.5	16.7	9.9	9.1	7.4			8.7	11.0
<b>Key macroeconomic assumptions</b>															
Real GDP growth (in percent)	9.6	-0.9	8.0	5.4	3.8	3.8	14.1	6.5	7.2	6.9	7.0	7.6	6.0	6.3	6.1
GDP deflator in US dollar terms (change in percent)	14.6	-1.5	-3.2	7.2	7.5	11.1	2.1	1.1	1.3	1.2	1.2	3.0	2.0	2.0	2.0
Effective interest rate (percent) 5/	3.0	1.3	0.7	2.3	2.0	9.5	6.8	5.2	4.4	3.8	3.2	5.5	1.5	1.6	1.6
Growth of exports of G&S (US dollar terms, in percent)	39.9	4.9	5.3	14.3	12.9	24.1	35.7	10.9	13.0	15.3	8.4	17.9	7.4	8.4	8.6
Growth of imports of G&S (US dollar terms, in percent)	54.7	20.0	15.9	20.1	14.4	26.9	16.4	-4.6	-4.8	7.7	1.8	7.2	9.8	8.4	9.1
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	22.9	45.7	45.6	45.5	45.5	45.1	41.7	39.7	29.5	36.8
Government revenues (excluding grants, in percent of GDP)	18.4	14.7	14.2			15.1	17.6	18.5	18.8	19.5	19.8			20.3	21.8
Aid flows (in Billions of US dollars) 7/	0.4	0.3	0.3			0.8	1.0	1.0	1.1	1.2	1.2			1.6	2.5
o/w Grants	0.3	0.2	0.3			0.5	0.6	0.6	0.6	0.7	0.7			0.9	1.7
o/w Concessional loans	0.1	0.1	0.1			0.3	0.4	0.4	0.5	0.5	0.5			0.7	0.8
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			10.2	10.2	10.0	9.9	9.7	9.4			8.4	6.4
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			53.5	78.5	77.6	76.8	76.6	76.3			72.0	66.7
<b>Memorandum items:</b>															
Nominal GDP (Billions of US dollars)	5.4	5.3	5.5			6.3	7.4	8.0	8.6	9.3	10.1			14.9	33.1
Nominal dollar GDP growth	25.5	-2.4	4.5			15.3	16.5	7.6	8.6	8.2	8.2	10.7	8.0	8.4	8.2
PV of PPG external debt (in Billions of US dollars)	...	...	1.1			1.6	1.7	1.9	2.0	2.2	2.4			4.2	11.6
(PVT-PVt-1)/GDPT-1 (in percent)	...	...	...			8.9	2.0	1.6	2.0	2.1	2.3	3.1	3.3	3.2	3.3
Gross workers' remittances (Billions of US dollars)	...	...	...			...	...	...	...	...	...			...	...
PV of PPG external debt (in percent of GDP + remittances)	...	...	20.6			25.4	23.7	23.5	23.5	23.6	23.9			28.1	35.2
PV of PPG external debt (in percent of exports + remittances)	...	...	97.8			112.0	89.9	86.6	83.0	78.4	79.3			81.5	111.7
Debt service of PPG external debt (in percent of exports + remittances)	...	...	2.6			8.7	7.2	8.3	7.3	6.3	5.6			3.5	4.8

Sources: Country authorities; and staff estimates and projections.

1/ Includes the general government and the main public enterprises.

2/ Derived as  $[r - g - \rho(1+g)] / (1+g+\rho+g\rho)$  times previous period debt ratio, with  $r$  = nominal interest rate;  $g$  = real GDP growth rate, and  $\rho$  = 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 1b. Niger: Public Sector Debt Sustainability Framework, Baseline Scenario, 2008-2031  
 (In percent of GDP, unless otherwise indicated)

	Actual			Average <sup>5/</sup>	Standard Deviation <sup>5/</sup>	Estimate					Projections			
	2008	2009	2010			2011	2012	2013	2014	2015	2016	2011-16 Average		2017-31 Average
													2021	2031
<b>Public sector debt 1/</b>	22.0	27.3	24.5			32.1	32.3	33.9	35.3	36.7	38.0		45.6	51.2
o/w foreign-currency denominated	15.1	19.2	17.4			25.8	27.1	29.5	31.8	34.1	36.1		45.0	51.0
Change in public sector debt	-2.1	5.3	-2.8			7.7	0.2	1.6	1.4	1.4	1.3		1.5	-0.2
Identified debt-creating flows	-4.0	3.8	1.9			0.6	-0.9	2.8	2.3	1.8	1.0		0.9	-0.3
Primary deficit	-2.0	5.2	2.3	2.5	2.4	2.0	1.8	3.6	3.6	3.2	2.6	2.8	3.5	2.9
Revenue and grants	24.3	19.1	19.0			22.6	25.5	26.1	26.2	26.7	26.8		26.5	26.9
of which: grants	5.9	4.5	4.8			7.5	7.8	7.6	7.4	7.2	7.0		6.2	5.1
Primary (noninterest) expenditure	22.3	24.3	21.2			24.6	27.3	29.7	29.8	29.9	29.3		30.1	29.8
Automatic debt dynamics	-2.0	-1.4	-0.4			-1.4	-2.7	-0.8	-1.3	-1.4	-1.6		-2.6	-3.2
Contribution from interest rate/growth differential	-2.4	0.0	-2.1			0.2	-2.7	-0.8	-1.2	-1.4	-1.7		-2.6	-3.2
of which: contribution from average real interest rate	-0.2	-0.2	-0.1			1.1	1.3	1.2	1.1	0.9	0.7		-0.2	-0.2
of which: contribution from real GDP growth	-2.1	0.2	-2.0			-0.9	-4.0	-2.0	-2.3	-2.3	-2.4		-2.5	-3.0
Contribution from real exchange rate depreciation	0.3	-1.4	1.8			-1.6	-0.1	0.0	-0.1	0.0	0.1		...	...
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	1.9	1.5	-4.8			7.1	1.0	-1.2	-0.9	-0.4	0.3		0.6	0.1
<b>Other Sustainability Indicators</b>														
<b>PV of public sector debt</b>	...	...	27.7			31.7	28.9	27.9	26.9	26.3	25.8		28.7	35.5
o/w foreign-currency denominated	...	...	20.6			25.4	23.7	23.5	23.5	23.6	23.9		28.1	35.2
o/w external	...	...	20.6			25.4	23.7	23.5	23.5	23.6	23.9		28.1	35.2
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...
Gross financing need 2/	0.0	4.4	3.2			4.3	4.1	6.5	6.5	5.8	5.0		4.8	4.5
PV of public sector debt-to-revenue and grants ratio (in percent)	...	...	146.0			140.0	113.6	107.2	103.0	98.4	96.6		108.0	132.0
PV of public sector debt-to-revenue ratio (in percent)	...	...	195.3			209.9	164.0	151.3	143.5	134.9	130.8		141.1	162.8
o/w external 3/	...	...	145.3			167.9	134.4	127.5	125.2	121.4	121.1		138.4	161.8
Debt service-to-revenue and grants ratio (in percent) 4/	8.1	-4.1	5.0			10.3	8.8	11.1	10.8	9.9	9.0		4.9	5.7
Debt service-to-revenue ratio (in percent) 4/	10.7	-5.4	6.7			15.4	12.8	15.6	15.1	13.6	12.2		6.4	7.0
Primary deficit that stabilizes the debt-to-GDP ratio	0.1	0.0	5.1			-5.7	1.7	2.0	2.3	1.8	1.3		2.0	3.1
<b>Key macroeconomic and fiscal assumptions</b>														
Real GDP growth (in percent)	9.6	-0.9	8.0	5.4	3.8	3.8	14.1	6.5	7.2	6.9	7.0	7.6	6.0	6.3
Average nominal interest rate on forex debt (in percent)	3.0	1.3	0.7	2.3	2.0	9.5	6.8	5.2	4.4	3.8	3.2	5.5	1.5	1.6
Average real interest rate on domestic debt (in percent)	...	-3.2	-0.5	-1.9	1.9	-2.0	0.1	2.2	3.0	4.6	6.7	2.4	4.5	4.8
Real exchange rate depreciation (in percent, + indicates depreciation)	2.5	-9.4	10.0	-4.3	9.0	-8.8	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	6.7	4.1	1.6	3.2	2.5	4.3	2.2	1.9	2.1	2.0	2.0	2.4	2.0	2.0
Growth of real primary spending (deflated by GDP deflator, in percent)	0.1	0.1	-0.1	0.1	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Grant element of new external borrowing (in percent)	...	...	...	...	...	22.9	45.7	45.6	45.5	45.5	45.1	41.7	39.7	29.5

Sources: Country authorities; and staff estimates and projections.

1/ Includes the general government and the main public enterprises.

2/ Gross financing need is defined as the primary deficit plus debt service plus the stock of short-term debt at the end of the last period.

3/ Revenues excluding grants.

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

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

Table 2a. Niger: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2011-2031  
(In percent)

	Projections							
	2011	2012	2013	2014	2015	2016	2021	2031
<b>PV of debt-to GDP ratio</b>								
<b>Baseline</b>	25	24	24	23	24	24	<b>28</b>	35
<b>A. Alternative Scenarios</b>								
A1. Key variables at their historical averages in 2011-2031 1/	25	21	16	12	9	6	<b>-3</b>	-2
A2. New public sector loans on less favorable terms in 2011-2031 2	25	26	28	29	31	33	<b>43</b>	57
<b>B. Bound Tests</b>								
B1. Real GDP growth at historical average minus one standard deviation in 2012-2013	25	27	28	28	28	28	<b>33</b>	41
B2. Export value growth at historical average minus one standard deviation in 2012-2013 3/	25	28	33	33	32	32	<b>35</b>	38
B3. US dollar GDP deflator at historical average minus one standard deviation in 2012-2013	25	24	24	24	24	25	<b>29</b>	36
B4. Net non-debt creating flows at historical average minus one standard deviation in 2012-2013 4/	25	35	42	41	41	40	<b>41</b>	40
B5. Combination of B1-B4 using one-half standard deviation shocks	25	40	49	48	47	46	<b>47</b>	45
B6. One-time 30 percent nominal depreciation relative to the baseline in 2012 5/	25	33	33	33	33	34	<b>40</b>	50
<b>PV of debt-to-exports ratio</b>								
<b>Baseline</b>	112	90	87	83	78	79	<b>81</b>	112
<b>A. Alternative Scenarios</b>								
A1. Key variables at their historical averages in 2011-2031 1/	112	80	60	43	31	20	<b>-7</b>	-6
A2. New public sector loans on less favorable terms in 2011-2031 2	112	99	102	104	103	109	<b>125</b>	181
<b>B. Bound Tests</b>								
B1. Real GDP growth at historical average minus one standard deviation in 2012-2013	112	90	86	83	78	79	<b>81</b>	111
B2. Export value growth at historical average minus one standard deviation in 2012-2013 3/	112	142	178	169	157	156	<b>147</b>	175
B3. US dollar GDP deflator at historical average minus one standard deviation in 2012-2013	112	90	86	83	78	79	<b>81</b>	111
B4. Net non-debt creating flows at historical average minus one standard deviation in 2012-2013 4/	112	134	155	146	134	133	<b>119</b>	127
B5. Combination of B1-B4 using one-half standard deviation shocks	112	174	213	199	184	181	<b>160</b>	167
B6. One-time 30 percent nominal depreciation relative to the baseline in 2012 5/	112	90	86	83	78	79	<b>81</b>	111
<b>PV of debt-to-revenue ratio</b>								
<b>Baseline</b>	168	134	127	125	121	121	<b>138</b>	162
<b>A. Alternative Scenarios</b>								
A1. Key variables at their historical averages in 2011-2031 1/	168	120	88	65	47	31	<b>-13</b>	-9
A2. New public sector loans on less favorable terms in 2011-2031 2	168	148	150	156	159	166	<b>213</b>	263
<b>B. Bound Tests</b>								
B1. Real GDP growth at historical average minus one standard deviation in 2012-2013	168	150	149	147	142	142	<b>162</b>	189
B2. Export value growth at historical average minus one standard deviation in 2012-2013 3/	168	158	180	174	166	163	<b>171</b>	173
B3. US dollar GDP deflator at historical average minus one standard deviation in 2012-2013	168	137	132	130	126	125	<b>143</b>	167
B4. Net non-debt creating flows at historical average minus one standard deviation in 2012-2013 4/	168	201	228	220	208	203	<b>201</b>	184
B5. Combination of B1-B4 using one-half standard deviation shocks	168	225	265	254	241	234	<b>230</b>	204
B6. One-time 30 percent nominal depreciation relative to the baseline in 2012 5/	168	190	180	177	171	171	<b>195</b>	228

Table 2a. Niger: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2011-2031 (continued)  
 (In percent)

	Projections							
	2011	2012	2013	2014	2015	2016	2021	2031
<b>Debt service-to-exports ratio</b>								
<b>Baseline</b>	9	7	8	7	6	6	3	5
<b>A. Alternative Scenarios</b>								
A1. Key variables at their historical averages in 2011-2031 1/	9	7	8	6	5	4	1	0
A2. New public sector loans on less favorable terms in 2011-2031 2	9	7	6	6	5	5	5	8
<b>B. Bound Tests</b>								
B1. Real GDP growth at historical average minus one standard deviation in 2012-2013	9	7	8	7	6	6	3	5
B2. Export value growth at historical average minus one standard deviation in 2012-2013 3/	9	10	13	12	10	9	6	8
B3. US dollar GDP deflator at historical average minus one standard deviation in 2012-2013	9	7	8	7	6	6	3	5
B4. Net non-debt creating flows at historical average minus one standard deviation in 2012-2013 4/	9	7	9	9	8	7	4	6
B5. Combination of B1-B4 using one-half standard deviation shocks	9	9	12	11	10	9	6	8
B6. One-time 30 percent nominal depreciation relative to the baseline in 2012 5/	9	7	8	7	6	6	3	5
<b>Debt service-to-revenue ratio</b>								
<b>Baseline</b>	13	11	12	11	10	9	6	7
<b>A. Alternative Scenarios</b>								
A1. Key variables at their historical averages in 2011-2031 1/	13	11	12	10	8	6	2	0
A2. New public sector loans on less favorable terms in 2011-2031 2	13	11	9	9	8	8	8	12
<b>B. Bound Tests</b>								
B1. Real GDP growth at historical average minus one standard deviation in 2012-2013	13	12	14	13	12	10	7	8
B2. Export value growth at historical average minus one standard deviation in 2012-2013 3/	13	11	13	12	11	10	7	8
B3. US dollar GDP deflator at historical average minus one standard deviation in 2012-2013	13	11	13	11	10	9	6	7
B4. Net non-debt creating flows at historical average minus one standard deviation in 2012-2013 4/	13	11	14	13	12	10	7	9
B5. Combination of B1-B4 using one-half standard deviation shocks	13	12	15	15	13	12	8	10
B6. One-time 30 percent nominal depreciation relative to the baseline in 2012 5/	13	15	17	16	14	12	8	10
<i>Memorandum item:</i>								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	35	35	35	35	35	35	35	35

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 2b.Niger: Sensitivity Analysis for Key Indicators of Public Debt 2011-2031

	Projections							
	2011	2012	2013	2014	2015	2016	2021	2031
<b>PV of Debt-to-GDP Ratio</b>								
<b>Baseline</b>	32	29	28	27	26	26	29	35
<b>A. Alternative scenarios</b>								
A1. Real GDP growth and primary balance are at historical averages	32	32	30	28	28	27	27	33
A2. Primary balance is unchanged from 2011	32	29	27	25	24	23	22	25
A3. Permanently lower GDP growth 1/	32	29	29	28	28	28	36	59
<b>B. Bound tests</b>								
B1. Real GDP growth is at historical average minus one standard deviations in 2012-2013	32	34	36	37	38	39	51	70
B2. Primary balance is at historical average minus one standard deviations in 2012-2013	32	31	31	29	29	28	30	36
B3. Combination of B1-B2 using one half standard deviation shocks	32	33	32	33	34	35	44	61
B4. One-time 30 percent real depreciation in 2012	32	38	35	33	31	29	28	33
B5. 10 percent of GDP increase in other debt-creating flows in 2012	32	36	34	32	32	31	33	38
<b>PV of Debt-to-Revenue Ratio 2/</b>								
<b>Baseline</b>	140	114	107	103	98	97	108	132
<b>A. Alternative scenarios</b>								
A1. Real GDP growth and primary balance are at historical averages	140	121	112	105	100	98	99	118
A2. Primary balance is unchanged from 2011	140	114	103	96	89	86	84	94
A3. Permanently lower GDP growth 1/	140	115	109	107	104	104	132	212
<b>B. Bound tests</b>								
B1. Real GDP growth is at historical average minus one standard deviations in 2012-2013	140	128	133	135	136	141	183	253
B2. Primary balance is at historical average minus one standard deviations in 2012-2013	140	122	118	112	107	105	115	136
B3. Combination of B1-B2 using one half standard deviation shocks	140	126	120	121	122	125	161	223
B4. One-time 30 percent real depreciation in 2012	140	150	136	126	115	109	105	123
B5. 10 percent of GDP increase in other debt-creating flows in 2012	140	140	130	124	118	115	123	140
<b>Debt Service-to-Revenue Ratio 2/</b>								
<b>Baseline</b>	10	9	11	11	10	9	5	6
<b>A. Alternative scenarios</b>								
A1. Real GDP growth and primary balance are at historical averages	10	9	12	12	11	10	5	6
A2. Primary balance is unchanged from 2011	10	9	11	11	10	9	4	4
A3. Permanently lower GDP growth 1/	10	9	11	11	10	9	5	8
<b>B. Bound tests</b>								
B1. Real GDP growth is at historical average minus one standard deviations in 2012-2013	10	10	13	12	12	11	7	10
B2. Primary balance is at historical average minus one standard deviations in 2012-2013	10	9	11	11	10	9	5	6
B3. Combination of B1-B2 using one half standard deviation shocks	10	9	12	12	11	10	6	9
B4. One-time 30 percent real depreciation in 2012	10	10	15	14	13	12	7	9
B5. 10 percent of GDP increase in other debt-creating flows in 2012	10	9	12	11	10	9	5	6

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.