

## NIGER: JOINT BANK-FUND DEBT SUSTAINABILITY ANALYSIS

*Niger remains at moderate risk of debt distress. Despite low debt ratios following debt relief, most recently in 2006 under the MDRI, Niger has high external financing needs and a narrow export base. Although the public debt remains at acceptable levels under most stress tests, external debt breaches one policy-dependent debt distress threshold under scenarios incorporating export shocks, lower growth, and less generous financing terms.*

### I. BACKGROUND

1. This joint World Bank-IMF debt sustainability analysis evaluates both the external and the total public debt profile of Niger based on end-2006 data, using the standard debt dynamics templates for low income countries.<sup>1</sup>
2. **Niger's debt ratios have been significantly reduced by debt relief, most recently under the MDRI.** Niger reached completion point of the HIPC Initiative in April 2004 and subsequently benefited from MDRI assistance from the IMF, IDA, and the African Development Bank in 2006. Nominal external debt has thus fallen from over 90 percent of GDP at end-2000 to less than 15 percent of GDP at end-2006. By end-2006, debt to AfDB, IDA and the IMF accounted for 8, 23 and 5 percent of external debt, respectively, while the remainder was constituted by borrowing from other multilateral lenders.

### II. UNDERLYING DSA ASSUMPTIONS

3. The result of the current exercise differs from the 2006 DSA mainly because of: (i) an expected acceleration of exports and GDP resulting from a substantial increase in uranium prices and the ongoing expansion of uranium production capacity; and (ii) a modestly lower grant element for concessional loans that reflects more accurately the terms for project financing available to Niger from multilateral agencies.<sup>2</sup> Box 1 describes the main macroeconomic assumptions used for the baseline debt burden ratio calculations. The faster exports growth projected (12 percent per year in 2007–16) represents a break from the past

---

<sup>1</sup> The DSA was produced jointly by staffs of the World Bank and the IMF.

<sup>2</sup> The analysis assumes an average grant element of 46 percent in borrowing after 2008, compared to 50 percent in the 2006 DSA.

(5.5 percent per year in 1997-2006) when mining exports were stagnant, reflecting low uranium prices.<sup>3</sup>

### III. EXTERNAL DSA

4. **Under the baseline scenario, all external debt ratios remain below their policy-dependent indicative thresholds throughout the projection period (2007-27)** (Text Table). The present value (NPV) of debt-to-GDP ratio rises gradually and stabilizes below 25 percent by 2027, while the NPV of debt-to-exports ratio levels off at about 116 percent (Table 1b and Figure 1). The gradual rise in these indicators results from Niger's high financing requirements, critical for promoting growth and achieving the MDGs: it is assumed that one third of total project financing comes in the form of concessional loans and the remainder in grants.

#### Policy-Based External Debt Burden Indicators

	Thresholds 1/	Niger: Baseline Scenario Ratios		
		2006	2007-25 2/	Peak
NPV of external debt in percent of:				
Exports	150	62.6	87.0	115.5
GDP	40	10.2	17.4	22.8
Revenues	250	77.6	114.7	132.3
External debt service in percent of:				
Exports	20	2.8	3.8	5.2
Revenues	30	3.5	5.0	6.0

1/ Policy-dependent thresholds as used in the joint IMF-WB LIC DSA framework for a medium policy performance. Niger received a rating of 3.3 in the 2006 World Bank's Country Policy and Institutional Assessment (CPIA), which qualifies it as a medium policy performer.

2/ Simple Average

5. **Sensitivity tests show that Niger's external debt burden could worsen significantly in the event of plausible adverse macroeconomic shocks – particularly to exports – or weaker economic performance**, although ratios would remain below their threshold levels under most of these alternative scenarios. If key variables remain at the historical average of the previous ten years (scenario A1), the NPV of debt-to-GDP and debt-to-exports ratios would rise to 18 percent and 90 percent respectively by 2027, below the baseline. This lower debt profile under the historical scenario reflects a lower level of borrowing and smaller current account deficits than are assumed going forward. In contrast, two alternative scenarios – a temporary but strong reduction in export growth (scenario B2),

<sup>3</sup> The uranium price assumptions are conservative looking forward as they are based on only modest annual increases from the 2007 contract price, which is still low in comparison to the international spot price.

or a sizeable deterioration of the terms for new borrowing (scenario A2)<sup>4</sup> – would result in a more significant worsening of Niger’s debt profile, leading to breaches of the debt-to-exports threshold (but not of any other threshold). Under the first of these tests, the export shock, the NPV of debt-to-exports ratio would peak in the medium term at 149 percent (just below its 150 percent threshold) but subsequently returns to a rising long-run trajectory, reaching 179 percent by 2027. Under the second of these, assuming costlier financing terms, debt-to-exports would rise more gradually, nonetheless reaching 180 percent by 2027. Similarly, under a 35 percent grant element for new borrowing (scenario A4), the NPV of debt-to-exports ratio gradually rises to 164 percent by 2027.

6. **Niger’s external vulnerability is underlined by a further country-specific scenario capturing poor investment outcomes**, under which the high inflows and investment under the baseline scenario do not lead to any growth dividend (scenario A3). Real GDP growth was set to its historical (ten year) average (3.4 percent) while current account deficits and borrowing patterns were left as in the baseline. This scenario can be thought of as roughly simulating poor performance in the public investment program in the coming years, and also in the uranium sector. Under this scenario, the NPV of debt-to-GDP ratio gradually rises to 31 percent by the end of the forecast period, thus respecting the 40 percent threshold.

#### IV. PUBLIC DSA

7. **Consideration of total public debt, including domestic debt, does not significantly alter the assessment.** Domestic debt stood at approximately 11 percent of GDP (45 percent of total public debt) at end-2006 but is projected to fall under the baseline scenario, reaching about 5 percent by 2013 and continuing to decline thereafter (Table 2a). This pattern is explained by relatively low primary fiscal deficits, averaging 2.5 percent of GDP for the first six years of the projection period and less than 2 percent thereafter. The average interest rate on domestic debt is very low (1.4 percent) as the bulk of the debt is constituted by non-interest bearing arrears.

8. **A significant proportion of domestic debt as of end-2006 is accounted for by domestic arrears.** The baseline analysis therefore also takes into account the ongoing implementation of a domestic arrears reduction plan, which reduces domestic debt to 10 percent of total public debt by 2013, and nearly eliminates it by 2017. Under these assumptions, total public sector debt (NPV) would remain stable at around 20 percent of GDP up to 2017 and then gradually increase, but driven solely by new external debt. Two sensitivity tests generate a significant rise of public debt. The first of these is the standardized stress test incorporating a two-year low growth shock. The second is the country-specific lower long-run growth scenario described above. In both cases, total public debt (NPV)

---

<sup>4</sup> Under scenario A2, interest costs are 2 percentage points above the baseline.

reaches about 40 percent of GDP, and about 175 percent of forecast revenue, by the end of the projection period (Figure 2).

## V. CONCLUSION

9. **Staff assessment is that despite low current levels of debt, Niger remains at moderate risk of debt distress over the medium to long term.** This risk assessment is the same as in the previous 2006 DSA. Debt and debt service ratios remain at comfortable levels under the baseline assumptions and stress tests reveal breaches of the policy-dependent external debt-to-exports threshold only under three of the eight standardized stress tests. Niger is financing significant current-account deficits and the baseline used for this DSA incorporates GDP growth rates that are based on the assumed impact of a large program of public investment and rapid expansion in mining. The standardized tests of export shocks or costlier financing terms underline the moderate risk assessment.

10. **The results of the DSA underscore the need for the authorities to pursue prudent debt policies, seeking maximum concessionality, combined with sound macroeconomic management and export diversification.** While the debt profile has improved with the granting of HIPC and MDRI assistance and better prospects for sustained growth, the country remains vulnerable to external shocks. Policies should therefore aim to boost growth and diversify the productive base, particularly exports, while continuing to privilege grants and highly concessional loans.

### Box 1. Baseline scenario assumptions

The baseline macroeconomic scenario for 2007–27 hinges on the following assumptions:

- Real GDP growth is expected to rise from its historical average (1997-2006) of 3.4 percent to an average of 5.5 percent in 2007–16, fostered mainly by increased investment and production of uranium. In 2017-27, after a moderation of the uranium boom, annual GDP growth is expected to settle at about 5 percent. This level is still above the historical average, and results from planned investments in irrigation and infrastructure, as well as of ongoing reforms to improve the investment climate.
- The investment rate is projected to be high in 2007-12, between 25 and 28 percent of GDP, partly as a result of planned uranium-related investments. Investment would remain at around 20 percent of GDP in 2014-27, as mining-related investment decline.
- The assumed GDP deflator would be below 2.5 percent throughout the period.
- The revenue-to-GDP ratio is projected to rise gradually from 12.9 percent in 2006 to about 17 percent by 2025, reflecting the gradual convergence of the tax revenue ratio to the WAEMU norm (17 percent). Public expenditures would rise sharply from 18.6 percent of GDP in 2006 to 23 percent by 2008, and should remain between 23 and 24 percent of GDP during the rest of the projection period, reflecting the authorities' efforts to promote growth and increase social spending.
- The evolution of total exports in the medium term will be largely determined by developments in uranium exports, resulting from investments to expand production and from higher prices. Investments related to uranium in 2008-2012 are projected at around 30 percent of GDP, leading to a tripling of current production by 2014 mainly because of the new Imourarem project. Uranium prices have increased by 60 percent from 2006 to 2007, and are conservatively projected to increase by 2 percent per year in the future. With the sharp increase in uranium exports, overall exports growth in current price is projected at about 12 percent per year in 2007-16, which compares to 5.5 percent in the last ten years when mining exports were stationary.
- With a moderation in the growth of uranium exports and drop in gold production (expected to peak in 2010), growth in exports after 2016 is largely dependent on expected acceleration in other sectors. Nominal exports are projected to grow during 2017-2027 at about 7 percent per year.
- Uranium-related activity will also boost other items of the current account through increased imports of equipment and capital goods, higher repatriation of profits, and larger compensation to foreign employees. Hence, total imports in nominal terms would grow around 9 percent on average during 2007-16, with the current account deficit-to-GDP ratio reaching a peak in 2012. Afterwards, imports are projected to grow broadly in line with nominal GDP growth, with the current account deficit as a share to GDP declining gradually.
- The average interest rate on new external borrowing is projected at 1.2 percent, assuming half of new external debt is contracted on IDA terms and half at an interest rate of about 2 percent. Project financing in the form of external grants and loans is projected to rise in line with nominal GDP, with grants being two thirds of the total. External budgetary financing will remain stable in current terms after reaching a peak in 2007-08, with grants also about two thirds of the total.
- The domestic debt profile assumes a reduction of domestic arrears in 2007-13 and no domestic financing of the deficit after 2017. The average interest rate on the stock of debt is very low (1.4 percent) because arrears do not pay interest. The interest rate of new domestic financing up to 2017 is assumed at 4 percent.
- These assumptions lead to an improvement in the non-interest current account deficit from an average of 12 percent of GDP in 2006–10 to about 8 percent of GDP by 2025.

### Box 1 (continued). Baseline scenario assumptions

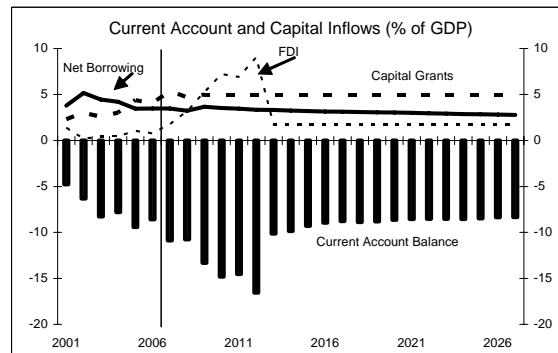
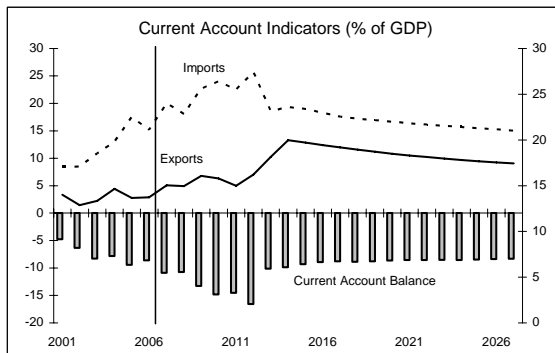
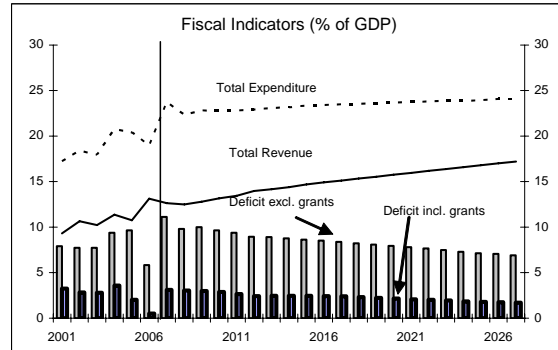
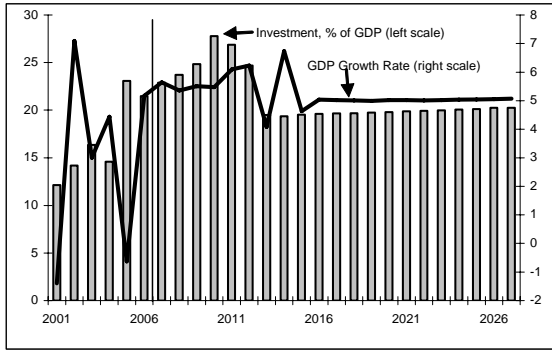
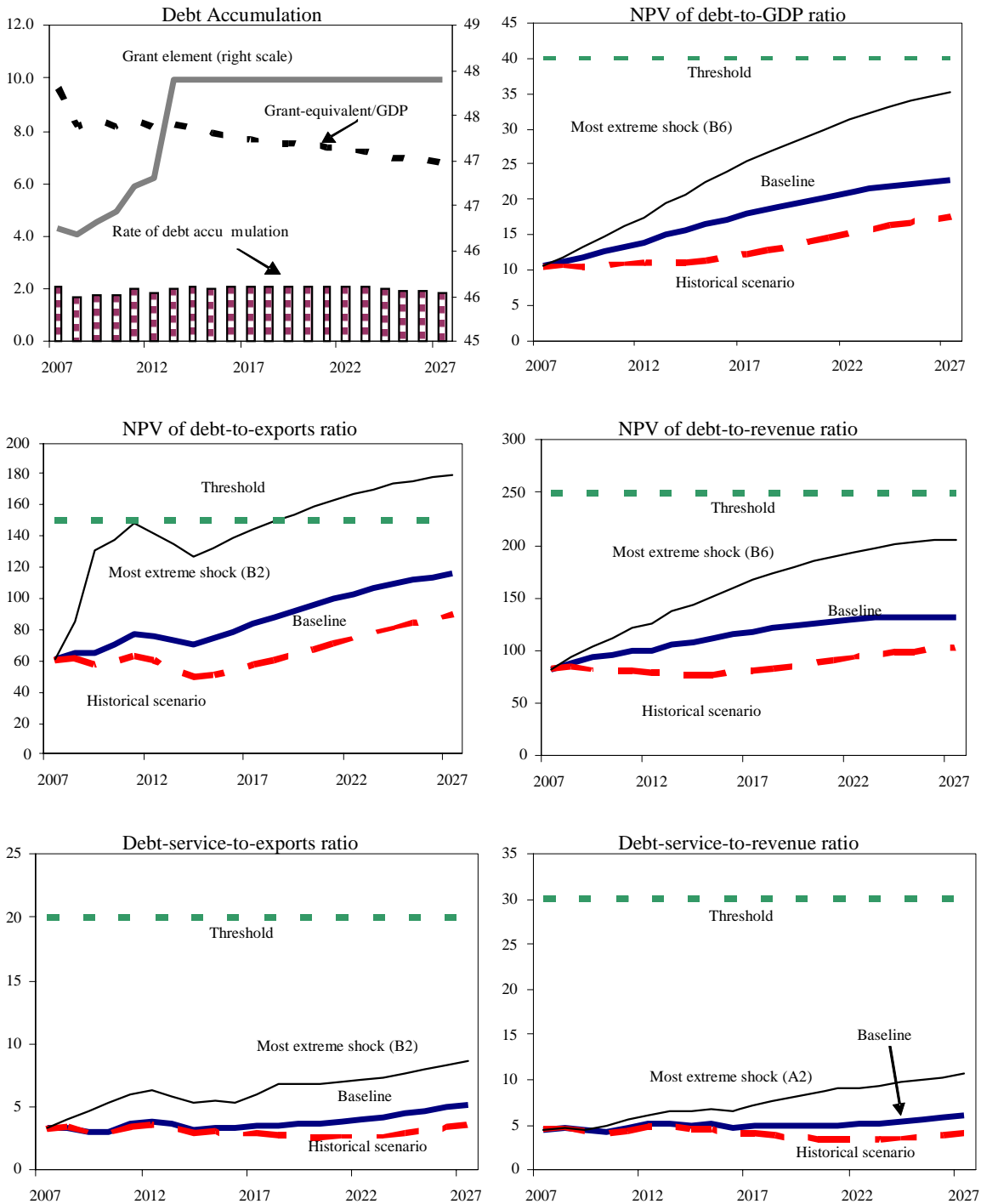
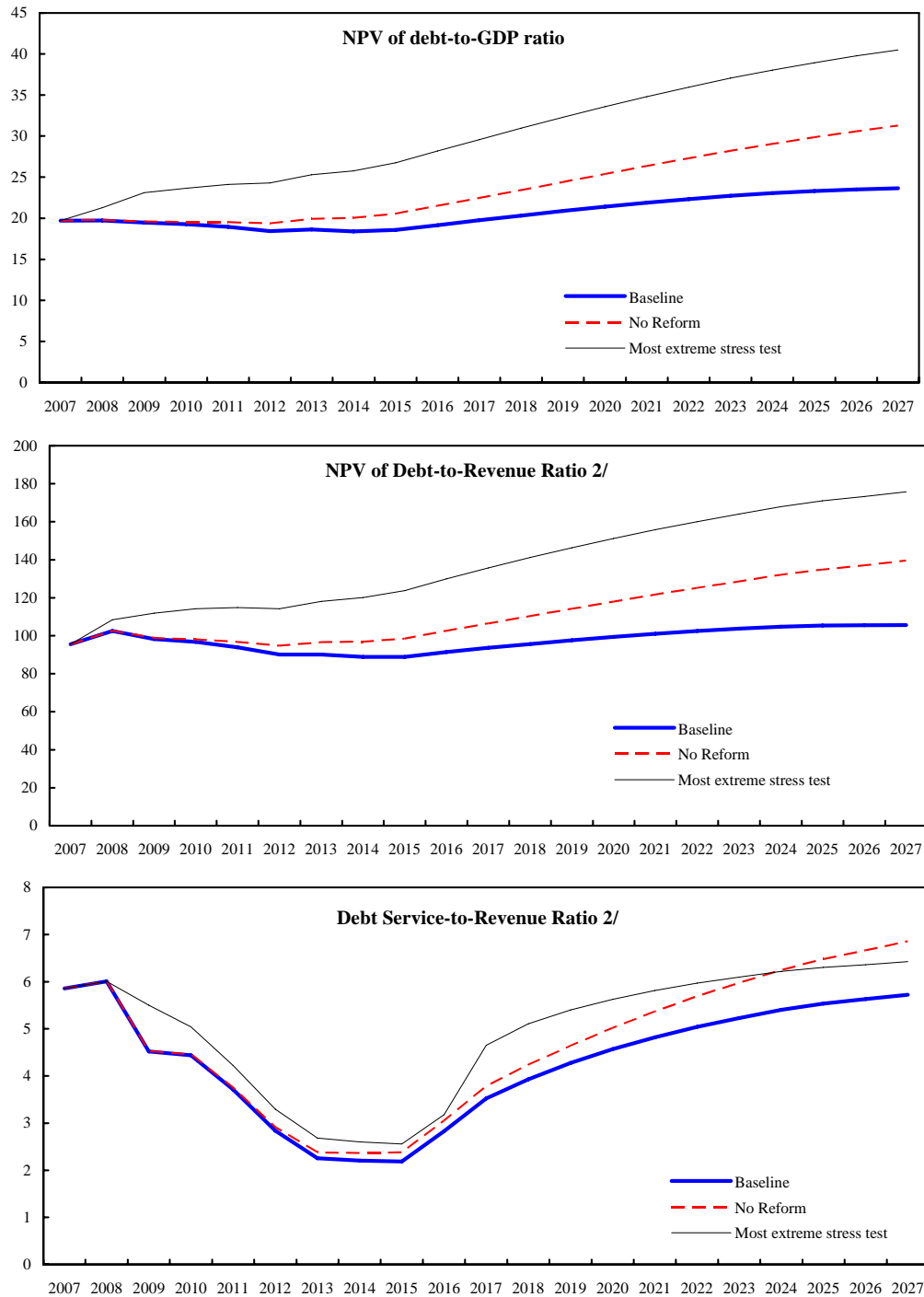


Figure 1. Niger: Indicators of Public and Publicly Guaranteed External Debt Under Alternative Scenarios, 2007-2027



Source: Staff projections and simulations.

**Figure 2. Niger: Indicators of Public Debt Under Alternative Scenarios, 2007-2027 1/**



Source: Staff projections and simulations.

1/ Most extreme stress test is test that yields highest ratio in 2017 (B1 in all three graphs).

2/ Revenue including grants.

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

	Actual			Historical Average 6/	Standard Deviation 6/	Projections							2013-27				
	2004	2005	2006			2007	2008	2009	2010	2011	2012	2007-12 Average	2017	2027	Average		
<b>External debt (nominal) 1/</b>	<b>58.8</b>	<b>52.2</b>	<b>14.4</b>			<b>15.4</b>	<b>16.8</b>	<b>18.3</b>	<b>19.7</b>	<b>21.1</b>	<b>22.2</b>				<b>29.5</b>	<b>36.5</b>	
o/w public and publicly guaranteed (PPG)	-1969.9	-1513.9	-385.0			-350.1	-348.0	-349.9	-346.1	-337.5	-321.8				-288.2	-157.2	
Change in external debt	-11.1	-6.6	-37.9			1.0	1.4	1.5	1.4	1.4	1.1				1.2	0.2	
Identified net debt-creating flows	1.1	-0.6	4.1			8.2	6.6	7.0	6.5	6.3	6.1				5.5	4.7	
<b>Non-interest current account deficit</b>	<b>7.4</b>	<b>9.3</b>	<b>8.4</b>	<b>6.7</b>	<b>1.6</b>	<b>10.6</b>	<b>10.5</b>	<b>13.1</b>	<b>14.6</b>	<b>14.2</b>	<b>16.3</b>				<b>8.4</b>	<b>7.9</b>	8.5
Deficit in balance of goods and services	11.0	14.6	12.7			14.8	13.5	15.8	17.1	16.8	18.0				8.8	8.7	
Exports	17.9	16.3	16.3			17.3	17.2	18.3	18.1	17.2	18.5				21.5	19.7	
Imports	28.8	30.9	29.0			32.1	30.7	34.1	35.1	34.0	36.4				30.3	28.4	
Net current transfers (negative = inflow)	-3.6	-5.5	-4.2	-3.3	1.1	-4.8	-4.0	-4.0	-3.6	-3.6	-3.4				-2.8	-2.1	-2.6
o/w official	-2.5	-3.0	-2.4			-3.3	-2.8	-2.8	-2.4	-2.4	-2.2				-1.6	-0.9	
Other current account flows (negative = net inflow)	0.0	0.2	-0.1			0.7	1.1	1.2	1.1	1.1	1.7				2.4	1.3	
<b>Net FDI (negative = inflow)</b>	<b>-0.5</b>	<b>-2.3</b>	<b>-0.6</b>	<b>-0.7</b>	<b>0.7</b>	<b>-2.0</b>	<b>-3.4</b>	<b>-5.5</b>	<b>-7.4</b>	<b>-7.1</b>	<b>-9.2</b>				<b>-2.0</b>	<b>-2.0</b>	-2.0
<b>Endogenous debt dynamics 2/</b>	<b>-5.8</b>	<b>-7.6</b>	<b>-3.6</b>			<b>-0.5</b>	<b>-0.5</b>	<b>-0.6</b>	<b>-0.7</b>	<b>-0.8</b>	<b>-0.9</b>				<b>-1.0</b>	<b>-1.3</b>	
Contribution from nominal interest rate	0.4	0.1	0.2			0.2	0.2	0.2	0.3	0.3	0.3				0.3	0.4	
Contribution from real GDP growth	-2.8	0.3	-2.5			-0.7	-0.8	-0.9	-0.9	-1.1	-1.2				-1.3	-1.7	
Contribution from price and exchange rate changes	-3.4	-8.0	-1.3			...	...	...	...	...	...				...	...	
<b>Residual 3/</b>	<b>-12.1</b>	<b>-6.1</b>	<b>-42.0</b>			<b>-7.1</b>	<b>-5.2</b>	<b>-5.4</b>	<b>-5.1</b>	<b>-4.9</b>	<b>-5.0</b>				<b>-4.3</b>	<b>-4.4</b>	
o/w exceptional financing	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	
NPV of external debt 4/	...	...	409.6			376.0	375.9	380.1	378.4	371.9	357.9				335.6	216.4	
In percent of exports	...	...	2515.8			2170.2	2186.9	2073.5	2095.4	2158.8	1938.8				1563.7	1099.1	
<b>NPV of PPG external debt</b>	<b>...</b>	<b>...</b>	<b>10.2</b>			<b>10.5</b>	<b>11.1</b>	<b>11.9</b>	<b>12.6</b>	<b>13.4</b>	<b>13.9</b>				<b>17.9</b>	<b>22.8</b>	
<b>In percent of exports</b>	<b>...</b>	<b>...</b>	<b>62.6</b>			<b>60.4</b>	<b>64.7</b>	<b>64.9</b>	<b>69.9</b>	<b>77.5</b>	<b>75.2</b>				<b>68.8</b>	<b>83.4</b>	<b>115.5</b>
<b>In percent of government revenues</b>	<b>...</b>	<b>...</b>	<b>77.6</b>			<b>82.9</b>	<b>88.9</b>	<b>93.0</b>	<b>96.1</b>	<b>99.3</b>	<b>99.5</b>				<b>93.3</b>	<b>118.4</b>	<b>132.3</b>
<b>Debt service-to-exports ratio (in percent)</b>	<b>12.9</b>	<b>8.3</b>	<b>226.4</b>			<b>3.3</b>	<b>3.4</b>	<b>3.0</b>	<b>3.1</b>	<b>3.6</b>	<b>3.8</b>				<b>3.4</b>	<b>3.5</b>	<b>5.2</b>
<b>PPG debt service-to-exports ratio (in percent)</b>	<b>12.9</b>	<b>8.3</b>	<b>226.4</b>			<b>3.3</b>	<b>3.4</b>	<b>3.0</b>	<b>3.1</b>	<b>3.6</b>	<b>3.8</b>				<b>3.5</b>	<b>5.2</b>	
<b>PPG debt service-to-revenue ratio (in percent)</b>	<b>20.3</b>	<b>12.5</b>	<b>280.5</b>			<b>4.6</b>	<b>4.7</b>	<b>4.4</b>	<b>4.3</b>	<b>4.6</b>	<b>5.1</b>				<b>5.0</b>	<b>6.0</b>	
Total gross financing need (billions of U.S. dollars)	0.3	0.3	1.6			0.4	0.4	0.4	0.4	0.5	0.5				0.7	1.3	
Non-interest current account deficit that stabilizes debt ratio	18.4	15.9	46.2			9.6	9.1	11.5	13.2	12.8	15.2				7.2	7.7	
<b>Key macroeconomic assumptions</b>																	
Real GDP growth (in percent)	4.4	-0.6	5.2	3.4	3.7	5.6	5.4	5.5	5.5	6.1	6.2	5.7	5.0	5.1	5.1		
GDP deflator in US dollar terms (change in percent)	5.1	15.7	2.6	4.7	10.2	10.8	3.7	2.4	2.6	3.2	3.2	4.3	2.3	2.1	2.2		
Effective interest rate (percent) 5/	0.7	0.2	0.4	0.6	0.2	1.9	1.7	1.6	1.5	1.5	1.4	1.6	1.3	1.3	1.3		
Growth of exports of G&S (US dollar terms, in percent)	24.8	4.7	7.9	5.5	13.4	24.6	8.4	15.2	6.6	4.4	17.5	12.8	6.1	6.6	7.9		
Growth of imports of G&S (US dollar terms, in percent)	22.6	23.1	1.3	8.3	14.9	29.6	4.4	20.2	11.5	5.9	17.4	14.8	5.5	6.7	5.7		
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	46.3	46.2	46.3	46.4	46.7	46.8	46.5	47.9	47.9	47.9		
Aid flows (in billions of US dollars) 7/	0.2	0.3	1.7			0.3	0.3	0.3	0.4	0.4	0.4				0.6	1.0	
o/w Grants	0.2	0.3	1.7			0.3	0.3	0.3	0.4	0.4	0.4				0.6	1.0	
o/w Concessional loans	0.1	0.1	0.1			0.1	0.1	0.2	0.2	0.2	0.2				0.3	0.5	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			9.6	8.2	8.4	8.2	8.4	8.1				7.7	6.8	7.5
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			83.8	83.3	83.6	83.3	81.8	81.8				80.5	79.8	80.3
<i>Memorandum items:</i>																	
Nominal GDP (billions of US dollars)	2.9	3.3	3.6			4.2	4.6	5.0	5.4	5.9	6.5				9.3	18.8	
(NPVt-NPVt-1)/GDPt-1 (in percent)						2.1	1.7	1.7	1.8	2.0	1.9	1.8	2.0	1.9	2.0	1.9	2.0

Source: Staff simulations.

1/ Includes both public and private sector external debt.

2/ Derived as  $[r - g - \rho(1+g)] / (1+g+\rho+gp)$  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/ Change in external debt minus identified net debt-creating flows. Includes exceptional financing (i.e., changes in arrears and debt relief); capital grants; changes in gross foreign assets; and valuation adjustments. For projections also includes contribution from price and exchange rate changes.

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

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

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

7/ Defined as grants, concessional loans, and debt relief.

8/ Grant-equivalent financing includes grants provided directly to the government and through new borrowing (difference between the face value and the NPV of new debt).

Table 1b. Niger: Sensitivity Analyses for Key Indicators of Public and Publicly Guaranteed External Debt, 2007-27  
(In percent)

	Projections							2027
	2007	2008	2009	2010	2011	2012	2017	
<b>NPV of debt-to-GDP ratio</b>								
<b>Baseline</b>	10	11	12	13	13	14	<b>18</b>	23
<b>A. Alternative Scenarios</b>								
A1. Key variables at their historical averages in 2008-27 1/	10	11	10	11	11	11	<b>12</b>	18
A2. New public sector loans on less favorable terms in 2008-27 2/	10	12	13	15	16	17	<b>25</b>	35
A3. GDP growth at historical average in 2008-27	10	11	12	13	15	16	<b>22</b>	32
A4. New public sector loans with 35% grant element in 2008-27	10	12	13	14	15	16	<b>23</b>	32
<b>B. Bound Tests</b>								
B1. Real GDP growth at historical average minus one standard deviation in 2008-09	10	12	13	14	15	16	<b>20</b>	25
B2. Export value growth at historical average minus one standard deviation in 2008-09 3/	10	12	16	17	17	18	<b>21</b>	24
B3. US dollar GDP deflator at historical average minus one standard deviation in 2008-09	10	12	14	15	16	17	<b>21</b>	27
B4. Net non-debt creating flows at historical average minus one standard deviation in 2008-09 4/	10	14	18	19	19	20	<b>23</b>	25
B5. Combination of B1-B4 using one-half standard deviation shocks	10	14	19	20	20	20	<b>24</b>	28
B6. One-time 30 percent nominal depreciation relative to the baseline in 2008 5/	10	16	17	18	19	20	<b>25</b>	32
<b>NPV of debt-to-exports ratio</b>								
<b>Baseline</b>	60	65	65	70	77	75	<b>83</b>	116
<b>A. Alternative Scenarios</b>								
A1. Key variables at their historical averages in 2007-26 1/	60	62	57	59	63	60	<b>57</b>	90
A2. New public sector loans on less favorable terms in 2007-26 2/	60	69	73	82	94	95	<b>118</b>	180
A3. GDP growth at historical average in 2008-27	60	65	65	70	77	75	<b>83</b>	116
A4. New public sector loans with 35% grant element in 2008-27	60	67	70	78	89	88	<b>108</b>	164
<b>B. Bound Tests</b>								
B1. Real GDP growth at historical average minus one standard deviation in 2008-09	60	65	65	70	77	75	<b>83</b>	116
B2. Export value growth at historical average minus one standard deviation in 2008-09 3/	60	85	131	138	149	141	<b>145</b>	179
B3. US dollar GDP deflator at historical average minus one standard deviation in 2008-09	60	65	65	70	77	75	<b>83</b>	116
B4. Net non-debt creating flows at historical average minus one standard deviation in 2008-09 4/	60	81	100	105	112	106	<b>105</b>	125
B5. Combination of B1-B4 using one-half standard deviation shocks	60	81	114	120	129	123	<b>126</b>	156
B6. One-time 30 percent nominal depreciation relative to the baseline in 2008 5/	60	65	65	70	77	75	<b>83</b>	116
<b>Debt service-to-exports ratio</b>								
<b>Baseline</b>	3.3	3.4	3.0	3.1	3.6	3.8	<b>3.5</b>	5.2
<b>A. Alternative Scenarios</b>								
A1. Key variables at their historical averages in 2008-27 1/	3.3	3.4	3.0	2.9	3.4	3.6	<b>2.9</b>	3.6
A2. New public sector loans on less favorable terms in 2008-27 2/	3.3	3.4	3.2	3.5	4.4	4.6	<b>5.1</b>	9.3
A3. GDP growth at historical average in 2008-27	3.3	3.4	3.0	3.1	3.6	3.8	<b>3.5</b>	5.2
A4. New public sector loans with 35% grant element in 2008-27	3.3	3.4	3.1	3.3	4.0	4.2	<b>4.3</b>	7.9
<b>B. Bound Tests</b>								
B1. Real GDP growth at historical average minus one standard deviation in 2008-09	3.3	3.4	3.0	3.1	3.6	3.8	<b>3.5</b>	5.2
B2. Export value growth at historical average minus one standard deviation in 2008-09 3/	3.3	4.0	4.7	5.3	6.1	6.3	<b>6.0</b>	8.6
B3. US dollar GDP deflator at historical average minus one standard deviation in 2008-09	3.3	3.4	3.0	3.1	3.6	3.8	<b>3.5</b>	5.2
B4. Net non-debt creating flows at historical average minus one standard deviation in 2008-09 4/	3.3	3.4	3.4	3.9	4.4	4.5	<b>4.4</b>	6.1
B5. Combination of B1-B4 using one-half standard deviation shocks	3.3	3.7	4.1	4.6	5.3	5.5	<b>5.2</b>	7.5
B6. One-time 30 percent nominal depreciation relative to the baseline in 2008 5/	3.3	3.4	3.0	3.1	3.6	3.8	<b>3.5</b>	5.2
<i>Memorandum item:</i>								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	46.6	46.6	46.6	46.6	46.6	46.6	<b>46.6</b>	46.6

Source: Staff projections and simulations.

1/ Variables include real GDP growth, growth of GDP deflator (in U.S. dollar terms), non-interest current account in percent of GDP, and non-debt creating flows.

2/ Assumes that the interest rate on new borrowing is by 2 percentage points higher than in the baseline, while grace and maturity periods are the same as in the baseline.

3/ Exports 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 2a.Niger: Public Sector Debt Sustainability Framework, Baseline Scenario, 2004-2027  
(In percent of GDP, unless otherwise indicated)

	Actual			Historical Average 5/	Standard Deviation 5/	Estimate					Projections			
	2004	2005	2006			2007	2008	2009	2010	2011	2012	2007-12 Average	2017	2027
<b>Public sector debt 1/</b>	71.2	68.7	24.2			25.0	26.1	26.6	27.0	27.5	27.6		32.5	38.8
o/w foreign-currency denominated	58.8	52.2	14.4			15.4	16.8	18.3	19.7	21.1	22.2		29.5	36.5
<b>Change in public sector debt</b>	-9.4	-2.5	-44.5			0.8	1.0	0.5	0.5	0.5	0.1		1.1	0.2
Identified debt-creating flows	4.2	4.7	-50.4			1.2	1.3	1.1	0.9	0.4	0.1		0.2	-0.9
Primary deficit	3.0	1.4	0.6	1.8	0.9	2.8	2.7	2.7	2.5	2.3	2.1	2.5	2.0	1.3
Revenue and grants	17.2	18.4	18.1			20.6	19.3	19.8	19.9	20.2	20.5		21.1	22.4
of which: grants	5.8	7.6	5.0			8.0	6.8	7.0	6.8	6.7	6.5		6.0	5.2
Primary (noninterest) expenditure	20.2	19.8	18.7			23.5	22.0	22.5	22.4	22.5	22.5		23.1	23.7
Automatic debt dynamics	1.1	3.3	-9.6			-1.6	-1.5	-1.6	-1.6	-1.9	-2.0		-1.8	-2.3
Contribution from interest rate/growth differential	-2.7	-1.7	-4.9			-1.6	-1.4	-1.5	-1.5	-1.7	-1.7		-1.7	-2.2
of which: contribution from average real interest rate	0.8	-2.2	-1.6			-0.3	-0.2	-0.1	-0.1	-0.1	-0.1		-0.2	-0.4
of which: contribution from real GDP growth	-3.4	0.5	-3.4			-1.3	-1.3	-1.4	-1.4	-1.6	-1.6		-1.5	-1.9
Contribution from real exchange rate depreciation	3.8	5.0	-4.6			0.0	0.0	-0.1	-0.1	-0.2	-0.3		...	...
Other identified debt-creating flows	0.0	0.0	-41.4			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	-41.4			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	-13.6	-7.2	5.9			-0.4	-0.2	-0.6	-0.4	0.1	0.0		0.9	1.1
<b>NPV of public sector debt</b>	39.2	35.6	20.8			19.7	19.7	19.5	19.3	19.0	18.4		19.7	23.7
o/w foreign-currency denominated	22.5	21.8	10.2			10.5	11.1	11.9	12.6	13.4	13.9		17.9	22.8
o/w external	22.5	21.8	10.2			10.5	11.1	11.9	12.6	13.4	13.9		17.9	22.8
NPV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...
Gross financing need 2/	6.6	2.8	37.8			4.7	4.6	4.2	4.0	3.6	3.2		3.1	2.8
NPV of public sector debt-to-revenue and grants ratio (in percent)	228.1	193.5	114.4			95.5	102.5	98.3	96.7	93.9	90.1		93.6	105.6
NPV of public sector debt-to-revenue ratio (in percent)	345.2	330.9	158.0			156.1	157.9	152.2	146.5	141.0	132.1		130.6	137.6
o/w external 3/	198.4	202.5	77.6			82.9	88.9	93.0	96.1	99.3	99.5		118.4	132.3
Debt service-to-revenue and grants ratio (in percent) 4/	20.7	7.6	205.2			5.9	6.0	4.5	4.4	3.7	2.8		3.5	5.7
Debt service-to-revenue ratio (in percent) 4/	31.3	13.0	283.3			9.6	9.3	7.0	6.7	5.6	4.2		4.9	7.5
Primary deficit that stabilizes the debt-to-GDP ratio	12.4	4.0	45.0			2.0	1.7	2.1	2.1	1.8	2.0		0.9	1.1
<b>Key macroeconomic and fiscal assumptions</b>														
Real GDP growth (in percent)	4.4	-0.6	5.2	3.4	3.7	5.6	5.4	5.5	5.5	6.1	6.2	5.7	5.0	5.1
Average nominal interest rate on forex debt (in percent)	0.8	1.0	0.4	1.5	0.6	1.3	1.2	1.4	1.4	1.4	1.4	1.3	1.2	0.9
Average real interest rate on domestic currency debt (in percent)	12.8	-5.6	-1.3	-1.0	5.1	-1.6	-0.4	-0.6	-0.5	-0.7	-0.5	-0.7	1.4	2.3
Real exchange rate depreciation (in percent, + indicates depreciation)	6.3	9.3	-9.1	0.7	11.3	-0.2	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	-11.3	6.8	1.8	1.7	4.9	3.1	1.9	2.0	1.9	2.2	2.3	2.2	2.3	2.1
Growth of real primary spending (deflated by GDP deflator, in percent)	35.2	5.3	-0.7	10.8	14.5	32.4	-1.2	7.8	5.2	6.3	6.5	9.5	5.3	5.3
Grant element of new external borrowing (in percent)	...	...	53.0	53.0	...	46.3	46.2	46.3	46.4	46.7	46.8	46.5	47.9	47.9

Sources: Country authorities; and Fund 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 2b.Niger: Sensitivity Analysis for Key Indicators of Public Debt 2007-2027

	Projections							
	2007	2008	2009	2010	2011	2012	2017	2027
<b>NPV of Debt-to-GDP Ratio</b>								
<b>Baseline</b>	20	20	19	19	19	18	20	24
<b>A. Alternative scenarios</b>								
A1. Real GDP growth and primary balance are at historical averages	20	20	19	19	19	18	20	29
A2. Primary balance is unchanged from 2007	20	20	20	20	20	19	22	31
A3. Permanently lower GDP growth 1/	20	20	20	20	20	20	25	41
<b>B. Bound tests</b>								
B1. Real GDP growth is at historical average minus one standard deviations in 2008-2009	20	21	23	24	24	24	30	40
B2. Primary balance is at historical average minus one standard deviations in 2008-2009	20	20	19	19	19	18	20	24
B3. Combination of B1-B2 using one half standard deviation shocks	20	20	20	20	19	18	18	21
B4. One-time 30 percent real depreciation in 2008	20	23	22	21	20	19	18	20
B5. 10 percent of GDP increase in other debt-creating flows in 2008	20	26	25	24	24	23	23	26
<b>NPV of Debt-to-Revenue Ratio 2/</b>								
<b>Baseline</b>	95	102	98	97	94	90	94	106
<b>A. Alternative scenarios</b>								
A1. Real GDP growth and primary balance are at historical averages	95	101	95	93	90	87	91	119
A2. Primary balance is unchanged from 2007	95	103	99	98	97	95	107	140
A3. Permanently lower GDP growth 1/	95	103	100	100	99	97	114	175
<b>B. Bound tests</b>								
B1. Real GDP growth is at historical average minus one standard deviations in 2008-2009	95	108	112	114	115	114	136	176
B2. Primary balance is at historical average minus one standard deviations in 2008-2009	95	102	98	97	94	90	94	106
B3. Combination of B1-B2 using one half standard deviation shocks	95	103	100	96	92	87	85	92
B4. One-time 30 percent real depreciation in 2008	95	121	113	108	101	94	85	88
B5. 10 percent of GDP increase in other debt-creating flows in 2008	95	134	125	122	117	112	111	115
<b>Debt Service-to-Revenue Ratio 2/</b>								
<b>Baseline</b>	5.9	6.0	4.5	4.4	3.7	2.8	3.5	5.7
<b>A. Alternative scenarios</b>								
A1. Real GDP growth and primary balance are at historical averages	5.9	6.1	4.5	4.5	3.7	2.8	3.6	6.5
A2. Primary balance is unchanged from 2007	5.9	6.0	4.5	4.5	3.8	2.9	3.8	6.9
A3. Permanently lower GDP growth 1/	5.9	6.0	4.6	4.5	3.8	3.0	4.0	8.2
<b>B. Bound tests</b>								
B1. Real GDP growth is at historical average minus one standard deviations in 2008-2009	5.9	6.2	4.9	5.0	4.3	3.4	4.6	8.6
B2. Primary balance is at historical average minus one standard deviations in 2008-2009	5.9	6.0	4.5	4.4	3.7	2.8	3.5	5.7
B3. Combination of B1-B2 using one half standard deviation shocks	5.9	6.2	4.7	4.6	3.8	2.8	3.4	5.2
B4. One-time 30 percent real depreciation in 2008	5.9	6.2	5.0	5.0	4.3	3.4	4.2	6.5
B5. 10 percent of GDP increase in other debt-creating flows in 2008	5.9	6.0	5.5	5.0	4.2	3.3	4.6	6.4

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

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

2/ Revenues are defined inclusive of grants.