



NIGERIA

STAFF REPORT FOR THE 2011 ARTICLE IV CONSULTATION—DEBT SUSTAINABILITY ANALYSIS¹

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Approved By
**Saul Lizondo and
David Marston (IMF) and
Jeffrey D. Lewis and
Marcelo Giugale (World Bank)**

Prepared by IMF and World Bank staffs in collaboration with the Nigerian authorities.

Based on the joint Bank-IMF low-income country debt sustainability analysis (DSA), Nigeria remains at a low risk of debt distress. In the baseline scenario and in the case of the standardized stress tests, Nigeria's debt outlook remains robust. For the customized stress test, which simulates a persistent oil price shock, all indicators deteriorate when compared to the baseline results, but remain within all of the country-specific thresholds relevant for Nigeria. The main finding of the DSA, that Nigeria is at a low risk of debt distress is the same as that for the last DSA, published in February 2011. But the findings from the stress scenarios also show that, without significant compensating policy measures, a prolonged negative oil price shock or permanent real GDP growth shock could undermine the recent progress in achieving macroeconomic and debt sustainability. Nevertheless, given Nigeria's strong financial starting position, timely policy action should be able to avert future sustainability problems. The assumptions used for this DSA are broadly similar to those used in the previous DSA, although with a higher oil price projected throughout the baseline forecast period. The analysis is complicated by the still large errors and omissions in the balance of payments, and the DSA does not incorporate debt of the state and local governments due to data limitations.

¹ Debt data, sustainability issues, and the new debt limit policy were discussed with the authorities in the course of the 2011 Article IV consultation. This DSA follows the IMF and World Bank Staff Guidance Note on the Application of the Joint Fund-Bank Debt Sustainability Framework for Low-Income Countries, January 22, 2010 (available at <http://www.imf.org/external/pp/longres.aspx?id=4419>).

BACKGROUND

1. The previous DSA for Nigeria was undertaken as part of the 2010 Article IV consultation and published in February 2011.²

Following the final phase of Nigeria's Paris Club Agreement in 2006, which led to an \$18 billion reduction in Nigeria's external debt, external public debt is estimated at total US\$6.3 billion, or 2.7 percent of GDP, at end-2011.³ Approximately \$4.8 billion of that total external debt stock is multilateral debt, of which about 85 percent is owed to IDA. The breakdown for external debt by main creditor is as follows:

Nigeria's External Debt Stock, in millions of US dollars, end-2011

Category	Balance Outstanding
Multilateral	4,760
World Bank Group	
IBRD	7
IDA	4,023
IFAD	71
African Development Bank Group	
ADB	103
ADF	428
EDF	112
IDB	8
Others	8
Bilateral	547
Commercial	1,020
Total	6,327

2. One important limitation of this DSA is that it only applies to debt contracted at the consolidated central government level.

Data on state and local governments' borrowing are currently not available. While sub-national borrowing is currently limited and tightly regulated, there is scope for State Governments to expand their exposure to domestic creditors. Public debt data analysis is also complicated by a multiplicity of off-budget funds. Figures for Nigeria's debt stock do not include debts contracted by public enterprises.

² IMF (2011), Country Report for Nigeria 11/57.

³ External debt stock increased by US\$1.5 billion during the year of 2011 due to the Euro bond issuance (US\$0.5 billion) and infrastructure loans (about US\$1 billion).

MACROECONOMIC ASSUMPTIONS

3. The assumptions in the baseline scenario for 2011–31 underlying this DSA are as follows:

- Average GDP growth of 6½ percent over the period 2011–31 (somewhat below the average of 7 percent for 2008–10) reflecting buoyant annual growth of non-oil GDP of around 7.2 percent (on the basis of continued structural reform efforts) and modest growth of oil and gas GDP of 1.8 percent.
- A recovery in capital inflows, including in foreign direct investment to the oil sector, which would be highly sensitive to political developments and the outcome of the Petroleum Industry Bill. In line with WEO projections, the analysis assumes a Nigerian oil price of US\$103.7 per barrel in 2012, moderating to US\$88.9 per barrel by 2017, and then increasing ½–1 percent in nominal terms thereafter.⁴
- A consolidated government non-oil primary deficit (NOPD) would decline from 34½ percent of non-oil GDP in 2010 to around 18½ percent of non-oil GDP in 2015. It would continue to decline gradually thereafter. This is broadly consistent with the medium-term projections outlined in the government's medium-term fiscal strategy. Such a stance would also be consistent with preserving the real value of oil and gas wealth for future generations based on estimates

⁴ The DSA is based on WEO projections for crude prices as of December, 2011. Nigerian oil price is projected by using the past relationship between the Nigerian crude price and average global oil price.

derived from a permanent income hypothesis exercise. In addition, it is assumed that the oil-price-based fiscal rule continues to be applied, with a budget oil price assumed to be on average around 20 percent below the projected oil price.⁵

- After a strong export growth during 2010–11 driven by a recovery of oil prices, exports are projected to stagnate during 2012–16 and then grow by 5½ percent a year afterwards. Imports are projected to grow strongly during 2012–16, reflecting buoyant economic growth. The current account surplus would continue to decline to about ½ percent of GDP by 2016 because of stagnant oil price and strong imports, and then hover around zero thereafter.

4. At the time of the 2010 DSA, Nigeria's external public debt was projected to total \$4.8 billion, or 2.2 percent of GDP, at end-2010, while domestic public debt was projected to reach 14.1 percent of GDP at end-2010. In the event, external debt totaled 2½ percent of GDP, while domestic public debt was 15½ percent of GDP. The current account surpluses in 2010–11 were significantly lower than

⁵ The government is assumed to establish a medium- and long-term sustainable fiscal position. The long-term sustainable fiscal position is calculated on the basis of a constant consumption of oil wealth in real terms. This implies a decline in the consumption of oil wealth (the non-oil fiscal deficit) as a percent of non-oil GDP over time. Oil reserves are sufficient to sustain oil production at or above current levels throughout the projection period. The discount in the budget oil price relative to the actual oil price and prudent expenditure policy provides for overall surpluses and an accumulation in financial assets throughout.

forecasted in the 2010 DSA largely due to the change in methodology to estimate imports. The fiscal stance in 2010 was substantially weaker compared with what was envisaged at the time of the previous DSA, reflected in the depletion of the Excess Crude Account. However, the fiscal stance is estimated to have improved moderately in 2011, with an estimated primary surplus in the year being slightly higher than projected in the 2010 DSA. While overall growth in 2010–11 was slightly lower than the level projected at the time of the 2010 DSA, non-oil growth outcomes were better than the projected levels. Finally, oil prices are broadly in line with the levels projected for the 2010 DSA.

5. The assessment makes the assumption that the Nigerian authorities would not issue another Eurobond in the near term, but draw

on the infrastructure loan from the Chinese authorities in the amount of about US\$ 500 million during 2012–13.⁶ It also assumes that the China loan would be on concessional terms.

6. It is important to note two issues with the external sector data for Nigeria that complicate the debt sustainability analysis.

First, there are still large errors and omissions in the presentation of the balance of payments statistics, which may reflect an underestimation of current account debit transactions, and which lead to the observed large residuals in the DSA presentation. Second, there is also a break in the balance of payments series between 2009 and 2010, given the change in 2010 of the methodology to estimate imports

EXTERNAL SUSTAINABILITY⁷

A. Baseline

7. In the baseline scenario (Table 1 and Figure 1), the nominal external debt burden is projected to be broadly unchanged throughout the projection period. The present value (PV) of external debt falls consistently throughout the projection period, while the PV of debt-to-GDP ratio averages less than 2 percent

over the period. The debt service to exports and the debt service to revenue ratios also decline gradually throughout the projection period. All debt and debt service indicators remain well below their respective policy-dependent threshold levels throughout the projection period.

B. Stress Tests and Alternative Scenarios

8. Standardized stress tests (Table 2 and Figure 1) were carried out. Under the most extreme case (i.e., export shock), (i) the PV of the debt-to-GDP ratio is not likely to exceed 15 percent of GDP throughout the projection period; and (ii) the PV of debt-to-exports ratio reaches a peak of around 58 percent, far below its indicative policy-dependent debt burden

threshold of 150 percent.

9. A country-specific alternative scenario was also examined. This scenario is designed to illustrate the impact on the external accounts and debt dynamics of a prolonged large oil price shock (oil price is assumed to be 30 percent

⁶ As planned, the authorities issued a US\$500 million Eurobond in early 2011. The loan from China would be for 20 years with a 2.5 percent interest rate.

⁷ The LIC debt sustainability framework (DSF) provides a methodology for assessing external debt sustainability which is guided by indicative, country-specific, debt burden thresholds based on the relative strength of a country's policies and institutions.

(continued)

below the baseline during 2012–16 and to go back to the baseline level in 2017). All indicators worsen considerably relative to the baseline but

remain within the policy-dependent thresholds relevant for Nigeria.

FISCAL SUSTAINABILITY

10. Consolidated government gross debt outstanding is estimated at about 18 percent of GDP at end-2011, and is projected to decline to about 3½ percent of GDP by 2031.

The current maturity structure of domestic debt is favorable, with the short-term debt accounting for only a quarter of total debt. Under the baseline scenario (Table 3 and Figure 2), consolidated government debt to GDP ratio would steadily increase slightly from 18 percent in 2011 to about 19¾ percent in 2014, because the projected level of accumulated fiscal surpluses during the period would fall short of the accumulation of external assets in the sovereign wealth fund (SWF). After 2015, the public debt to GDP ratio would gradually decline and come down to single digits by 2023. This is largely due to the continued

efforts of fiscal consolidation at the general government level and sustained growth assumed under the baseline scenario.

11. The standardized stress tests underscore the need for fiscal policy to adjust to the economic environment. In particular, present value of public debt to GDP ratio would creep up to 25 percent throughout the projection period under a permanently lower real GDP growth scenario.⁸ With oil prices stabilizing over the medium term, public debt dynamics would become more susceptible to negative economic growth shocks. In such an adverse scenario, fiscal policy will need to adjust by about 1 percent of GDP each year to bring the public debt stock path to the same path under the baseline. (Table 4 and Figure 2).

CONCLUSION

12. Nigeria is at low risk of external debt distress. In the baseline scenario and in the standardized stress tests, Nigeria's debt outlook remains robust throughout the projection period. However, the findings from the stress scenarios also show that, without significant compensating policy measures, a prolonged oil price shock or deterioration in the growth could undermine the recent progress made in achieving macroeconomic and public debt sustainability.

Nonetheless, given Nigeria's strong financial starting position, timely policy action should be able to avert future sustainability problems.

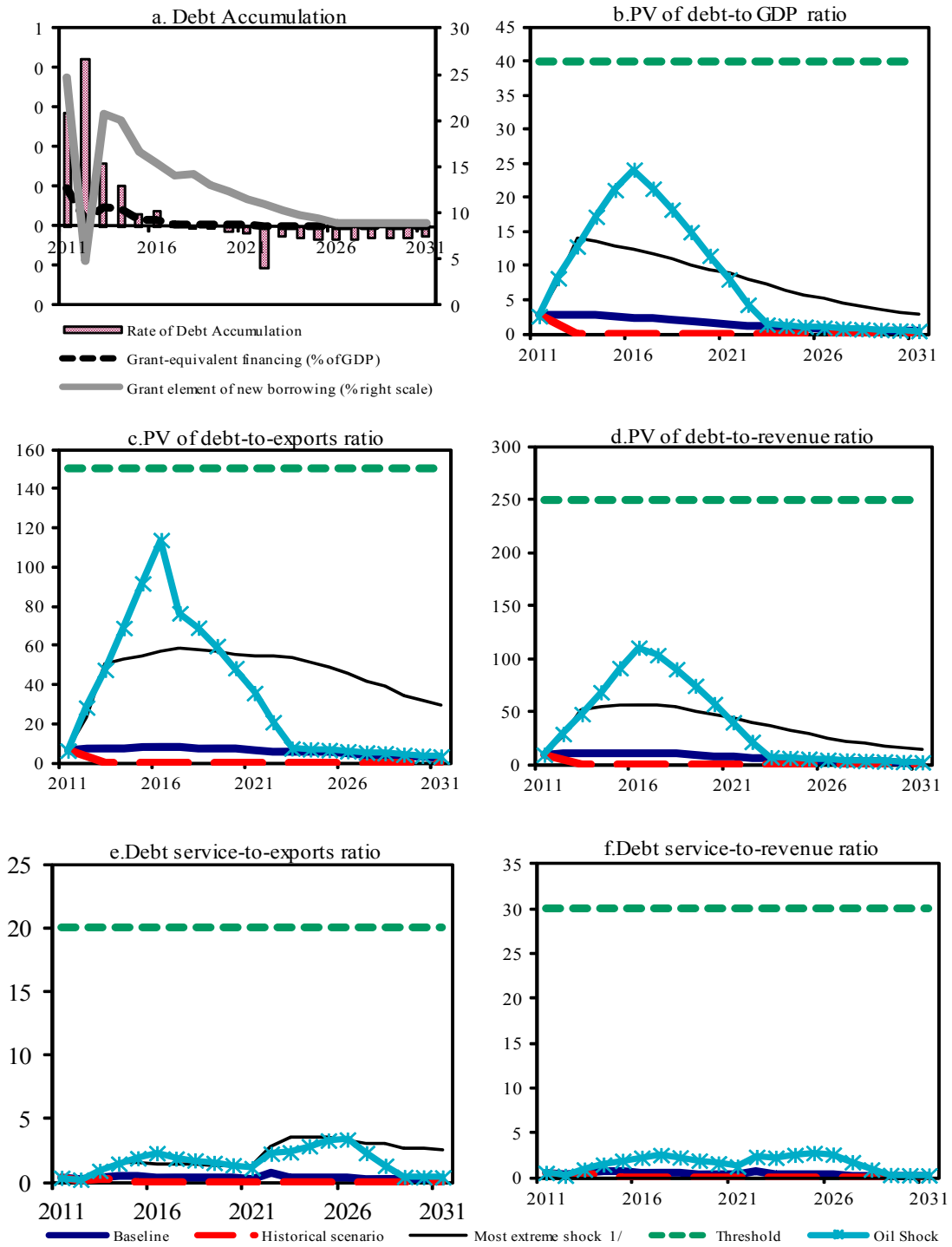
Authorities' Views

13. The authorities were in agreement with the staff's main conclusions. The staff's finding of low external debt risk was consistent with their views. In addition, they agreed that timely policy adjustments would need to be made in the event of a prolonged negative oil price shock.

Given Nigeria's rating of 3.5 (medium performer), which is the three year average of the World Bank's Country Policy and Institutional Assessment (CPIA), the relevant country-specific thresholds are a PV of external debt to GDP of 40 percent, a PV of external debt to exports of 150 percent, and an external debt service to exports ratio of 20 percent.

⁸ Under the alternative scenario in the Staff Report, which assumes that some key fiscal reforms are not implemented during 2012–15, the public debt to GDP ratio would rise to about 24 percent of 2015.

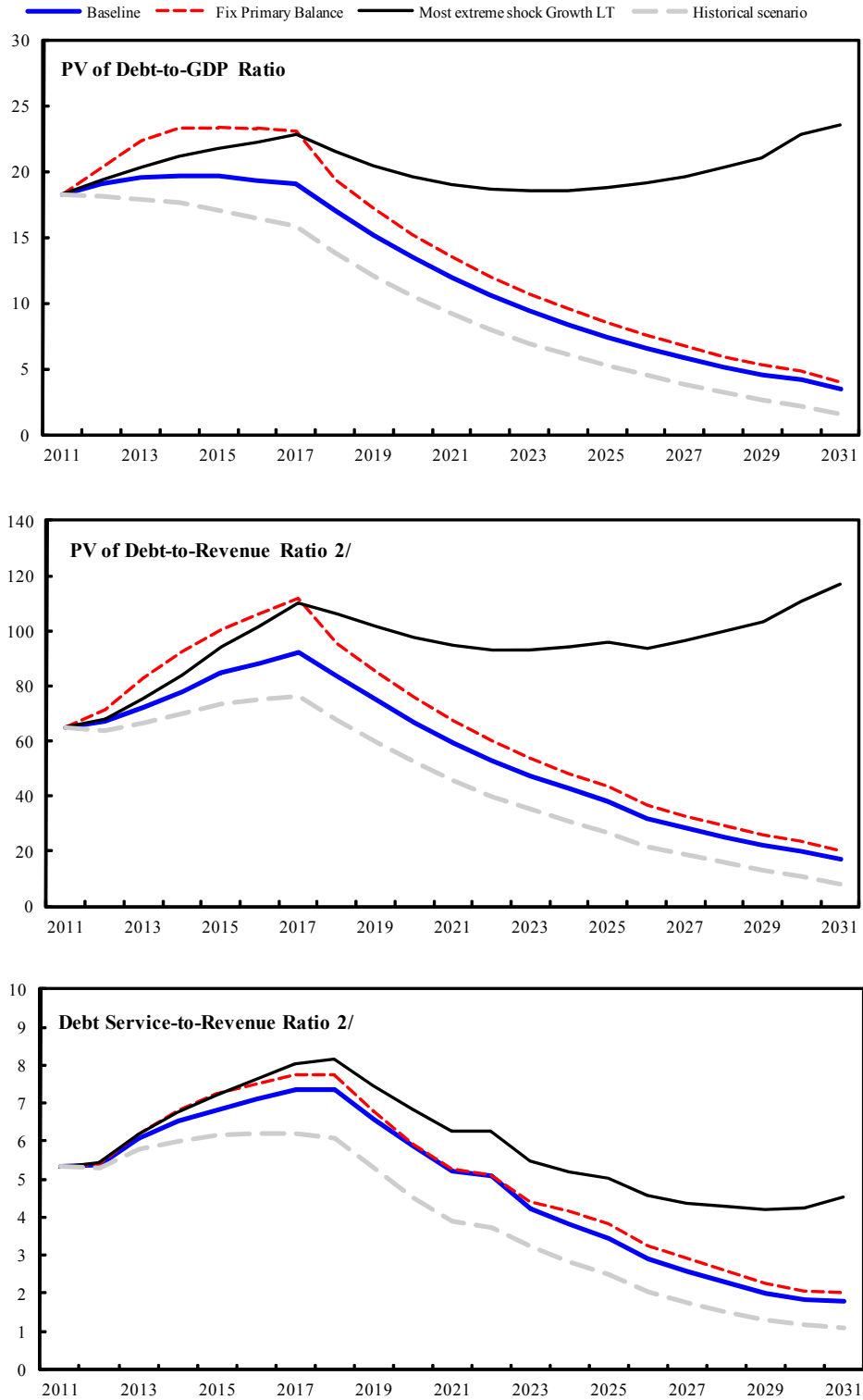
Figure 1. Nigeria: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2011-2031 1/



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 Exports shock; in c. to a Exports shock; in d. to a Exports shock; in e. to a Exports shock and in figure f. to a shock

Figure 2. Nigeria: 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 1. Nigeria: External Debt Sustainability Framework: Baseline Scenario, 2008–2031 1/
(In percent of GDP, unless otherwise indicated)

	Actual			Historical Average ^{6/}	Standard Deviation ^{6/}	Projections						2011-2016			2017-2031	
	2008	2009	2010			2011	2012	2013	2014	2015	2016	Average	2021	2031	Average	
	External debt (nominal) 1/	2.4	2.4			2.6			2.5	2.7	2.6	2.6	2.4	2.3		
o/w public and publicly guaranteed (PPG)	2.4	2.4	2.6			2.5	2.7	2.6	2.6	2.4	2.3				1.3	0.3
Change in external debt	0.1	-0.1	0.3			-0.1	0.2	0.0	-0.1	-0.2	-0.2				-0.2	-0.1
Identified net debt-creating flows	-17.6	-11.5	-4.2			-9.2	-9.6	-7.4	-5.7	-4.4	-3.1				-1.4	0.6
Non-interest current account deficit	-13.7	-8.0	-1.3	-7.7	10.2	-6.7	-6.9	-4.7	-2.7	-1.3	-0.9				-0.6	0.0
Deficit in balance of goods and services	-11.6	-5.3	-0.5			-7.0	-6.8	-4.6	-2.0	0.4	1.8				2.3	1.4
Exports	42.8	35.0	39.3			41.4	41.3	38.5	35.6	32.9	30.2				22.4	13.1
Imports	31.2	29.7	38.8			34.4	34.5	33.9	33.6	33.3	32.0				24.8	14.5
Net current transfers (negative = inflow)	-9.4	-11.2	-10.3	-6.9	4.3	-8.6	-8.2	-7.8	-7.6	-7.4	-7.2				-4.6	-1.8
o/w official	-0.3	-0.5	-0.4			0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0
Other current account flows (negative = net inflow)	7.3	8.6	9.5			8.9	8.0	7.7	7.0	5.8	4.5				1.7	0.4
Net FDI (negative = inflow)	-3.5	-4.2	-2.6	-3.7	0.7	-2.4	-2.6	-2.6	-2.9	-3.0	-2.1				-0.8	0.6
Endogenous debt dynamics 2/	-0.4	0.6	-0.3			-0.1	-0.1	-0.1	-0.1	-0.1	-0.1				-0.1	0.0
Contribution from nominal interest rate	0.1	0.1	0.1			0.0	0.1	0.1	0.1	0.1	0.0				0.0	0.0
Contribution from real GDP growth	-0.1	-0.2	-0.2			-0.1	-0.2	-0.2	-0.2	-0.2	-0.1				-0.1	0.0
Contribution from price and exchange rate changes	-0.3	0.8	-0.2			...	...	...	...	...	...				...	...
Residual (3-4) 3/	17.7	11.5	4.5			9.1	9.8	7.4	5.7	4.2	2.9				1.3	-0.7
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
PV of external debt 4/	...	...	2.9			2.7	2.9	2.8	2.7	2.5	2.4				1.5	0.4
In percent of exports	...	...	7.3			6.5	6.9	7.3	7.6	7.7	7.9				6.6	2.8
PV of PPG external debt	...	...	2.9			2.7	2.9	2.8	2.7	2.5	2.4				1.5	0.4
In percent of exports	...	...	7.3			6.5	6.9	7.3	7.6	7.7	7.9				6.6	2.8
In percent of government revenues	...	...	12.4			9.5	10.1	10.4	10.7	10.9	10.9				7.3	1.8
Debt service-to-exports ratio (in percent)	0.5	0.7	0.5			0.4	0.2	0.3	0.5	0.4	0.4				0.3	0.2
PPG debt service-to-exports ratio (in percent)	0.5	0.7	0.5			0.4	0.2	0.3	0.5	0.4	0.4				0.3	0.2
PPG debt service-to-revenue ratio (in percent)	0.7	1.4	0.8			0.6	0.3	0.5	0.6	0.6	0.5				0.3	0.2
Total gross financing need (Billions of U.S. dollars)	-35.1	-20.1	-7.4			-21.3	-24.7	-20.1	-16.3	-13.2	-10.0				-7.1	9.2
Non-interest current account deficit that stabilizes debt ratio	-13.8	-7.9	-1.6			-6.6	-7.1	-4.7	-2.6	-1.1	-0.8				-0.4	0.1
Key macroeconomic assumptions																
Real GDP growth (in percent)	6.0	7.0	7.8	9.0	4.6	6.7	6.9	6.4	6.3	6.3	6.3	6.5	6.8	6.7	6.6	
GDP deflator in US dollar terms (change in percent)	17.8	-23.9	8.3	7.2	14.9	12.8	2.9	0.6	0.3	1.1	1.6	3.2	3.2	3.5	2.9	
Effective interest rate (percent) 5/	3.1	2.6	2.7	3.9	1.4	2.1	2.8	2.6	2.6	2.5	2.2	2.5	1.5	1.4	1.6	
Growth of exports of G&S (US dollar terms, in percent)	30.1	-33.4	31.2	15.2	26.5	26.8	9.6	-0.1	-1.4	-0.9	-0.6	5.5	4.3	3.2	3.8	
Growth of imports of G&S (US dollar terms, in percent)	37.4	-22.6	52.7	20.1	22.0	6.8	10.1	5.3	5.7	6.3	4.0	6.4	0.9	2.2	4.1	
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	24.7	4.8	20.8	20.1	16.6	15.5	17.1	11.5	8.9	10.6	
Government revenues (excluding grants, in percent of GDP)	32.0	17.8	23.3			28.1	28.3	26.9	25.2	23.2	21.9				20.1	20.1
Aid flows (in Billions of US dollars) 7/	0.2	0.2	0.2			0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0
o/w Grants	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0
o/w Concessional loans	0.2	0.2	0.2			0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			0.1	0.0	0.0	0.0	0.0	0.0				0.0	0.0
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			24.7	4.8	20.8	20.1	16.6	15.5				11.5	8.9
Memorandum items:																
Nominal GDP (Billions of US dollars)	207.1	168.6	196.8			237.0	260.5	278.6	297.1	319.2	344.9				548.8	1384.9
Nominal dollar GDP growth	24.8	-18.6	16.8			20.4	10.0	6.9	6.6	7.4	8.1	9.9	10.2	10.5	9.7	
PV of PPG external debt (in Billions of US dollars)	...	...	5.7			6.2	7.2	7.6	7.9	8.0	8.1				8.0	4.9
(PVt-PVt-1)/GDPt-1 (in percent)	...	...	...			0.3	0.4	0.2	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0
Gross workers' remittances (Billions of US dollars)	19.2	18.4	19.8			20.2	21.1	21.7	22.6	23.6	24.7				25.3	25.3
PV of PPG external debt (in percent of GDP + remittances)	...	...	2.6			2.5	2.6	2.6	2.5	2.4	2.2				1.4	0.4
PV of PPG external debt (in percent of exports + remittances)	...	...	5.8			5.4	5.8	6.0	6.2	6.3	6.4				5.4	2.4
Debt service of PPG external debt (in percent of exports + remittances)	...	...	0.4			0.3	0.2	0.3	0.4	0.4	0.3				0.2	0.2

Sources: Country authorities; and staff estimates and projections.

1/ Includes public and publicly guaranteed 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 ρ = growth rate of GDP deflator in U.S. dollar terms.

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

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

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

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

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

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

Table 2. Nigeria: 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
PV of debt-to GDP ratio								
Baseline	3	3	3	3	3	2	1	0
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2011-2031 1/	3	1	0	0	0	0	0	0
A2. New public sector loans on less favorable terms in 2011-2031 2	3	3	3	3	3	2	2	0
A3. Alternative scenario: Oil Shock (oil price 30 percent lower than the baseline during 2012-16)	3	8	13	17	21	24	8	0
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2012-2013	3	3	3	3	3	2	2	0
B2. Export value growth at historical average minus one standard deviation in 2012-2013 3/	3	8	14	14	13	12	9	3
B3. US dollar GDP deflator at historical average minus one standard deviation in 2012-2013	3	3	3	3	3	3	2	0
B4. Net non-debt creating flows at historical average minus one standard deviation in 2012-2013 4/	3	6	9	8	8	8	5	2
B5. Combination of B1-B4 using one-half standard deviation shocks	3	6	9	9	9	8	6	2
B6. One-time 30 percent nominal depreciation relative to the baseline in 2012 5/	3	4	4	4	4	3	2	0
PV of debt-to-exports ratio								
Baseline	6	7	7	8	8	8	7	3
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2011-2031 1/	6	4	0	0	0	0	0	0
A2. New public sector loans on less favorable terms in 2011-2031 2	6	7	7	8	8	8	7	3
A3. Alternative scenario: Oil Shock (oil price 30 percent lower than the baseline during 2012-16)	6	28	48	69	92	114	36	3
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2012-2013	6	7	7	7	8	8	6	3
B2. Export value growth at historical average minus one standard deviation in 2012-2013 3/	6	23	50	53	55	57	55	30
B3. US dollar GDP deflator at historical average minus one standard deviation in 2012-2013	6	7	7	7	8	8	6	3
B4. Net non-debt creating flows at historical average minus one standard deviation in 2012-2013 4/	6	14	23	24	24	25	24	13
B5. Combination of B1-B4 using one-half standard deviation shocks	6	16	24	26	26	27	26	14
B6. One-time 30 percent nominal depreciation relative to the baseline in 2012 5/	6	7	7	7	8	8	6	3
PV of debt-to-revenue ratio								
Baseline	10	10	10	11	11	11	7	2
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2011-2031 1/	10	5	0	0	0	0	0	0
A2. New public sector loans on less favorable terms in 2011-2031 2	10	10	10	11	11	11	8	2
A3. Alternative scenario: Oil Shock (oil price 30 percent lower than the baseline during 2012-16)	9	29	48	68	91	110	40	2
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2012-2013	10	10	11	11	11	11	8	2
B2. Export value growth at historical average minus one standard deviation in 2012-2013 3/	10	27	52	54	56	56	44	14
B3. US dollar GDP deflator at historical average minus one standard deviation in 2012-2013	10	11	12	13	13	13	9	2
B4. Net non-debt creating flows at historical average minus one standard deviation in 2012-2013 4/	10	21	32	33	35	35	27	8
B5. Combination of B1-B4 using one-half standard deviation shocks	10	23	34	36	37	37	29	9
B6. One-time 30 percent nominal depreciation relative to the baseline in 2012 5/	10	14	14	15	15	15	10	2

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

	Projections							
	2011	2012	2013	2014	2015	2016	2021	2031
Debt service-to-exports ratio								
Baseline	0	0	0	0	0	0	0	0
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2011-2031 1/	0	0	0	0	0	0	0	0
A2. New public sector loans on less favorable terms in 2011-2031 2	0	0	0	0	0	0	0	0
A3. Alternative scenario: Oil Shock (oil price 30 percent lower than the baseline during 2012-16)	0	0	1	1	2	2	1	0
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2012-2013	0	0	0	0	0	0	0	0
B2. Export value growth at historical average minus one standard deviation in 2012-2013 3/	0	0	1	2	2	1	1	3
B3. US dollar GDP deflator at historical average minus one standard deviation in 2012-2013	0	0	0	0	0	0	0	0
B4. Net non-debt creating flows at historical average minus one standard deviation in 2012-2013 4/	0	0	1	1	1	1	1	1
B5. Combination of B1-B4 using one-half standard deviation shocks	0	0	1	1	1	1	1	1
B6. One-time 30 percent nominal depreciation relative to the baseline in 2012 5/	0	0	0	0	0	0	0	0
Debt service-to-revenue ratio								
Baseline	1	0	0	1	1	1	0	0
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2011-2031 1/	1	0	0	0	0	0	0	0
A2. New public sector loans on less favorable terms in 2011-2031 2	1	0	0	1	1	1	1	0
A3. Alternative scenario: Oil Shock (oil price 30 percent lower than the baseline during 2012-16)	1	0	1	1	2	2	1	0
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2012-2013	1	0	1	1	1	1	0	0
B2. Export value growth at historical average minus one standard deviation in 2012-2013 3/	1	0	1	2	2	1	1	1
B3. US dollar GDP deflator at historical average minus one standard deviation in 2012-2013	1	0	1	1	1	1	1	0
B4. Net non-debt creating flows at historical average minus one standard deviation in 2012-2013 4/	1	0	1	1	1	1	1	1
B5. Combination of B1-B4 using one-half standard deviation shocks	1	0	1	1	1	1	1	1
B6. One-time 30 percent nominal depreciation relative to the baseline in 2012 5/	1	0	1	1	1	1	1	0
<i>Memorandum item:</i>								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	39	39	39	39	39	39	39	39

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 3. Nigeria: Public Sector Debt Sustainability Framework, Baseline Scenario, 2008–2031
(In percent of GDP, unless otherwise indicated)

	Actual			Average ^{5/}	Standard Deviation ^{5/}	Estimate					Projections				
	2008	2009	2010			2011	2012	2013	2014	2015	2016	2011-16 Average		2021	2031	2017-31 Average
Public sector debt 1/	11.9	15.2	18.0			18.1	18.8	19.3	19.6	19.5	19.2		11.8	3.4	
o/w foreign-currency denominated	2.4	2.4	2.6			2.5	2.7	2.6	2.6	2.4	2.3		1.3	0.3	
Change in public sector debt	-0.8	3.4	2.8			0.1	0.7	0.5	0.2	-0.1	-0.3		-1.5	-0.7	
Identified debt-creating flows	-8.0	9.4	5.4			-3.0	-4.1	-4.3	-2.9	-1.8	-2.2		1.4	3.4	
Primary deficit	-7.3	8.2	6.5	-4.2	7.7	-1.2	-3.4	-3.9	-2.7	-1.5	-1.8	-2.4	1.9	3.5	
Revenue and grants	32.0	17.8	23.3			28.1	28.3	26.9	25.2	23.2	21.9		20.1	20.1	
of which: grants	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Primary (noninterest) expenditure	24.7	26.1	29.8			26.9	24.9	23.1	22.5	21.7	20.0		22.0	23.6	
Automatic debt dynamics	-0.6	1.2	-1.1			-1.8	-0.7	-0.5	-0.2	-0.2	-0.3		-0.5	-0.1	
Contribution from interest rate/growth differential	-0.9	0.9	-1.1			-1.9	-0.8	-0.6	-0.3	-0.3	-0.4		-0.5	-0.1	
of which: contribution from average real interest rate	-0.2	1.7	0.0			-0.8	0.3	0.6	0.9	0.9	0.8		0.3	0.1	
of which: contribution from real GDP growth	-0.7	-0.8	-1.1			-1.1	-1.2	-1.1	-1.1	-1.2	-1.2		-0.8	-0.3	
Contribution from real exchange rate depreciation	0.2	0.3	0.0			0.1	0.1	0.1	0.1	0.1	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	7.1	-6.1	-2.6			3.1	4.8	4.8	3.2	1.7	1.9		-2.9	-4.1	
Other Sustainability Indicators															
PV of public sector debt	...	...	18.3			18.3	19.0	19.5	19.7	19.6	19.3		11.9	3.5
o/w foreign-currency denominated	...	...	2.9			2.7	2.9	2.8	2.7	2.5	2.4		1.5	0.4
o/w external	...	...	2.9			2.7	2.9	2.8	2.7	2.5	2.4		1.5	0.4
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...
Gross financing need 2/	-3.3	12.6	11.4			4.4	2.6	2.4	3.9	5.1	4.8		6.4	5.0	
PV of public sector debt-to-revenue and grants ratio (in percent)	...	...	78.5			64.9	67.0	72.3	78.2	84.6	88.4		59.5	17.2
PV of public sector debt-to-revenue ratio (in percent)	...	...	78.5			64.9	67.0	72.3	78.2	84.6	88.4		59.5	17.2
o/w external 3/	...	...	12.4			9.5	10.1	10.4	10.7	10.9	10.9		7.3	1.8
Debt service-to-revenue and grants ratio (in percent) 4/	3.7	7.5	5.7			5.3	5.4	6.1	6.5	6.8	7.1		5.2	1.8	
Debt service-to-revenue ratio (in percent) 4/	3.7	7.5	5.7			5.3	5.4	6.1	6.5	6.8	7.1		5.2	1.8	
Primary deficit that stabilizes the debt-to-GDP ratio	-6.5	4.9	3.7			-1.2	-4.1	-4.4	-2.9	-1.5	-1.5		3.4	4.2	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	6.0	7.0	7.8	9.0	4.6	6.7	6.9	6.4	6.3	6.3	6.3	6.5	6.8	6.7	
Average nominal interest rate on forex debt (in percent)	3.1	2.6	2.7	4.1	1.6	2.1	2.8	2.6	2.6	2.5	2.2	2.5	1.5	1.4	
Average real interest rate on domestic debt (in percent)	-0.2	16.9	1.1	2.9	9.6	-3.6	3.0	4.2	5.6	5.6	5.0	3.3	3.5	3.9	
Real exchange rate depreciation (in percent, + indicates depreciation)	12.4	12.8	0.7	3.5	7.4	3.7	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	11.0	-4.4	9.3	10.7	9.6	14.9	7.4	6.1	3.9	3.5	4.1	6.6	5.6	6.0	
Growth of real primary spending (deflated by GDP deflator, in percent)	0.1	0.1	0.2	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	
Grant element of new external borrowing (in percent)	...	...	...	...	...	24.7	4.8	20.8	20.1	16.6	15.5	17.1	11.5	8.9

Sources: Country authorities; and staff estimates and projections.

1/ [Indicate coverage of public sector, e.g., general government or nonfinancial public sector. Also whether net or gross debt is used.]

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

3/ Revenues excluding grants.

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

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

Table 4. Nigeria: Sensitivity Analysis for Key Indicators of Public Debt 2011–2031
(In percent)

	Projections							
	2011	2012	2013	2014	2015	2016	2021	2031
PV of Debt-to-GDP Ratio								
Baseline	18	19	19	20	20	19	12	3
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	18	18	18	18	17	16	9	2
A2. Primary balance is unchanged from 2011	18	20	22	23	23	23	13	4
A3. Permanently lower GDP growth 1/	18	19	20	21	22	22	19	23
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2012-2013	18	20	21	22	23	23	17	10
B2. Primary balance is at historical average minus one standard deviations in 2012-2013	18	23	28	28	27	27	17	6
B3. Combination of B1-B2 using one half standard deviation shocks	18	21	23	23	23	23	14	5
B4. One-time 30 percent real depreciation in 2012	18	20	21	21	21	20	13	4
B5. 10 percent of GDP increase in other debt-creating flows in 2012	18	25	25	25	25	24	16	5
PV of Debt-to-Revenue Ratio 2/								
Baseline	65	67	72	78	85	88	59	17
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	65	64	66	70	74	75	46	8
A2. Primary balance is unchanged from 2011	65	72	83	93	101	106	67	20
A3. Permanently lower GDP growth 1/	65	68	75	84	94	102	95	117
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2012-2013	65	70	80	89	98	105	84	50
B2. Primary balance is at historical average minus one standard deviations in 2012-2013	65	81	103	110	117	122	86	30
B3. Combination of B1-B2 using one half standard deviation shocks	65	74	86	93	100	104	72	23
B4. One-time 30 percent real depreciation in 2012	65	71	76	82	89	93	63	19
B5. 10 percent of GDP increase in other debt-creating flows in 2012	65	88	93	100	107	111	78	26
Debt Service-to-Revenue Ratio 2/								
Baseline	5	5	6	7	7	7	5	2
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	5	5	6	6	6	6	4	1
A2. Primary balance is unchanged from 2011	5	5	6	7	7	7	5	2
A3. Permanently lower GDP growth 1/	5	5	6	7	7	8	6	5
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2012-2013	5	6	6	7	7	8	6	3
B2. Primary balance is at historical average minus one standard deviations in 2012-2013	5	5	6	7	8	8	6	3
B3. Combination of B1-B2 using one half standard deviation shocks	5	5	6	7	7	7	5	2
B4. One-time 30 percent real depreciation in 2012	5	5	6	7	7	7	5	2
B5. 10 percent of GDP increase in other debt-creating flows in 2012	5	5	7	7	7	8	6	2
Debt Service-to-GDP Ratio								
Baseline	1	2	2	2	2	2	1	0
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	1	1	2	2	1	1	1	0
A2. Primary balance is unchanged from 2011	1	2	2	2	2	2	1	0
A3. Permanently lower GDP growth 1/	1	2	2	2	2	2	1	1
A4. Alternative Scenario :[Costumize, enter title]	1	2	2	2	2	2	1	0
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2012-2013	1	2	2	2	2	2	1	1
B2. Primary balance is at historical average minus one standard deviations in 2012-2013	1	2	2	2	2	2	1	1
B3. Combination of B1-B2 using one half standard deviation shocks	1	2	2	2	2	2	1	0
B4. One-time 30 percent real depreciation in 2012	1	2	2	2	2	2	1	0
B5. 10 percent of GDP increase in other debt-creating flows in 2012	1	2	2	2	2	2	1	0

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.