

INTERNATIONAL MONETARY FUND AND
INTERNATIONAL DEVELOPMENT ASSOCIATION

NIGERIA

**Joint Bank-Fund Debt Sustainability Analysis for 2010 Under the
Debt Sustainability Framework for Low Income Countries¹**

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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 central 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 November 2009. However, the findings from the customized scenarios also show that, without significant compensating policy measures, a prolonged oil price shock or deterioration in the current account balance could undermine the recent progress made in achieving macroeconomic and debt sustainability. But given Nigeria's strong financial starting position, timely policy action should be able to avert future debt sustainability problems. The assumptions used for this DSA are broadly similar to those used in 2009, although with a higher oil price projected throughout the baseline forecast period. The analysis is complicated by the large errors and omissions in the balance of payments for Nigeria, and the DSA only applies to debt at the federal level.

¹ Prepared by IMF and IDA staffs in collaboration with the Nigerian authorities. Debt data, sustainability issues, and the new debt limit policy were discussed with the authorities in the course of the 2010 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> and <http://go.worldbank.org/JBKAT4BH40>). The analysis updates the 2009 DSA (IMF Country Report for Nigeria 09/315).

A. Background

1. The previous DSA for Nigeria was undertaken as part of the 2009 Article IV consultation and published in November 2009. 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 projected to total US\$4.8 billion, or 2.2 percent of GDP, at end-2010. Approximately \$4bn of that total external debt stock is multilateral debt, of which over 90 percent is owed to IDA. The breakdown for external debt by main creditor is as follows:

Table 1: Nigeria's External Debt Stock (\$m)

<u>Category</u>	<u>Balance Outstanding</u>
Multilateral	
World Bank Group	
IBRD	35
IDA	3617
IFAD	62
African Development Bank Group	
ADB	101
ADF	451
EDF	120
IDB	16
Bilateral	164
Commercial	202
<u>Total</u>	4768

2. One important limitation of this DSA is that it only applies to debt contracted at the federal level. Data on sub-national borrowing is 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, and the lack of data to include debts contracted by public enterprises.

B. Macroeconomic Assumptions

3. The assumptions underlying this DSA, covering the period 2010–30, are as follows:
- Average GDP growth of 6 percent over the period 2010-30 (somewhat below the average of 6.6 percent for 2007-2009), reflecting buoyant growth of non-oil GDP of around 6.4 percent and more modest growth of oil and gas GDP of 3.4 percent (which assumes a pick up relative to 2008-2009 as security-related disruptions ease, and a gradual increase in the utilization of Nigeria’s extensive reserves of gas).
 - There will be a recovery in capital inflows, including in foreign direct investment to the oil sector. The scale of which will be influenced by political developments and the specific terms and features of the Petroleum Industry Bill, currently under consideration in the National Assembly. In line with WEO projections, the analysis assumes an oil price of US\$76.2 per barrel in 2010, increasing to US\$84.75 per barrel by 2013, and then remaining constant in real terms thereafter.²
 - A consolidated government non-oil primary deficit (NOPD) averaging around 25 percent of non-oil GDP over the medium term and declining 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 oil and gas wealth for future generations based on estimates 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 \$10 per barrel below the projected oil price.³
 - Following an annual decline in export growth in 2009 because of lower oil prices, export growth resumes in 2010, returning to around 6 percent per year by 2016. The acceleration in export growth is driven largely by developments in the oil and gas sectors. Imports are also expected to have increased in 2010, reflecting a strongly expansionary fiscal policy and the real appreciation of the Naira. The current account balance continues to improve throughout the forecast period as strong non-oil imports are more than offset by increasing oil and gas exports. This trend then reverses after 2023 as oil and gas production plateaus, while non-oil imports continue to grow in line with non-oil GDP.

² The DSA is based on WEO oil price projections as of October, 2010. The recent upward revision in the oil price projections would have a more beneficial impact on debt sustainability.

³ The government is assumed to resist pressures to loosen the current fiscal policy stance and instead establishes a medium- and long-term sustainable fiscal position.

4. At the time of the last DSA, Nigeria's external public debt was projected to total \$4.5 billion, or 2.2 percent of GDP, at end-2009, while domestic public debt was projected to reach 12 percent of GDP at end-2009. In the event, external debt totaled 2.4 percent of GDP, while domestic public debt was 13.3 percent of GDP. The assumptions made in the 2009 DSA have proven broadly accurate, with a higher oil price and improved current account surplus seen in 2009/10 than had been forecast at that time. However, the fiscal stance has weakened substantially over what was envisaged at the time of the previous DSA, where a series of disbursements from the Excess Crude Account at the central bank in 2009 and 2010 have depleted the Account.

5. The assessment makes the assumption that the Nigerian authorities issue a \$500m Eurobond, and draw on the \$500 infrastructure loan that has been negotiated with the Chinese authorities for which a memorandum of understanding has been extended through 2011. Both of these disbursements are projected to take place in 2011. The analysis also assumes that, if taken forward, the China loan would be on concessional terms.⁴

6. It is important to note two issues with the external sector data for Nigeria that complicate the debt sustainability analysis. First, there are large errors and omissions in the presentation of the balance of payments, which may reflect an underestimation of current account debit transactions, and which leads to the observed large residuals in the DSA presentation. There is also a break in the balance of payments series between 2005 and 2006, where the authorities' data is used for the first time.

C. External Sustainability⁵

Baseline

7. In the baseline scenario (Table 3a 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, and the PV of external debt-to-GDP ratio also declines steadily, reaching 0.2 percent by 2030. The debt service to exports and the debt service to revenue ratios also decline consistently throughout the projection period. All debt and debt service indicators remain below their respective thresholds throughout the projection period.

⁴ The authorities announced in December 2010 that the loan from China would be for 20 years with a 2.5 percent interest rate.

⁵ 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. Given Nigeria's rating of 3.44 (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 debt to GDP of 40 percent, a PV of debt to exports of 150 percent, and a debt service to exports ratio of 20 percent.

Alternative Scenarios and Stress Tests

8. Standardized stress tests (Table 3b and Figure 1), even the most extreme, show that the PV of the external debt-to-GDP ratio is not likely to exceed 15 percent of GDP over the projection period. Under the most extreme standardized stress test (i.e., the export shock), the PV of debt-to-exports ratio reaches a peak of over 60 percent, far below its indicative 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 the debt dynamics of a prolonged oil price shock (in light of Nigeria's high dependency on oil, as well as the high level of oil prices projected over the medium term relative to a trend such as 10-year moving average price). The impact of the oil price shock on the external accounts is calibrated as one standard deviation of Brent crude prices over the 1970-2010 period. This reduces future oil prices by US\$20 per barrel. To reflect the likely policy response, changes were also made to government expenditure projections, for example in 2012 this moved government expenditure from 28.6 of GDP in the baseline to 26 percent of GDP in the alternative scenario. All indicators worsen as a result of this second country-specific scenario but remain within the country-specific thresholds relevant for Nigeria.

D. Fiscal Sustainability

10. The amount of domestic debt outstanding (as of September 2010) is about 13.2 percent of GDP, and is projected to be 1.2 percent of GDP in 2030. The current maturity structure of domestic debt is favorable, with the short-term debt only accounting for a quarter of total debt. In the baseline scenario (Table 1 and Figure 2) consolidated government deposits continue to accumulate at the central bank, reaching more than US\$70 billion by 2030. The accumulation in deposits will begin to slow beyond 2030 in line with the eventual decline in oil production. In light of the accumulation of such significant levels of government deposits, and the low level of gross debt,⁶ the fiscal debt sustainability exercise for Nigeria utilizes a concept of *net debt*, defined as gross consolidated government debt (external and domestic) less gross consolidated government assets (specifically, the balance in the ECA).⁷

11. The standardized stress tests underscore the need for fiscal policy to adjust to the economic environment. In particular, debt may become very high if the primary balance is unchanged from the 2010 level. Despite the ongoing recovery of oil revenue from the sharp drop during the global financial crisis, the expansionary fiscal stance in 2010 is expected to result in a sizeable primary deficit of 6.4 percent of GDP, compared to a projection of 2.7 percent of GDP in 2011 in the baseline scenario. With oil prices stabilizing and economic

⁶ The PV of the public sector's gross debt burden would decline throughout with no further accumulation in gross debt from 2017 when the overall balance swings to a surplus.

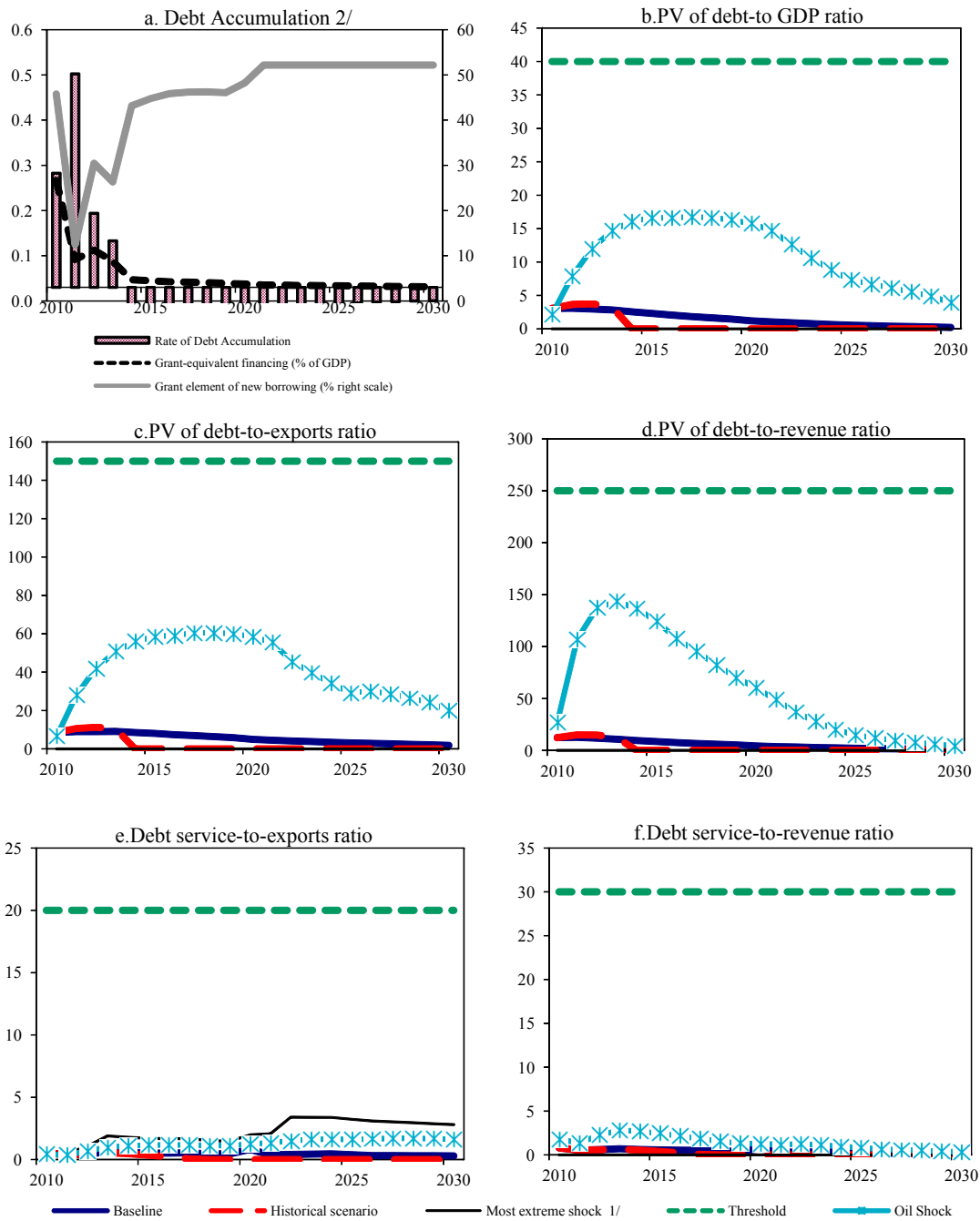
⁷ For illustrative purposes, Figure 1 also traces the evolution of gross debt in the baseline scenario.

growth continuing as assumed in the baseline, fiscal policy will need to adjust accordingly. (Table 2 and Figure 2). To the extent that the staff's fiscal policy assumptions under the baseline scenarios, which assume significant fiscal improvements over the medium term, are not materialized, the debt outlook will be negatively affected, although the resulting risk to the debt sustainability assessment is still likely to be low.

E. 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. Including domestic debt in the analysis would not significantly alter the debt outlook. However, the findings from the customized scenarios also show that, without significant compensating policy measures, a prolonged oil price shock or deterioration in the current account balance could undermine the recent progress made in achieving macroeconomic and debt sustainability. But given Nigeria's strong financial starting position, timely policy action should be able to avert future sustainability problems.

Figure 1. Nigeria: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2010-2030 1/

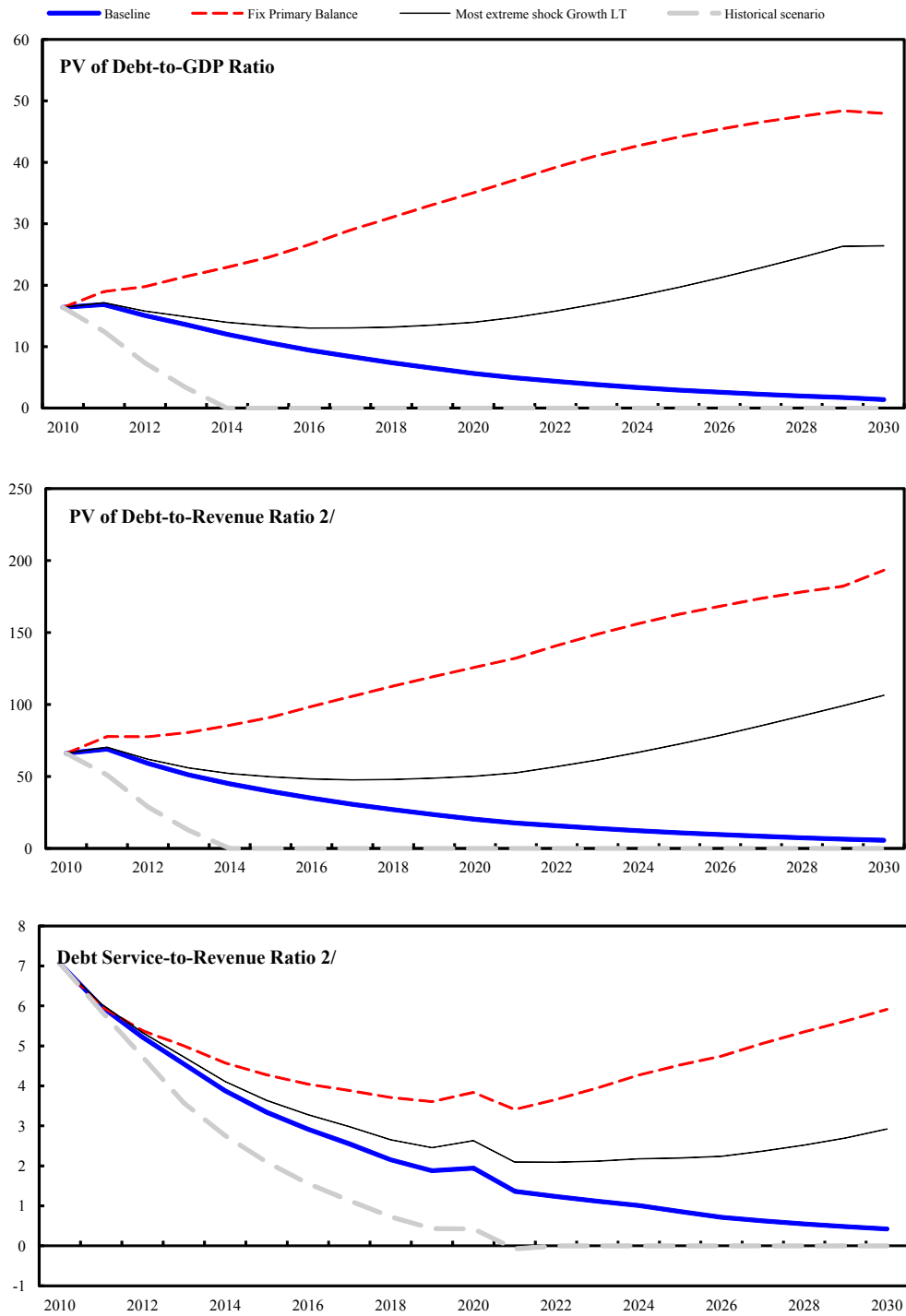


Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2020. In figure b. it corresponds to an Oil shock; in c. to an Oil shock; in d. to an Oil shock; in e. to an Exports shock and in figure f. to an Oil shock.

2/ The large jump in the % of grant borrowing results from having just IDA disbursements projected from 2014.

Figure 2. Nigeria: Indicators of Public Debt Under Alternative Scenarios, 2010-2030 1/



Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2020.

2/ Revenues are defined inclusive of grants.

Table 1. Nigeria: Public Sector Debt Sustainability Framework, Baseline Scenario, 2007-2030
(In percent of GDP, unless otherwise indicated)

	Actual			Average	Standard Deviation	Estimate						Projections			
	2007	2008	2009			2010	2011	2012	2013	2014	2015	2010-15 Average	2020	2030	2016-30 Average
Public sector debt 1/	12.7	11.9	15.2			16.3	17.3	19.8	22.2	19.6	17.4		9.1	2.3	
o/w foreign-currency denominated	2.3	2.4	2.4			2.2	2.3	2.3	2.3	2.0	1.8		0.9	0.2	
Change in public sector debt	0.9	-0.8	3.4			1.1	1.0	2.5	2.5	-2.6	-2.3		-1.3	-0.5	
Identified debt-creating flows	-0.3	-4.8	7.6			3.6	-2.4	-2.6	-2.3	-2.4	-1.9		0.9	-1.6	
Primary deficit	-0.2	-4.1	6.4	-4.5	5.8	5.5	-1.5	-2.5	-2.3	-1.7	-1.3	-0.7	1.2	-1.3	1.3
Revenue and grants	28.4	32.8	19.9			25.5	26.6	25.9	24.8	24.1	23.4		21.2	19.1	
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	28.2	28.7	26.3			31.0	25.1	23.4	22.4	22.4	22.0		22.4	17.8	
Automatic debt dynamics	-0.1	-0.6	1.2			-1.9	-0.9	0.0	0.1	-0.7	-0.5		-0.3	-0.3	
Contribution from interest rate/growth differential	0.1	-0.9	0.9			-1.9	-1.0	-0.1	0.0	-0.7	-0.6		-0.3	-0.3	
of which: contribution from average real interest rate	0.8	-0.2	1.6			-0.7	0.1	1.0	1.1	0.6	0.5		0.2	-0.1	
of which: contribution from real GDP growth	-0.8	-0.7	-0.8			-1.2	-1.1	-1.1	-1.2	-1.3	-1.1		-0.6	-0.2	
Contribution from real exchange rate depreciation	-0.2	0.2	0.3			0.0	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	1.2	4.0	-4.2			-2.5	3.4	5.0	4.8	-0.2	-0.4		-2.2	1.0	
Other Sustainability Indicators															
PV of public sector debt	10.4	9.5	16.5			17.2	18.1	20.4	22.8	20.2	17.9		9.4	2.4	
o/w foreign-currency denominated	0.0	0.0	3.7			3.0	3.1	3.0	2.8	2.6	2.3		1.2	0.2	
o/w external	...	...	3.7			3.0	3.1	3.0	2.8	2.6	2.3		1.2	0.2
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...
Gross financing need 2/	4.1	-0.1	10.7			10.4	4.1	3.8	5.0	6.0	5.5		4.9	-0.3	
PV of public sector debt-to-revenue and grants ratio (in percent)	36.6	28.8	83.0			67.5	67.9	78.8	92.1	83.6	76.4		44.2	12.5	
PV of public sector debt-to-revenue ratio (in percent)	36.6	28.8	83.0			67.5	67.9	78.8	92.1	83.6	76.4		44.2	12.5	
o/w external 3/	...	...	18.5			12.0	11.6	11.5	11.5	10.6	9.9		5.6	1.1
Debt service-to-revenue and grants ratio (in percent) 4/	5.5	3.6	6.7			6.4	6.4	7.5	9.2	8.2	7.5		4.9	1.4	
Debt service-to-revenue ratio (in percent) 4/	5.5	3.6	6.7			6.4	6.4	7.5	9.2	8.2	7.5		4.9	1.4	
Primary deficit that stabilizes the debt-to-GDP ratio	-1.0	-3.3	3.0			4.4	-2.5	-5.0	-4.8	0.9	0.9		2.5	-0.8	
Key macroeconomic and fiscal assumptions 5/															
Real GDP growth (in percent)	7.0	6.0	7.0	8.7	4.8	8.4	6.9	6.6	6.3	6.3	6.0	6.7	6.0	5.8	5.8
Average nominal interest rate on forex debt (in percent)	18.2	3.1	2.5	5.2	5.3	2.8	2.4	3.9	4.0	3.8	4.0	3.5	8.0	8.0	6.1
Average real interest rate on domestic debt (in percent)	6.0	-0.2	16.8	1.2	11.4	-3.8	1.8	7.1	7.2	3.3	3.3	3.2	2.7	-4.0	2.4
Real exchange rate depreciation (in percent, + indicates depreciation)	-8.0	12.4	12.8	4.6	7.8	-0.5
Inflation rate (GDP deflator, in percent)	4.3	11.0	-4.4	13.3	12.3	18.8	11.1	5.9	5.9	6.7	6.7	9.2	7.4	14.9	7.8
Growth of real primary spending (deflated by GDP deflator, in percent)	0.2	0.1	0.0	0.1	0.2	0.3	-0.1	0.0	0.0	0.1	0.0	0.0	0.1	-0.1	0.0
Grant element of new external borrowing (in percent)	45.8	12.4	30.5	26.3	43.2	44.8	33.8	48.2	52.2	...

Sources: Country authorities; and staff estimates and projections.

1/ As explained in the introduction, covers federal debt only. Public-sector debt is treated on a net basis.

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

3/ Revenues excluding grants.

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

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

Table 2. Nigeria: Sensitivity Analysis for Key Indicators of Public Debt 2010-2030

	Projections							
	2010	2011	2012	2013	2014	2015	2020	2030
PV of Debt-to-GDP Ratio								
Baseline	16	17	15	14	12	11	6	1
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	16	12	7	3	0	0	0	0
A2. Primary balance is unchanged from 2010	16	19	20	21	23	25	35	48
A3. Permanently lower GDP growth 1/	16	17	16	15	14	13	14	26
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2011-2012	16	18	17	16	15	15	12	11
B2. Primary balance is at historical average minus one standard deviations in 2011-2012	16	17	15	14	12	11	6	1
B3. Combination of B1-B2 using one half standard deviation shocks	16	15	12	10	9	8	4	2
B4. One-time 30 percent real depreciation in 2011	16	18	16	15	13	12	6	2
B5. 10 percent of GDP increase in other debt-creating flows in 2011	16	23	21	19	17	15	9	3
PV of Debt-to-Revenue Ratio 2/								
Baseline	66	69	59	51	45	40	20	6
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	66	51	29	13	0	0	0	0
A2. Primary balance is unchanged from 2010	66	78	78	81	85	91	126	193
A3. Permanently lower GDP growth 1/	66	70	62	56	52	50	50	106
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2011-2012	66	72	67	61	57	55	45	45
B2. Primary balance is at historical average minus one standard deviations in 2011-2012	66	68	59	51	45	40	20	6
B3. Combination of B1-B2 using one half standard deviation shocks	66	60	45	39	34	30	15	7
B4. One-time 30 percent real depreciation in 2011	66	74	64	55	48	43	23	7
B5. 10 percent of GDP increase in other debt-creating flows in 2011	66	93	81	71	63	57	33	12
Debt Service-to-Revenue Ratio 2/								
Baseline	7	6	5	5	4	3	2	0
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	7	6	5	4	3	2	0	0
A2. Primary balance is unchanged from 2010	7	6	5	5	5	4	4	6
A3. Permanently lower GDP growth 1/	7	6	5	5	4	4	3	3
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2011-2012	7	6	6	5	4	4	2	2
B2. Primary balance is at historical average minus one standard deviations in 2011-2012	7	6	5	5	4	3	2	0
B3. Combination of B1-B2 using one half standard deviation shocks	7	6	5	4	4	3	2	0
B4. One-time 30 percent real depreciation in 2011	7	6	5	5	4	4	2	1
B5. 10 percent of GDP increase in other debt-creating flows in 2011	7	6	6	5	4	4	2	1

Sources: Country authorities; and staff estimates and projections.

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

2/ Revenues are defined inclusive of grants.

Table 3a. Nigeria: External Debt Sustainability Framework, Baseline Scenario, 2007-2030 1/
(In percent of GDP, unless otherwise indicated)

	Actual			Historical Average	Standard Deviation	Projections					2010-2015			2016-2030	
	2007	2008	2009			2010	2011	2012	2013	2014	2015	Average	2020	2030	Average
External debt (nominal) 1/	2.3	2.4	2.4			2.2	2.3	2.3	2.3	2.0	1.8			0.9	0.2
o/w public and publicly guaranteed (PPG)	2.3	2.4	2.4			2.2	2.3	2.3	2.3	2.0	1.8			0.9	0.2
Change in external debt	-0.1	0.1	-0.1			-0.2	0.2	0.0	-0.1	-0.2	-0.2			-0.2	-0.1
Identified net debt-creating flows	-22.4	-18.0	-15.8			-8.4	-14.1	-13.8	-13.0	-11.4	-9.8			-8.1	0.1
Non-interest current account deficit	-19.1	-15.4	-13.0	-9.4	11.4	-6.6	-11.6	-11.3	-10.5	-9.0	-7.7			-7.1	0.4
Deficit in balance of goods and services	-15.0	-12.3	-8.2			-6.4	-9.8	-10.3	-9.6	-8.2	-6.8			-6.6	0.6
Exports	41.0	41.7	36.9			35.6	34.5	33.3	31.3	30.0	28.8			24.0	12.1
Imports	26.0	29.5	28.6			29.2	24.7	23.0	21.7	21.9	22.0			17.4	12.6
Net current transfers (negative = inflow)	-10.9	-9.1	-10.8	-6.0	4.0	-8.0	-7.9	-7.2	-6.8	-6.4	-6.0			-4.3	-2.1
o/w official	0.1	0.0	0.1			0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0
Other current account flows (negative = net inflow)	6.8	5.9	5.9			7.8	6.2	6.2	5.9	5.5	5.2			3.9	2.0
Net FDI (negative = inflow)	-3.4	-2.2	-3.4	-3.5	0.9	-1.7	-2.5	-2.5	-2.4	-2.3	-2.1			-1.1	-0.4
Endogenous debt dynamics 2/	0.1	-0.4	0.6			-0.1	-0.1	-0.1	0.0	-0.1	0.0			0.0	0.0
Contribution from nominal interest rate	0.4	0.1	0.1			0.1	0.0	0.1	0.1	0.1	0.1			0.1	0.0
Contribution from real GDP growth	-0.1	-0.1	-0.2			-0.2	-0.1	-0.1	-0.1	-0.1	-0.1			-0.1	0.0
Contribution from price and exchange rate changes	-0.2	-0.3	0.8			...	...	...	...	...	...			...	...
Residual (3-4) 3/	22.3	18.1	15.7			8.3	14.3	13.8	12.9	11.1	9.6			7.9	-0.1
o/w exceptional financing	5.4	0.8	-6.3			-3.8	1.9	2.1	2.2	2.3	2.0			3.0	-1.8
PV of external debt 4/	...	...	3.7			3.0	3.1	3.0	2.8	2.6	2.3			1.2	0.2
In percent of exports	...	...	10.0			8.5	9.0	9.0	9.1	8.5	8.0			4.9	1.8
PV of PPG external debt	...	...	3.7			3.0	3.1	3.0	2.8	2.6	2.3			1.2	0.2
In percent of exports	...	...	10.0			8.5	9.0	9.0	9.1	8.5	8.0			4.9	1.8
In percent of government revenues	...	...	18.5			12.3	12.7	11.7	10.7	9.5	8.6			4.3	0.9
Debt service-to-exports ratio (in percent)	1.6	0.5	0.7			0.6	0.4	0.4	0.6	0.6	0.5			0.8	0.3
PPG debt service-to-exports ratio (in percent)	1.6	0.5	0.7			0.6	0.4	0.4	0.6	0.6	0.5			0.8	0.3
PPG debt service-to-revenue ratio (in percent)	2.3	0.7	1.3			0.8	0.5	0.6	0.7	0.6	0.6			0.7	0.1
Total gross financing need (Billions of U.S. dollars)	-36.3	-36.0	-27.3			-17.6	-35.0	-37.5	-38.1	-36.4	-34.2			-44.2	1.3
Non-interest current account deficit that stabilizes debt ratio	-19.0	-15.6	-13.0			-6.5	-11.7	-11.3	-10.5	-8.8	-7.5			-6.9	0.5
Key macroeconomic assumptions 5/															
Real GDP growth (in percent)	7.0	6.0	7.0	8.7	4.8	8.4	6.6	7.0	6.3	6.3	6.0	6.7	6.0	5.8	5.8
GDP deflator in US dollar terms (change in percent)	6.7	17.8	-23.8	8.6	15.7	18.2	9.0	2.4	2.0	2.8	2.8	6.2	3.4	10.7	3.8
Effective interest rate (percent) 6/	18.2	3.1	2.5	5.2	5.3	2.8	2.4	3.9	4.0	3.8	4.0	3.5	8.0	8.0	6.1
Growth of exports of G&S (US dollar terms, in percent)	14.1	26.9	-28.0	20.2	32.3	23.9	12.6	5.5	1.9	4.9	4.5	8.9	6.0	2.8	3.6
Growth of imports of G&S (US dollar terms, in percent)	36.9	41.4	-20.7	14.6	22.2	30.6	-1.8	2.1	2.2	10.2	9.4	8.8	5.1	12.5	5.8
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	45.8	12.4	30.5	26.3	43.2	44.8	33.8	48.2	52.2	50.3
Government revenues (excluding grants, in percent of GDP)	28.4	32.8	19.9	...	...	24.8	24.4	25.5	26.6	26.8	26.9	...	...	27.8	24.8
Aid flows (in Billions of US dollars) 7/	0.3	0.2	0.2	...	...	1.0	0.2	0.2	0.1	0.1	0.1	...	...	0.1	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	0.3	0.2	0.2	...	...	1.0	0.2	0.2	0.1	0.1	0.1	...	...	0.1	0.0
Grant-equivalent financing (in percent of GDP) 8/	...	...	...	...	...	0.2	0.1	0.1	0.1	0.0	0.0	...	...	0.0	0.0
Grant-equivalent financing (in percent of external financing) 8/	...	...	...	...	...	45.8	12.4	30.5	26.3	43.2	44.8	...	...	48.2	52.2
Memorandum items:															
Nominal GDP (Billions of US dollars)	165.9	207.1	168.8			216.3	251.3	275.4	298.6	326.3	355.3			554.8	1439.1
Nominal dollar GDP growth	14.1	24.8	-18.5			28.1	16.2	9.6	8.4	9.2	8.9	13.4	9.7	17.1	9.8
PV of PPG external debt (in Billions of US dollars)	...	...	6.2			6.6	7.6	8.0	8.3	8.2	8.1			6.5	3.1
(PVt-PVt-1)/GDPt-1 (in percent)	...	...	...			0.3	0.5	0.2	0.1	0.0	0.0	0.2	-0.1	0.0	-0.1
Gross workers' remittances (Billions of US dollars)	17.9	19.2	18.4			17.1	19.8	19.8	20.3	20.8	21.3			24.0	30.4
PV of PPG external debt (in percent of GDP + remittances)	...	...	3.3			2.8	2.9	2.8	2.7	2.4	2.2			1.1	0.2
PV of PPG external debt (in percent of exports + remittances)	...	...	7.7			7.0	7.3	7.4	7.5	7.0	6.6			4.2	1.5
Debt service of PPG external debt (in percent of exports + remittances)	...	...	0.5			0.5	0.3	0.4	0.5	0.5	0.4			0.7	0.3

Sources: Country authorities; and staff estimates and projections.

1/ Includes both public and private sector external debt.

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 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. Large residuals through the forecast period arise due to large errors and omissions on the current account.

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

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

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

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 3b. Nigeria: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2010-2030
(In percent)

	Projections							
	2010	2011	2012	2013	2014	2015	2020	2030
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 2010-2030 1/	3	4	4	3	2	0	0	0
A2. New public sector loans on less favorable terms in 2010-2030 2/	3	3	3	3	3	2	1	0
A3. Alternative Scenario :Oil	2	8	12	15	16	16	16	4
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	3	3	3	3	3	2	1	0
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	3	8	15	14	13	12	9	3
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	3	4	4	4	3	3	2	0
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/	3	6	9	9	8	8	5	1
B5. Combination of B1-B4 using one-half standard deviation shocks	3	8	12	11	10	10	7	2
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	3	4	4	4	3	3	2	0
PV of debt-to-exports ratio								
Baseline	9	9	9	9	9	8	5	2
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2010-2030 1/	9	11	12	11	6	0	0	0
A2. New public sector loans on less favorable terms in 2010-2030 2/	9	9	9	10	9	9	6	3
A3. Alternative Scenario :Oil	7	29	43	51	56	58	58	19
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	9	9	9	9	8	8	5	2
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	9	30	67	68	66	65	55	33
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	9	9	9	9	8	8	5	2
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/	9	18	27	28	27	26	21	12
B5. Combination of B1-B4 using one-half standard deviation shocks	9	23	35	35	35	34	28	16
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	9	9	9	9	8	8	5	2
PV of debt-to-revenue ratio								
Baseline	12	12	12	11	11	10	6	1
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2010-2030 1/	12	15	15	14	0	0	0	0
A2. New public sector loans on less favorable terms in 2010-2030 2/	12	11	12	12	11	11	6	2
A3. Alternative Scenario :Oil	27	112	140	144	136	123	59	4
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	12	12	12	12	11	10	6	1
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	12	30	56	56	54	52	41	14
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	12	13	15	15	13	13	7	1
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/	12	24	35	35	33	32	24	8
B5. Combination of B1-B4 using one-half standard deviation shocks	12	30	45	45	43	42	32	10
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	12	16	16	16	14	13	8	2

Table 3b. Nigeria: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2010-2030 (continued)
(In percent)

Debt service-to-exports ratio								
Baseline	1	0	0	1	1	1	1	0
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2010-2030 1/	1	0	0	1	0	0	0	0
A2. New public sector loans on less favorable terms in 2010-2030 2/	1	0	0	1	0	0	1	0
A3. Alternative Scenario :Oil	0	0	1	1	1	1	1	2
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	1	0	0	1	1	1	1	0
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	1	0	1	2	2	2	2	3
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	1	0	0	1	1	1	1	0
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 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 2011 5/	1	0	0	1	1	1	1	0
Debt service-to-revenue ratio								
Baseline	1	0	1	1	1	1	1	0
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2010-2030 1/	1	0	1	1	1	0	0	0
A2. New public sector loans on less favorable terms in 2010-2030 2/	1	0	1	1	1	1	1	0
A3. Alternative Scenario :Oil	2	1	2	3	3	2	1	0
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	1	1	1	1	1	1	1	0
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	1	0	1	2	1	1	1	1
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	1	1	1	1	1	1	1	0
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/	1	0	1	1	1	1	1	1
B5. Combination of B1-B4 using one-half standard deviation shocks	1	1	1	1	1	1	1	1
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	1	1	1	1	1	1	1	0
<i>Memorandum item:</i>								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	40	40	40	40	40	40	40	40

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.