NIGERIA

STAFF REPORT FOR THE 2012 ARTICLE IV CONSULTATION—DEBT SUSTAINABILITYANALYSIS[1]

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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 compared to the baseline results, but generally remain within all of the country specific thresholds relevant for Nigeria. The main finding of the DSA—Nigeria is at a low risk of debt distress—is the same as that for the last DSA, published in July 2012. 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 made in achieving macroeconomic and debt sustainability. Nevertheless, given Nigeria's strong starting position, timely policy action should be able to avert future sustainability problems. The assumptions used for this DSA are also broadly similar to those used in the previous DSA, although with a slightly higher oil price and real GDP growth projected throughout the baseline forecast period while incorporating estimated fiscal costs arising from Asset Management Corporation of Nigeria's (AMCON) bonds. The analysis is complicated by the still large errors and omissions in the balance of payments data, and the DSA does not incorporate debt of the state and local governments due to data limitations.

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[1] Prepared by the 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 2012 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 2011 DSA (IMF Country Report for Nigeria 12/194).

BACKGROUND

1. **The previous DSA for Nigeria was undertaken as part of the 2011 Article IV consultation and published in July 2012**.[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 projected to total US$6.5 billion, or 2.4 percent of GDP, at end-2012.[3] Approximately $5.3 billion of that total external debt stock is multilateral debt, of which about 87 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-2012	
Category	Balance Outstanding
Multilateral	5,267
World Bank Group	
IBRD	0
IDA	4,570
IFAD	83
African Development Bank Group	
ADB	32
ADF	448
EDF	103
IDB	22
Others	9
Bilateral	671
Commercail	584
Total	**6,522**

Source: staff estimates based on information provided by the Debt Management Office (DMO) in Nigeria.

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

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[2] IMF (2012), Country Report for Nigeria, 12/194.

[3] Public and publicly guaranteed external debt stock increased by US$0.9 billion during the year of 2012 (from US$5.6 billion at end-2011) mostly due to infrastructure loans.

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.

A.   Macroeconomic Assumptions

3.   **The assumptions in the baseline scenario for 2012–32 underlying this DSA are as follows**:

•   Average GDP growth of 7 percent over the period 2012–31 (somewhat below the average of 7.5 percent for 2009–2011) reflecting buoyant growth of non-oil GDP of around 7.5 percent (on the basis of continued structural reform efforts) and modest growth of oil and gas GDP of 1.7 percent.

•   A recovery in capital inflows, including in foreign direct investment to the oil sector, which will be sensitive to political developments and the outcome of the Petroleum Industry Bill. In line with the latest WEO projections, the analysis assumes a Nigerian oil price of US$110.1 per barrel in 2012, moderating to US$93.1 per barrel by 2017, and then staying at US$90.7 per barrel thereafter. Crude oil production per day is assumed to gradually increase from 2.4 million barrels in 2012 to 3 million barrels in 2021 and then staying at that level thereafter. As a result, oil exports will hover in the range of US$83½ - 88 billion throughout the projection period.

•   A consolidated government non-oil primary deficit (NOPD) would decline from36 percent of non-oil GDP in 2011 to around 20 percent of non-oil GDP in 2017. It would continue to decline gradually thereafter.[4] This is broadly consistent with the medium-term projections outlined in the government's medium-term fiscal strategy for 2013-15. Such a stance would also be consistent with what staff assesses is needed to achieve long-term fiscal sustainability while preserving oil and gas wealth for future generations. 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 strong export growth during 2010–12 driven by a recovery of oil prices, exports are projected to stagnate during 2013–17 because of easing oil prices, while imports are projected to grow strongly reflecting a buoyant domestic demand growth. As a result, the current account

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[4] The DSA is based on the projections on Brent crude prices assumed in the December 2012 WEO updates. Nigerian oil price is projected by using the past relations between the Nigerian oil prices and Brent oil prices.

[5] The government is assumed to resist pressures to loosen the current fiscal policy stance and 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 primary 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.

balance would decline to about ½ percent of GDP by 2017. After that, it would hover around zero until 2032: growth in non-oil exports will partially offset the declining oil exports in the medium term.

•   Euro bond issuance of US$1.1 billion in 2013 to finance infrastructure investments (including gas pipelines).

•   Drawing on the infrastructure loans from China in the amount of about US$450 million during 2013–17.[6]

•   As for the contingent liabilities from AMCON bonds, a total of N607 billion is assumed to materialize as ultimate fiscal cost for the federal government in 2022 (equivalent to 0.5 percent of GDP), which implies that public debt path increases by this amount and stays flat through 2032.[7]

4.   **At the time of the 2011 DSA, Nigeria's external public debt was projected to total $6.3 billion, or 2.5 percent of GDP, at end-2011, while domestic public debt was projected to reach 15.6 percent of GDP at end-2011**. It turned out that external debt totaled 2.4 percent of GDP, while domestic public debt was 14.9 percent of GDP. The assumptions made in the 2011 DSA have proven broadly accurate. However, the current account in 2011 was considerably weaker than forecast in the previous DSA and it is likely that the current account surplus in 2012 will fall significantly short of the last DSA forecast. The weaker-than-projected current account position in 2011 was largely due to higher-than-projected imports. The fiscal stance in 2011 turned out to somewhat better than anticipated because of revenue over performance. The fiscal stance is projected to have improved significantly in 2012 due to restraint in recurrent spending. Overall growth in 2011–12 was broadly in line with that projected at the time of the 2011 DSA. Finally, global oil prices were slightly higher in 2011–12 than had been forecast at the time of the previous DSA.

5.   **It is important to note two issues with 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 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. Given the change in methodology to estimates the imports in 2010, there is another break in the balance of payments data between 2009 and 2010.

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[6] The loans from China would be for 20 years with a 2.5 percent interest rate.

[7] The estimated fiscal cost under the baseline scenario is computed as the AMCON borrowing (about N3.2 trillion as of end-November 2012) net of the expected asset recovery (about 42%) and contribution from the sinking fund (raised by 0.5% levy on banks' assets and CBN contributions).

B. External Sustainability[8]

Baseline

6. **In the baseline scenario, the nominal external debt burden is projected to increase for the next five years but decline gradually thereafter (Figure 1 and Table1)**. The external debt to GDP ratio would rise from 2.4 percent in 2011 to 4.3 percent in 2017, reflecting external borrowing to finance scaled-up public investment during the next five years. Then it falls gradually and it will decline to 0.5 percent by 2032. The debt service to exports and the debt service to revenue ratios also decline gradually after reaching peak in 2017. All debt and debt service indicators remain well below their respective threshold levels throughout the projection period.

Alternative Scenarios and Stress Tests

7. **Standardized stress tests were carried out (Figure 1 and Table2)**. Under the most extreme case (i.e., the export shock), (i) the PV of the debt-to-GDP ratio is not likely to exceed 10 percent of GDP throughout the projection period; and (ii) the PV of debt-to-exports ratio reaches a peak of around 35 percent, far below its indicative debt burden threshold of 150 percent.

8. **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).[9] The impact of the oil price shock on the external accounts is calibrated such that the oil price is lower than the baseline by 30 percent during 2013–17. All indicators worsen considerably from the baseline under this country-specific scenario but remain within the country-specific thresholds relevant for Nigeria, with the exception of the PV of the debt-to-exports ratio, which exceeds in one year (2017).

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[8] 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 3.5 (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 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.

[9] This country-specific scenario provides only partial equilibrium perspective: it looks only at the impacts on current account balance and external debt dynamics arising from the severe oil price shocks but its impacts on the GDP and fiscal accounts are not analyzed. To analyze the debt dynamics under general equilibrium perspective, the Staff Report analyzes debt dynamics under an alternative scenario which assumes a more complete adverse scenario: lower GDP and worse fiscal balance compared with the baseline for several years arising from negative oil price shocks caused by prolonged slow growth in advanced economies.

C.   Fiscal Sustainability

9.   **Consolidated government gross debt outstanding is estimated at 17¾ percent of GDP at end-2012, and is projected to decline steadily over the long run**. The current maturity structure of domestic debt is favorable, with the short-term debt accounting for slightly less than 30 percent of total debt. Under the baseline scenario (Figure 2 and Table 3), consolidated government debt to GDP ratio would first increase marginally to 18 percent by 2014 and then only gradually decline to 16½ percent in 2017, because the projected level of fiscal surpluses during the period is not large enough to achieve more aggressive debt reduction while simultaneously accumulating the projected amount of assets in the Excess Crude Account (ECA)/Sovereign Wealth Fund (SWF) (Table 2 in the accompanying staff report). Net debt, i.e., gross debt less the assets in the ECA/SWF, is also projected to decline from 13 percent of GDP at end-2012 towards 9½ percent by 2017. In ensuing years, the gross public debt to GDP ratio gradually declines. As for the contingent liabilities from AMCON bonds over the medium-term, a total of N607 billion (equivalent to 0.5 percent of GDP) is assumed to materialize as ultimate fiscal cost for the federal government in 2022, which implies that the domestic debt stock jumps up by this amount and then stays flat throughout 2032, translating into a smoothly declining path from 9¾ percent of GDP in 2022 towards around 3 percent of GDP by 2032. This is largely due to the continued efforts of fiscal consolidation at the general government level and sustained growth assumed under the baseline scenario.

10. **The standardized stress tests underscore the need for fiscal policy to adjust to the economic environment**. In particular, the present value of public debt to GDP ratio would creep up to 26 percent throughout the projection period under a permanently lower real GDP growth scenario, as fiscal balance in each year would worsen significantly compared with the baseline scenario. [10] With oil prices stabilizing over the medium term, public debt dynamics would become more susceptible to negative economic growth shock. 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 (Figure 2 and Table 4).

D.   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

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[10] Under the alternative scenario in the Staff Report, which assumes lower GDP and worse fiscal balance compared with the baseline for several years as a result of negative oil price shocks caused by prolonged slow growth in advanced economies, the public debt to GDP ratio would rise to around 19½ percent of GDP by 2015.

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 view. They agreed that timely policy adjustments would be necessary in the event of a prolonged adverse oil price or economic growth shock.

Figure 1. Nigeria: Indicators of Public and Publicly Guaranteed External Debt under Alternative Scenarios, 2012–2032 1/
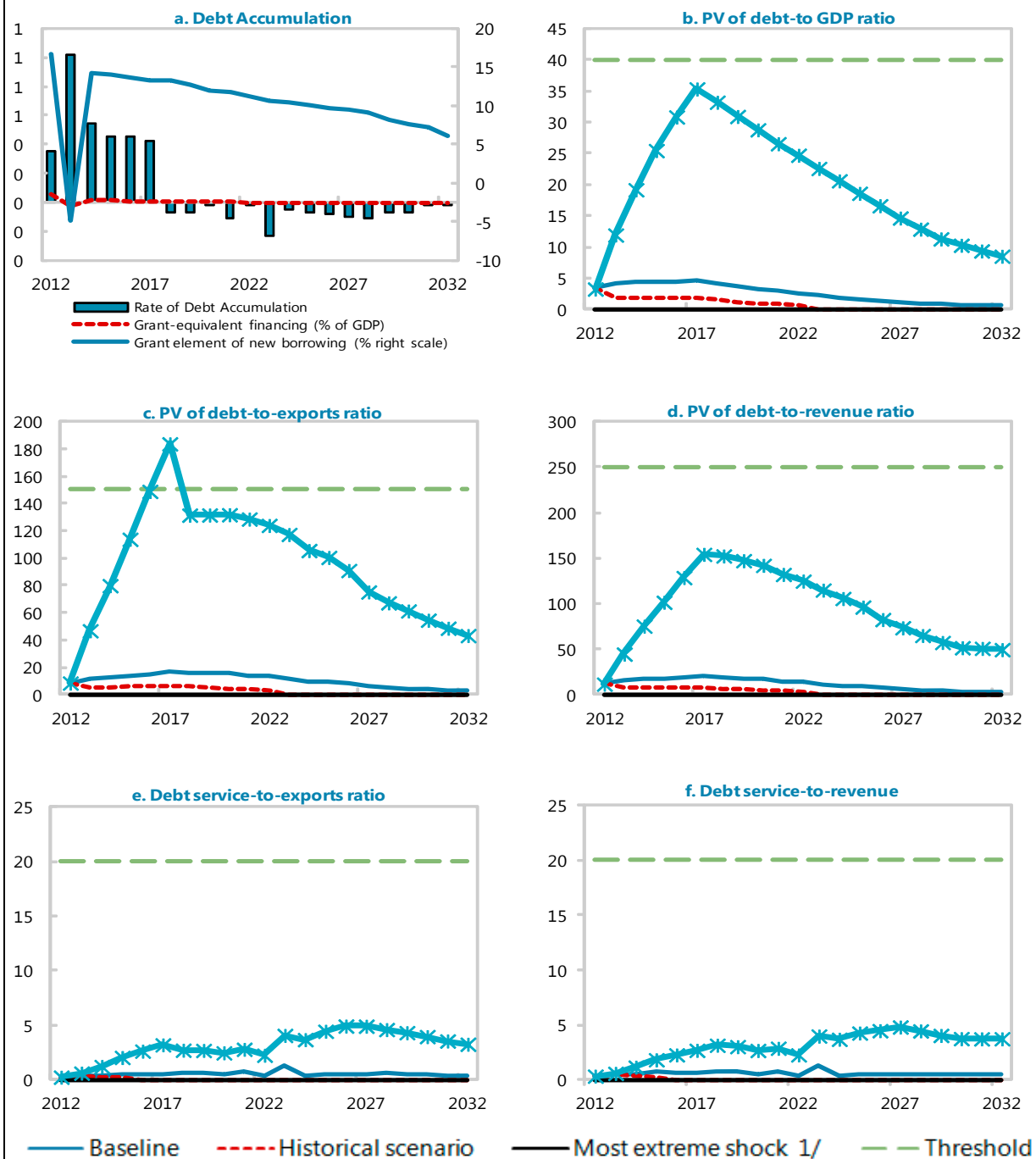
a. Debt Accumulation

- Rate of Debt Accumulation
- Grant-equivalent financing (% of GDP)
- Grant element of new borrowing (% right scale)

b. PV of debt-to GDP ratio

c. PV of debt-to-exports ratio

d. PV of debt-to-revenue ratio

e. Debt service-to-exports ratio

f. Debt service-to-revenue

— Baseline   ---- Historical scenario   — Most extreme shock 1/   – – Threshold

Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2022.

In figure b. it corresponds to an exports shock; in c. to an exports shock;

in d. to an exports shock; in e. to an exports shock and in figure f. to an exports shock.

Figure 2. Nigeria: Indicators of Public Debt under Alternative Scenarios, 2012–2032 [1]/
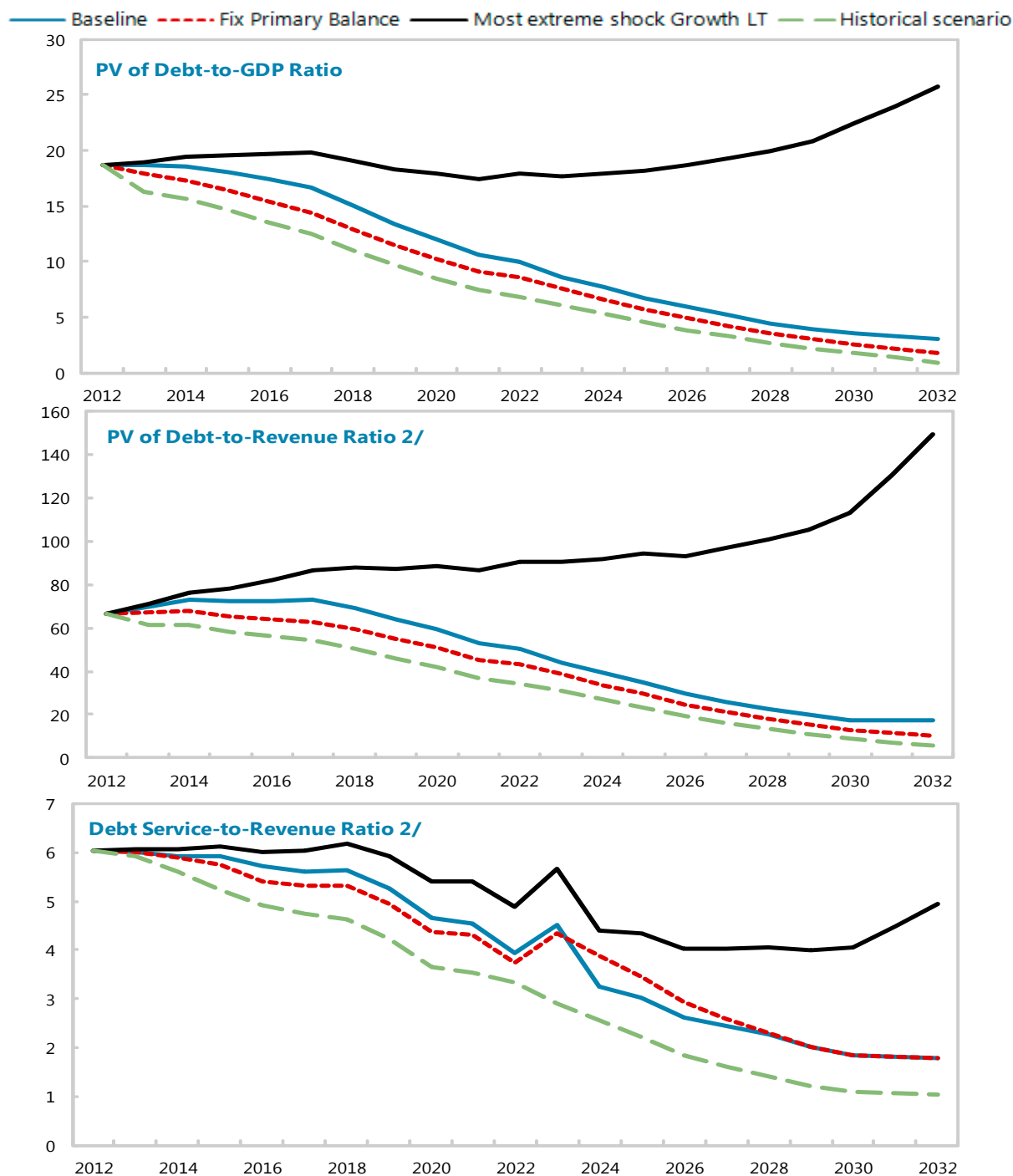
Baseline ----- Fix Primary Balance ——— Most extreme shock Growth LT — — Historical scenario

PV of Debt-to-GDP Ratio

PV of Debt-to-Revenue Ratio [2]/

Debt Service-to-Revenue Ratio [2]/

Sources: Country authorities; and staff estimates and projections.
[1]/ The most extreme stress test is the test that yields the highest ratio in 2022.
[2]/ Revenues are defined inclusive of grants.

Table 1. Nigeria: External Debt Sustainability Framework: Baseline Scenario, 2009–2032 [1]
(In percent of GDP, unless otherwise indicated)

	Actual			Historical [6]	Standard [6]	Projections									2018-2032
				Average	Deviation							2012-2017			
	2009	2010	2011			2012	2013	2014	2015	2016	2017	Average	2022	2032	Average
External debt (nominal) 1/	**2.5**	**2.3**	**2.4**			**2.5**	**3.4**	**3.7**	**3.9**	**4.1**	**4.3**		**2.4**	**0.5**	
of which: public and publicly guaranteed (PPG)	2.4	2.3	2.4			2.5	3.4	3.7	3.9	4.1	4.3		2.4	0.5	
Change in external debt	0.0	-0.1	0.1			0.0	0.9	0.3	0.2	0.2	0.1		-0.3	-0.1	
Identified net debt-creating flows	-11.9	-8.8	-7.1			-6.9	-6.4	-6.0	-4.5	-3.7	-3.0		-1.9	-1.9	
Non-interest current account deficit	**-8.4**	**-5.9**	**-3.7**	**-7.8**	**10.1**	**-4.8**	**-4.1**	**-3.7**	**-2.3**	**-1.6**	**-1.3**		**-0.2**	**-0.8**	-0.4
Deficit in balance of goods and services	-5.3	-5.3	-4.0			-4.6	-3.5	-1.6	0.0	1.5	2.6		2.3	1.5	
Exports	35.0	35.2	39.6			38.2	36.3	34.3	31.9	29.6	27.5		19.9	19.7	
Imports	29.7	29.9	35.6			33.6	32.8	32.7	31.9	31.1	30.1		22.2	21.2	
Net current transfers (negative = inflow)	-11.6	-9.2	-9.0	-7.5	4.1	-8.0	-7.8	-7.5	-7.3	-7.0	-6.8		-5.1	-2.9	-4.4
of which: official	-0.9	-0.6	-0.7			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Other current account flows (negative = net inflow)	8.6	8.6	9.4			7.9	7.2	5.3	5.0	3.9	3.0		2.5	0.5	
Net FDI (negative = inflow)	**-4.2**	**-2.3**	**-3.3**	**-3.8**	**0.9**	**-2.0**	**-2.2**	**-2.1**	**-2.0**	**-1.9**	**-1.6**		**-1.6**	**-1.1**	-1.4
Endogenous debt dynamics 2/	**0.7**	**-0.6**	**-0.1**			**-0.1**	**-0.1**	**-0.1**	**-0.2**	**-0.2**	**-0.2**		**-0.1**	**0.0**	
Contribution from nominal interest rate	0.1	0.0	0.1			0.1	0.1	0.1	0.1	0.1	0.1		0.0	0.0	
Contribution from real GDP growth	-0.2	-0.1	-0.2			-0.1	-0.2	-0.2	-0.2	-0.3	-0.3		-0.2	0.0	
Contribution from price and exchange rate changes	0.8	-0.5	0.0			...	...	...	...	...	...		...	...	
Residual (3-4) 3/	**11.9**	**8.6**	**7.2**			**6.9**	**7.2**	**6.3**	**4.7**	**3.9**	**3.1**		**1.7**	**1.9**	
of which: 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/	...	...	3.4			3.4	4.1	4.3	4.4	4.5	4.5		2.6	0.6	
In percent of exports	...	...	8.7			8.8	11.4	12.5	13.8	15.2	16.5		13.2	2.9	
PV of PPG external debt	**...**	**...**	**3.3**			**3.4**	**4.1**	**4.3**	**4.4**	**4.5**	**4.5**		**2.6**	**0.6**	
In percent of exports	**...**	**...**	**8.4**			**8.8**	**11.4**	**12.5**	**13.8**	**15.2**	**16.5**		**13.2**	**2.9**	
In percent of government revenues	**...**	**...**	**11.2**			**12.0**	**15.5**	**16.9**	**17.6**	**18.8**	**19.8**		**13.3**	**3.3**	
Debt service-to-exports ratio (in percent)	**1.2**	**1.7**	**1.3**			**0.3**	**0.4**	**0.4**	**0.6**	**0.6**	**0.6**		**0.4**	**0.4**	
PPG debt service-to-exports ratio (in percent)	**1.2**	**1.7**	**1.3**			**0.3**	**0.4**	**0.4**	**0.6**	**0.6**	**0.6**		**0.4**	**0.4**	
PPG debt service-to-revenue ratio (in percent)	**2.4**	**3.0**	**1.7**			**0.4**	**0.5**	**0.5**	**0.7**	**0.7**	**0.7**		**0.4**	**0.4**	
Total gross financing need (Billions of U.S. dollars)	-20.5	-17.3	-15.8			-17.9	-17.5	-17.5	-13.7	-11.9	-10.4		-10.7	-27.6	
Non-interest current account deficit that stabilizes debt ratio	-8.3	-5.8	-3.8			-4.8	-5.0	-4.0	-2.5	-1.8	-1.4		0.0	-0.8	
Key macroeconomic assumptions															
Real GDP growth (in percent)	7.0	8.0	7.4	8.9	4.6	6.3	7.2	7.0	7.0	7.0	7.1	6.9	6.8	7.2	7.0
GDP deflator in US dollar terms (change in percent)	-23.9	25.6	-0.6	10.0	14.7	3.9	-1.2	0.7	0.9	1.1	1.5	1.2	2.8	-0.4	2.3
Effective interest rate (percent) 5/	2.4	2.6	2.8	3.6	1.4	2.4	3.6	2.7	2.3	2.0	1.8	2.5	1.2	0.8	1.0
Growth of exports of G&S (US dollar terms, in percent)	-33.4	36.5	20.1	19.4	24.4	6.5	0.7	1.7	0.5	0.3	0.9	1.8	6.0	9.2	7.1
Growth of imports of G&S (US dollar terms, in percent)	-22.6	36.6	27.2	20.3	19.7	4.2	3.5	7.4	5.4	5.3	5.2	5.2	5.5	8.5	7.0
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	16.6	-4.8	14.2	14.1	13.7	13.3	11.2	11.2	6.2	10.0
Government revenues (excluding grants, in percent of GDP)	17.8	20.0	29.9			28.1	26.7	25.4	25.1	24.0	22.9		19.8	17.2	19.8
Aid flows (in Billions of US dollars) 7/	0.3	0.2	0.2			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
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	
of which: Concessional loans	0.3	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	0.0
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			16.6	-4.8	14.2	14.1	13.7	13.3		11.2	6.2	10.0
Memorandum items:															
Nominal GDP (Billions of US dollars)	168.6	228.6	244.0			269.7	285.5	307.7	332.2	359.5	390.8		618.3	1515.2	
Nominal dollar GDP growth	-18.6	35.6	6.7			10.5	5.9	7.8	8.0	8.2	8.7	8.2	9.8	6.8	9.5
PV of PPG external debt (in Billions of US dollars)			8.0			8.8	11.5	13.1	14.5	16.0	17.5		16.1	8.7	
(PVt-PVt-1)/GDPt-1 (in percent)						0.3	1.0	0.5	0.5	0.5	0.4	0.5	0.0	0.0	-0.1
Gross workers' remittances (Billions of US dollars)	18.4	19.8	20.6			21.5	22.0	22.9	24.0	25.2	26.5		31.2	43.3	
PV of PPG external debt (in percent of GDP + remittances)	...	...	3.1			3.1	3.8	4.0	4.1	4.2	4.2		2.5	0.6	
PV of PPG external debt (in percent of exports + remittances)	...	...	6.9			7.3	9.4	10.3	11.3	12.3	13.2		10.5	2.6	
Debt service of PPG external debt (in percent of exports + remittance	...	...	1.0			0.2	0.3	0.3	0.5	0.5	0.5		0.3	0.3	

Sources: Country authorities; and staff estimates and projections.

1/ Includes public and publicly guaranteed external debt.
2/ Derived as [r - g - ρ(1+g)]/(1+g+ρ+gρ) 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 2a. Nigeria: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2012–2032
(In percent)

	Projections							
	2012	2013	2014	2015	2016	2017	**2022**	2032
PV of debt-to GDP ratio								
Baseline	3	4	4	4	5	5	**3**	1
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2012-2032 1/	3	2	2	2	2	2	**1**	0
A2. New public sector loans on less favorable terms in 2012-2032 2	3	4	3	3	3	3	**1**	0
A3. Alternative Scenario : Oil price shock	3	12	19	25	31	35	**25**	9
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013-2014	3	4	4	5	5	5	**3**	1
B2. Export value growth at historical average minus one standard deviation in 2013-2014 3/	3	6	9	9	8	8	**5**	1
B3. US dollar GDP deflator at historical average minus one standard deviation in 2013-2014	3	4	5	5	5	5	**3**	1
B4. Net non-debt creating flows at historical average minus one standard deviation in 2013-2014 4/	3	7	9	9	9	9	**6**	2
B5. Combination of B1-B4 using one-half standard deviation shocks	3	3	0	1	2	2	**2**	0
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	3	6	6	6	6	6	**4**	1
PV of debt-to-exports ratio								
Baseline	9	11	13	14	15	16	**13**	3
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2012-2032 1/	9	5	6	6	6	7	**3**	0
A2. New public sector loans on less favorable terms in 2012-2032 2	9	10	10	10	10	9	**6**	0
A3. Alternative Scenario : Oil price shock	9	47	80	114	149	184	**124**	43
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013-2014	9	11	12	14	15	16	**13**	3
B2. Export value growth at historical average minus one standard deviation in 2013-2014 3/	9	16	29	30	32	34	**30**	8
B3. US dollar GDP deflator at historical average minus one standard deviation in 2013-2014	9	11	12	14	15	16	**13**	3
B4. Net non-debt creating flows at historical average minus one standard deviation in 2013-2014 4/	9	18	27	28	30	31	**28**	8
B5. Combination of B1-B4 using one-half standard deviation shocks	9	8	1	3	6	8	**8**	2
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	9	11	12	14	15	16	**13**	3
PV of debt-to-revenue ratio								
Baseline	12	15	17	18	19	20	**13**	3
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2012-2032 1/	12	7	7	8	8	8	**3**	0
A2. New public sector loans on less favorable terms in 2012-2032 2	12	14	14	13	12	11	**6**	0
A3. Alternative Scenario : Oil price shock	12	45	75	102	129	154	**125**	50
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013-2014	12	16	18	18	20	21	**14**	4
B2. Export value growth at historical average minus one standard deviation in 2013-2014 3/	12	21	34	34	35	36	**27**	8
B3. US dollar GDP deflator at historical average minus one standard deviation in 2013-2014	12	16	18	19	20	21	**14**	4
B4. Net non-debt creating flows at historical average minus one standard deviation in 2013-2014 4/	12	25	36	36	37	38	**28**	9
B5. Combination of B1-B4 using one-half standard deviation shocks	12	11	2	5	7	10	**9**	3
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	12	22	24	25	27	28	**19**	5

Table 2b. Nigeria: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2012–2032 (continued)

Debt service-to-exports ratio

Baseline	0	0	0	1	1	1	**0**	0
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2012-2032 1/	0	0	0	0	0	0	**0**	0
A2. New public sector loans on less favorable terms in 2012-2032 2	0	0	0	0	0	0	**0**	0
A3. Alternative Scenario : Oil price shock	0	1	1	2	3	3	**2**	3
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013-2014	0	0	1	1	1	1	**1**	0
B2. Export value growth at historical average minus one standard deviation in 2013-2014 3/	0	0	1	1	1	1	**1**	1
B3. US dollar GDP deflator at historical average minus one standard deviation in 2013-2014	0	0	1	1	1	1	**1**	0
B4. Net non-debt creating flows at historical average minus one standard deviation in 2013-2014 4/	0	0	1	1	1	1	**1**	1
B5. Combination of B1-B4 using one-half standard deviation shocks	0	0	0	0	0	1	**0**	0
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	0	0	1	1	1	1	**1**	0

Debt service-to-revenue ratio

Baseline	0	1	1	1	1	1	**0**	0
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2012-2032 1/	0	1	0	0	0	0	**0**	0
A2. New public sector loans on less favorable terms in 2012-2032 2	0	1	1	1	1	1	**0**	0
A3. Alternative Scenario : Oil price shock	0	1	1	2	2	3	**2**	4
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2013-2014	0	1	1	1	1	1	**1**	1
B2. Export value growth at historical average minus one standard deviation in 2013-2014 3/	0	1	1	1	1	1	**1**	1
B3. US dollar GDP deflator at historical average minus one standard deviation in 2013-2014	0	1	1	1	1	1	**1**	1
B4. Net non-debt creating flows at historical average minus one standard deviation in 2013-2014 4/	0	1	1	1	1	1	**1**	1
B5. Combination of B1-B4 using one-half standard deviation shocks	0	1	1	1	1	1	**0**	0
B6. One-time 30 percent nominal depreciation relative to the baseline in 2013 5/	0	1	1	1	1	1	**1**	1
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	28	28	28	28	28	28	**28**	28

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 Debt Sustainability Framework, Baseline Scenario, 2009–2032
(In percent of GDP, unless otherwise indicated)

	Actual			Average 5/	Standard Deviation 5/	Estimate	Projections					2012-17 Average			2018-32 Average
	2009	2010	2011			2012	2013	2014	2015	2016	2017		2022	2032	
Public sector debt 1/	15.2	15.5	17.3			17.8	17.9	18.0	17.6	17.0	16.4		9.7	2.9	
of which: foreign-currency denominated	2.4	2.3	2.4			2.5	3.4	3.7	3.9	4.1	4.3		2.4	0.5	
Change in public sector debt	3.4	0.3	1.8			0.6	0.0	0.1	-0.4	-0.5	-0.6		-0.7	-0.2	
Identified debt-creating flows	9.4	2.6	-2.0			-3.0	-1.8	-0.9	-0.8	-0.5	-0.6		-1.0	-0.9	
Primary deficit	8.2	5.6	-2.1	-4.4	7.5	-2.6	-1.6	-0.5	-0.6	-0.1	-0.1	-0.9	-0.6	-1.0	-0.8
Revenue and grants	17.8	20.0	29.9			28.1	26.7	25.4	25.1	24.0	22.9		19.8	17.2	
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	26.1	25.6	27.7			25.5	25.1	24.9	24.5	23.8	22.8		19.2	16.2	
Automatic debt dynamics	1.2	-3.1	0.1			-0.4	-0.2	-0.3	-0.3	-0.4	-0.4		-0.3	0.0	
Contribution from interest rate/growth differential	0.9	-3.1	0.0			-0.5	-0.3	-0.4	-0.3	-0.4	-0.5		-0.4	0.0	
of which: contribution from average real interest rate	1.7	-1.9	1.1			0.5	0.9	0.8	0.8	0.7	0.6		0.3	0.2	
of which: contribution from real GDP growth	-0.8	-1.1	-1.1			-1.0	-1.2	-1.2	-1.2	-1.2	-1.1		-0.7	-0.2	
Contribution from real exchange rate depreciation	0.3	0.0	0.1			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	-6.1	-2.3	3.8			3.6	1.8	1.0	0.4	-0.1	-0.1		0.3	0.7	
Other Sustainability Indicators															
PV of public sector debt	...	...	18.2			18.7	18.6	18.6	18.1	17.4	16.7		9.9	3.0	
of which: foreign-currency denominated	...	...	3.3			3.4	4.1	4.3	4.4	4.5	4.5		2.6	0.6	
of which: external	...	...	3.3			3.4	4.1	4.3	4.4	4.5	4.5		2.6	0.6	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	12.8	10.3	3.7			3.4	4.5	5.2	5.1	5.3	4.9		2.4	0.1	
PV of public sector debt-to-revenue and grants ratio (in percent)	...	...	61.0			66.7	69.8	73.0	72.1	72.7	72.8		50.1	17.5	
PV of public sector debt-to-revenue ratio (in percent)	...	...	61.0			66.7	69.8	73.0	72.1	72.7	72.8		50.1	17.5	
of which: external 3/	...	...	11.2			12.0	15.5	16.9	17.6	18.8	19.8		13.3	3.3	
Debt service-to-revenue and grants ratio (in percent) 4/	8.4	8.0	6.3			6.0	6.0	5.9	5.9	5.7	5.6		3.9	1.8	
Debt service-to-revenue ratio (in percent) 4/	8.4	8.0	6.3			6.0	6.0	5.9	5.9	5.7	5.6		3.9	1.8	
Primary deficit that stabilizes the debt-to-GDP ratio	4.9	5.3	-3.9			-3.1	-1.6	-0.7	-0.2	0.4	0.5		0.0	-0.8	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	7.0	8.0	7.4	8.9	4.6	6.3	7.2	7.0	7.0	7.0	7.1	6.9	6.8	7.2	7.0
Average nominal interest rate on forex debt (in percent)	2.6	2.7	2.9	3.9	1.6	2.5	3.6	2.7	2.3	2.0	1.8	2.5	1.2	0.8	1.0
Average real interest rate on domestic debt (in percent)	16.9	-12.8	8.8	0.2	8.7	4.5	6.2	6.1	6.6	6.0	5.6	5.8	4.9	9.8	5.1
Real exchange rate depreciation (in percent, + indicates depreciation	12.8	0.7	5.0	3.7	7.4	4.0	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	-4.4	26.8	2.3	13.1	9.9	7.4	4.2	4.3	3.3	3.6	3.9	4.4	5.2	-0.4	4.5
Growth of real primary spending (deflated by GDP deflator, in percer	0.1	0.1	0.2	0.1	0.2	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Grant element of new external borrowing (in percent)	...	...	...	...	...	16.6	-4.8	14.2	14.1	13.7	13.3	11.2	11.2	6.2	...

Sources: Country authorities; and staff estimates and projections.
1/ Gross debt contracted at the consolidated central government 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 2012–2032

	Projections							
	2012	2013	2014	2015	2016	2017	2022	2032
PV of Debt-to-GDP Ratio								
Baseline	19	19	19	18	17	17	10	3
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	19	16	16	15	14	12	7	1
A2. Primary balance is unchanged from 2012	19	18	17	16	15	14	9	2
A3. Permanently lower GDP growth 1/	19	19	19	20	20	20	18	26
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2013-20	19	20	21	21	22	22	17	12
B2. Primary balance is at historical average minus one standard deviations in 2013-201	19	22	24	24	23	22	13	5
B3. Combination of B1-B2 using one half standard deviation shocks	19	19	19	19	18	18	11	5
B4. One-time 30 percent real depreciation in 2013	19	20	20	19	19	18	11	3
B5. 10 percent of GDP increase in other debt-creating flows in 2013	19	26	25	24	23	22	14	5
PV of Debt-to-Revenue Ratio 2/								
Baseline	67	70	73	72	73	73	50	17
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	67	61	61	58	56	54	35	5
A2. Primary balance is unchanged from 2012	67	67	68	65	64	63	43	11
A3. Permanently lower GDP growth 1/	67	71	76	78	82	87	90	149
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2013-20	67	74	83	86	90	94	85	71
B2. Primary balance is at historical average minus one standard deviations in 2013-201	67	82	96	94	94	94	68	27
B3. Combination of B1-B2 using one half standard deviation shocks	67	73	76	76	77	78	57	28
B4. One-time 30 percent real depreciation in 2013	67	75	78	77	77	77	54	20
B5. 10 percent of GDP increase in other debt-creating flows in 2013	67	96	99	97	98	98	71	29
Debt Service-to-Revenue Ratio 2/								
Baseline	6	6	6	6	6	6	4	2
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	6	6	6	5	5	5	3	1
A2. Primary balance is unchanged from 2012	6	6	6	6	5	5	4	2
A3. Permanently lower GDP growth 1/	6	6	6	6	6	6	5	5
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2013-20	6	6	6	6	6	6	5	3
B2. Primary balance is at historical average minus one standard deviations in 2013-201	6	6	6	6	6	6	4	2
B3. Combination of B1-B2 using one half standard deviation shocks	6	6	6	6	6	6	4	2
B4. One-time 30 percent real depreciation in 2013	6	6	6	6	6	6	4	2
B5. 10 percent of GDP increase in other debt-creating flows in 2013	6	6	6	7	6	6	4	2

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.