BENIN

STAFF REPORT FOR THE 2015 ARTICLE IV CONSULTATION—DEBT SUSTAINABILITY ANALYSIS

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This debt sustainability analysis (DSA) for Benin finds a low risk of debt distress, as in the 2012 DSA, but the margin from a moderate risk of debt distress has become thin. All projected external debt indicators in the baseline and most indicators under stress tests remain below the policy-dependant thresholds. However, one indicator, the ratio of the PV of external debt to exports, exceeds its threshold marginally and temporarily in the case of an extreme shock to exports, while the debt-to-GDP ratio and all debt service indicators remain below thresholds. This mainly reflects Benin's high historical export volatility, and its membership in the West Africa Economic and Monetary Union (WAEMU) assures its ability to pay in case of such a temporary shock. Improving debt management is essential to contain risk at the low level. While total debt indicators inclusive of domestic public debt confirm this conclusion, the fixed primary balance scenario underscores that medium-term fiscal consolidation is needed to strengthen long-term fiscal sustainability.

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[1]Prepared in collaboration with the Beninese authorities. The fiscal year for Benin is January 1–December 31. The previous DSA update was completed in October 2012 (IMF Country Report No. 13/09).

BACKGROUND AND KEY ASSUMPTIONS

1.   **Benin's total public and external debt has remained low, thanks to sound fiscal policy and strong growth during an IMF-supported program in 2010–14.**[2] Real GDP growth averaged 6½ percent in 2013–14, closing a gap of 2 percentage points in per capita GDP growth with Sub-Saharan Africa (SSA), while inflation remained subdued. Meanwhile, prudent fiscal policy kept debt low. Total public debt in 2014 was 31 percent of GDP,[3] while external debt was 20 percent of GDP. These ratios compare favorably with other countries in the West Africa Economic and Monetary Union (WAEMU), whose average public debt[4] was about 40 percent of GDP, and external debt about 36 percent of GDP in 2014. Going forward, growth is projected to exceed 5 percent in 2015 for the third consecutive year, and reach a similar level in 2016 despite the slowdown in Nigeria—Benin's neighbor and dominant trade partner. However, poverty remains high,[5] and thus higher and more inclusive growth is required to reduce it.

2.   **The Beninese authorities plan to scale up public investments to address infrastructure bottlenecks and accelerate growth.** The authorities convened a Round Table conference with donors and private sector representatives in Paris in June 2014 and announced a public investment increase equivalent to about 18 percent of GDP in 2014–19. Most projects are in energy, transport, and rural infrastructure, while a few are aimed at improving education and health services. Donor pledges were broadly in line with the authorities' funding request, but significant uncertainties remain in disbursement and financing terms. The scale of the investment increase has since been revised down to about 10 percent of GDP[6] for 2015–20, using the "medium" scenario in the authorities' draft 2016 medium-term projections (Text Table 1). The planned scaling up did not materialize in 2014 due to shortfalls in revenue and financing, and while investment execution has also been low for the first eight month of 2015, the government continues to expects for 2015 an increase by 2½ percent of GDP compared to the 2014 public-investment outturn. Around 1/3 of public investments from 2016 onward are to be implemented by State-Owned Enterprises (SOEs), while Public-Private Partnerships (PPPs) have also been planned.[7] Furthermore, the authorities have committed to maintaining prudent fiscal policies and advancing structural reforms to improve fiscal management and support private sector growth.

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[2] See IMF Country Report No. 14/150 for the sixth and final review of an IMF-supported program under the Extended Credit Facility (ECF) in 2010–14.

[3] Using re-based GDP as published by the National Institute of Statistics (INSAE) in 2015. The base year has been changed from 1985 to 2007, and data reflect improved methodology, information sources, and structural changes of the economy. This increased nominal GDP by about 8 percent for 2007 and by 10 percent for 2013. On average, real GDP growth increased by about 0.1 percentage point in 2000–13.

[4] Data refer to the simple average excluding Benin. See IMF Country Report No. 14/84 for discussions on recent developments in WAEMU.

[5] The national poverty rate published by INSAE was 36 percent for 2011. The World Bank estimate for 2012 is 51.7 percent vs. a SSA average of 42.7 percent based on the share of population living on the international poverty line of PPP$1.9/day. Available at http://iresearch.worldbank.org/PovcalNet/.

[6] This includes central government investment of about 5 percent of GDP and off-budget investment through State-Owned Enterprises of about 5 percent of GDP in the same period.

[7] To capture the impact of SOE investments in the debt dynamics from 2016 onward, the DSA covers projected SOE-driven infrastructure financing, which includes a large hydropower project whose financing is now in an advanced stage of

Benin: Comparison of Selected Debt-Related Indicators						
(Percent of GDP, unless noted otherwise)						
	2015	2016	2017	2018	2019	2020
Real GDP growth (percentage change)						
Current DSA	5.2	5.5	5.5	5.7	5.8	6.0
6th review	5.2	4.8	4.8	4.8	4.8	n.a.
Inflation (GDP deflator, percentage change)						
Current DSA	0.8	1.9	2.1	2.2	2.0	2.1
6th review	2.6	2.6	2.6	2.6	2.6	n.a.
Public investment (percent of GDP)						
Current DSA[1]	7.8	8.9	8.0	7.7	7.6	7.3
6th review	6.8	6.8	6.9	6.9	6.9	n.a.
Fiscal balance (percent of GDP)						
Current DSA	-6.7	-6.0	-5.5	-5.2	-5.1	-4.9
6th review	-3.6	-3.4	-3.3	-3.0	-3.0	n.a.
Current account balance (percent of GDP)						
Current DSA	-11.0	-11.4	-11.1	-11.0	-10.7	-10.5
6th review	-7.5	-7.3	-7.3	-7.0	-7.0	n.a.

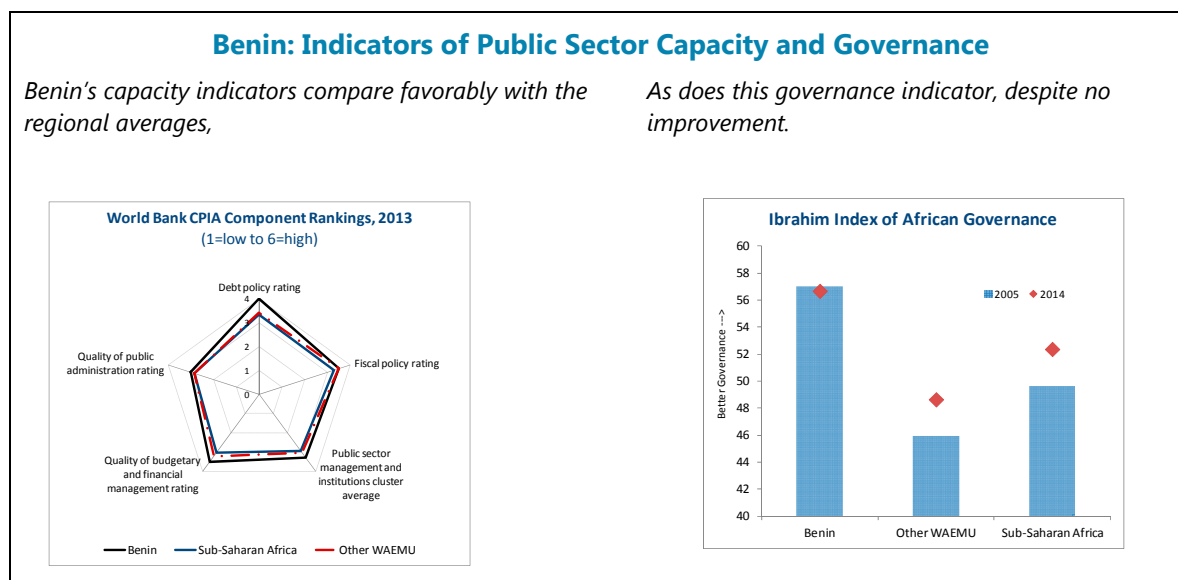Sources: Country authorities, and World Bank and IMF staff estimates and projections.
1/ Includes estimated new non-financial public sector infrastructure investment.

3.   Despite some PFM weaknesses, increased investments would have a positive growth impact (Text table 1). Benin's governance indicators suggest that it can achieve a growth impact from higher investments similar to what is discussed in the literature.[8] The World Bank's Country Policy and Institutional Assessment (CPIA) classifies Benin as having medium government capacity, and the latest CPIA component ratings related to fiscal management compare Benin favorably with averages for SSA and WAEMU (Text Figure 1). The 2014 PEFA assessment scores Benin broadly in line with the SSA average, although the lack of improvement since 2007 indicates the need for accelerated reforms.[9] In line with the literature, higher investments of 1 percentage point is expected to increase growth by about 0.2 percentage point on average in 2015–20 compared with projections at the sixth ECF review in June 2014 (Table 1 and Box 1). Medium-term growth is projected to remain at about 6 percent until 2025, ¼ percentage point higher than the average outturn in 2012–14, and then returns to about 4.8 percent.

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negotiation and a few road projects financed off-budget. These projects have expected total debt-creating disbursement of about 4 percent of GDP in 5 years, starting in 2016. However, no sufficient information is available on the planned PPPs for analysis in the DSA.

[8] For example, see Aslanap and others (2011) for a survey and estimates of the growth impact from raising public investments.

[9] Recommendations for PFM reform to enhance investment efficiency were provided in IMF TAs and a World Bank TA on public investments and procurement.

Benin: Indicators of Public Sector Capacity and Governance

Benin's capacity indicators compare favorably with the regional averages,

As does this governance indicator, despite no improvement.

World Bank CPIA Component Rankings, 2013
(1=low to 6=high)

Ibrahim Index of African Governance

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4.   **This DSA assumes that central government investment is mainly financed by concessional resources, but also includes some non-concessional borrowing.** While the authorities continue to work with potential financiers, progress has been achieved in mobilizing concessional financing. In particular, Benin was found eligible for a second compact under the Millennium Challenge Account (estimated grant financing of about US$ 375 million in 2016–21), which was signed in September 2015 with conditional disbursement expected to begin in late 2016. For 2015–16, the authorities are planning to mainly rely on bond issuance in the regional market to finance the increase in public investment. Also, about 2 percent of GDP in privatization proceeds is expected in 2016–17. While the authorities plan to use some non-concessional borrowing, they have committed that its size will be limited to ensure that the country's risk of debt distress not exceed the moderate level, with sufficient buffer. A projected total amount of about 4 percent of GDP in non-concessional financing[10] during 2016–20, to be channeled through SOEs, is included in the DSA to conservatively estimate the potential impact on public and publicly guaranteed (PPG) debt.

5.   **The large size of the informal sector continues to complicate the DSA.** Recent estimates indicate that about 80 percent of Benin's imports are subsequently informally re-exported to Nigeria. While the Central Bank of West-African States' (BCEAO) BOP statistics attempt to differentiate between re-exports and export originating in Benin, this remains a possible source of statistical errors for the trade statistics, and could also be a reason for the high export volatility recorded in the past.[11]

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[10] Based on available information, the grant element is estimated to be about 17 percent.

[11] Overestimation of exports results in large residuals in the external DSA; the residual is projected to decline in the long term.

Box 1. Benin: Key Assumptions Underlying the DSA

The assumptions in the baseline scenario are consistent with the medium-term macroeconomic framework underlying the Staff Report for the 2015 Article IV Consultation.

The authorities' investment increase equivalent to 10 percent of GDP is fully implemented and matches the average quality achieved in developing countries. No PPPs has been reflected for lack of information.

Growth impact: The projected increases in growth rates range from 0.5 percentage point in 2015 to an average of 0.2 percentage points in 2016–20; the projected growth in 2021–24 is ¼ percentage point higher than the 2012–14 outturn and returns to 4.8 percent from 2025 onward. The projected growth rates also reflected lower Nigeria growth as compared to projections in the 6th ECF review completed in 2014.

Inflation: Capital goods will be partly imported, and the effect on non-tradables would be muted by high unemployment and labor mobility in WAEMU. CPI is projected to increase by up to 1 percentage point during the scaling up but remain below the 3-percent WAEMU convergence criterion.

Fiscal impact: tax revenue is projected to be flat in 2015–16 but increase by 0.1 percent of GDP per year on average in 2017–20 as the expected reforms in tax policy and administration mature.[12] The primary deficit rises temporarily with higher capital spending and then gradually returns to about 1 percent of GDP in the medium term. In particular, privatization receipts and improved revenue reduces primary deficit from 5.1 percent to 2.9 percent from 2015 to 2018.

Current account impact: commensurate with the investment increase, the current account deficit is projected to widen by about 1.5 to 2 percent of GDP in 2015–20 from the baseline given higher imports of capital goods. The deficit returns to about 8 percent of GDP in the medium-term because export growth outpaces import growth due to eased infrastructure bottlenecks and improved business environment, which support exports (including non-traditional agricultural products, cement, and tourism) more strongly and reduce some imports (e.g., electricity and cement).

Financing: The increase of central government investments of 5 percent of GDP is predominately financed by concessional resources, with some domestic financing. Non-concessional PPG debt financing of about 4 percent GDP in 2016-20 is also included. Also, the recent rise of FDI in construction, manufacturing, and services are projected to continue, in line with Benin's recent achievements in improving its Doing Business indicators, ranked among Top 10 most improved countries in 2013–15.

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6.   Risks to the baseline are to the downside. Main risks include weak external demand and soft commodity prices in light of the fragile global recovery, particularly the recent slowdown in Nigeria driven by lower oil prices. Also, achieving the expected growth and export impact requires the authorities to rigorously implement structural reforms to improve PFM and the business environment. Furthermore, our assumptions on non-concessional borrowing are conservative, and, for lack of information, no PPPs are yet included in the DSA, even though some are under discussion. Finally, enhancing domestic revenue performance is essential to reduce Benin's dependence on the informal re-exports to Nigeria over time. Given the significant risk of lower growth, a customized alternative scenario is included to compare the impact.

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[12] Recent IMF staff analysis finds that when benchmarked by regional peers, Benin has significant scope for raising tax revenue, by about 2 percent of GDP, particularly through better domestic revenue mobilization. For example, tax expenditure is estimated to be about 1 percent of GDP per year.

EXTERNAL AND PUBLIC DEBT SUSTAINABILITY

A.   External Debt Sustainability Analysis

7.   The 2015 DSA results show that Benin continues to face a low risk of debt distress as in the 2012 DSA, but the margin toward a moderate risk of debt distress has become thin (Figure 1, Table 1 and 3). In the baseline, all debt indicators remain below their relevant policy-dependent thresholds. The present value (PV) of total PPG external debt is expected to rise from about 16 percent of GDP in 2015 to 18 percent of GDP in 2019 and then decline to about 16 percent of GDP in 2025 and 11 percent of GDP in 2035. The ratio would remain below the corresponding threshold of 40 percent of GDP throughout the projection period. However, one indicator, the ratio of the PV of external debt to exports, exceeds its threshold marginally and temporarily[13] in the case of an extreme shock to exports, while the debt-to-GDP ratio and all debt service indicators remain below thresholds. This mainly reflects Benin's high historical export volatility[14] despite more diversified recent exports, while improved infrastructure and business environment will continue to boost net export and reduce export volatility over time. Benin's WAEMU membership assures its ability to pay in case of such a temporary shock. The debt dynamic also exhibits some vulnerability to shocks in financing terms and a one-off CFA depreciation, although all indicators remain below thresholds in the corresponding stress scenarios. Thus overall, Benin's risk of external debt distress is assessed to continue to be low,[15] as in the 2012 DSA, although further improving debt management is essential to contain risk at this level.

8.   A customized downside scenario shows that Benin will face a moderate risk of debt distress (Text Figure 2). This scenario assumes that Nigeria's growth further deteriorates in the near term, and sluggish structural reforms hamper private investment. Projected growth for 2016 declines by about ¾ percentage point in 2016 and by about 1½ percentage points in 2020. While public investment remains the same, private investment is projected to decline by about ¾ to 1½ percentage points in the same period. As a result, the PV debt to exports ratio would exceed the threshold longer and by a larger margin in the shock scenario, which indicates a moderate risk of debt distress. This suggests the importance of business environment reforms and the need for prudent fiscal policy in light of the growth risk in Nigeria.

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[13] The ratio exceeds the threshold of 150 percent by an average of 7 percentage points for two years before it falls below it and on a downward trajectory.

[14] The export shock in the stress test is one standard deviation lower than the historical average export growth. For Benin, the ratio of the standard deviation to average level of the export growth over the last 10 years is about 1.7 and thus makes the shock particularly large relative to the baseline export growth. In contrast, the ratio is about 1 in the four WAEMU countries for which 2014 DSAs are available (Burkina Faso, Cote d'Ivoire, Togo, and Senegal).

[15]The risk rating is also found low using a probabilistic approach that reflects Benin-specific data in setting the thresholds.

Benin: Comparison of PV Debt-to-Exports Ratio

In a lower-growth risk scenario with growth reduced by about 1.2 percentage points per year on average in 2016-20, the ratio exceeds threshold by a larger margin and for a longer period, indicating a moderate risk of debt distress. But there is no qualitatively different results in other indicators in this lower-growth risk scenario.

Baseline   Historical scenario   Most extreme shock 1/
Threshold
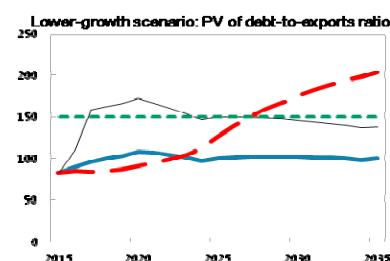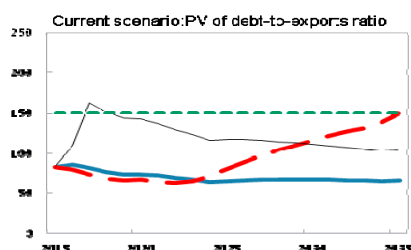
Source: IMF staff estimates.
1/ This refers to a shock to exports.

B.   Public Debt Sustainability Analysis

9.   Total public (external and domestic) debt is projected to rise moderately during the scaling up of public investment and decline afterwards (Figure 2, Tables 2 and 4). The PV of debt to GDP ratio is projected to rise from 29 percent in 2015 to 37 percent at the end of the scaling up in 2020 and then decline. The ratio remains consistently below the indicative benchmark of 56 percent, a level that research has linked to increased probability of debt distress.[16] The debt level also remains below the WAEMU convergence criteria. In the most extreme shock scenario, the peak PV of debt to GDP ratio exceeds 50 percent around 2025 only in the scenario when primary balance is unchanged from 2015, while the peak debt service to revenue ratio remains below 30 percent. Nevertheless, these indicators show some vulnerability to shocks. In particular, the scenario under fixed primary 2015 deficit exhibits a rising debt path and underscores the importance of medium-term fiscal consolidation. Nevertheless, current dynamics in total public debt are consistent with a low risk of debt distress.

C.   Debt Management Capacity

10.   The authorities' recently started reforms to boost debt management capacity would also enhance medium-term debt sustainability. Benin's current debt monitoring capacity is assessed as weak. The reforms include streamlining of the fragmented public debt management between the treasury and the debt management agency—*Caisse Autonome* d'Amortissement (*CAA),* in line with recent IMF TA recommendations. In particular, the authorities plan to enhance CAA's capacity for more comprehensive and timely debt recording, and extend the coverage of debt monitoring, including key SOEs that undertake significant investment projects. The capacity to fully analyze the impact of non-concessional borrowing needs to be enhanced to avoid increasing the risk of debt distress. In this context, a planned joint World Bank/IMF mission on Medium-Term Debt Strategy in November 2015 is expected to assist their efforts.

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[16] See IMF, 2012, "Revisiting the Debt Sustainability Framework for Low-Income Countries."

CONCLUSION

11.   The updated DSA shows that Benin continues to face a low risk of debt distress with the planned scaling up of public investment, if accompanied by sufficient structural reforms, but the margin with a moderate risk of debt distress has become thin. While most debt indicators remain below the corresponding thresholds, one indicator—PV of debt-to-export ratio—exceeds its threshold marginally and temporarily in an extreme shock scenario. The inclusion of domestic public debt in the analysis also confirms the conclusion. Achieving the expected salutary impact of the scaling up of public investment requires that the authorities continue to pursue prudent fiscal policies and pro-growth structural reforms, including in mobilizing domestic revenue and improving PFM and the business environment. Medium-term fiscal consolidation is also needed to support long-term fiscal sustainability. Finally, risks to this baseline DSA are to the downside.

12.   The authorities agree with the staff's conclusions. They concur that debt sustainability will depend crucially on quality public investments, progress in reforms to support competitiveness and exports in the private sector, and a sound fiscal policy, which includes mobilizing more domestic revenue and prudent borrowing mainly through concessional financing. They also committed to enhancing debt management capacity to further minimize the risk of debt distress.

Figure 1. Benin: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2015–35 [1]
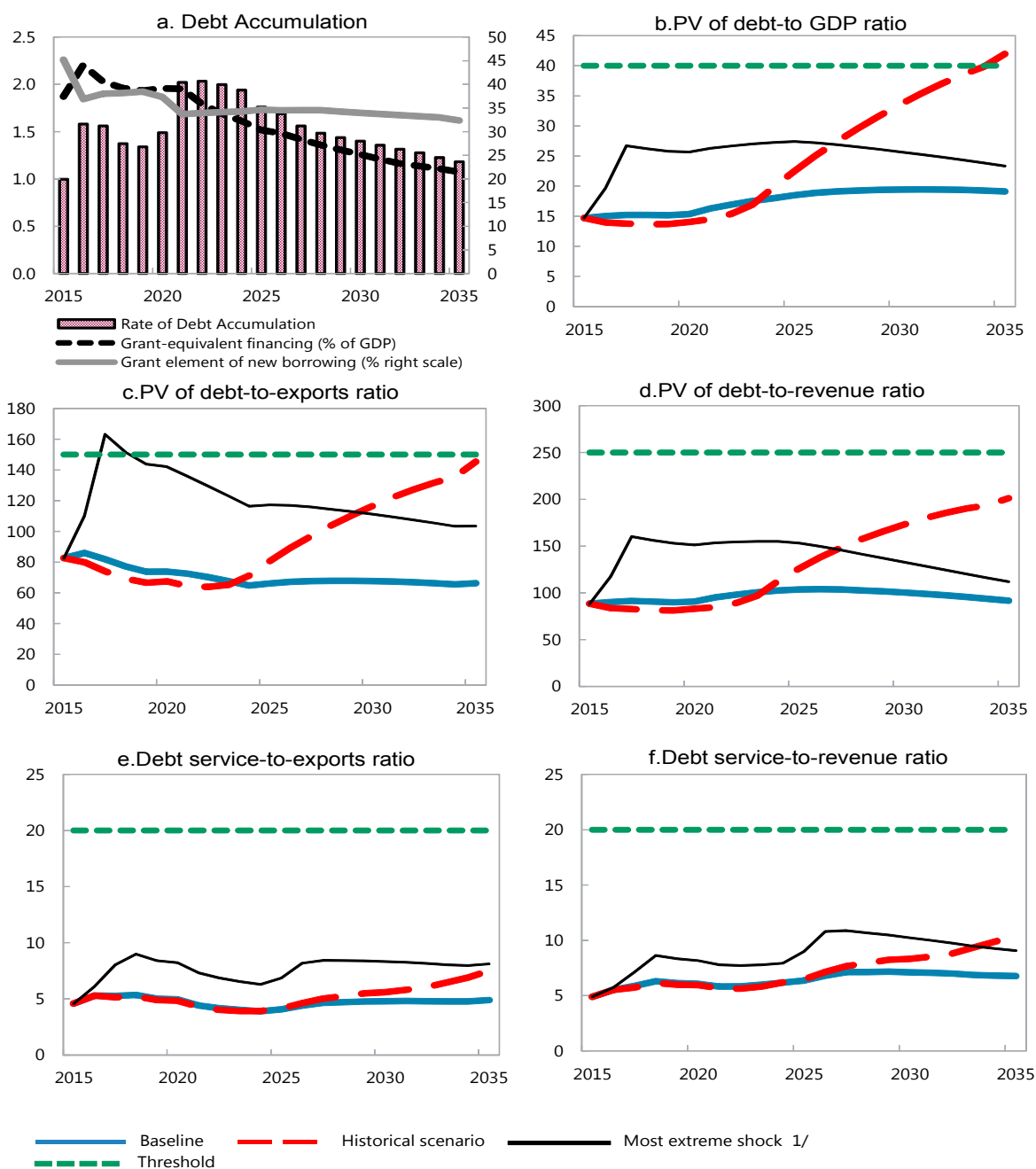
a. Debt Accumulation

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 ratio

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

- 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 on or before 2025. In figure b. it corresponds to a Combination shock; in c. to a Exports shock; in d. to a Combination shock; in e. to a Exports shock and in figure f. to a Combination shock

Figure 2. Benin: Indicators of Public Debt Under Alternative Scenarios, 2015–35 [1]
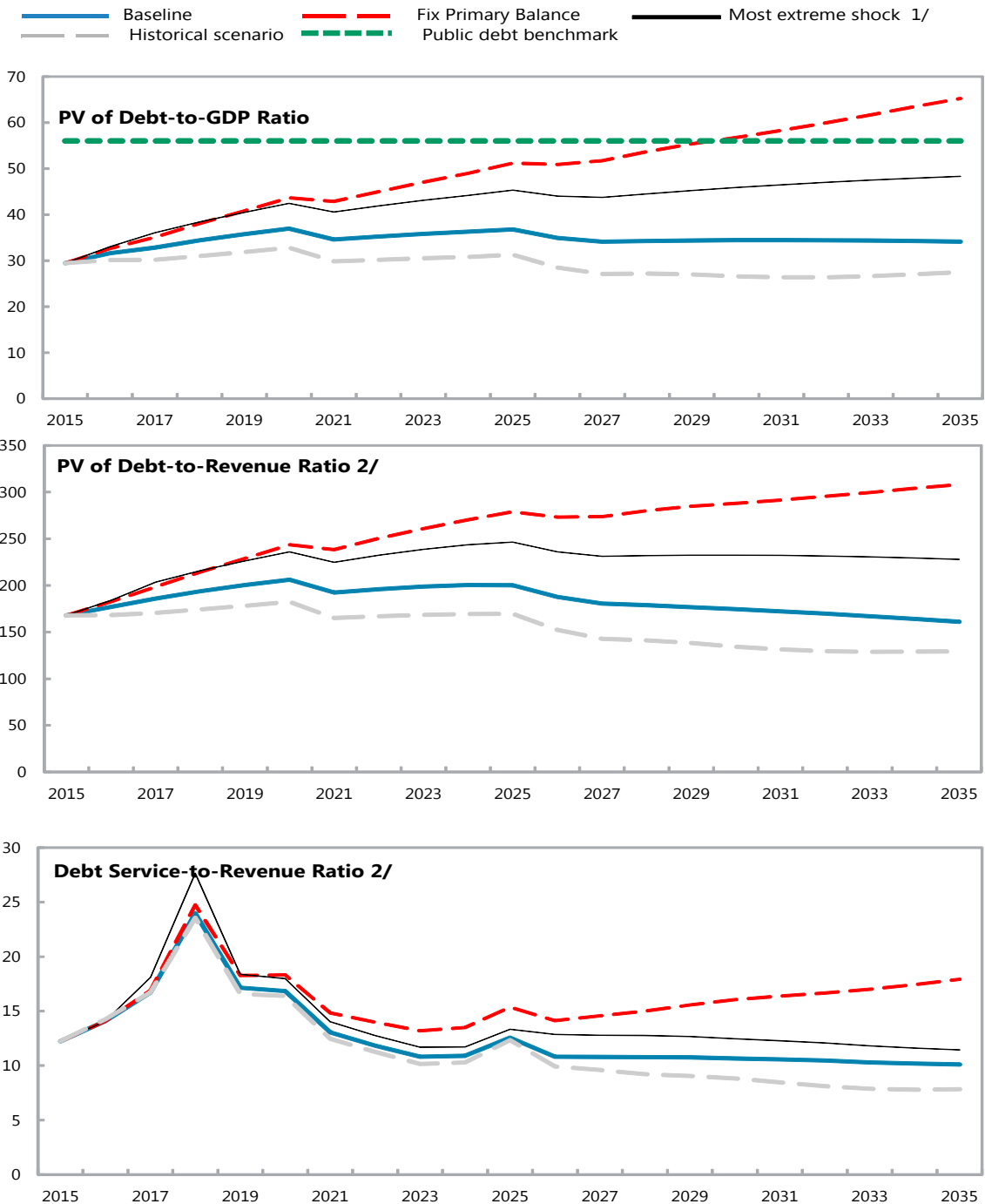
Legend:
- Baseline
- Fix Primary Balance
- Most extreme shock [1]
- Historical scenario
- Public debt benchmark

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 on or before 2025.
2/ Revenues are defined inclusive of grants.

Table 1. Benin: External Debt Sustainability Framework, Baseline Scenario, 2012–35[1]
(Percent of GDP, unless indicated otherwise)

	Actual 2012	Actual 2013	Actual 2014	Historical Average 6/	Standard Deviation 6/	2015	2016	2017	2018	2019	2020	2015-2020 Average	2025	2035	2021-2035 Average
External debt (nominal) 1/	**15.4**	**16.8**	**20.1**			**22.4**	**22.6**	**22.8**	**22.9**	**22.8**	**23.2**		**27.2**	**27.7**	
of which: public and publicly guaranteed (PPG)	15.4	16.8	20.1			22.4	22.6	22.8	22.9	22.8	23.2		27.2	27.7	
Change in external debt	-1.2	1.4	3.3			2.3	0.2	0.3	0.0	0.0	0.4		0.6	-0.3	
Identified net debt-creating flows	6.3	4.5	4.9			6.2	5.8	5.2	4.8	4.4	4.2		0.7	-0.4	
Non-interest current account deficit	**9.2**	**9.3**	**9.1**	**7.6**	**1.6**	**11.0**	**11.3**	**10.6**	**10.5**	**10.1**	**10.0**		**4.7**	**3.3**	**5.3**
Deficit in balance of goods and services	13.4	14.2	14.6			15.9	17.1	16.8	17.5	17.3	17.7		12.5	9.9	
Exports	13.8	16.2	16.4			17.8	17.4	18.6	19.7	20.6	20.8		27.9	28.6	
Imports	27.2	30.4	31.0			33.7	34.5	35.3	37.2	37.9	38.5		40.4	38.5	
Net current transfers (negative = inflow)	-4.3	-4.6	-5.4	-4.6	0.8	-5.2	-6.1	-6.2	-7.1	-7.4	-7.8		-7.3	-6.0	-6.9
of which: official	-2.6	-2.7	-2.6			-2.3	-3.1	-3.1	-3.9	-3.7	-3.4		-3.4	-3.4	
Other current account flows (negative = net inflow)	0.1	-0.3	0.0			0.4	0.3	0.1	0.1	0.1	0.1		-0.5	-0.5	
Net FDI (negative = inflow)	**-2.6**	**-3.3**	**-3.6**	**-2.4**	**1.2**	**-3.6**	**-4.5**	**-4.6**	**-4.8**	**-4.8**	**-4.9**		**-3.0**	**-3.0**	**-3.0**
Endogenous debt dynamics 2/	**-0.3**	**-1.5**	**-0.6**			**-1.2**	**-1.0**	**-0.8**	**-0.8**	**-0.8**	**-0.9**		**-1.0**	**-0.7**	
Contribution from nominal interest rate	0.3	0.2	0.2			-0.1	0.2	0.3	0.4	0.4	0.4		0.5	0.5	
Contribution from real GDP growth	-0.7	-0.9	-1.0			-1.2	-1.1	-1.1	-1.2	-1.2	-1.3		-1.5	-1.3	
Contribution from price and exchange rate changes	0.1	-0.7	0.2												
Residual (3-4) 3/	**-7.5**	**-3.1**	**-1.6**			**-3.9**	**-5.6**	**-4.9**	**-4.8**	**-4.5**	**-3.9**		**-0.1**	**0.1**	
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/	...	...	13.0			14.7	15.0	15.2	15.2	15.2	15.4		18.5	19.1	
In percent of exports	...	...	79.3			82.6	86.0	81.8	77.1	73.6	73.8		66.2	66.9	
PV of PPG external debt	...	...	**13.0**			**14.7**	**15.0**	**15.2**	**15.2**	**15.2**	**15.4**		**18.5**	**19.1**	
In percent of exports	...	...	**79.3**			**82.6**	**86.0**	**81.8**	**77.1**	**73.6**	**73.8**		**66.1**	**66.9**	
In percent of government revenues	...	...	**78.8**			**88.3**	**90.0**	**91.2**	**90.7**	**89.8**	**90.6**		**103.4**	**91.6**	
Debt service-to-exports ratio (in percent)	**6.3**	**5.2**	**5.0**			**4.6**	**5.3**	**5.3**	**5.4**	**5.0**	**5.0**		**4.1**	**4.9**	
PPG debt service-to-exports ratio (in percent)	**6.3**	**5.2**	**5.0**			**4.6**	**5.3**	**5.3**	**5.4**	**5.0**	**5.0**		**4.1**	**4.9**	
PPG debt service-to-revenue ratio (in percent)	**5.0**	**4.8**	**5.0**			**4.9**	**5.5**	**5.9**	**6.3**	**6.1**	**6.1**		**6.4**	**6.8**	
Total gross financing need (Billions of U.S. dollars)	0.6	0.6	0.6			0.7	0.7	0.7	0.7	0.8	0.8		0.5	0.6	
Non-interest current account deficit that stabilizes debt ratio	10.5	7.9	5.8			8.7	11.1	10.4	10.4	10.1	9.6		4.0	3.6	
Key macroeconomic assumptions															
Real GDP growth (in percent)	4.6	6.9	6.5	4.2	1.9	5.2	5.5	5.5	5.7	5.8	6.0	5.6	6.0	4.8	5.2
GDP deflator in US dollar terms (change in percent)	-0.8	5.0	-1.2	3.6	6.0	-15.6	2.4	3.2	3.3	2.8	2.1	-0.3	0.8	2.0	1.9
Effective interest rate (percent) 5/	1.7	1.5	1.3	2.8	4.7	-0.2	0.9	1.5	1.7	1.8	2.0	1.3	2.1	2.1	2.1
Growth of exports of G&S (US dollar terms, in percent)	-10.4	32.2	6.3	12.3	20.4	-3.5	5.7	16.0	15.9	13.4	9.6	9.5	7.5	4.0	9.5
Growth of imports of G&S (US dollar terms, in percent)	8.2	25.4	7.3	12.7	18.7	-3.4	10.5	11.5	15.0	10.8	10.0	9.1	7.0	0.9	7.2
Grant element of new public sector borrowing (in percent)	...	...	...			45.2	36.9	38.0	38.2	38.5	37.3	39.0	34.6	32.4	33.9
Government revenues (excluding grants, in percent of GDP)	17.4	17.7	16.5			16.7	16.7	16.7	16.8	16.9	17.0		16.9	20.9	18.8
Aid flows (in Billions of US dollars) 7/	0.1	0.1	0.1			0.2	0.3	0.3	0.3	0.3	0.3		0.4	0.4	
of which: Grants	0.1	0.1	0.1			0.1	0.1	0.1	0.1	0.1	0.2		0.1	0.1	
of which: Concessional loans	0.0	0.0	0.0			0.2	0.2	0.2	0.2	0.2	0.2		0.3	0.3	
Grant-equivalent financing (in percent of GDP) 8/						1.9	2.2	2.0	2.0	1.9	2.0		1.5	1.1	1.4
Grant-equivalent financing (in percent of external financing) 8/						60.1	56.4	54.1	54.8	55.2	53.5		43.9	39.9	42.6
Memorandum items:															
Nominal GDP (Billions of US dollars)	8.1	9.1	9.6			8.5	9.2	10.0	10.9	11.9	12.9		18.7	36.4	
Nominal dollar GDP growth	3.8	12.2	5.2			-11.3	8.0	8.9	9.2	8.8	8.2	5.3	6.9	7.0	7.2
PV of PPG external debt (in Billions of US dollars)			1.2			1.3	1.4	1.5	1.7	1.8	2.0		3.5	7.0	
(PVt-PVt-1)/GDPt-1 (in percent)						1.0	1.6	1.6	1.4	1.3	1.5	1.4	1.8	1.2	1.6
Gross workers' remittances (Billions of US dollars)	0.2	0.2	0.3			0.3	0.3	0.3	0.4	0.4	0.6		0.7	1.0	
PV of PPG external debt (in percent of GDP + remittances)	...	...	12.6			14.3	14.6	14.7	14.7	14.6	14.7		17.8	18.6	
PV of PPG external debt (in percent of exports + remittances)	...	...	67.2			70.5	73.0	69.9	66.2	62.5	60.7		57.9	61.1	
Debt service of PPG external debt (in percent of exports + remittances)	...	...	4.3			3.9	4.5	4.5	4.6	4.3	4.1		3.6	4.5	

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.

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. Benin: Public Sector Debt Sustainability Framework, Baseline Scenario, 2012–35

	Actual			Average 5/	Standard Deviation 5/	Estimate	Projections								2021-35 Average
	2012	2013	2014			2015	2016	2017	2018	2019	2020	2015-20 Average	2025	2035	
Public sector debt 1/	26.8	25.4	30.9			37.1	39.2	40.5	42.1	43.4	44.7		45.5	42.7	
of which: foreign-currency denominated	15.4	16.8	20.1			22.4	22.6	22.8	22.9	22.8	23.2		27.2	27.7	
Change in public sector debt	-3.1	-1.4	5.5			6.3	2.1	1.3	1.6	1.3	1.4		0.6	-0.3	
Identified debt-creating flows	-2.8	-0.2	2.5			5.9	0.9	0.6	1.0	0.8	0.7		0.6	-0.5	
Primary deficit	-0.1	2.1	1.6	1.1	1.4	5.1	3.7	3.4	2.9	2.8	2.5	3.4	2.1	1.0	2.0
Revenue and grants	19.2	18.6	17.4			17.5	17.9	17.6	17.7	17.8	17.9		18.4	21.2	
of which: grants	1.8	0.9	0.9			0.8	1.2	1.0	1.0	1.0	0.9		0.5	0.3	
Primary (noninterest) expenditure	19.1	20.7	19.0			22.6	21.6	21.0	20.7	20.6	20.4		20.5	22.2	
Automatic debt dynamics	-2.7	-2.3	0.9			0.8	-1.9	-1.9	-1.9	-2.0	-1.8		-1.5	-1.5	
Contribution from interest rate/growth differential	-2.7	-1.7	-0.9			-1.3	-1.7	-1.6	-1.8	-1.7	-1.8		-1.5	-1.5	
of which: contribution from average real interest rate	-1.4	0.0	0.7			0.3	0.3	0.4	0.4	0.6	0.6		1.1	0.5	
of which: contribution from real GDP growth	-1.3	-1.7	-1.6			-1.5	-1.9	-2.0	-2.2	-2.3	-2.5		-2.5	-2.0	
Contribution from real exchange rate depreciation	0.1	-0.6	1.8			2.1	-0.2	-0.2	-0.2	-0.2	0.0		0.0	0.0	
Other identified debt-creating flows	0.0	0.0	0.0			0.0	-0.9	-0.9	0.0	0.0	0.0		0.0	0.0	
Privatization receipts (negative)	0.0	0.0	0.0			0.0	-0.9	-0.9	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	-0.3	-1.2	3.0			0.3	1.2	0.6	0.6	0.5	0.7		0.0	0.2	
Other Sustainability Indicators															
PV of public sector debt			23.8			29.4	31.6	32.8	34.4	35.7	36.9		36.8	34.1	
of which: foreign-currency denominated			13.0			14.7	15.0	15.2	15.2	15.2	15.4		18.5	19.1	
of which: external			13.0			14.7	15.0	15.2	15.2	15.2	15.4		18.5	19.1	
PV of contingent liabilities (not included in public sector debt)															
Gross financing need 2/	6.9	9.4	7.9			12.1	10.7	11.4	12.6	11.7	11.8		10.1	7.8	
PV of public sector debt-to-revenue and grants ratio (in percent)			136.5			168.1	176.9	186.1	193.9	200.5	206.2		200.3	161.2	
PV of public sector debt-to-revenue ratio (in percent)			144.2			176.6	189.7	196.9	205.1	211.8	217.7		205.7	163.5	
of which: external 3/						88.3	90.0	91.2	90.7	89.8	90.6		103.4	91.6	
Debt service-to-revenue and grants ratio (in percent) 4/	10.3	9.9	9.9			12.2	14.1	16.7	24.0	17.2	16.8		12.6	10.1	
Debt service-to-revenue ratio (in percent) 4/	11.3	10.4	10.4			12.9	15.1	17.7	25.4	18.1	17.8		12.9	10.2	
Primary deficit that stabilizes the debt-to-GDP ratio	2.9	3.5	-3.9			-1.1	1.6	2.1	1.4	1.5	1.1		1.5	1.3	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	4.6	6.9	6.5	4.2	1.9	5.2	5.5	5.5	5.7	5.8	6.0	5.6	6.0	4.8	5.2
Average nominal interest rate on forex debt (in percent)	1.7	1.5	1.3	2.8	4.7	-0.2	0.9	1.5	1.7	1.8	2.0	1.3	2.1	2.1	2.1
Average real interest rate on domestic debt (in percent)	-4.5	0.5	3.4	-0.2	2.8	4.4	3.5	3.4	3.2	3.4	3.4	3.5	4.3	3.1	3.2
Real exchange rate depreciation (in percent, + indicates depreciation)	0.5	-4.3	11.1	1.2	8.8	10.8	-1.0	-1.1	-0.8	-1.2	0.0	1.1	…	…	…
Inflation rate (GDP deflator, in percent)	7.4	1.6	-1.3	2.8	2.7	0.8	1.9	2.1	2.2	2.0	2.1	1.8	0.8	2.0	1.8
Growth of real primary spending (deflated by GDP deflator, in percent)	-0.2	15.7	-2.4	1.4	5.1	25.5	0.6	2.6	4.1	5.5	4.9	7.2	5.9	5.8	5.8
Grant element of new external borrowing (in percent)	…		…			45.2	36.9	38.0	38.2	38.5	37.3	39.0	34.6	32.4	…

Sources: Country authorities; and staff estimates and projections.
1/ Data refer to gross debt, and the coverage is central government as of 2015 and includes projected new non-financial public sector borrowing from 2016 onward.
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 3. Benin: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2015–35

(Percent of GDP, unless indicated otherwise)

			Projections					
	2015	2016	2017	2018	2019	2020	**2025**	2035
PV of debt-to GDP ratio								
Baseline	15	15	15	15	15	15	**18**	19
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2015-2035 1/	15	14	14	14	14	14	**23**	42
A2. New public sector loans on less favorable terms in 2015-2035 2	15	16	17	17	18	19	**26**	31
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2016-2017	15	16	16	16	16	16	**20**	20
B2. Export value growth at historical average minus one standard deviation in 2016-2017 3/	15	17	21	21	20	20	**23**	21
B3. US dollar GDP deflator at historical average minus one standard deviation in 2016-2017	15	16	17	17	17	17	**20**	21
B4. Net non-debt creating flows at historical average minus one standard deviation in 2016-2017 4/	15	19	23	23	22	22	**24**	21
B5. Combination of B1-B4 using one-half standard deviation shocks	15	20	27	26	26	26	**27**	23
B6. One-time 30 percent nominal depreciation relative to the baseline in 2016 5/	15	21	22	22	22	22	**26**	27
PV of debt-to-exports ratio								
Baseline	83	86	82	77	74	74	**66**	67
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2015-2035 1/	83	80	74	69	67	67	**81**	147
A2. New public sector loans on less favorable terms in 2015-2035 2	83	91	90	88	88	91	**92**	110
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2016-2017	83	86	82	77	74	74	**66**	67
B2. Export value growth at historical average minus one standard deviation in 2016-2017 3/	83	110	163	152	144	142	**117**	104
B3. US dollar GDP deflator at historical average minus one standard deviation in 2016-2017	83	86	82	77	74	74	**66**	67
B4. Net non-debt creating flows at historical average minus one standard deviation in 2016-2017 4/	83	109	124	114	108	107	**86**	74
B5. Combination of B1-B4 using one-half standard deviation shocks	83	112	155	144	135	133	**106**	88
B6. One-time 30 percent nominal depreciation relative to the baseline in 2016 5/	83	86	82	77	74	74	**66**	67
PV of debt-to-revenue ratio								
Baseline	88	90	91	91	90	91	**103**	92
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2015-2035 1/	88	84	83	81	81	83	**126**	201
A2. New public sector loans on less favorable terms in 2015-2035 2	88	95	101	104	107	111	**143**	150
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2016-2017	88	93	98	97	96	97	**110**	97
B2. Export value growth at historical average minus one standard deviation in 2016-2017 3/	88	100	125	123	121	120	**126**	98
B3. US dollar GDP deflator at historical average minus one standard deviation in 2016-2017	88	95	102	101	100	101	**115**	102
B4. Net non-debt creating flows at historical average minus one standard deviation in 2016-2017 4/	88	114	138	135	132	131	**134**	101
B5. Combination of B1-B4 using one-half standard deviation shocks	88	118	160	156	153	151	**153**	112
B6. One-time 30 percent nominal depreciation relative to the baseline in 2016 5/	88	128	130	129	128	129	**146**	130

Table 3. Benin: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2015–35 (continued)
(Percent)

				Projections				
	2015	2016	2017	2018	2019	2020	**2025**	2035
Debt service-to-exports ratio								
Baseline	5	5	5	5	5	5	**4**	5
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2015-2035 1/	5	5	5	5	5	5	**4**	8
A2. New public sector loans on less favorable terms in 2015-2035 2	5	5	5	6	5	6	**5**	8
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2016-2017	5	5	5	5	5	5	**4**	5
B2. Export value growth at historical average minus one standard deviation in 2016-2017 3/	5	6	8	9	8	8	**7**	8
B3. US dollar GDP deflator at historical average minus one standard deviation in 2016-2017	5	5	5	5	5	5	**4**	5
B4. Net non-debt creating flows at historical average minus one standard deviation in 2016-2017 4/	5	5	6	7	6	6	**5**	6
B5. Combination of B1-B4 using one-half standard deviation shocks	5	5	7	8	7	7	**6**	7
B6. One-time 30 percent nominal depreciation relative to the baseline in 2016 5/	5	5	5	5	5	5	**4**	5
Debt service-to-revenue ratio								
Baseline	5	6	6	6	6	6	**6**	7
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2015-2035 1/	5	6	6	6	6	6	**6**	10
A2. New public sector loans on less favorable terms in 2015-2035 2	5	6	6	7	7	7	**8**	11
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2016-2017	5	6	6	7	7	6	**7**	7
B2. Export value growth at historical average minus one standard deviation in 2016-2017 3/	5	6	6	7	7	7	**7**	8
B3. US dollar GDP deflator at historical average minus one standard deviation in 2016-2017	5	6	7	7	7	7	**7**	8
B4. Net non-debt creating flows at historical average minus one standard deviation in 2016-2017 4/	5	6	7	8	7	7	**8**	8
B5. Combination of B1-B4 using one-half standard deviation shocks	5	6	7	9	8	8	**9**	9
B6. One-time 30 percent nominal depreciation relative to the baseline in 2016 5/	5	8	8	9	9	9	**9**	10
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	30	30	30	30	30	30	**30**	30

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 a 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 4. Benin: Sensitivity Analysis for Key Indicators of Public Debt 2015–35
(Percent)

	Projections							
	2015	2016	2017	2018	2019	2020	2025	2035
PV of Debt-to-GDP Ratio								
Baseline	29	32	33	34	36	37	37	34
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	29	30	30	31	32	33	31	27
A2. Primary balance is unchanged from 2015	29	33	35	38	41	44	51	65
A3. Permanently lower GDP growth 1/	29	32	33	35	37	38	41	47
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2016-2017	29	33	36	38	40	42	45	48
B2. Primary balance is at historical average minus one standard deviations in 2016-2017	29	31	31	33	34	36	36	33
B3. Combination of B1-B2 using one half standard deviation shocks	29	31	32	34	36	38	40	42
B4. One-time 30 percent real depreciation in 2016	29	37	38	39	39	40	38	34
B5. 10 percent of GDP increase in other debt-creating flows in 2016	29	39	40	41	42	43	42	37
PV of Debt-to-Revenue Ratio 2/								
Baseline	168	177	186	194	200	206	200	161
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	168	168	171	174	178	183	170	129
A2. Primary balance is unchanged from 2015	168	183	199	214	229	244	279	308
A3. Permanently lower GDP growth 1/	168	178	188	198	206	214	221	220
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2016-2017	168	184	204	216	226	236	246	228
B2. Primary balance is at historical average minus one standard deviations in 2016-2017	168	172	178	186	193	199	195	158
B3. Combination of B1-B2 using one half standard deviation shocks	168	172	179	191	202	211	219	200
B4. One-time 30 percent real depreciation in 2016	168	208	214	218	221	223	207	163
B5. 10 percent of GDP increase in other debt-creating flows in 2016	168	217	224	230	234	238	227	176
Debt Service-to-Revenue Ratio 2/								
Baseline	12	14	17	24	17	17	13	10
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	12	14	17	24	17	16	12	8
A2. Primary balance is unchanged from 2015	12	14	17	25	18	18	15	18
A3. Permanently lower GDP growth 1/	12	14	17	24	17	17	14	13
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2016-2017	12	15	18	26	19	19	15	14
B2. Primary balance is at historical average minus one standard deviations in 2016-2017	12	14	17	23	17	17	12	10
B3. Combination of B1-B2 using one half standard deviation shocks	12	14	17	24	17	17	14	12
B4. One-time 30 percent real depreciation in 2016	12	15	19	27	20	20	16	14
B5. 10 percent of GDP increase in other debt-creating flows in 2016	12	14	18	28	18	18	13	11

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.