INTERNATIONAL DEVELOPMENT ASSOCIATION

INTERNATIONAL MONETARY FUND

BENIN

Joint World Bank-IMF Debt Sustainability Analysis

May 2020

Prepared jointly by the staffs of the International Development Association (IDA)

and the International Monetary Fund (IMF)

Approved by Marcello Estevão (IDA) and Dominique Desruelle and, Craig Beaumont (IMF)

Benin: Joint Bank-Fund Debt Sustainability Analysis

Risk of external debt distress	Moderate
Overall risk of debt distress	Moderate
Granularity in the risk rating	Limited space to absorb shocks
Application of judgement	No
Macroeconomic projections	2020 real GDP growth is revised down from 6.7 percent to 3.2 percent

Benin remains at moderate risk of **external debt** distress. The rating is unchanged from the previous November 2019 Debt Sustainability Analysis (DSA). All the projected external debt burden indicators are below their thresholds under the baseline, but the debt service-to-revenue ratio exceeds its threshold in the case of an extreme depreciation shock.[1] Compared to the previous DSA, the room to absorb shocks has been narrowed from "some space" to "limited space". In addition, Benin's spreads remain volatile and are above the market financing module's benchmark. Policy slippages and vulnerabilities due to the COVID-19 and the Nigeria border closure shocks are downside risks to the baseline.

With regard to **public and publicly guaranteed (PPG) debt (external plus domestic)**, the overall risk of debt distress remains also moderate because of the external debt rating. Nonetheless, the PV of public debt-to-GDP ratio remains below its prudent benchmark in both the baseline and shock scenarios.

[1] Under the revised Debt Sustainability Framework for Low-Income Countries, Benin's Composite Indicator is 2.96 based on the October 2019 WEO and the 2018 CPIA, corresponding to the medium debt-carrying capacity.

PUBLIC DEBT COVERAGE

Text Table 1. Benin: Subsectors of the Public Sector

	Subsectors of the public sector	Sub-sectors covered
1	Central government	X
2	State and local government	
3	Other elements in the general government	
4	o/w: Social security fund	
5	o/w: Extra budgetary funds (EBFs)	
6	Guarantees (to other entities in the public and private sector, including to SOEs)	X
7	Central bank (borrowed on behalf of the government)	X
8	Non-guaranteed SOE debt	

Text Table 2. Benin: Magnitude of the Contingent Liability Tailored Stress Test

1	The country's coverage of public debt	The central government, central bank, government-guaranteed debt			
		Default		Used for the analysis	Reasons for deviations from the default settings
2	Other elements of the general government not captured in 1.	0	percent of GDP	0.0	
3	SoE's debt (guaranteed and not guaranteed by the government) 1/	2	percent of GDP	0.6	
4	PPP	35	percent of PPP stock	2.6	
5	Financial market (the default value of 5 percent of GDP is the minimum value)	5	percent of GDP	5.0	
	Total (2+3+4+5) (in percent of GDP)			8.2	

1/ The default shock of 2% of GDP will be triggered for countries whose government-guaranteed debt is not fully captured under the country's public debt definition (1.). If it is already included in the government debt (1.) and risks associated with SoE's debt not guaranteed by the government is assessed to be negligible, a country team may reduce this to 0%.

1. **In the Debt Sustainability Analysis (DSA) of Benin, public debt covers both the debt of the central government as well as the guarantees provided by the central government.**[2] The DSA classifies external and domestic debt based on the currency criterion, given data constraints that prevent the use of the residency criterion. Debt to the IMF owed by the Central Bank is included in external debt.

2. **The authorities completed an audit about the stock of unpaid claims held by the private sector on the government in January 2019.** The authorities found a stock of arrears to suppliers of 0.2 percent GDP incurred before 2016. This amount of arrears was added to the 2019 debt stock. The current fiscal projections also assume a gradual clearance of the arrears over 2020-22 at a pace of 0.1 percent of GDP per year.

3. **The guaranteed debt of state-owned enterprises (SOEs) is included in the baseline analysis.** Because SOEs can entail contingent liabilities for the government and create fiscal risks, it is important to have an exhaustive overview of their financial situation.[3] The authorities have made progress in the

[2] Government domestic arrears are also included see below.

[3] In the context of the Government Action Program, the authorities are contemplating several key projects of infrastructure, including some conducted through SOEs. For instance, the government has started discussions with the Chinese authorities to build a new international airport. At this stage, the amount, financing scheme, and calendar are unknown. When information is available, this project will be reflected in the DSA to the extent that it impacts public debt and, more generally, fiscal sustainability.

area of monitoring in past years, by collecting financial information on SOEs. In early 2019, they produced an estimate of 0.6 percent of GDP for the non-guaranteed commercial debt of 13 state-owned companies at end-2018.[4] For end-2019, SOE non-guaranteed commercial debt is projected at 0.5 percent of GDP. Also, to address contingent liability risks, the authorities are in the process of adopting a new law on SOEs that aims at improving their governance and indirectly their economic and financial performance. In the context of the current DSA, the following approach is taken:

- All *guaranteed* SOE debt is included in the debt stock in the baseline.
- *Non-guaranteed* SOE debt is captured as contingent liability shock. This shock is set at 0.6 percent of GDP (to reflect the information collected on SOE debt).
- Further work is needed to properly and fully incorporate SOEs in the DSA baseline, including consolidating the general government fiscal accounts with the financial statements of the SOEs (both on the revenue and expenditure sides). The authorities see this consolidation as a prerequisite before incorporating SOE debt into total debt (in the baseline) and are working with AFRITAC WEST to establish a work program.

BACKGROUND ON DEBT

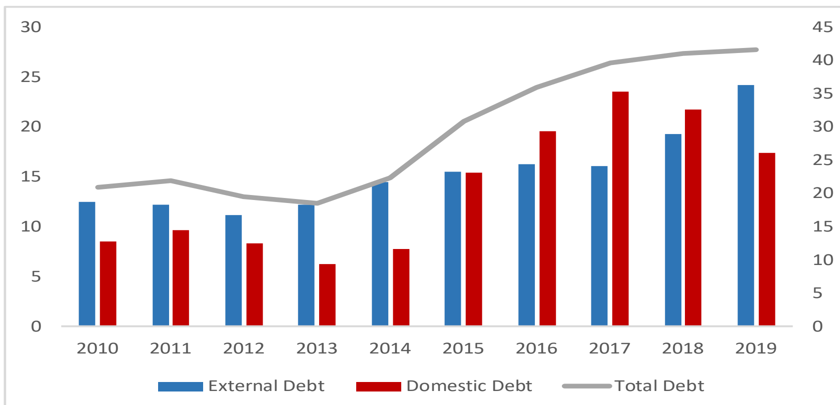
4. **Benin's public debt has increased rapidly since 2014**. Total public debt (external plus domestic) increased from 22.3 percent in 2014 to 41.2 percent in 2019.[5] The increase was primarily due to higher domestic debt, which tripled over three years, growing from 7.8 percent of GDP in 2014 to 23.7 percent of GDP in 2017. Such a rise in the domestic debt was partly driven by the scaling-up of public investment. Over 2015-17, the authorities have increasingly relied on the domestic and regional financial market to finance public investment projects at non-concessional terms. In addition, the debt service burden is relatively high in Benin**.** The ratio of debt service to revenue stood at 43.5 percent in 2019 and is expected to increase to around 52.2 percent on average in the medium term (because of the amortization of the Eurobond), before declining to around 31 percent on average in the long term (2030-40).

5. **Conditions on the regional money and sovereign security markets have remained broadly favorable as the BCEAO took preemptive measures to limit the impact of the COVID-19 pandemic, although subscription rates on sovereign auctions have recently declined in the region**. Broad money growth had remained buoyant in 2019 on the back of a pickup of net foreign assets while credit to the private sector outpaced nominal GDP. The weighted average auction rate on the money market remained at the top of the BCEAO's monetary policy corridor (4.5 percent) in the first quarter of 2019 before hovering around 3 percent during the rest of the year, in part due to a small increase in liquidity supply by the BCEAO. Meanwhile access on the regional sovereign security market remained good with some lowering of yields and lengthening of the average maturity 2019. These broadly favorable liquidity conditions have persisted year-to-date as the BCEAO took preemptive steps taken to

[4] Guarantees on SOE debt provided by the central government are already included in public debt.
[5] In the paper, debt stocks are measured at the end of the year. For instance, 2019 debt refers to the debt at the end of 2019.

better satisfy banks' demand for liquidity and mitigate the negative impact of the pandemic on economic activity. In late March, the BCEAO further raised the amount of liquidity auctioned to banks before adopting a fixed-rate-full-allotment strategy thereby allowing banks to satisfy their liquidity needs fully at the minimum policy rate of 2.5 percent, that is about 25 basis points lower than hitherto. Despite these favorable liquidity conditions, some (so far limited) tensions have emerged on the domestic sovereign market in the form of lower auction subscriptions rates. For instance, Benin's issuance on the regional market on April 3, 2020 was undersubscribed, particularly on the long- term curve.

Text Figure 1. Benin: Total Public Debt 2010–19
(Percent of GDP)



Sources: Authorities' data and staff calculations.

STRUCTURE OF DEBT

6. The Eurobond, combined with the 2018 debt reprofiling, has titled the composition of the public debt towards external debt. In 2016 and 17, Benin's domestic debt accounted for more than half of total debt (about 60 percent of total debt at end-2017). The October 2018 debt reprofiling operation, which issued cheap and long-term external debt to buy back more expensive and shorter-maturity domestic debt, started to rebalance the composition of the debt stock. In addition, Benin issued its first Eurobond in March 2019. The Eurobond amounted to EUR 500 million (equivalent to 3.9 percent of 2019 GDP). The issuance was done at favorable terms. As of end-December 2019, external debt represented almost 60 percent of the total debt.

7. Benin's external public debt is essentially owed to multilateral and bilateral creditors. As of end 2019, Benin's external debt owed to multilateral creditors represented around 57 percent of total external debt against 43 percent held by bilateral creditors. However, the share of the multilateral debt decreased after the issuance of the Eurobond (which is commercial debt) in March 2019. The share of concessional loans represented 54 percent of total external debt at end-2019. Total external debt amounted to CFAF 2,020.7 billion (about US$ 3.4 billion) as of end-2019 (Text Table 3).

8. Domestic public debt is dominated by government securities issued in the regional bond market. Benin's domestic public debt has increased significantly between 2014 and 2017, driven mainly by the increasing reliance on the regional bond market to raise funds. About 82 percent of domestic liabilities consisted of government securities issued on the regional financial market at end-2019. Such debt is non-concessional and is associated with roll-over and interest rate risks. Total domestic debt amounted to CFAF 1,455.9 billion as of end-2019 (Text Figure 4).

Text Table 3. Benin: Structure of External Debt, at end-2019
(in CFAF billion)

Creditors	2019
Multilateral creditors	**1,150.9**
IDA	574.1
FAD (African Development Fund)	261.8
Others	314.9
Bilateral creditors	**869.8**
People's Republic of China	171.2
Kuwait	25.4
Eurobond	325.0
Others	348.2
Total external debt	**2,020.7**

Source: Beninese authorities; IMF staff calculations

Text Table 4. Benin: Structure of Domestic Debt, at end-2019
(in CFAF billion)

Creditors	2019
Other local banks	243.9
Bonds	1,190.1
T-bills	21.9
Total domestic debt	**1,455.9**

Source: Beninese authorities; IMF staff calculations

BACKGROUND ON MACROECONOMIC FORECASTS

9. Macroeconomic assumptions have been updated compared to the November 2019 DSA (Text Table 5).

- Benin's 2020 GDP growth was revised from 6.7 to 3.2 percent as a result of the slowdown of the economic activity due to the COVID-19, and, to a lesser extent, the prolonger border closure with Nigeria. Medium-term prospects are favorable, driven by the growth in agricultural and cotton exports, improvement in business climate, and development of new sectors such as tourism and digital economy.

- The primary balance[6] was revised down from 0 percent of GDP to -1.6 percent of GDP in 2020 because of effect of the extended border closure and the COVID-19 on revenue collection. However, the fiscal position will resume after the shock, and the fiscal position is expected to improve over the medium term, with the primary surplus estimated at 0.3 percent of GDP in 2024.

- Domestic financing was increased in 2020 by 0.7 percent of GDP to finance part of the higher fiscal deficit due to the joint effect of the extended border closure with Nigeria and the COVID-19 pandemic. This includes the support provided by the BOAD (in the

[6] Including grants.

form of concessional loans and debt relief). Assumptions on domestic borrowing costs reflect the recent measures taken by the BCEAO (paragraph 5).

- The non-interest current account deficit is expected to decline gradually in the medium to long term, thanks to the implementation of fiscal consolidation plan and structural reforms to boost competitiveness. Higher exports would result from larger cotton production. Imports should also remain contained due to the scaling-down of public investment and the increase in agricultural production, which should reduce food imports.

- The grant assistance for debt relief under the Catastrophe Containment and Relief Trust (CCRT) has been reflected in the DSA.[7] The eligible debt service for relief from the CCRT amounts to SDR 7.4 million (about CFAF 6 billion), covering the period between April 14, 2020 and October 13, 2020. The CCRT debt relief is reflected under exceptional financing in Table 1 and under debt relief (HIPC and other) in Table 2.

- World Bank financial support to the COVID-19 crisis has also been reflected in the DSA. On April 27, 2020 the World Bank Board adopted the Benin COVID-19 Preparedness and Response project of US$ 10.4 million under the Fast-Track COVID-19 Facility. The Bank is also preparing a Supplemental Financing DPO.

10. The perimeter of exports has been expanded in the context of this DSA. As a result of statistical improvements carried out by the BCEAO, including a new survey on cross-border trade activities in 2019, the measurement of informal trade has been enhanced. As a result, informal exports are now included in the perimeter of exports in the DSA and the Balance of Payments.[8] This is consistent with the recently published Balance of Payments data.[9]

11. Risks to the baseline are tilted to the downside. On the fiscal position, the main risks include extra spending pressures related to the political cycle as well as failures to implement key reforms, in particular in the area of revenue administration and the adoption of tax measures. A larger diffusion of the COVID-19, an extended closure of the border with Nigeria, unresolved banking sector problems, and a possible contagion of security risks could all worsen Benin's fiscal position. On growth, achieving the expected performance will require that the authorities rigorously implement measures that intent to increase the agricultural production capacity and structural reforms that aim at improving business environment and governance.

---

[7] See IMF Policy Paper No. 20/022.
[8] If informal exports were excluded, like in previous DSA reports, the risk of debt distress would remain moderate.
[9] « Balance des Paiements et Position Extérieure Globale », December 2019.

Text Table 5. Benin: Macroeconomic Projections

	DSA 2019 - 5th Review					DSA 2020 - 6th Review				
	2019	2020	Average 2021-24	2029	2039	2019	2020	Average 2021-24	2029	2039
	(Percent of GDP, unless otherwise indicated)					*(Percent of GDP, unless otherwise indicated)*				
GDP growth (percent)	6.4	6.7	6.7	5.9	5.0	6.9	3.2	6.7	6.4	5.7
GDP deflator (percent)	-0.7	1.2	2.3	2.5	2.9	-0.3	1.0	2.0	1.8	1.9
Non-interest current account deficit	4.5	4.3	3.6	3.1	2.6	3.9	4.1	3.8	3.6	3.7
Primary balance	0.4	0.0	-0.3	-0.3	-0.3	-1.1	-1.6	0.3	0.0	0.0
Exports	16.8	17.1	18.0	26.1	26.1	24.0	21.8	24.8	24.7	24.7
Revenues and grants	14.4	14.5	14.5	14.9	15.5	14.1	13.9	14.3	14.3	14.3

Source: Beninese authorities and IMF staff calculations

12. The fiscal policy path is assessed to be realistic (Figure 4). The fiscal path is in the middle of the historical distribution. The change with respect to the previous DSA is due to the fact that the fiscal deficit is revised upwards to accommodate the impact of the COVID-19 pandemic.

13. The growth projection for 2020 is below the path predicted by the growth and fiscal adjustment tool (Figure 4). The deviation between baselines projections and the growth path with LIC's typical multiplier of 0.4 is explained by the negative effect of the COVID-19 on the economic activity. However, GDP growth is expected to rebound in 2021.

14. The contribution of public investment to real GDP growth is also realistic. The current projection of the contribution of public investment to growth is in par with the previous DSA's projections. Both projections are slightly higher than the historical contribution of public investment to growth.

COUNTRY CLASSIFICATION AND DETERMINATION OF SCENARIO STRESS TESTS

15. Benin's capacity to carry debt remains strong. The values of the components of the Composite Indicator (CI) score, which are based on 10-year averages, have not changed compared to the previous DSA (Text Table 6). Thus, the thresholds to assess debt sustainability have remained unchanged compared to the previous DSA. The main contributors to the score are the CPIA value, which measures the quality of institutions and policies, as well as the import coverage of reserves.

16. Stress tests follow standardized settings, with the addition of a market financing shock. The standardized stress tests apply the default settings. The market financing shock is the only tailored stress test that applies to Benin due to the existence of an outstanding Eurobond. The test assumes a temporary increase in the cost of new commercial external borrowing by 400 basis points combined with a nominal depreciation of 15 percent of the CFAF vis-à-vis the US$ and a shortening of maturities and of grace periods.[10]

[10] The considered shortening of maturities of commercial external borrowing are as follows: (i) If the original maturity is greater than 5 years, the new maturity is set to 5 years. (ii) If the original maturity is less than 5 years, the new maturity is shortened by 0.7 years.

Text Table 6. Benin: Debt Carrying Capacity and Thresholds

Country	Benin
Country Code	**638**
Debt Carrying Capacity	**Medium**

Final	Classification based on current vintage	Classification based on the previous vintage	Classification based on the two previous vintages
Medium	Medium 2.96	Medium 2.98	Medium 3.03

Calculation of the CI Index

Components	Coefficients (A)	10-year average values (B)	CI Score components (A*B) = (C)	Contribution of components
CPIA	0.385	3.482	1.34	45%
Real growth rate (in percent)	2.719	5.731	0.16	5%
Import coverage of reserves (in percent)	4.052	38.402	1.56	53%
Import coverage of reserves^2 (in percent)	-3.990	14.747	-0.59	-20%
Remittances (in percent)	2.022	1.237	0.03	1%
World economic growth (in percent)	13.520	3.499	0.47	16%
CI Score			2.96	100%
CI rating			**Medium**	

Applicable Threshold

APPLICABLE	
EXTERNAL debt burden thresholds	
PV of debt in % of	
Exports	180
GDP	40
Debt service in % of	
Exports	15
Revenue	18

APPLICABLE	
TOTAL public debt benchmark	
PV of total public debt in percent of GDP	55

Cut-off Values of the CI

New framework			
	Cut-off values		
Weak	CI <	2.69	
Medium	2.69	≤ CI ≤	3.05
Strong	CI >	3.05	

17. The adverse macroeconomic scenario used in this DSA report is the one presented in the 6th review staff report, which accentuates the negative shocks observed in the baseline. The adverse scenario assumes : (i) lower international demand for Benin's exports; (ii) a larger domestic outbreak of the COVID-19 in the country; (iii) a more adverse external environment (with less capital inflows to low-income countries); and (iv) a longer border closure with Nigeria (extended until end-2020).[11]

EXTERNAL DEBT SUSTAINABILITY RESULTS

18. The external debt burden indicators remain below the policy-dependent thresholds in the baseline scenario, implying a moderate risk of external debt distress. Under the baseline, all debt indicators remain below their relevant policy-dependent thresholds. The PV of total PPG external debt is expected to stabilize at about 17.5 percent of GDP on average over 2020–24, reaching 7.5 percent of GDP in 2039. Thus, the ratio would remain below the corresponding threshold of 40 percent of GDP throughout the projection period.

19. However, the ratio of debt service-to-revenue exceeds its threshold in the case of an exchange rate depreciation. The ratio is estimated at 20 percent in 2020, then assumed to decline to 19 percent in 2021 and 18 percent in 2022, compared to a threshold of 18 percent of GDP. Breaches also occur in 2020 under the real GDP growth and export bound tests, where the ratio reaches 18 percent. The alternative scenario, which corresponds to maintaining key variables at their historical averages in 2020-30, displays a breach in 2020-22 (at 19 percent). The debt service to exports ratio remains at the edge of a breach under the export bound test (14.9 percent compared to a threshold of 15 percent). These results are mainly explained by the repayment of the Eurobond 2024 onwards. Other indicators—the PV of debt-to-GDP ratio and PV of debt to exports ratio indicators— remain below their thresholds under the extreme shock scenarios. Breaches of the debt service-to-revenue ratio are the reasons behind the assessment of moderate risk for external debt.

20. The supplementary module, which allows qualifying the moderate category for the debt distress risk, indicates that Benin has limited space to absorb shocks (Figure 5). To add granularity to the moderate risk rating Benin is assessed as having "limited space" to absorb shocks in the current DSA because of the duration of the shocks. This reflects a deterioration compared to the November DSA report, where Benin had ''some space'' to absorb shocks.

21. The risk of external debt distress would remain also moderate in the adverse macroeconomic scenario of the 6th review staff report. The external debt burden indicators remain below the policy-dependent thresholds in this adverse scenario. However, three indicators breach the thresholds under the most extreme shocks in the adverse macroeconomic scenario (as opposed to one indicator, the debt service-to-revenue ratio, in the baseline scenario). They are: (i) the PV of debt-to-exports ratio, (ii) the debt service-to-exports ratio, and (iii) the debt service-to-revenue ratio (Figure 7).

OVERALL RISK OF PUBLIC DEBT DISTRESS

[11] See Annex II of the Staff Report for the Sixth Review under the ECF-supported arrangement for detailed assumptions.

22. Total PPG debt (external plus domestic) remains below its respective benchmark under the baseline and shock scenarios. The overall risk of debt distress remains moderate. Total debt does not show any breach in the baseline and shock scenarios.

23. Despite the absence of breach, the moderate risk rating for PPG external debt motivates the moderate risk rating for total debt. Other factors of vulnerability include: the higher uncertainty surrounding the projections against the background of the COVID-19 pandemic; the fast increase in domestic debt in past years; the relatively high ratio of debt service to revenue; the increase in spreads; the possibility of contingent liabilities related to SOEs; revenue loses induced by the effect of the COVID-19 on the economic activity.

24. The overall risk of debt distress would remain moderate in the adverse macroeconomic scenario of the 6th review staff report. While no breach has been observed, the risk rating remains moderate because of the risk rating of the external debt (Figure 8).

MARKET MODULE

25. The market-financing module shows that all external debt burden indicators remain below the policy-dependent thresholds (Figure 6). As the macroeconomic framework presented in the 6th review staff report does not foresee further Eurobond issuances in the short-term, the ratios of PV debt to exports, debt service to exports and debt service to revenue are identical under the baseline and market financing scenarios. The slight deterioration of the PV of debt-to-GDP ratio under the market financing scenario is due to a one-off FX depreciation shock equivalent to 15 percent in 2021. However, Benin's EMBI spread (estimated at around 800 bps. as of April 16, 2020) breaches the benchmark of 570 bps., which means that Benin may face liquidity pressures due to deteriorating market sentiment.

CONCLUSION

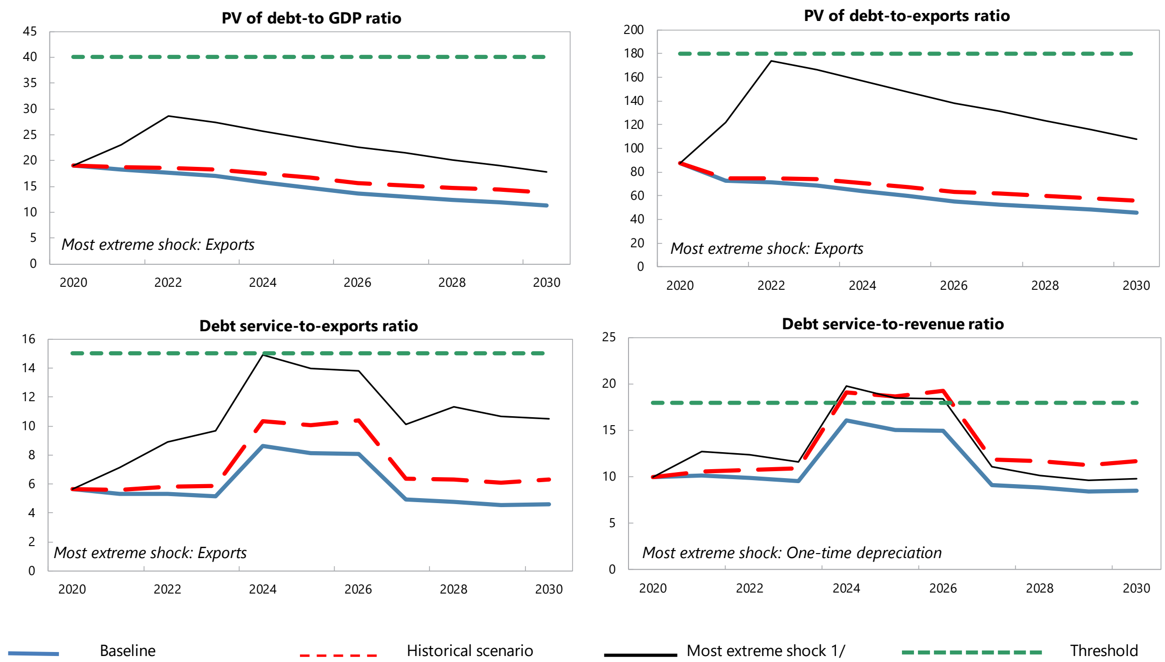
26. The updated DSA confirms that Benin stands at moderate risk of external and overall public debt distress. The ratings are unchanged relative to the November 2019 Staff Report. Medium-term fiscal consolidation and improved debt management are needed to maintain debt sustainability.

27. The macroeconomic and fiscal projections are subject to a high degree of uncertainty. The DSA results could change given the rapidly evolving development related to the COVID-19 virus. If the pandemic persists and spreads further, the 2020 macroeconomic and budgetary performance may worsen further.

28. The authorities concur broadly with staff's assessment. The authorities remain committed to strengthening debt sustainability by adhering to medium-term fiscal consolidation, conducting sound public investment management, and enhancing debt management capacity.

Figure 1. Benin: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2020-2030

Figure 1. Benin: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2020-2030



Customization of Default Settings		
	Size	Interactions
Tailored Stress		
Combined CL	Yes	
Natural disaster	n.a.	n.a.
Commodity price	No	No
Market financing	n.a.	n.a.

Note: "Yes" indicates any change to the size or interactions of the default settings for the stress tests. "n.a." indicates that the stress test does not apply.

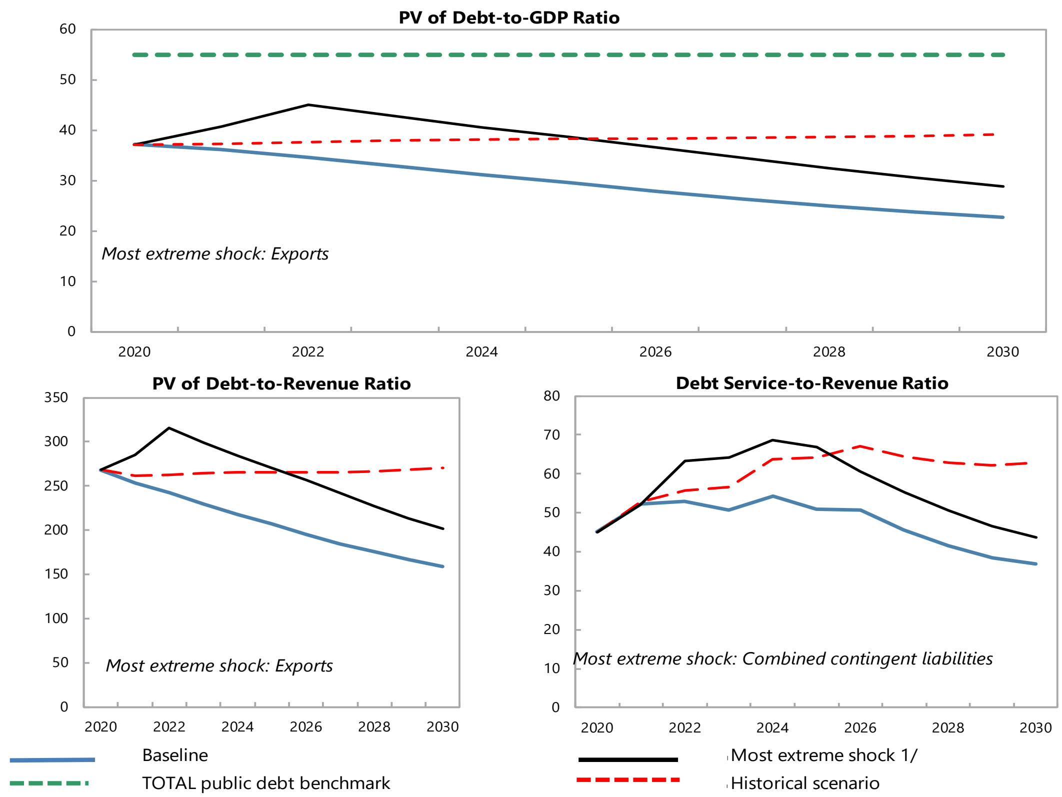
Borrowing assumptions on additional financing needs resulting from the stress tests*		
	Default	User defined
Shares of marginal debt		
External PPG MLT debt	100%	
Terms of marginal debt		
Avg. nominal interest rate on new borrowing in USD	2.2%	2.2%
USD Discount rate	5.0%	5.0%
Avg. maturity (incl. grace period)	25	25
Avg. grace period	5	5

* Note: All the additional financing needs generated by the shocks under the stress tests are assumed to be covered by PPG external MLT debt in the external DSA. Default terms of marginal debt are based on baseline 10-year projections.

Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test that yields the highest ratio in or before 2030. Stress tests with one-off breaches are also presented (if any), while these one-off breaches are deemed away for mechanical signals. When a stress test with a one-off breach happens to be the most extreme shock even after disregarding the one-off breach, only that stress test (with one-off breach) would be presented.
2/ The magnitude of shocks used for the commodity price shock stress test are based on the commodity prices outlook prepared by the IMF Research Department.

Figure 2. Benin: Indicators of Public Debt Under Alternative Scenarios, 2020-30



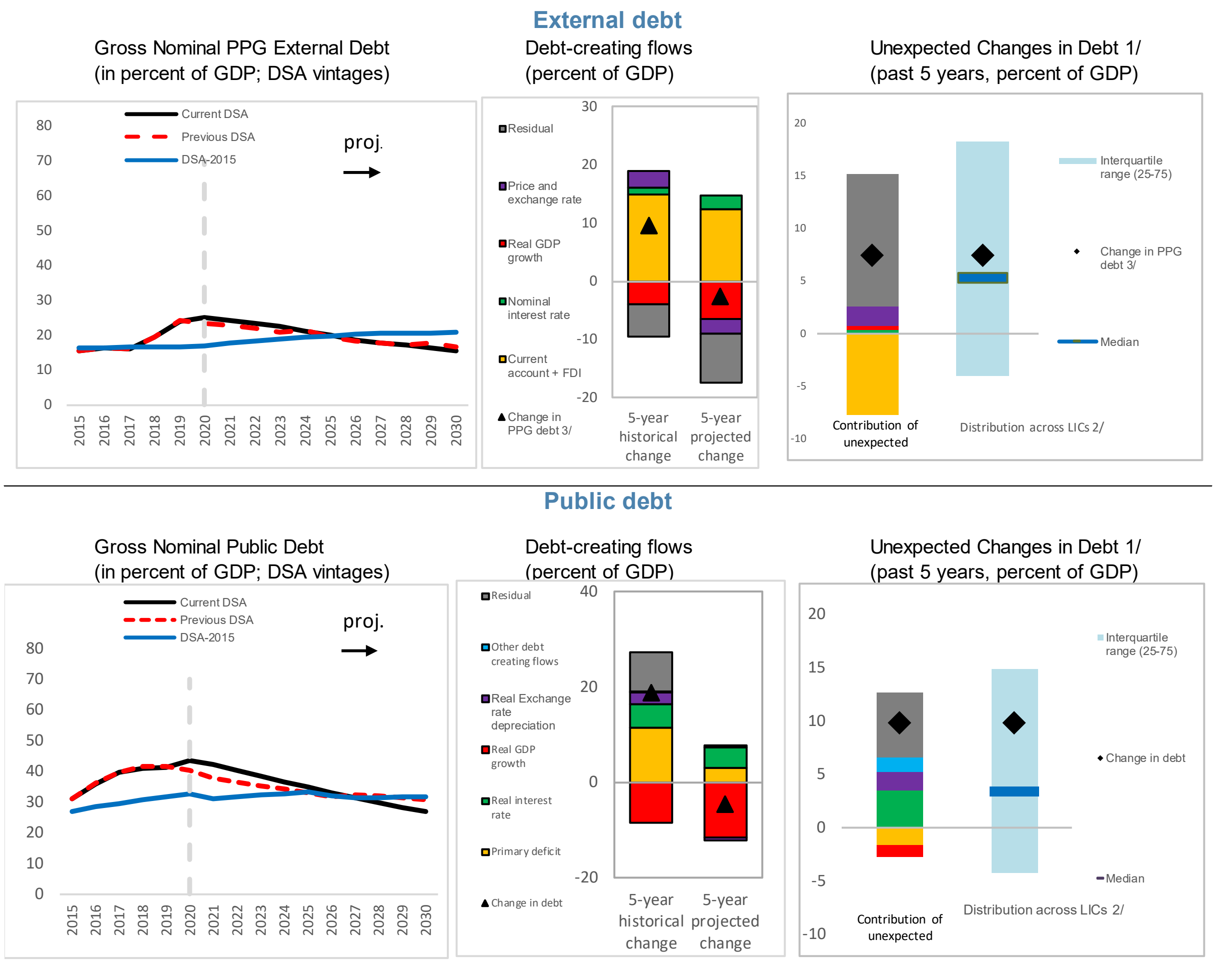
Borrowing assumptions on additional financing needs resulting from the stress tests*	Default	User defined
Shares of marginal debt		
External PPG medium and long-term	28%	28%
Domestic medium and long-term	58%	58%
Domestic short-term	14%	14%
Terms of marginal debt		
External MLT debt		
Avg. nominal interest rate on new borrowing in USD	2.2%	2.2%
Avg. maturity (incl. grace period)	25	25
Avg. grace period	5	5
Domestic MLT debt		
Avg. real interest rate on new borrowing	4.8%	4.8%
Avg. maturity (incl. grace period)	4	4
Avg. grace period	1	1
Domestic short-term debt		
Avg. real interest rate	4.5%	4.5%

* Note: The public DSA allows for domestic financing to cover the additional financing needs generated by the shocks under the stress tests in the public DSA. Default terms of marginal debt are based on baseline 10-year projections.

Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in or before 2030. The stress test with a one-off breach is also presented (if any), while the one-off breach is deemed away for mechanical signals. When a stress test with a one-off breach happens to be the most exterme shock even after disregarding the one-off breach, only that stress test (with a one-off breach) would be presented.

Figure 3. Benin: Driver of Debt Dynamics – Baseline Scenario



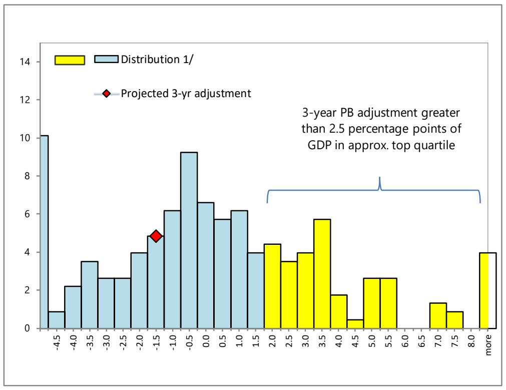
1/ Difference between anticipated and actual contributions on debt ratios.

2/ Distribution across LICs for which LIC DSAs were produced.

3/ Given the relatively low private external debt for average low-income countries, a ppt change in PPG external debt should be largely explained by the drivers of the external debt dynamics equation.

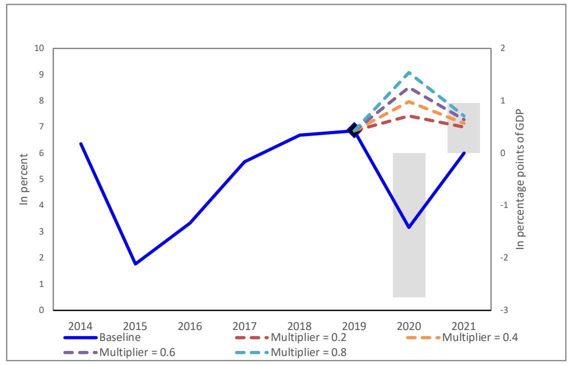
Figure 4. Benin: Realism Tools

3-Year Adjustment in Primary Balance
(Percentage points of GDP)



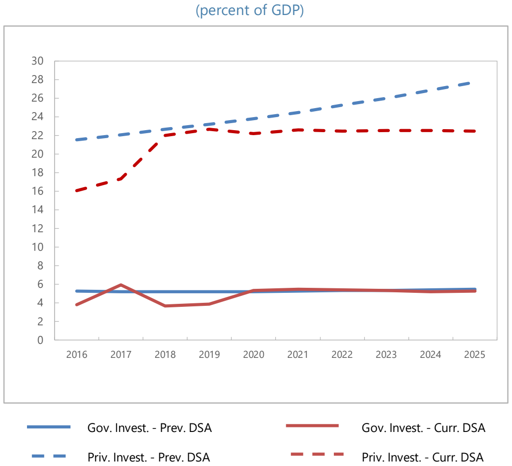
1/ Data cover Fund-supported programs for LICs (excluding emergency financing) approved since 1990. The size of 3-year adjustment from program inception is found on the horizontal axis; the percent of sample is found on the vertical axis.

Fiscal Adjustment and Possible Growth Paths 1/



1/ Bars refer to annual projected fiscal adjustment (right-hand side scale) and lines show possible real GDP growth paths under different fiscal multipliers (left-hand side scale).

Public and Private Investment Rates
(percent of GDP)



Contribution to Real GDP growth
(percent, 5-year average)

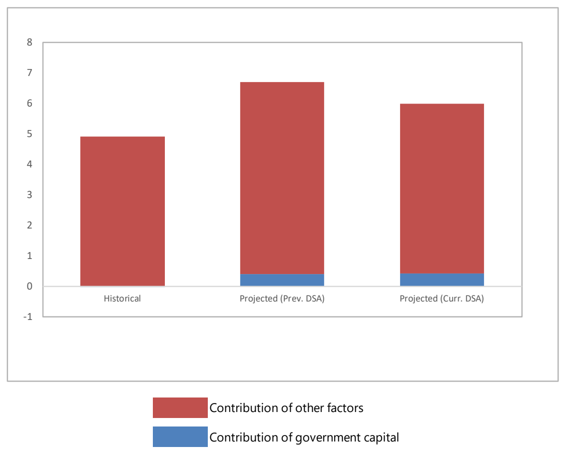
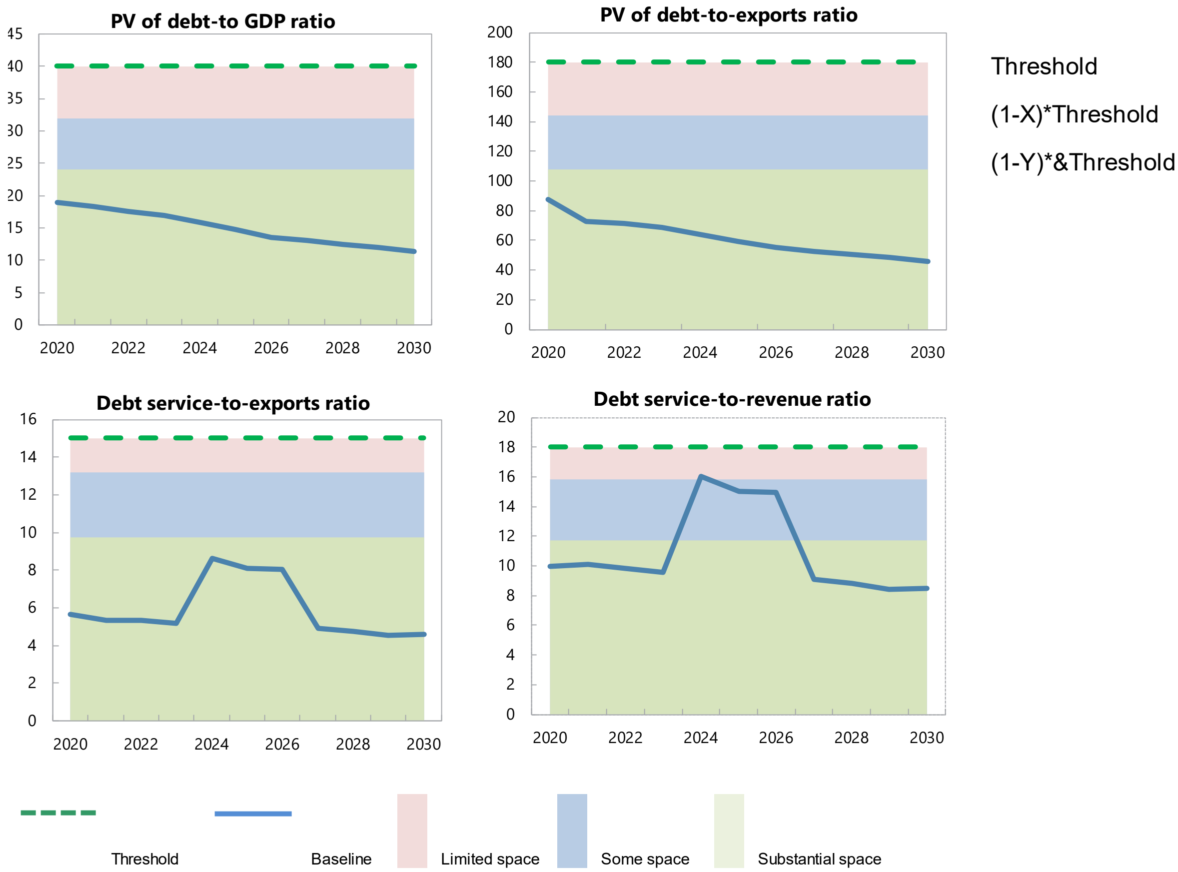


Figure 5. Benin: Qualification of the Moderate Category, 2020–30 [1/]



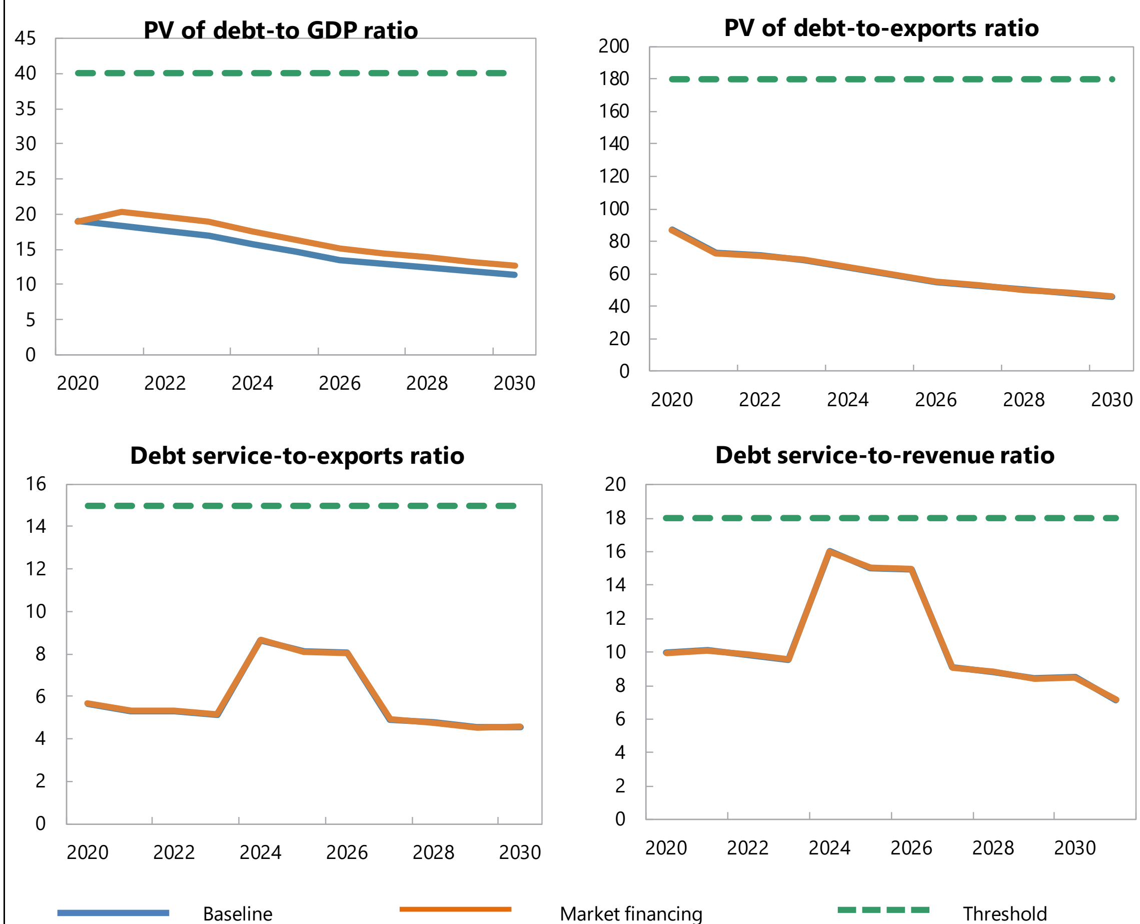
Sources: Country authorities; and staff estimates and projections.

1/ For the PV debt/GDP and PV debt/exports thresholds, x is 20 percent and y is 40 percent. For debt service/Exports and debt service/revenue thresholds, x is 12 percent and y is 35 percent.

Figure 6. Benin: Market-Financing Risk Indicators

	GFN 1/	EMBI 2/
Benchmarks	14	570
Values	8	800
Breach of benchmark	No	Yes
Potential heightened liquidity needs	Moderate	

1/ Maximum gross financing needs (GFN) over 3-year baseline projection horizon.
2/ EMBI spreads correspond to the latest available data.



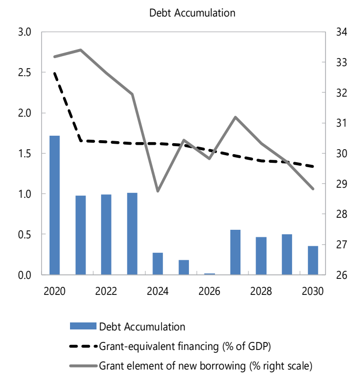
Sources: Country authorities; and staff estimates and projections.

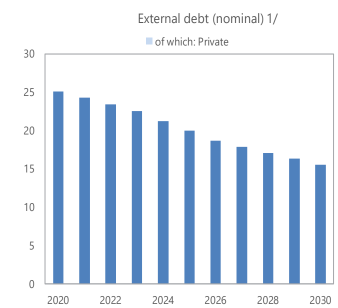
Table 1. Benin: External Debt Sustainability Framework, Baseline Scenario, 2020–40

(In percent of GDP, unless otherwise indicated)

	Actual			Projections								Average 8/	
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2040	Historical	Projections
External debt (nominal) 1/	16.1	19.4	24.0	25.1	24.3	23.4	22.5	21.2	20.0	15.5	9.4	15.4	20.2
of which: public and publicly guaranteed (PPG)	16.1	19.4	24.0	25.1	24.3	23.4	22.5	21.2	20.0	15.5	9.4	15.4	20.2
Change in external debt	-0.3	3.3	4.6	1.1	-0.8	-0.9	-0.8	-1.3	-1.3	-0.8	-0.5		
Identified net debt-creating flows	1.7	1.6	2.8	2.9	1.4	1.3	1.3	1.2	1.3	1.6	2.1	1.6	1.5
Non-interest current account deficit	3.9	4.4	3.9	4.1	4.0	4.0	3.8	3.6	3.5	3.6	3.7	3.4	3.7
Deficit in balance of goods and services	-0.8	0.5	0.7	1.7	0.1	0.3	0.2	0.2	0.2	0.2	0.2	0.0	0.3
Exports	27.0	26.9	24.0	21.8	25.2	24.7	24.7	24.7	24.7	24.7	24.7		
Imports	26.2	27.4	24.7	23.5	25.3	25.0	25.0	24.9	24.9	24.9	24.9		
Net current transfers (negative = inflow)	-1.6	-1.6	-1.3	-1.7	-1.3	-1.4	-1.4	-1.5	-1.5	-1.5	-1.5	-2.3	-1.5
of which: official	-0.6	-0.7	-0.4	-0.6	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2		
Other current account flows (negative = net inflow)	6.4	5.6	4.5	4.1	5.3	5.1	5.0	4.8	4.8	4.9	5.0	5.8	4.9
Net FDI (negative = inflow)	-1.3	-1.3	-1.3	-1.0	-1.7	-1.6	-1.4	-1.4	-1.3	-1.3	-1.3	-1.6	-1.3
Endogenous debt dynamics 2/	-0.9	-1.5	0.2	-0.2	-0.9	-1.1	-1.0	-1.0	-0.9	-0.7	-0.3		
Contribution from nominal interest rate	0.2	0.2	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.2		
Contribution from real GDP growth	-0.9	-1.0	-1.3	-0.7	-1.4	-1.5	-1.5	-1.4	-1.3	-1.0	-0.5		
Contribution from price and exchange rate changes	-0.3	-0.8	1.1	...	...	...	...	...	...	...	...		
Residual 3/	-2.0	1.7	1.8	-1.8	-2.2	-2.2	-2.2	-2.5	-2.5	-2.5	-2.6	-0.2	-2.3
of which: exceptional financing	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Sustainability indicators													
PV of PPG external debt-to-GDP ratio	...	...	18.0	19.0	18.3	17.6	17.0	15.8	14.7	11.3	7.1		
PV of PPG external debt-to-exports ratio	...	...	74.8	87.2	72.7	71.2	68.7	64.0	59.5	46.0	28.9		
PPG debt service-to-exports ratio	4.0	2.3	3.7	5.7	5.3	5.3	5.2	8.6	8.1	4.6	2.8		
PPG debt service-to-revenue ratio	8.3	4.7	6.9	10.0	10.1	9.9	9.6	16.0	15.0	8.5	5.1		
Gross external financing need (Billion of U.S. dollars)	0.5	0.5	0.5	0.6	0.6	0.7	0.7	0.9	1.0	1.2	2.3		
Key macroeconomic assumptions													
Real GDP growth (in percent)	5.7	6.7	6.9	3.2	6.0	7.0	7.0	6.7	6.7	6.3	5.6	4.8	6.3
GDP deflator in US dollar terms (change in percent)	1.7	5.2	-5.5	0.5	2.8	2.5	2.5	2.2	2.0	1.8	1.9	-0.5	2.0
Effective interest rate (percent) 4/	1.6	1.5	2.1	2.1	2.1	2.1	2.1	2.1	2.0	1.9	2.0	1.5	2.0
Growth of exports of G&S (US dollar terms, in percent)	5.4	11.9	-9.9	-6.0	26.2	7.6	9.7	8.9	8.8	8.3	7.5	9.5	8.8
Growth of imports of G&S (US dollar terms, in percent)	12.8	17.4	-8.8	-1.5	17.2	8.5	9.5	8.8	8.8	8.3	7.5	8.2	8.5
Grant element of new public sector borrowing (in percent)	...	...	...	33.2	33.4	32.6	31.9	28.8	30.4	28.8	28.1	...	30.9
Government revenues (excluding grants, in percent of GDP)	12.8	13.0	12.9	12.4	13.3	13.3	13.3	13.3	13.3	13.3	13.3	12.4	13.2
Aid flows (in Billion of US dollars) 5/	0.1	0.1	0.2	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.8		
Grant-equivalent financing (in percent of GDP) 6/	...	...	...	2.5	1.7	1.6	1.6	1.6	1.6	1.3	1.2	...	1.6
Grant-equivalent financing (in percent of external financing) 6/	...	...	...	55.1	54.8	54.2	53.8	50.2	52.6	59.5	70.1	...	55.2
Nominal GDP (Billion of US dollars)	13	14	14	15	16	18	20	21	23	35	75		
Nominal dollar GDP growth	7.4	12.3	0.9	3.7	9.0	9.6	9.7	9.0	8.9	8.3	7.5	4.3	8.4
Memorandum items:													
PV of external debt 7/	...	...	18.0	19.0	18.3	17.6	17.0	15.8	14.7	11.3	7.1		
In percent of exports	...	...	74.8	87.2	72.7	71.2	68.7	64.0	59.5	46.0	28.9		
Total external debt service-to-exports ratio	4.0	2.3	3.7	5.7	5.3	5.3	5.2	8.6	8.1	4.6	2.8		
PV of PPG external debt (in Billion of US dollars)			2.6	2.8	3.0	3.1	3.3	3.4	3.4	3.9	5.3		
(PVt-PVt-1)/GDPt-1 (in percent)				1.7	1.0	1.0	1.0	0.3	0.2	0.4	0.2		
Non-interest current account deficit that stabilizes debt ratio	4.2	1.1	-0.7	3.0	4.8	4.9	4.6	4.9	4.8	4.4	4.2		

Definition of external/domestic debt	**Currency-based**
Is there a material difference between the two criteria?	**Yes**





Sources: Country authorities; and staff estimates and projections.

1/ Includes both public and private sector 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/ Current-year interest payments divided by previous period debt stock.

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

6/ 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).

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

8/ Historical averages are generally derived over the past 10 years, subject to data availability, whereas projections averages are over the first year of projection and the next 10 years.

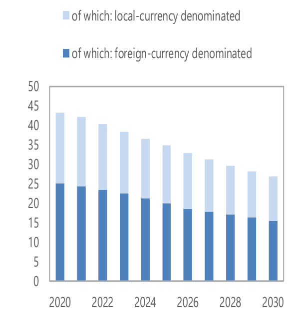
Table 2. Benin: Public Sector Debt Sustainability Framework, Baseline Scenario, 2020-40

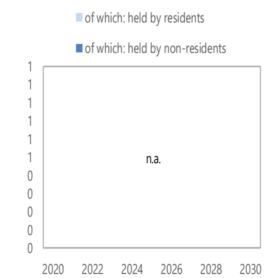
(in percent of GDP, unless otherwise indicated)

	Actual			Projections								Average 6/	
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2040	Historical	Projections
Public sector debt 1/	39.6	41.1	41.2	43.3	42.1	40.4	38.3	36.5	34.8	26.8	17.9	29.2	34.9
of which: external debt	16.1	19.4	24.0	25.1	24.3	23.4	22.5	21.2	20.0	15.5	9.4	15.4	20.2
Change in public sector debt	3.7	1.5	0.1	2.0	-1.2	-1.7	-2.0	-1.8	-1.7	-1.3	-0.6		
Identified debt-creating flows	0.7	0.9	-1.5	1.4	-0.8	-1.5	-1.8	-1.7	-1.5	-2.1	-1.1	1.0	-1.6
Primary deficit	2.8	1.3	-1.1	1.7	0.7	0.4	0.1	0.0	0.1	-0.1	-0.1	1.5	0.3
Revenue and grants	13.6	13.6	14.1	13.9	14.3	14.3	14.3	14.3	14.3	14.3	14.3	13.3	14.2
of which: grants	0.8	0.6	1.2	1.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0		
Primary (noninterest) expenditure	16.3	14.9	13.0	15.6	15.0	14.7	14.4	14.3	14.4	14.2	14.2	14.7	14.5
Automatic debt dynamics	-2.1	-0.5	-0.4	-0.2	-1.6	-1.9	-1.9	-1.7	-1.6	-2.1	-1.1		
Contribution from interest rate/growth differential	-0.6	-1.3	-1.2	-0.2	-1.6	-1.9	-1.9	-1.7	-1.6	-2.1	-1.1		
of which: contribution from average real interest rate	1.3	1.2	1.5	1.0	0.9	0.8	0.7	0.7	0.7	-0.4	-0.1		
of which: contribution from real GDP growth	-1.9	-2.5	-2.6	-1.3	-2.5	-2.7	-2.6	-2.4	-2.3	-1.7	-1.0		
Contribution from real exchange rate depreciation	-1.4	0.8	0.8	...	...	...	...	...	...	...	...		
Other identified debt-creating flows	0.0	0.1	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Privatization receipts (negative)	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Recognition of contingent liabilities (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		
Debt relief (HIPC and other)	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Other debt creating or reducing flow (please specify)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Residual	3.0	0.6	1.6	0.6	-0.3	-0.2	-0.2	-0.2	-0.2	0.8	0.5	1.2	0.3
Sustainability indicators													
PV of public debt-to-GDP ratio 2/	...	...	35.4	37.1	36.1	34.6	32.8	31.1	29.5	22.6	15.6		
PV of public debt-to-revenue and grants ratio	...	...	251.5	267.6	252.8	242.2	229.5	217.6	206.9	158.4	109.2		
Debt service-to-revenue and grants ratio 3/	40.2	64.7	43.5	45.1	52.1	52.7	50.5	54.1	50.8	36.7	24.3		
Gross financing need 4/	8.2	10.2	5.1	7.9	8.2	8.0	7.3	7.8	7.4	5.2	3.4		
Key macroeconomic and fiscal assumptions													
Real GDP growth (in percent)	5.7	6.7	6.9	3.2	6.0	7.0	7.0	6.7	6.7	6.3	5.6	4.8	6.3
Average nominal interest rate on external debt (in percent)	1.7	1.4	2.2	2.1	2.1	2.1	2.1	2.1	2.0	1.9	2.0	1.6	2.0
Average real interest rate on domestic debt (in percent)	6.8	5.6	6.5	5.0	4.3	4.2	4.0	4.3	4.5	4.6	4.7	2.4	4.5
Real exchange rate depreciation (in percent, + indicates depreciation)	-9.3	5.1	4.3	...	...	...	...	...	...	...	...	2.9	...
Inflation rate (GDP deflator, in percent)	-0.4	0.6	-0.3	1.0	1.8	2.0	2.2	2.0	1.8	1.8	1.9	1.5	1.8
Growth of real primary spending (deflated by GDP deflator, in percent)	18.9	-2.9	-6.6	23.4	2.4	4.9	4.8	6.0	7.5	6.3	5.6	2.8	7.3
Primary deficit that stabilizes the debt-to-GDP ratio 5/	-0.9	-0.2	-1.2	-0.3	1.9	2.2	2.2	1.9	1.8	1.3	0.6	-0.8	1.6
PV of contingent liabilities (not included in public sector debt)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		

Definition of external/domestic debt	Currency-based
Is there a material difference between the two criteria?	Yes

Public sector debt 1/





Sources: Country authorities; and staff estimates and projections.

1/ Coverage of debt: The central government, central bank, government-guaranteed debt . Definition of external debt is Currency-based.

2/ The underlying PV of external debt-to-GDP ratio under the public DSA differs from the external DSA with the size of differences depending on exchange rates projections.

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

4/ 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 and other debt creating/reducing flows.

5/ Defined as a primary deficit minus a change in the public debt-to-GDP ratio ((-): a primary surplus), which would stabilizes the debt ratio only in the year in question.

6/ Historical averages are generally derived over the past 10 years, subject to data availability, whereas projections averages are over the first year of projection and the next 10 years.

Table 3. Benin: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed

	Projections 1/										
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
PV of debt-to GDP ratio											
Baseline	19	18	18	17	16	15	14	13	12	12	11
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2020-2030 2/	19	19	19	18	18	17	16	15	15	14	14
B. Bound Tests											
B1. Real GDP growth	19	19	20	19	18	17	15	15	14	13	13
B2. Primary balance	19	19	19	19	18	17	16	15	15	14	14
B3. Exports	19	23	29	27	26	24	23	22	20	19	18
B4. Other flows 3/	19	20	20	19	18	17	15	15	14	13	13
B5. Depreciation	19	23	20	19	18	17	15	15	14	14	13
B6. Combination of B1-B5	19	24	24	23	22	20	19	18	17	16	15
C. Tailored Tests											
C1. Combined contingent liabilities	19	20	19	19	18	17	16	16	15	15	14
C2. Natural disaster	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
C3. Commodity price	19	21	23	22	21	20	18	18	17	16	15
C4. Market Financing	19	20	20	19	18	16	15	14	14	13	13
Threshold	40	40	40	40	40	40	40	40	40	40	40
PV of debt-to-exports ratio											
Baseline	87	73	71	69	64	60	55	53	50	48	46
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2020-2030 2/	87	74	75	74	71	68	63	62	60	58	56
B. Bound Tests											
B1. Real GDP growth	87	73	71	69	64	60	55	53	50	48	46
B2. Primary balance	87	75	78	76	72	68	64	62	59	57	55
B3. Exports	87	122	174	167	157	147	138	131	123	116	108
B4. Other flows 3/	87	77	80	77	72	68	63	60	57	54	51
B5. Depreciation	87	73	64	62	58	54	49	47	45	44	42
B6. Combination of B1-B5	87	111	86	109	102	95	88	84	79	75	71
C. Tailored Tests											
C1. Combined contingent liabilities	87	79	78	77	73	70	66	64	62	61	58
C2. Natural disaster	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
C3. Commodity price	87	99	106	100	92	84	76	73	69	65	61
C4. Market Financing	87	73	71	69	64	60	55	53	50	48	46
Threshold	180	180	180	180	180	180	180	180	180	180	180
Debt service-to-exports ratio											
Baseline	6	5	5	5	9	8	8	5	5	5	5
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2020-2030 2/	6	6	6	6	10	10	10	6	6	6	6
B. Bound Tests											
B1. Real GDP growth	6	5	5	5	9	8	8	5	5	5	5
B2. Primary balance	6	5	5	6	9	8	8	5	5	5	5
B3. Exports	6	7	9	10	15	14	14	10	11	11	10
B4. Other flows 3/	6	5	5	5	9	8	8	5	5	5	5
B5. Depreciation	6	5	5	5	8	8	8	5	4	4	4
B6. Combination of B1-B5	6	7	8	7	12	11	11	8	7	7	7
C. Tailored Tests											
C1. Combined contingent liabilities	6	5	5	5	9	8	8	5	5	5	5
C2. Natural disaster	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
C3. Commodity price	6	6	7	7	10	9	9	6	6	6	6
C4. Market Financing	6	5	5	5	9	8	8	5	5	5	5
Threshold	15	15	15	15	15	15	15	15	15	15	15
Debt service-to-revenue ratio											
Baseline	10	10	10	10	16	15	15	9	9	8	8
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2020-2030 2/	10	11	11	11	**19**	**19**	**19**	12	12	11	12
B. Bound Tests											
B1. Real GDP growth	10	11	11	11	**18**	17	17	10	10	9	10
B2. Primary balance	10	10	10	10	17	16	16	10	10	9	10
B3. Exports	10	10	11	12	**18**	17	17	12	14	13	13
B4. Other flows 3/	10	10	10	10	16	15	15	10	10	9	9
B5. Depreciation	10	13	12	12	**20**	**18**	**18**	11	10	10	10
B6. Combination of B1-B5	10	11	12	12	**19**	18	18	13	12	11	11
C. Tailored Tests											
C1. Combined contingent liabilities	10	10	10	10	16	15	15	10	9	9	9
C2. Natural disaster	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
C3. Commodity price	10	11	12	12	**19**	17	17	11	12	11	11
C4. Market Financing	10	10	10	10	16	15	15	9	9	8	8
Threshold	18	18	18	18	18	18	18	18	18	18	18

Table 4. Benin: Sensitivity Analysis for Key Indicators of Public Debt, 2020–30

(Percent)

	Projections 1/										
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
PV of Debt-to-GDP Ratio											
Baseline	37	36	35	33	31	30	28	26	25	24	23
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2020-2030 2/	37	37	38	38	38	38	38	38	39	39	39
B. Bound Tests											
B1. Real GDP growth	37	39	41	40	40	40	39	38	38	38	38
B2. Primary balance	37	38	40	38	36	34	32	31	29	28	26
B3. Exports	37	41	45	43	41	39	37	34	32	30	29
B4. Other flows 3/	37	37	37	35	33	32	30	28	27	25	24
B5. Depreciation	37	40	37	34	31	28	26	23	21	20	18
B6. Combination of B1-B5	37	36	38	36	35	33	32	30	29	28	27
C. Tailored Tests											
C1. Combined contingent liabilities	37	44	42	40	38	36	34	32	30	29	28
C2. Natural disaster	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
C3. Commodity price	37	38	39	40	40	41	41	40	40	39	39
C4. Market Financing	37	36	35	33	31	30	28	26	25	24	23
TOTAL public debt benchmark	55	55	55	55	55	55	55	55	55	55	55
PV of Debt-to-Revenue Ratio											
Baseline	268	253	242	229	218	207	195	184	175	166	158
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2020-2030 2/	268	261	262	264	265	265	265	265	266	268	270
B. Bound Tests											
B1. Real GDP growth	268	270	285	281	277	275	270	266	264	262	261
B2. Primary balance	268	269	281	266	253	240	227	215	204	194	185
B3. Exports	268	285	315	299	284	270	256	241	227	213	201
B4. Other flows 3/	268	261	258	245	232	221	208	197	186	176	168
B5. Depreciation	268	279	258	238	218	200	181	165	151	138	126
B6. Combination of B1-B5	268	256	266	254	243	233	222	212	203	194	187
C. Tailored Tests											
C1. Combined contingent liabilities	268	306	293	278	263	250	237	224	213	203	194
C2. Natural disaster	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
C3. Commodity price	268	287	294	301	300	296	289	280	277	275	274
C4. Market Financing	268	253	242	229	218	207	195	184	175	166	158
Debt Service-to-Revenue Ratio											
Baseline	45	52	53	50	54	51	51	45	41	38	37
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2020-2030 2/	45	53	56	56	64	64	67	64	63	62	63
B. Bound Tests											
B1. Real GDP growth	45	55	60	60	66	66	68	65	62	61	61
B2. Primary balance	45	52	56	59	64	61	60	53	49	45	43
B3. Exports	45	52	54	53	56	53	52	48	46	43	41
B4. Other flows 3/	45	52	53	51	55	51	51	46	42	39	38
B5. Depreciation	45	50	52	49	55	52	51	45	41	37	36
B6. Combination of B1-B5	45	51	55	55	60	57	58	52	48	45	43
C. Tailored Tests											
C1. Combined contingent liabilities	45	52	63	64	69	67	61	55	50	47	44
C2. Natural disaster	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
C3. Commodity price	45	57	59	57	64	64	67	65	64	62	63
C4. Market Financing	45	52	53	50	54	51	51	45	41	38	37

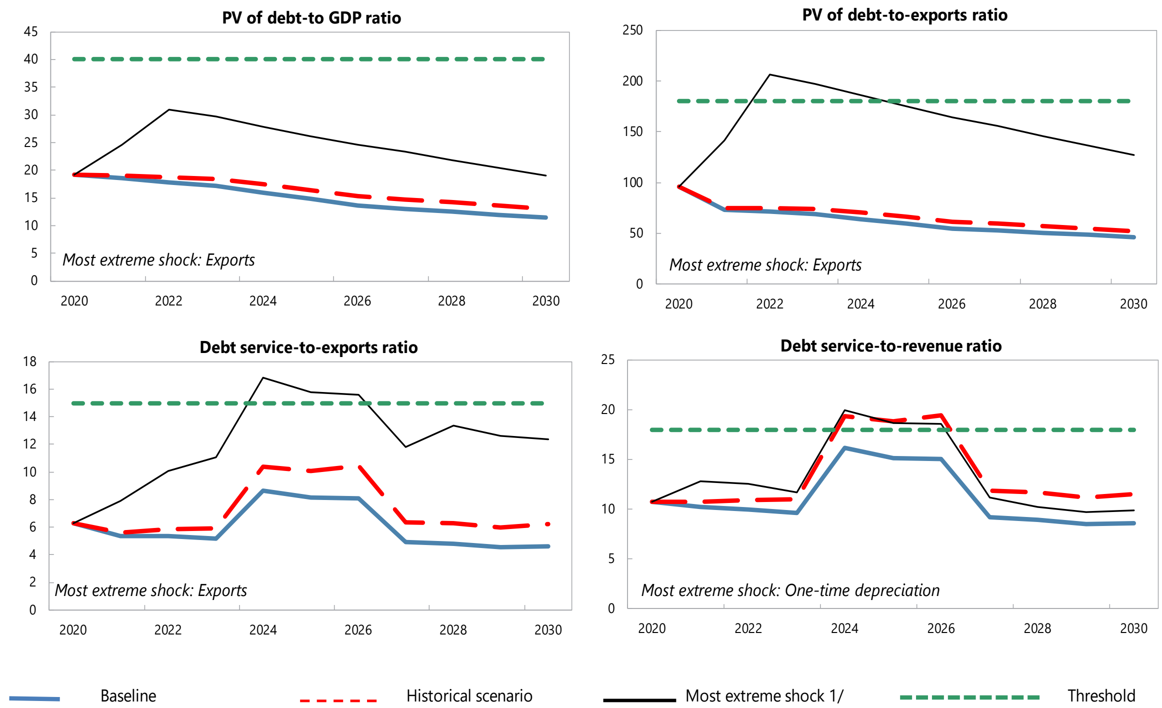
Sources: Country authorities; and staff estimates and projections.

1/ A bold value indicates a breach of the benchmark.

2/ Variables include real GDP growth, GDP deflator and primary deficit in percent of GDP.

3/ Includes official and private transfers and FDI.

Figure 7. Benin: Indicators of Public and Publicly Guaranteed External Debt under the Adverse Macroeconomic Scenario, 2020-2030



Customization of Default Settings	Size	Interactions
Tailored Stress		
Combined CL	Yes	
Natural disaster	n.a.	n.a.
Commodity price	No	No
Market financing	n.a.	n.a.

Note: "Yes" indicates any change to the size or interactions of the default settings for the stress tests. "n.a." indicates that the stress test does not apply.

Borrowing assumptions on additional financing needs resulting from the stress tests*	Default	User defined
Shares of marginal debt		
External PPG MLT debt	100%	
Terms of marginal debt		
Avg. nominal interest rate on new borrowing in USD	2.2%	2.2%
USD Discount rate	5.0%	5.0%
Avg. maturity (incl. grace period)	25	25
Avg. grace period	5	5

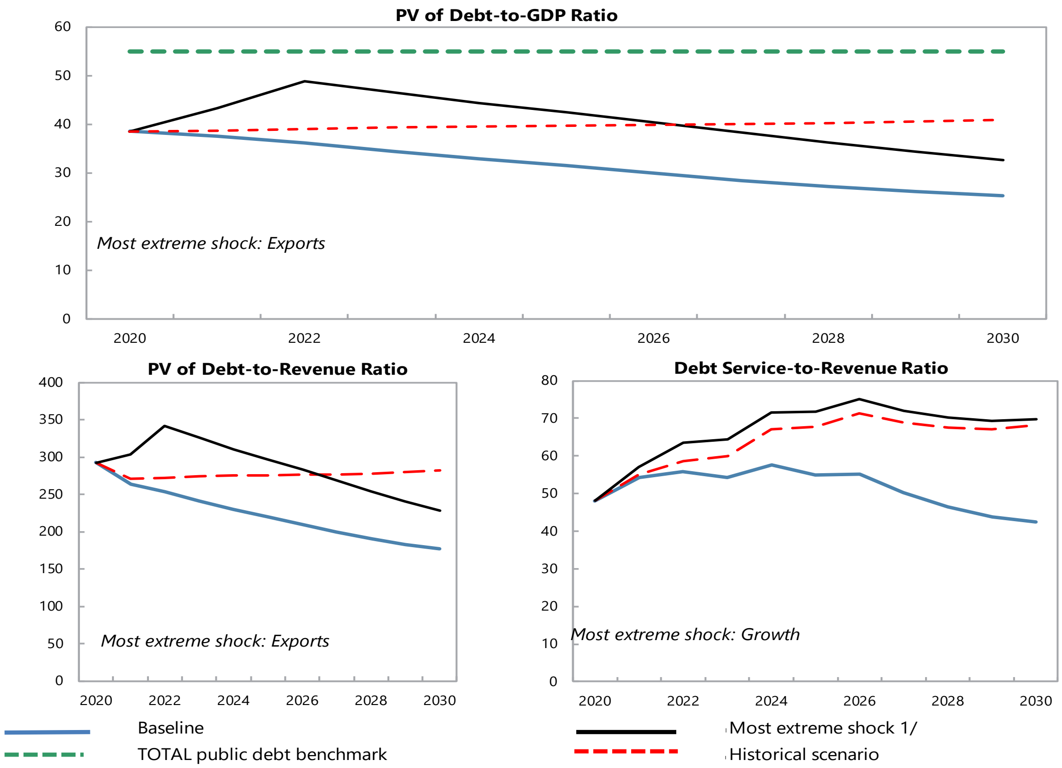
* Note: All the additional financing needs generated by the shocks under the stress tests are assumed to be covered by PPG external MLT debt in the external DSA. Default terms of marginal debt are based on baseline 10-year projections.

Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in or before 2030. The stress test with a one-off breach is also presented (if any), while the one-off breach is deemed away for mechanical signals. When a stress test with a one-off breach happens to be the most exterme shock even after disregarding the one-off breach, only that stress test (with a one-off breach) would be presented.

2/ The magnitude of shocks used for the commodity price shock stress test are based on the commodity prices outlook prepared by the IMF research department.

Figure 8. Benin: Indicators of Public Debt Under the Adverse Macroeconomic Scenarios, 2020-30



Borrowing assumptions on additional financing needs resulting from the stress tests*	Default	User defined
Shares of marginal debt		
External PPG medium and long-term	25%	25%
Domestic medium and long-term	60%	60%
Domestic short-term	15%	15%
Terms of marginal debt		
External MLT debt		
Avg. nominal interest rate on new borrowing in USD	2.2%	2.2%
Avg. maturity (incl. grace period)	25	25
Avg. grace period	5	5
Domestic MLT debt		
Avg. real interest rate on new borrowing	4.8%	4.8%
Avg. maturity (incl. grace period)	4	4
Avg. grace period	1	1
Domestic short-term debt		
Avg. real interest rate	4.5%	4.5%

* Note: The public DSA allows for domestic financing to cover the additional financing needs generated by the shocks under the stress tests in the public DSA. Default terms of marginal debt are based on baseline 10-year projections.

Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in or before 2030. The stress test with a one-off breach is also presented (if any), while the one-off breach is deemed away for mechanical signals. When a stress test with a one-off breach happens to be the most exterme shock even after disregarding the one-off breach, only that stress test (with a one-off breach) would be presented.