INTERNATIONAL DEVELOPMENT ASSOCIATION

INTERNATIONAL MONETARY FUND

LIBERIA

Joint World Bank-IMF Debt Sustainability Analysis

December 2020

Prepared Jointly by the staffs of the International Development Association.[1] (IDA)

and the International Monetary Fund (IMF)

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Liberia: Joint Bank-Fund Debt Sustainability Analysis[2]	
Risk of external debt distress	Moderate
Overall risk of debt distress	High
Granularity in the risk rating	Limited space to absorb shocks
Application of judgment	No

The Debt Sustainability Analysis (DSA) continues to assess Liberia at moderate risk of external debt distress and high risk of overall public debt distress, with very limited space to accommodate shocks and an extended breach of the Present Value (PV) of public debt-to-GDP ratio. However, public debt is assessed to be sustainable as (i) both the PV of public debt-to-GDP and PV of debt-to-revenue ratios are projected to be on a downward trend and (ii) the high PV of public debt ratios largely reflect debt to the central bank, for which the interest rate is relatively low but is not discounted in the PV calculations. The rollover risk of domestic debt is low as most of the domestic debt is the government's consolidated debt to the CBL. To keep debt distress vulnerabilities contained, it will be important to maintain fiscal discipline and rely on concessional financing.

[1]Debt coverage has remained the same as in the previous DSA.
[2]Liberia's debt-carrying capacity based on the Composite Indicator (CI), which is based on the October 2020 WEO and the 2019 CPIA, is assessed as weak. The CI score is 2.502.

PUBLIC DEBT COVERAGE

1. **The DSA covers central government debt, central government guaranteed debt, and central bank debt contracted on behalf of the government** (Text Table 1).[3] The bulk of State-Owned Enterprise (SOE) debt is guaranteed by the central government and is included in DSA, as Liberian SOEs are unable to secure external funding without such a guarantee. Government borrowing from the Central Bank of Liberia (CBL), a US$487 million restructured and consolidated debt at the inception of the ECF arrangement, is included in this current DSA analysis. Nearly, half of this amount is in legacy debt from the war time denominated in U.S. dollars, and the other half is in the form of bridge loans, suspense account, and on-lending of IMF budget support. This debt has the interest rate at 4 percent with repayments starting in 2029. In addition, the DSA includes $65 million sovereign bonds issued to banks in May 2019; about $10 million of direct liabilities with commercial banks, $45 million of contractors' liabilities representing contractors' defaulted payments with commercial banks for government contracts in the past, and $10 million for the rubber plant association representing debt assumption by the government with expectation of repayment of the assumed liability. The largest debt to SOEs is a World Bank loan to the Liberia Electricity Corporation (LEC) for the rehabilitation of Mt. Coffee hydropower station.[4] Local governments' operations are small and unable to secure external funding without a central government guarantee. Other elements of the public sector debt are not included in the analysis because of data constraints.[5]

Text Table 1. Liberia: Coverage of Public Sector Debt

	Subsectors of the public sector	Check box
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	

Public debt coverage and the magnitude of the contingent liability tailored stress test

		Default	Used for the analysis	Reasons for deviations from the default settings
1	The country's coverage of public debt	The central government, central bank, government-guaranteed debt		
2	Other elements of the general government not captured in 1.	0.5 percent of GDP	0.5	
3	SoE's debt (guaranteed and not guaranteed by the government) 1/	2 percent of GDP	2	
4	PPP	35 percent of PPP stock	12.70	
5	Financial market (the default value of 5 percent of GDP is the minimum value)	5 percent of GDP	5	
	Total (2+3+4+5) (in percent of GDP)		20.2	

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%.

[3]The definition of external and domestic debt uses a residency criterion.

[4]This loan is direct lending to the government, but the implementation agency is the LEC.

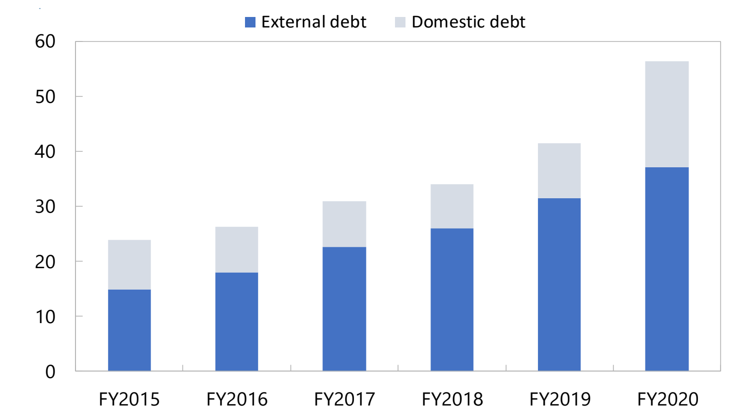
[5]The contingent liabilities shock from the SOE debt is kept at the default value of 2 percent to reflect risks associated with non-guaranteed SOE debt, currently excluded from the analysis due to data availability constraints. Currently, the SOE Reporting and Coordination Unit (SOERCU) of the MFDP monitors and reports on the performance of 15 out of 39 registered SOEs in Liberia, but the reports do not provide any specific information about non-guaranteed SOE debt. The amended PFM Act strengthens requirements for reporting and monitoring of SOE debt, including non-guaranteed debt. Going forward, the external debt coverage will be expanded as the government plans to include SOE's non-guaranteed debt into public sector debt.

BACKGROUND

2. **This DSA is being conducted in the context of the combined first and second reviews of a four-year arrangement under the Extended Credit Facility (ECF)**. The last Low-Income Country DSA (LIC-DSF) was considered by the Executive Board in June 2020 as part of the request for disbursement under the Rapid Credit Facility (RCF).[6] Liberia continues to be subject to the IDA Non-Concessional Borrowing Policy (NCBP) regardless of the risk of debt distress.[7]

3. **Under the ECF-supported program, the authorities are committed to keep debt sustainable**. The main objectives of the ECF-supported program are to restore macroeconomic stability, provide a foundation for sustainable growth, and to address weaknesses in governance. To ensure debt sustainability under the ECF arrangement, the authorities expressed commitment to closely monitor the debt path; refrain from additional central bank financing and buildup of arrears; remain below the ceiling on non-concessional borrowing; refrain from nontransparent collateralized agreements; ensure that new debt is contracted transparently; and give due consideration to the country's absorption capacity, which remains low.

Text Figure 1. Liberia: Stock of Public and Publicly Guaranteed Debt, FY2015–20[1/]
(Percent of GDP)



Sources: Liberian authorities and IMF staff calculations.
[1/] The debt to GDP ratio are calculated using external debt (in USD) evaluated at the end of period exchange rate over GDP (in USD) evaluated at the period average exchange rate, to ensure consistency with the DSA template.

4. **The COVID-19 pandemic has resulted in an adverse impact on growth and revenue, additional spending needs, and larger BOP needs than at the time of program approval**. The spread of the pandemic in Liberia has resulted in loss of output (and hence revenue) due to demand and supply shocks, specifically, a near-cessation of hotel and transportation services, resulting in a sharp decline in service exports. While the full extent of the impact of the COVID-19 pandemic is not known, the economic activity has slowed down; high frequency indicators (revenue, imports, credit growth) show that economic activity is down from the previous year by 3 percent. In particular, imports in the first half of 2020 are down by about 7 percent.

[6]This DSA is prepared jointly by the staff of the IMF and World Bank, in collaboration with the authorities of Liberia. The current DSA follows the revised Debt Sustainability Framework (DSF) for LICs and Guidance Note (2017) in effect as of July 1, 2018. The last joint DSA can be found in IMF Country Report No. 20/202, June 2020.
[7]The NCBP requires a minimum grant element of 35 percent or higher, should a higher minimum be required under a Fund-supported program.

5. As a result, it has triggered recourse to emergency assistance, reducing Liberia's external borrowing space compared to the DSA at the time of program approval (the December 2019 DSA hereafter). The total public and publicly guaranteed (PPG) external debt stock reached $1,161 million (37.2 percent of GDP) at end-FY2020 (June 2020), comprising mostly of multilateral loans (Text Table 2). The downward revision to growth outlook and the disbursement under the RCF, equivalent to 1.6 percent of GDP, have reduced Liberia's external borrowing space and increased external debt service pressure in the medium term though some of this pressure was alleviated as the debt relief became available from the Catastrophe Containment and Relief Trust (CCRT).[8,9]

Table 2. Liberia: Structure of External Public Debt as of end-FY2020[1/]

	USD millions	Percent of Total	Percent of GDP[2/]
Multilateral	**1049**	**90.3**	**33.6**
IMF	251	21.6	8.0
World Bank	512	44.1	16.4
AfDB	161	13.9	5.2
EIB	54	4.7	1.7
Other Multilateral	70	6.1	2.3
Bilateral	**113**	**9.7**	**3.6**
China	54	4.7	1.7
Kuwait	20	1.7	0.6
Saudi Arabia	37	3.2	1.2
Other Bilateral	1	0.1	0.0
Total	**1161**	**100.0**	**37.2**

Sources: Liberian authorities and IMF staff calculations.
[1] Debt stock on disbursement basis.
[2] The debt to GDP ratio are calculated using external debt (in USD) evaluated at the end of period exchange rate over GDP (in USD) evaluated at the period average exchange rate, to ensure consistency with the DSA template.

6. Public debt has increased by a large margin in FY2020, not only by the rise in external debt, but also by the recognition of government debt to the CBL at the program inception; public debt has increased from 41.4 percent of GDP in FY2019 to 56.6 percent of GDP in FY2020. The restructured and consolidated government debt to the central bank in U.S. dollar has the interest rate at 4 percent with repayments starting in 2029. Public debt of Liberia (both external and domestic) is only medium- and long-term borrowing and it is projected to reach 64.9 percent of GDP in FY2022 before declining to 47.8 percent of GDP in FY2031.

UNDERLYING ASSUMPTIONS

7. The key macroeconomic assumptions have been revised since the December 2019 DSA, but are broadly in line with the DSA accompanying the RCF request (the June 2020 DSA hereafter).[10] It is assumed that the authorities' fiscal and monetary policy adjustments will remain on track under the ECF-supported program, while accommodating near-term measures to mitigate the negative impact of COVID-19 predominantly felt in 2020. The fiscal policy adjustment path towards the end of the program period is anchored by the debt-stabilizing primary deficit of 2.5 percent. The monetary policy adjustment is frontloaded to bring the inflation rate down to a single digit by end-2020. Changes to the underlying assumptions are as follows (Text Table 3):

[8] The DSA and macro-framework assume CCRT debt service relief through April 2022. The last 18 months of debt service relief is subject to the availability of CCRT resources.
[9] Authorities have decided not to participate in DSSI due to insignificant amounts involved.
[10] See IMF Country Report No. 20/202, June 2020.

Text Table 3. Liberia: Underlying DSA Assumptions

	FY2020	FY2020-24	FY2025-40
Nominal GDP	(In million US dollar)	Average growth (In percent)	Average growth (In percent)
2019 ECF Request	3127	3.2	5.2
Current	3121	2.1	5.6
Exports of Goods and Service			
2019 ECF Request	857	5.9	6.6
Current	611	3.0	8.1

Sources: Liberian authorities; and IMF staff projections.

- The ***real GDP growth path*** has been revised down but remains in line with the forecasts of the RCF. Growth for 2019 was revised down from -1.4 percent in the 2019 December DSA to -2.5 percent, reflecting the larger-than-anticipated fiscal contraction and weak demand. Growth for 2020 was revised down from 1.4 percent in the 2019 December DSA to -3.0 percent, reflecting several months of general lockdown affecting the business travel, service exports. Growth is subsequently expected to recover to 3.2 percent in 2021 and is projected to reach an average of 4.5 percent in the medium term, due to a recovery in consumption, improved business confidence, and higher spending on capital.

- Pressure on ***inflation*** eased. Inflation fell from 30 percent at program inception to 14 percent in September due to tight monetary policy stance, weak economic activity, lower fuel prices, and exchange rate appreciation.

- The ***fiscal deficit*** of the budgetary central government was projected to decline from 6.1 percent of GDP in FY2019 to 4.7 percent of GDP in FY2020 in the December 2019 DSA. In the current DSA, it was revised to go down from 6.2 percent of GDP in FY2019 to 3.6 percent. Overall FY2020 fiscal stance became tighter than the December 2019 DSA, mostly thanks to fiscal discipline in the first three quarters of the year despite a relaxation in the last quarter to response to the pandemic. The fiscal deficit for FY2021 was also revised down from 4.4 percent of GDP in the December 2019 DSA to 3.2 percent of GDP in the current DSA. The fiscal deficit is projected to decline to 1.7 percent of GDP by FY2024, which is consistent with the medium-term fiscal anchor. The fiscal balance projections in the medium term rely on the recent improvements in domestic revenue (excise tax on fuel and improvement in tax collection), better cash management and expenditure control, and the significant progress made on the civil service payroll reform.

- The ***current account deficit*** was projected to increase from 21.4 percent of GDP in 2020 to 21.9 percent of GDP in 2021 in the December 2019 DSA; this is revised to increase from 21.4 percent of GDP in 2020 to 22.2 percent in 2021. The terms of trade shock associated with the COVID-19 is so far positive as fuel prices declined much more than those of Liberia's main export commodities (iron ore, rubber, gold). Staff projects a deterioration in service receipts (especially in hotel and transportation services). Over the medium term, the current account deficit is expected to remain high as stronger economic policies facilitate Foreign Direct Investment (FDI) and associated imports. Further, the net primary income remains large and negative mainly due to investment income repatriation abroad. The external sector assessment shows that Liberia's external sector position is substantially weaker than implied by fundamentals and desirable policies (IMF Country Report 19/169).

- ***Gross official reserves*** were projected to go up from US$308 million (2.3 months of next year's imports) in 2020 to US$333 million (2.4 months of next year's imports) in 2021 in the December 2019 DSA. In this DSA, it is revised up to go up from US$331 million (2.5 months of imports) in 2020 to US$403 million (2.9 months of imports) in 2021. The upward revisions are due to diligent efforts to rebuild fiscal and external buffers both by the government and the central bank. Gross official reserves are expected to increase modestly thereafter to 3.1 months of imports in 2023.

8. The assumptions for the financing mix and borrowing terms are as follows:

- ***External borrowing***. The DSA assumes new external borrowing of $774 million in the medium term (FY2021-FY2025) which is lower than the December 2019 DSA ($919 million). To reflect Liberia's more limited borrowing space, a couple of changes are made: the average grant element of new borrowing is projected to increase to average 47.3 percent over the program period (versus 44.3 percent at the time of program approval); and the baseline assumes no non-concessional borrowing before FY2024 and non-concessional loans totaling $6.6 million in FY2024 and $20 million in FY2025, compared to a total of $215 million between FY2021 to FY2025 envisaged at the time of the program approval. SECREMP I currently has a financing gap of $60 million as a participation of private investment did not materialize but no external borrowing is assumed to fill this gap in this DSA. No external borrowing is also assumed for SECREMP II. The assumption is that this gap will be filled by reallocations of concessional resources and an increase in contributions to the National Road Fund from the budget but not an increase in external borrowing.

- ***Domestic borrowing***. The baseline assumes that the central government no longer relies on central bank financing to fill budgetary needs but still borrows to repay past ECF and RCF budget support amounting US$107.8 million. The baseline also assumes repayment of US$65 million of bonds issued of the banking sector between the period of FY2020-24. The average real interest rate is projected to remain positive in the medium term in line with current nominal rates and inflation developments. The rollover risk of domestic debt is low as most of the domestic debt is the government's consolidated debt to the CBL.

REALISM OF THE BASELINE ASSUMPTIONS

9. The realism tools suggest that the baseline scenario is credible compared to Liberia's historical experience and cross-country experiences (Figure 3).

- Figure 3 shows the evolution of projections of external and public debt to GDP ratios for the current DSA, the previous DSA (the 2020 request for RCF disbursement DSA), and the DSA from 5 years ago. The current DSA reflects the latest revisions to the medium-term outlook and policy direction of the authorities in presence of COVID-19 shock and the recent economic developments. The difference between the current DSA and the previous DSA is small. The downward revisions to real GDP growth compared to the 2015 DSA, in the context of the Ebola epidemic and the commodity price shock, explain most of the increase in the ratios of public and external debt-to-GDP in the previous and current DSA.

- A high contribution of unexpected current account deficits to past debt accumulation and an equally large unexpected residual to the past debt accumulation in the opposite direction are observed (Figure 3). These debt dynamics are plausible since residual financing (i.e., net private financing under other investment flows in the Balance of Payments, Table 2), which is enabling the large current account deficit, includes current transfers (remittances) that are not captured by the official statistics.

- The unexpected increases in PPG external debt and public debt are about 10.8 and 21.2 percent of GDP, respectively, (due to Ebola epidemic and the commodity price shock), which are both above the median of the countries producing LIC DSF. The drivers of the unexpected public debt accumulation are unexpected decline in growth and unexpected depreciation of the real exchange rate. The change in the public debt is mainly due to recognition of restructured and consolidated government debt to the central bank (¶6).

10. The improvement in the primary balance in the next three years is in line with historical data on LIC adjustment programs. The second DSF realism tool assesses the realism of the fiscal projection. Figure 5a highlights that the anticipated adjustment in the primary balance of 1.5 percentage points of GDP in line with other LIC programs. The growth projection for 2021 and 2022 are optimistic relative to what is suggested by the fiscal multiplier realism tool. This is because of the economic rebound that is expected after the attenuation of the negative impact of COVID-19 shock.

COUNTRY CLASSIFICATION AND MODEL SIGNAL

11. Liberia's debt-carrying capacity based on the Composite Indicator (CI) is assessed as weak (Text Table 4).[11] The CI rating was downgraded to weak in the DSA at the time of ECF approval and the CI score is 2.502. In addition, Liberia was recently downgraded to "weak quality of debt monitoring" in line with the country's debt-recording capacity.

12. Standard scenarios stress test and a contingent liability test are conducted and discussed below.

Text Table 4. Liberia: Composite Index

Components	Coefficients (A)	10-year average values (B)	CI Score components (A*B) = (C)	Contribution of components
CPIA	0.385	2.988	1.15	46%
Real growth rate (in percent)	2.719	1.409	0.04	2%
Import coverage of reserves (in percent)	4.052	20.864	0.85	34%
Import coverage of reserves^2 (in percent)	-3.990	4.353	-0.17	-7%
Remittances (in percent)	2.022	12.149	0.25	10%
World economic growth (in percent)	13.520	2.928	0.40	16%
CI Score			2.50	100%
CI rating			Weak	

Text Table 5. Liberia: Debt Carrying Capacity and Thresholds

EXTERNAL debt burden thresholds	Weak	Medium	Strong
PV of debt in % of			
Exports	140	180	240
GDP	30	40	55
Debt service in % of			
Exports	10	15	21
Revenue	14	18	23

EXTERNAL debt burden thresholds	
PV of debt in % of	
Exports	140
GDP	30
Debt service in % of	
Exports	10
Revenue	14

TOTAL public debt benchmark	
PV of total public debt in percent of GDP	35

[11]The CI captures the impact of the different factors through a weighted average of the World Bank's 2019 Country Policy and Institutional Assessment (CPIA) score, the country's real GDP growth, remittances, international reserves, and world growth. A country's debt-carrying capacity would be assessed as weak if its CI value is below 2.69, medium if it lies between 2.69 and 3.05, and strong if it is above 3.05. Liberia's debt-carrying capacity based on the CI, which is based on the October 2020 WEO and the 2019 CPIA, is assessed as weak. The CI score is 2.502.

EXTERNAL DSA

13. Liberia remains at moderate risk of external debt distress with limited space to absorb shocks. Under the baseline scenario, the PV of debt-to-GDP and the PV of debt-to-export ratios remain below the thresholds of 30 and 140 percent in the medium- to long-term (Figure 1). The debt-service to export and debt-service to revenue ratios remain below their corresponding thresholds as well. Table 1 indicates that residuals remain large and negative in the medium term mainly due to large identified net debt creating flows. These flows, in turn, are due to large current account deficits that are financed by net FDI and net private financing which includes unrecorded remittances.

14. Standard stress tests show that a further deterioration of the macroeconomic outlook might lead to breaches of the policy dependent thresholds (Table 3). Some of the standard stress tests, namely, a shock of one-standard deviation in the real GDP growth, primary balance, exports, other non-debt creating flows, depreciation, or a combination of all shocks will all result in breaching the thresholds of the PV of debt-to-GDP ratio. A shock to the primary balance, exports, other debt creating flows, or a combination of all shocks will lead to a breaching of the threshold on the PV of debt-to-exports ratio. A shock of one-standard deviation in the primary balance, exports, other non-debt creating flows, or a combination of all shocks will all result in breaching the thresholds of the debt service-to-exports ratio. Finally, a shock to the real GDP growth, other non-debt creating flows, depreciation, or a combination of all shocks leads to a breach of the debt service-to-revenue ratio threshold. Thus, the mechanical signal suggests Liberia is at moderate risk of external debt distress.

PUBLIC DSA

15. Public debt indicators show limited borrowing space, with the PV of public debt-to GDP ratio showing an extended breach. The indicator increases from an estimate of 44.8 percent in FY2021 to 46.4 percent in FY2022 and declines to 31.8 percent in FY2031 (Table 2 and Figure 2). The PV of debt-to-revenue ratio increases from 153.9 percent in FY2021 to 160.7 percent in FY2022 and to 115 percent by FY2031, while the debt-service-to-revenue ratio increases to 11.5 percent in FY2024 and gets to 12.9 percent by FY2031.

16. Under standard sensitivity analysis, the PV of debt-to-GDP breaches the relevant benchmark. Among the bound tests, a deterioration of other flows results in the largest breach of the benchmark on the PV of debt-to-GDP ratio, followed by a shock to the primary balance, the real GDP growth, combination of shocks, exports, and a one-time depreciation (Table 4). Additionally, the contingent liability stress test is estimated to lead to a one-off increase in the debt-to-GDP ratio to 58 percent in FY2022 (around 13 percentage points increase), capturing the combined shock of SOE's external debt default, PPPs' distress, and financial market vulnerabilities that are not included in the covered data. Given these risks and the extended breach of the PV of debt-to-GDP threshold, Liberia is assessed to have a high risk of overall public debt distress.

RISK RATING AND VULNERABILITIES

17. **The sharp decline in GDP growth impairs Liberia's debt sustainability and the recent borrowing to dampen the impact of COVID-19 shock has resulted in higher debt service pressure in the medium-term**. Two consecutive years of negative growth will reduce Liberia's borrowing space, while financing needs will be rising. However, implementing the appropriate set of policies (such as domestic revenue mobilization, rebuilding confidence in the banking sector, and preventing further drains on the NIR) is expected to ensure higher GDP growth and expand the borrowing space thereafter. Moreover, the availability of CCRT means that more budgetary resources can be allocated to public health needs and it will also help contain the exceptional balance of payments need resulting from the pandemic.

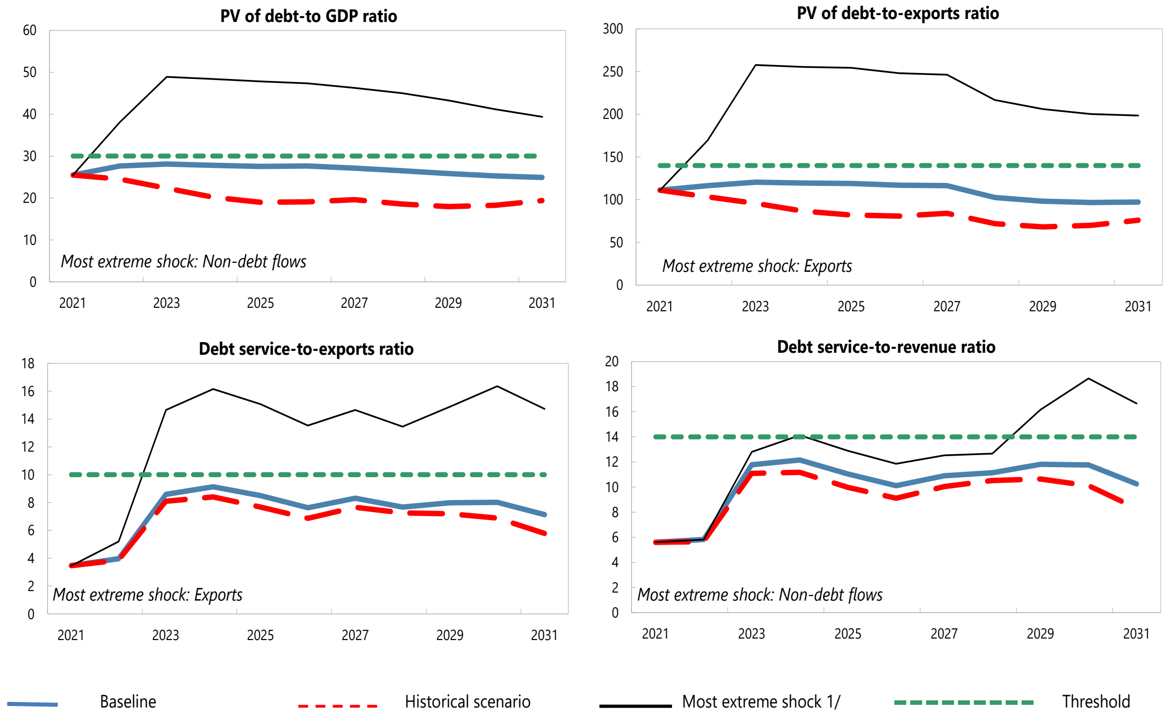
18. **Risks to the outlook are tilted to the downside**. A second wave of cases (domestic or overseas) would slow economic activity further; slippages from fiscal spending pressures could result in larger drawdowns on government deposits than programmed, putting pressure on the exchange rate and inflation; re-emergence of heightened U.S. dollar liquidity needs in the banking sector and that of Liberian dollar banknotes shortages would undermine confidence in the banking sector and the business climate more broadly. Policy slippages could also lessen access to concessional financing, which is critical for meeting development needs while keeping debt sustainable.

AUTHORITIES' VIEWS

19. **The authorities agreed with the importance of maintaining debt sustainability in the medium term**. The authorities expressed commitment to refrain from central bank financing and buildup of arrears. Moreover, the authorities reiterated that they will monitor the debt path closely and will seek concessional financing to meet their financing needs as they recognize that borrowing space is limited. In this regard, the authorities expressed commitment to remain below the ceiling on non-concessional borrowing [12] and refrain from nontransparent collateralized agreements, while ensuring that new debt is contracted transparently.

[12]The non-concessional borrowing assumptions of the medium-term debt management strategy of the authorities are in line with staff assumptions.

Figure 1. Liberia: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, FY2021–31



Customization of Default Settings		
	Size	Interactions
Tailored Stress		
Combined CL	No	
Natural disaster	n.a.	n.a.
Commodity price 2/	n.a.	n.a.
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	1.0%	1.0%
USD Discount rate	5.0%	5.0%
Avg. maturity (incl. grace period)	30	30
Avg. grace period	6	6

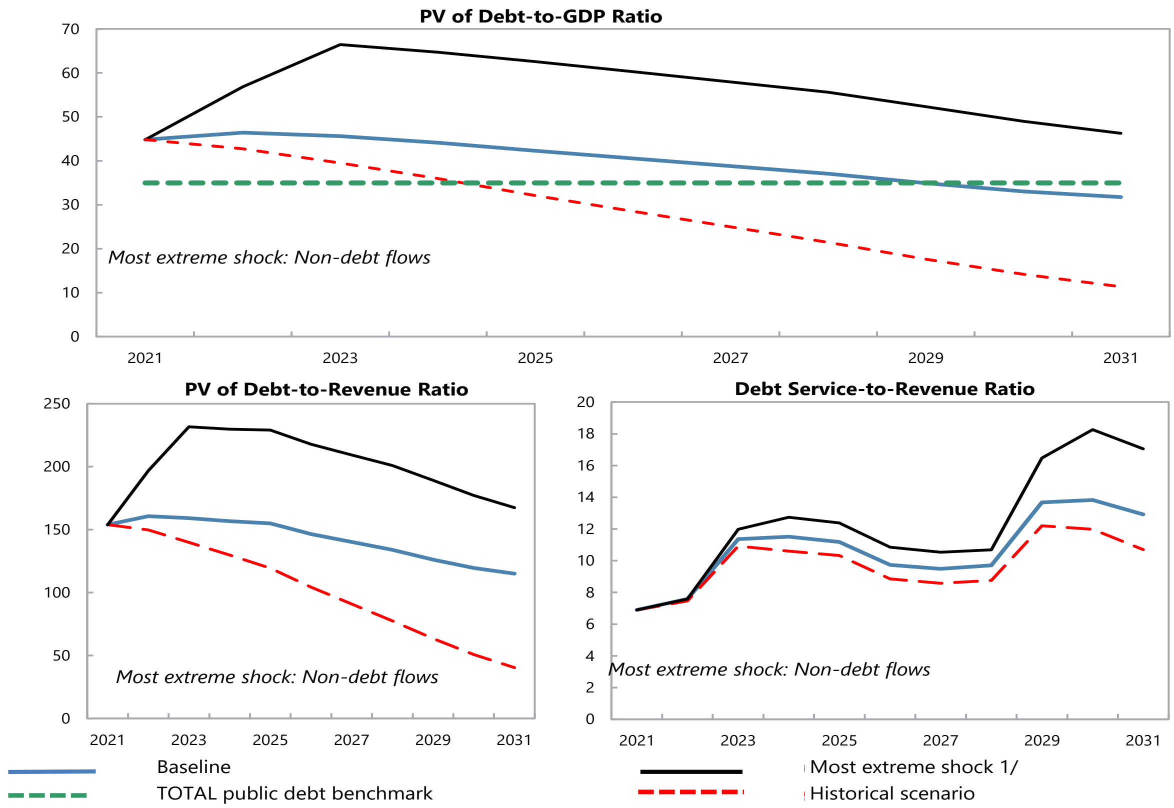
* Note: All the additional financing needs generated by the shocks under the stress tests are assumed to be covered by PPG external MLT debt in the external DSA. Default terms of marginal debt are based on baseline 10-year projections.

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 2031. 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 2. Liberia: Indicators of Public Debt Under Alternative Scenarios, FY2021–31



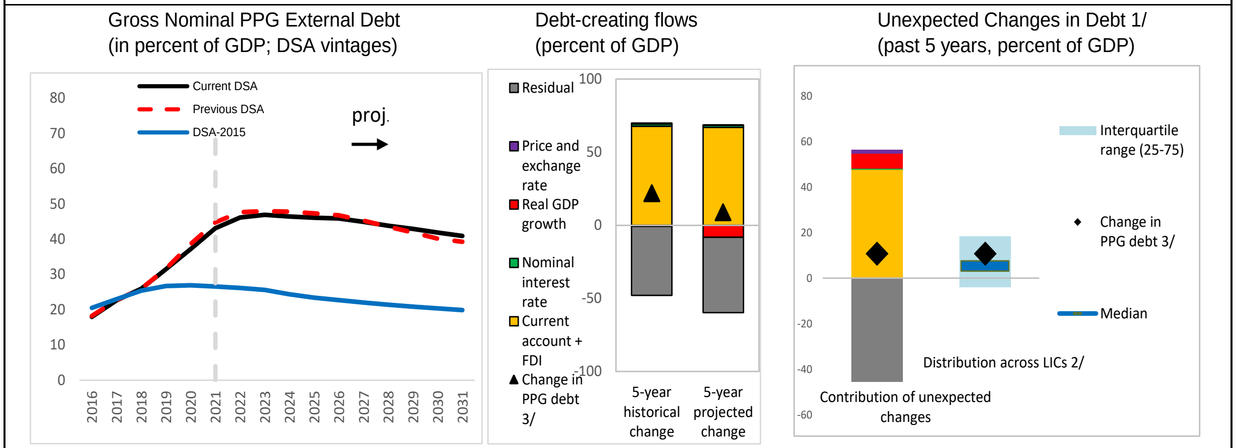
Borrowing assumptions on additional financing needs resulting from the stress tests*	Default	User defined
Shares of marginal debt		
External PPG medium and long-term	96%	96%
Domestic medium and long-term	3%	3%
Domestic short-term	1%	1%
Terms of marginal debt		
External MLT debt		
Avg. nominal interest rate on new borrowing in USD	1.0%	1.0%
Avg. maturity (incl. grace period)	30	30
Avg. grace period	6	6
Domestic MLT debt		
Avg. real interest rate on new borrowing	5.1%	5.1%
Avg. maturity (incl. grace period)	10	10
Avg. grace period	0	0
Domestic short-term debt		
Avg. real interest rate	10.9%	10.9%

* 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.

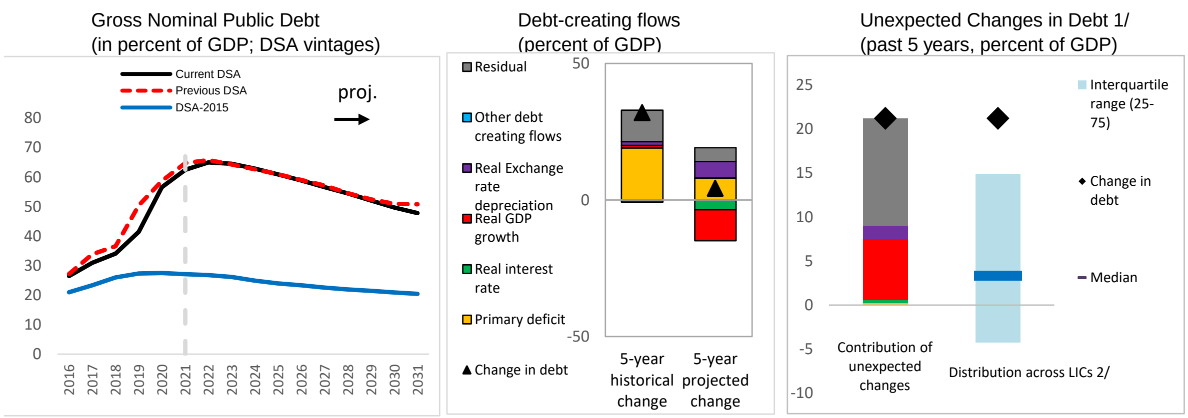
Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in or before 2031. 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. Liberia: Drivers of Debt Dynamics – Baseline Scenario



Public debt

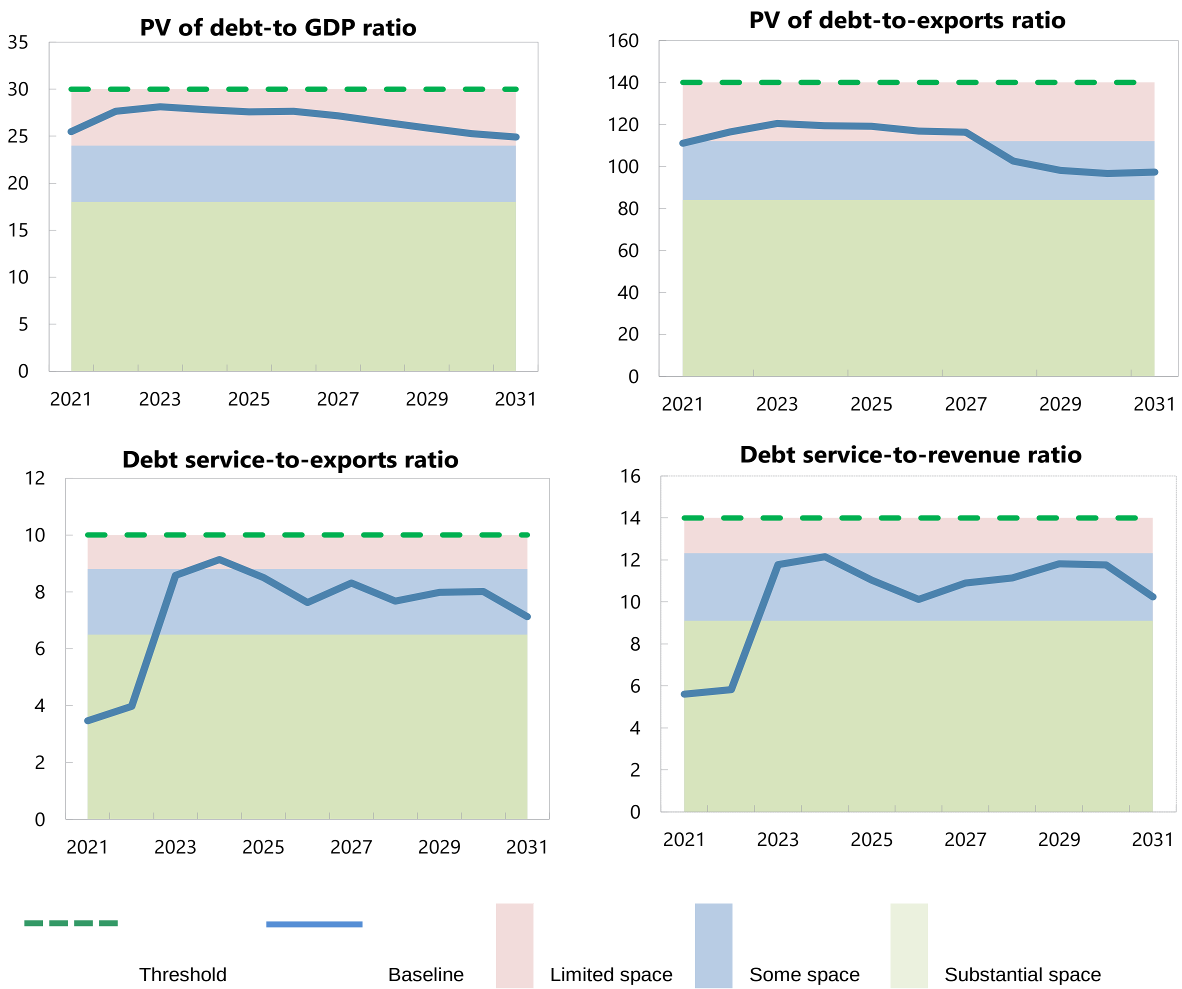


1/ Difference between anticipated and actual contributions on debt ratios.

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. Liberia: Qualification of the Moderate Category, FY2021–31[1/]

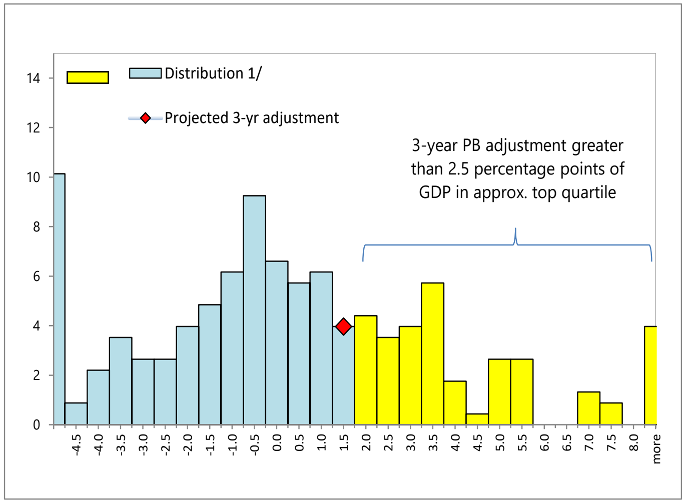


Sources: Country authorities; and staff estimates and projections.

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.

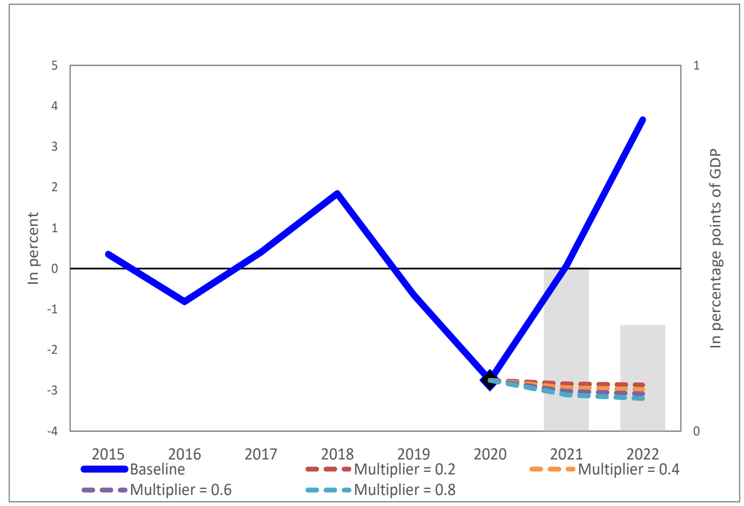
Figure 5. Liberia: Realism Tools

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/



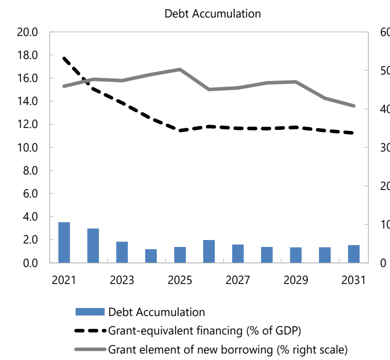
1/ Bars refer to annual projected fiscal adjustment (right-hand side scale) and lines show possible real GDP growth paths under different fiscal multipliers (left-hand side scale).

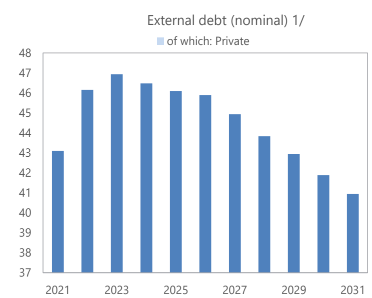
Table 1. Liberia: External Debt Sustainability Framework, Baseline Scenario, FY2018–41

(Percent of GDP, unless otherwise indicated)

	Actual			Projections								Average 8/	
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2031	2041	Historical	Projections
External debt (nominal) 1/	**25.9**	**31.5**	**37.2**	**43.1**	**46.2**	**46.9**	**46.5**	**46.1**	**45.9**	**40.9**	**31.2**	**19.0**	**44.5**
of which: public and publicly guaranteed (PPG)	**25.9**	**31.5**	**37.2**	**43.1**	**46.2**	**46.9**	**46.5**	**46.1**	**45.9**	**40.9**	**31.2**	**19.0**	**44.5**
Change in external debt	3.3	5.5	5.7	5.9	3.1	0.8	-0.5	-0.4	-0.2	-0.9	-1.4		
Identified net debt-creating flows	**13.5**	**14.3**	**14.2**	**14.1**	**12.9**	**12.5**	**11.1**	**9.6**	**8.2**	**6.5**	**-1.1**	**9.4**	**9.8**
Non-interest current account deficit	**22.7**	**21.9**	**20.5**	**22.1**	**22.8**	**23.1**	**22.1**	**21.1**	**19.5**	**16.7**	**7.6**	**20.5**	**20.3**
Deficit in balance of goods and services	32.4	28.8	29.7	28.8	28.5	27.8	26.5	25.7	24.4	22.7	10.7	**47.4**	**25.5**
Exports	22.2	22.5	19.6	23.0	23.7	23.3	23.3	23.2	23.6	25.6	25.3		
Imports	54.6	51.3	49.3	51.8	52.2	51.1	49.9	48.9	48.1	48.3	36.0		
Net current transfers (negative = inflow)	-18.5	-17.6	-20.2	-18.2	-16.7	-15.6	-14.5	-14.0	-13.5	-11.1	-7.3	**-35.1**	**-13.9**
of which: official	-14.6	-13.7	-14.5	-14.0	-12.5	-11.4	-10.3	-9.9	-9.6	-7.7	-4.9		
Other current account flows (negative = net inflow)	8.8	10.7	11.1	11.4	11.0	11.0	10.1	9.3	8.6	5.1	4.2	**8.2**	**8.6**
Net FDI (negative = inflow)	**-9.3**	**-8.3**	**-7.8**	**-8.1**	**-8.7**	**-9.0**	**-9.1**	**-9.4**	**-9.2**	**-8.4**	**-6.5**	**-10.8**	**-8.8**
Endogenous debt dynamics 2/	**0.1**	**0.7**	**1.5**	**0.2**	**-1.3**	**-1.7**	**-2.0**	**-2.1**	**-2.1**	**-1.8**	**-2.2**		
Contribution from nominal interest rate	0.3	0.3	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4		
Contribution from real GDP growth	-0.4	0.2	0.9	0.0	-1.5	-2.0	-2.3	-2.4	-2.4	-2.2	-2.6		
Contribution from price and exchange rate changes	0.2	0.3	0.1	...	...	...	...	...	...	...	...		
Residual 3/	**-10.2**	**-8.7**	**-8.5**	**-8.2**	**-9.8**	**-11.7**	**-11.5**	**-10.0**	**-8.4**	**-7.5**	**-0.3**	**-6.3**	**-9.4**
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		
Sustainability indicators													
PV of PPG external debt-to-GDP ratio	**...**	**...**	**21.7**	**25.5**	**27.7**	**28.1**	**27.8**	**27.6**	**27.6**	**24.9**	**21.9**		
PV of PPG external debt-to-exports ratio	**...**	**...**	**110.9**	**111.0**	**116.5**	**120.5**	**119.4**	**119.1**	**116.9**	**97.2**	**86.5**		
PPG debt service-to-exports ratio	**3.0**	**3.9**	**7.4**	**3.5**	**4.0**	**8.6**	**9.1**	**8.5**	**7.6**	**7.1**	**7.2**		
PPG debt service-to-revenue ratio	**5.1**	**6.2**	**10.4**	**5.6**	**5.8**	**11.8**	**12.2**	**11.0**	**10.1**	**10.2**	**10.3**		
Gross external financing need (Million of U.S. dollars)	461.5	465.0	442.7	454.0	479.8	539.0	532.6	507.9	479.9	584.6	353.2		
Key macroeconomic assumptions													
Real GDP growth (in percent)	1.8	-0.6	-2.7	0.1	3.7	4.5	5.1	5.4	5.5	5.7	8.7	**2.4**	**4.8**
GDP deflator in US dollar terms (change in percent)	-0.9	-1.0	-0.3	-1.2	-0.7	0.3	0.2	0.5	1.4	1.9	-0.9	**3.5**	**0.9**
Effective interest rate (percent) 4/	1.3	1.0	1.5	0.7	0.6	0.6	0.6	0.6	0.7	0.9	1.3	**1.1**	**0.7**
Growth of exports of G&S (US dollar terms, in percent)	9.8	-0.2	-15.7	16.1	6.4	3.1	5.2	5.2	9.2	5.4	8.2	**1.2**	**8.4**
Growth of imports of G&S (US dollar terms, in percent)	-8.4	-7.6	-6.9	4.0	3.8	2.5	2.7	3.8	5.2	4.7	3.1	**0.5**	**5.6**
Grant element of new public sector borrowing (in percent)	...	...	...	45.9	47.7	47.4	48.9	50.2	45.0	40.8	32.2	**...**	**46.2**
Government revenues (excluding grants, in percent of GDP)	12.9	14.3	13.9	14.2	16.2	17.0	17.5	17.8	17.8	17.8	17.8	**15.6**	**17.2**
Aid flows (in Million of US dollars) 5/	549.7	588.0	607.5	576.5	513.7	493.4	473.7	477.7	502.8	703.3	1323.7		
Grant-equivalent financing (in percent of GDP) 6/	...	...	...	17.7	15.1	13.8	12.5	11.5	11.8	11.2	10.4	**...**	**12.7**
Grant-equivalent financing (in percent of external financing) 6/	...	...	...	84.5	85.3	85.1	86.7	85.5	83.4	84.4	86.4	**...**	**84.9**
Nominal GDP (Million of US dollars)	3,274	3,220	3,121	3,087	3,177	3,329	3,506	3,714	3,971	5,738	12,034		
Nominal dollar GDP growth	0.9	-1.6	-3.1	-1.1	2.9	4.8	5.3	5.9	6.9	7.7	7.8	**6.0**	**5.7**
Memorandum items:													
PV of external debt 7/	...	...	21.7	25.5	27.7	28.1	27.8	27.6	27.6	24.9	21.9		
In percent of exports	...	...	110.9	111.0	116.5	120.5	119.4	119.1	116.9	97.2	86.5		
Total external debt service-to-exports ratio	3.0	3.9	7.4	3.5	4.0	8.6	9.1	8.5	7.6	7.1	7.2		
PV of PPG external debt (in Million of US dollars)			677.0	786.7	878.4	936.5	975.9	1024.0	1097.4	1429.0	2633.1		
(PVt-PVt-1)/GDPt-1 (in percent)				3.5	3.0	1.8	1.2	1.4	2.0	1.5	0.9		
Non-interest current account deficit that stabilizes debt ratio	19.4	16.4	14.8	16.2	19.8	22.4	22.6	21.4	19.7	17.7	9.0		

Definition of external/domestic debt	**Residency-based**
Is there a material difference between the two criteria?	**No**





Sources: Country authorities; and staff estimates and projections.

1/ Includes both public and private sector external debt.

2/ Derived as $[r - g - \rho(1+g) + \varepsilon\alpha(1+r)]/(1+g+\rho+g\rho)$ times previous period debt ratio, with r = nominal interest rate; g = real GDP growth rate, ρ = growth rate of GDP deflator in U.S. dollar terms, Ɛ=nominal appreciation of the local currency, and α= share of local currency-denominated external debt in total external debt.

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.

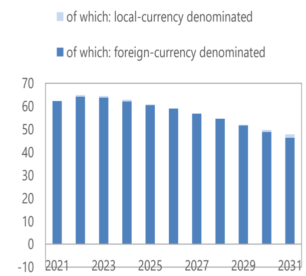
Table 2. Liberia: Public Sector Debt Sustainability Framework, Baseline Scenario, FY2018–41

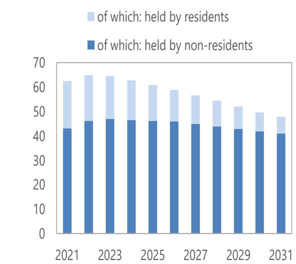
(Percent of GDP, unless otherwise indicated)

	Actual			Projections								Average 6/	
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2031	2041	Historical	Projections
Public sector debt 1/	34.1	41.4	56.6	62.4	64.9	64.5	62.8	60.8	58.8	47.8	43.2	30.2	57.7
of which: external debt	25.9	31.5	37.2	43.1	46.2	46.9	46.5	46.1	45.9	40.9	31.2	19.0	44.5
Change in public sector debt	3.2	7.3	15.2	5.9	2.5	-0.5	-1.7	-1.9	-2.0	-1.9	0.0		
Identified debt-creating flows	4.4	6.1	4.7	1.6	-1.0	-2.3	-2.9	-2.4	-2.1	-1.6	-0.4	-4.3	-1.6
Primary deficit	4.3	5.1	2.8	2.3	2.0	1.2	1.0	1.5	1.8	1.6	1.8	-3.5	1.7
Revenue and grants	25.9	28.0	28.1	29.1	28.9	28.7	28.2	27.3	27.7	27.6	27.4	27.0	28.0
of which: grants	13.0	13.8	14.1	14.9	12.7	11.7	10.7	9.5	9.9	9.8	9.6		
Primary (noninterest) expenditure	30.2	33.1	30.9	31.5	30.9	29.9	29.2	28.8	29.5	29.2	29.2	23.5	29.7
Automatic debt dynamics	0.1	0.9	2.0	-0.7	-3.0	-3.5	-3.8	-3.9	-3.9	-3.1	-2.2		
Contribution from interest rate/growth differential	-0.8	-0.1	1.1	-0.7	-3.0	-3.5	-3.8	-3.9	-3.9	-3.1	-2.2		
of which: contribution from average real interest rate	-0.2	-0.4	0.0	-0.6	-0.8	-0.7	-0.7	-0.7	-0.7	-0.5	1.3		
of which: contribution from real GDP growth	-0.6	0.2	1.2	0.0	-2.2	-2.8	-3.1	-3.2	-3.2	-2.7	-3.5		
Contribution from real exchange rate depreciation	0.9	1.1	0.8	...	...	...	...	...	...	...	...		
Other identified debt-creating flows	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Privatization receipts (negative)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Recognition of 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	0.0	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	-1.2	1.3	10.4	4.2	3.4	1.8	1.2	0.5	0.1	-0.3	0.4	7.7	0.8
Sustainability indicators													
PV of public debt-to-GDP ratio 2/	...	...	41.1	44.8	46.4	45.6	44.1	42.3	40.6	31.8	33.9		
PV of public debt-to-revenue and grants ratio	...	...	146.2	153.9	160.7	159.1	156.7	154.9	146.5	115.0	123.5		
Debt service-to-revenue and grants ratio 3/	2.6	3.3	9.6	6.9	7.6	11.4	11.5	11.2	9.7	12.9	17.8		
Gross financing need 4/	4.9	6.1	5.5	4.3	4.2	4.5	4.2	4.6	4.5	5.1	6.7		
Key macroeconomic and fiscal assumptions													
Real GDP growth (in percent)	1.8	-0.6	-2.7	0.1	3.7	4.5	5.1	5.4	5.5	5.7	8.7	2.4	4.8
Average nominal interest rate on external debt (in percent)	1.3	1.0	1.5	0.7	0.6	0.6	0.6	0.6	0.7	0.9	1.3	1.1	0.7
Average real interest rate on domestic debt (in percent)	0.9	1.0	6.5	4.8	4.5	3.5	3.6	3.4	2.5	3.8	10.0	-2.3	3.2
Real exchange rate depreciation (in percent, + indicates depreciation)	3.1	3.1	1.9	...	...	...	...	...	...	...	...	-1.5	...
Inflation rate (GDP deflator, in percent)	-0.9	-1.0	-0.3	-1.2	-0.7	0.3	0.2	0.5	1.4	1.9	-0.9	3.5	0.9
Growth of real primary spending (deflated by GDP deflator, in percent)	-13.4	9.1	-9.5	2.0	1.9	1.0	2.6	4.1	7.9	5.5	8.4	-0.1	4.2
Primary deficit that stabilizes the debt-to-GDP ratio 5/	1.1	-2.2	-12.4	-3.6	-0.4	1.7	2.7	3.5	3.8	3.4	1.8	-4.5	2.5
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	**Residency-based**
Is there a material difference between the two criteria?	**No**

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 Residency-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. Liberia: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, FY2021–31

(Percent)

	Projections 1/										
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
PV of debt-to GDP ratio											
Baseline	25	28	28	28	28	28	27	27	26	25	25
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2021-2031 2/	25	25	22	20	19	19	20	19	18	18	19
B. Bound Tests											
B1. Real GDP growth	25	30	**34**	**33**	**33**	**33**	**32**	**32**	**31**	**30**	30
B2. Primary balance	25	**34**	**40**	**40**	**40**	**39**	**39**	**38**	**37**	**35**	**35**
B3. Exports	25	**32**	**38**	**38**	**38**	**37**	**37**	**36**	**35**	**33**	**32**
B4. Other flows 3/	25	**38**	**49**	**48**	**48**	**47**	**46**	**45**	**43**	**41**	**39**
B5. Depreciation	25	**35**	30	30	29	30	29	28	28	27	27
B6. Combination of B1-B5	25	**39**	**46**	**45**	**45**	**45**	**44**	**43**	**41**	**39**	**38**
C. Tailored Tests											
C1. Combined contingent liabilities	25	**38**	**39**	**38**	**38**	**38**	**37**	**36**	**35**	**34**	**34**
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	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
C4. Market Financing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Threshold	30	30	30	30	30	30	30	30	30	30	30
PV of debt-to-exports ratio											
Baseline	111	116	120	119	119	117	116	102	98	97	97
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2021-2031 2/	111	103	96	87	82	81	84	72	68	70	76
B. Bound Tests											
B1. Real GDP growth	111	116	120	119	119	117	116	102	98	97	97
B2. Primary balance	111	**142**	**173**	**172**	**171**	**167**	**166**	**146**	139	135	135
B3. Exports	111	**169**	**258**	**255**	**254**	**248**	**246**	**217**	**206**	**200**	**198**
B4. Other flows 3/	111	**160**	**210**	**208**	**206**	**200**	**198**	**174**	**164**	**157**	**154**
B5. Depreciation	111	116	101	100	100	98	98	87	83	83	84
B6. Combination of B1-B5	111	**174**	**167**	**219**	**218**	**212**	**210**	**185**	**175**	**169**	**167**
C. Tailored Tests											
C1. Combined contingent liabilities	111	**160**	**165**	**164**	**164**	**160**	**158**	139	133	131	131
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	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
C4. Market Financing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Threshold	140	140	140	140	140	140	140	140	140	140	140
Debt service-to-exports ratio											
Baseline	3	4	9	9	8	8	8	8	8	8	7
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2021-2031 2/	3	4	8	8	8	7	8	7	7	7	6
B. Bound Tests											
B1. Real GDP growth	3	4	9	9	8	8	8	8	8	8	7
B2. Primary balance	3	4	9	**10**	9	8	9	8	10	**11**	10
B3. Exports	3	5	**15**	**16**	**15**	**14**	**15**	**13**	**15**	**16**	**15**
B4. Other flows 3/	3	4	9	**11**	10	9	10	9	**11**	**13**	**12**
B5. Depreciation	3	4	9	9	8	7	8	7	8	7	6
B6. Combination of B1-B5	3	5	**12**	**13**	**12**	**11**	**12**	**11**	**13**	**14**	**12**
C. Tailored Tests											
C1. Combined contingent liabilities	3	4	9	10	9	8	9	8	8	8	8
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	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
C4. Market Financing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Threshold	10	10	10	10	10	10	10	10	10	10	10
Debt service-to-revenue ratio											
Baseline	6	6	12	12	11	10	11	11	12	12	10
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2021-2031 2/	6	6	11	11	10	9	10	11	11	10	8
B. Bound Tests											
B1. Real GDP growth	6	6	**14**	**14**	13	12	13	13	**14**	**14**	12
B2. Primary balance	6	6	12	13	12	11	12	12	**14**	**16**	**14**
B3. Exports	6	6	13	14	12	11	12	12	**14**	**15**	14
B4. Other flows 3/	6	6	13	**14**	13	12	13	13	**16**	**19**	**17**
B5. Depreciation	6	7	**15**	**15**	13	12	13	14	**15**	13	11
B6. Combination of B1-B5	6	6	**15**	**15**	**14**	13	14	**14**	**17**	**18**	**16**
C. Tailored Tests											
C1. Combined contingent liabilities	6	6	13	13	12	11	12	12	13	12	11
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	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
C4. Market Financing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Threshold	14	14	14	14	14	14	14	14	14	14	14

Sources: Country authorities; and staff estimates and projections.
1/ A bold value indicates a breach of the threshold.
2/ Variables include real GDP growth, GDP deflator (in U.S. dollar terms), non-interest current account in percent of GDP, and non-debt creating flows.
3/ Includes official and private transfers and FDI.

Table 4. Liberia: Sensitivity Analysis for Key Indicators of Public Debt, FY2021–31
(Percent)

	Projections 1/										
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
	PV of Debt-to-GDP Ratio										
Baseline	**45**	**46**	**46**	**44**	**42**	**41**	**39**	**37**	35	33	32
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2021-2031 2/	**45**	**43**	**39**	**36**	32	29	25	21	18	14	11
B. Bound Tests											
B1. Real GDP growth	**45**	**52**	**58**	**59**	**59**	**59**	**59**	**59**	**58**	**57**	**57**
B2. Primary balance	**45**	**54**	**60**	**59**	**57**	**55**	**53**	**51**	**49**	**46**	**45**
B3. Exports	**45**	**49**	**54**	**52**	**50**	**48**	**46**	**44**	**42**	**39**	**37**
B4. Other flows 3/	**45**	**57**	**66**	**65**	**63**	**60**	**58**	**56**	**52**	**49**	**46**
B5. Depreciation	**45**	**52**	**50**	**47**	**44**	**41**	**39**	**36**	33	30	28
B6. Combination of B1-B5	**45**	**52**	**54**	**47**	**46**	**44**	**43**	**41**	**39**	**38**	**36**
C. Tailored Tests											
C1. Combined contingent liabilities	**45**	**58**	**58**	**57**	**55**	**53**	**51**	**50**	**47**	**45**	**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	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
C4. Market Financing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
TOTAL public debt benchmark	35	35	35	35	35	35	35	35	35	35	35
	PV of Debt-to-Revenue Ratio										
Baseline	154	161	159	157	155	146	140	134	126	120	115
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2021-2031 2/	154	150	140	130	119	104	91	78	63	51	40
B. Bound Tests											
B1. Real GDP growth	154	173	189	195	203	200	199	198	195	193	193
B2. Primary balance	154	185	208	208	208	199	192	185	176	168	161
B3. Exports	154	171	187	185	184	174	167	160	151	142	135
B4. Other flows 3/	154	197	232	230	229	218	209	201	189	177	167
B5. Depreciation	154	186	180	173	167	154	144	133	121	111	104
B6. Combination of B1-B5	154	182	186	166	167	159	154	148	141	134	130
C. Tailored Tests											
C1. Combined contingent liabilities	154	202	202	201	201	192	186	179	171	163	158
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	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
C4. Market Financing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	Debt Service-to-Revenue Ratio										
Baseline	7	8	11	12	11	10	9	10	14	14	13
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2021-2031 2/	7	7	11	11	10	9	9	9	12	12	11
B. Bound Tests											
B1. Real GDP growth	7	8	13	13	13	11	11	12	16	17	16
B2. Primary balance	7	8	12	13	12	11	11	11	16	17	16
B3. Exports	7	8	12	12	12	10	10	10	15	16	15
B4. Other flows 3/	7	8	12	13	12	11	11	11	16	18	17
B5. Depreciation	7	8	14	14	13	12	12	12	16	16	14
B6. Combination of B1-B5	7	8	12	12	11	10	10	10	14	14	13
C. Tailored Tests											
C1. Combined contingent liabilities	7	8	13	12	12	11	10	10	14	14	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	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
C4. Market Financing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

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.