INTERNATIONAL MONETARY FUND

LIBERIA

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REQUEST FOR A FOUR-YEAR ARRANGEMENT UNDER THE EXTENDED CREDIT FACILITY—DEBT SUSTAINABILITY ANALYSIS

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Prepared by the International Monetary Fund and the World Bank.

Text Table 1. Liberia: Joint Bank-Fund Debt Sustainability Analysis	
Risk of external debt distress	*Moderate*
Overall risk of debt distress	*High*
Granularity in the risk rating	*Limited space to accommodate shocks*
Application of judgment	*No*

The Debt Sustainability Analysis (DSA) assesses 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 PV of public debt-to-GDP ratio. As in the DSA accompanying the 2019 Article IV consultation, the government's domestic debt to the central bank and SOEs' debt guaranteed by the government are incorporated. In addition, the DSA accompanying this report incorporates repayment of US$45 million of the estimated domestic arrears in the medium term (which assumes that the government can manage to reject or negotiate haircuts on some of the outstanding stock). The analysis indicates that Liberia would reach high risk of external debt distress with only a small change in the terms of external debt or a failure to adjust primary expenditure to the available revenue envelope over the medium term under baseline assumptions. In this regard, the authorities should remain below the ceiling on non-concessional borrowing and refrain from risky collateralized agreements, while ensuring that new debt is contracted transparently (MEFP ¶36). Due consideration should also be given to the country's absorption capacity, which remains low.

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 2).[1] 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) has been included in the current DSA analysis, consisting of $254.5 million (7.8 percent of GDP) in legacy debt from the war time denominated in U.S. dollars, and about $242.5 in the form of bridge loans, suspense account, and on-lending of IMF budget support. In addition, the DSA includes $65 million in arrears to the construction sector, which took advances from banks to carry out public road projects. The largest debt of SOEs is a World Bank loan to the Liberia Electricity Corporation (LEC) for the rehabilitation of Mt. Coffee hydropower station.[2] 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.[3]

Text Table 2. Liberia: Coverage of Public Sector Debt

	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	

	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.	0.5	percent of GDP	0.5	
3	SoE's debt (guaranteed and not guaranteed by the government) 1/	2	percent of GDP	2.0	
4	PPP	35	percent of PPP stock	6.1	
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)			13.6	

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

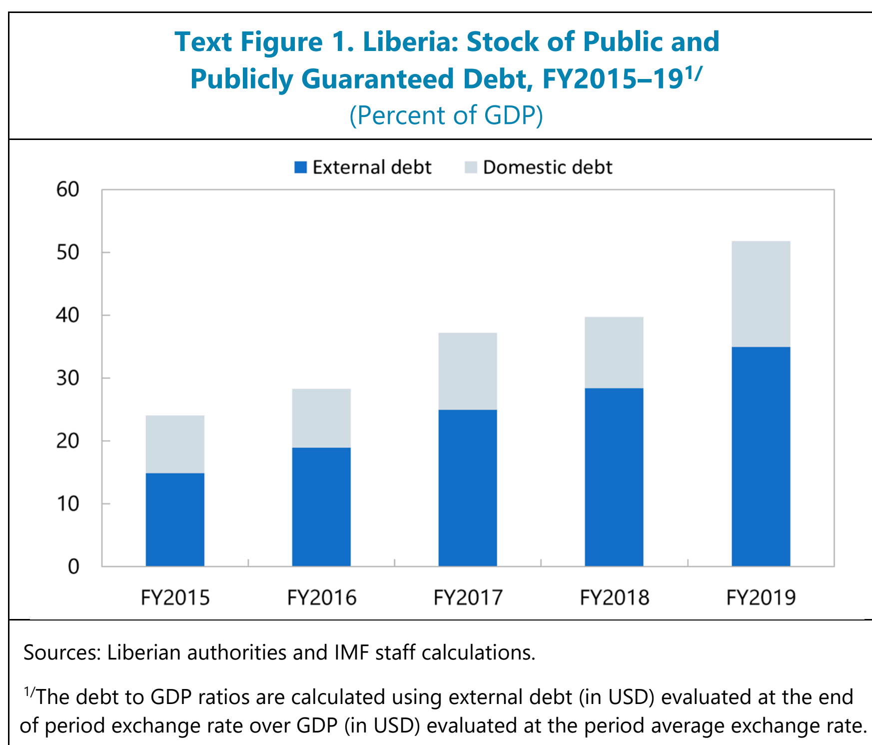
[2]This loan is direct lending to the government, but the implementation agency is the LEC.

[3]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 the 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 a request for an Extended Credit Facility arrangement**. The last Low-Income Country DSA (LIC-DSA) was considered by the Executive Board in May 2019 as part of the 2019 Article IV consultation.[4] Liberia continues to be subject to the IDA Non-Concessional Borrowing Policy (NCBP) regardless of the risk of debt distress.[5]

Text Figure 1. Liberia: Stock of Public and Publicly Guaranteed Debt, FY2015–19[1/]
(Percent of GDP)



Sources: Liberian authorities and IMF staff calculations.

[1/]The debt to GDP ratios 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.

3. **Resource constraints, macroeconomic imbalances, and longstanding fragility continue to challenge the authorities' efforts to improve living standards**. The government launched an ambitious pro-poor agenda aimed primarily at closing the country's infrastructure gap and raising the income level of the poor, but financing remains uncertain. Though well-intended, a rush to deliver election promises has at times compromised institutions and processes. On the macroeconomic front, large policy slippages have emerged, widening macroeconomic imbalances: (i) the fiscal policy stance has been loose and coupled with big revenue shortfalls and financing gaps; (ii) the monetary policy stance has been passively accommodative; and (iii) the CBL has intervened in the foreign exchange market depleting international reserves. After grappling with

[4]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. 19/169, June 2019.

[5]The NCBP requires a minimum grant element of 35 percent or higher, should a higher minimum be required under a Fund-supported program.

these challenges for a year and a half, a broad-based consensus for reform has emerged, culminating in the request for a Fund-supported program.

Text Table 3. Liberia: Structure of External Public Debt as of June-2019[1/]

	USD millions	Percent of Total	Percent of GDP[2/]
Multilateral	**889**	**87.5**	**30.6**
IMF	209	20.6	7.2
World Bank	440	43.3	15.1
AfDB	129	12.6	4.4
EIB	54	5.3	1.9
Other Multilateral	57	5.6	2.0
Bilateral:Non-Paris Club	**127**	**12.5**	**4.4**
China	55	5.4	1.9
Kuwait	17	1.7	0.6
Saudi Arabia	51	5.0	1.7
Other Bilateral	5	0.5	0.2
Total	**1016**	**100.0**	**34.9**

Sources: Liberian authorities and IMF staff calculations.

[1] Debt stock on disbursement basis.

[2] The debt to GDP ratio are calculate dusing 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. **Identifying viable external financing to fulfill the pro-poor agenda has proved difficult**. External grants inflows are on a declining trend—expected to decrease from 16.7 percent of GDP in FY2017 to 10.3 percent of GDP in FY2024—and the authorities' capacity to mobilize domestic revenue remains limited relative to the size of the need. Therefore, a shrinking revenue envelope prevents the authorities' from effectively delivering the much-needed public services in a manner that is consistent with macroeconomic stability and conducive to long-term growth. The authorities' efforts to secure financing from non-traditional donors, mostly on non-concessional terms, have not been successful. In a fast-tracked process that lacked transparency, the government of Liberia (GOL) ratified two separate external loan agreements totaling US$957.2 million (29 percent of GDP) in May of 2018.[6] More recently the authorities have indicated that they successfully cancelled them. In addition to this, the government issued domestic bonds in May to clear its US$65 million of arrears to the domestic banking sector. The government is now in discussion with nonresident banks to help the domestic banks discount these bonds which could reduce the limited amount of external non-concessional borrowing space available under the program.[7]

[6]The agreements were signed between the Government of Liberia and Eton Finance PTE limited for US$536 million and the EBOMAF company of Burkina Faso for US$420.81 million. Projects targeted under the financing agreements included the construction of 770 kilometers of asphalt roads, seven local football stadiums, and a vocational training center.

[7]The bonds (annual 4 percent coupon payments and 7 redemptions of equal amount for the next 7 years) are held by seven banks. If the authorities were to go ahead with this arrangement, debt service paid by the government would likely be unchanged, but the use of the proposed bond discount facility (BDF) would change the holder of the

(continued)

5. **Following the completion of HIPC in 2010, debt accumulated rapidly due to scaled-up infrastructure spending and the government's response to a series of adverse shocks**. The total public external debt stock was $1,016 million (34.9 percent of GDP)[8] at end-FY2019, comprising mostly of multilateral loans (Text Table 3). The level of domestic debt for 2019 has been revised up since the last DSA to reflect the government's recognition of existing debt, the increased use of the CBL overdraft facility, and the inclusion of new additional arrears. Thus, the debt-to-GDP ratio at the end of the program period has increased, but the present value of the debt stock is lower, as amortization of principal on the debt to the CBL has been pushed out to begin in 2029. Total public and publicly guaranteed debt at end-FY2019 is estimated at 51.8 percent of GDP (Text Figure 1).

UNDERLYING ASSUMPTIONS

6. **The key macroeconomic assumptions are in line with the baseline in the Staff Report and broadly similar to the reform scenario described in the 2019 Article IV Staff Report**.[9] It is assumed that the authorities will implement fiscal and monetary adjustments recommended in the 2018 and 2019 Article IV consultations, with the cost of adjustments predominantly felt in 2019–20, before the economy recovers towards a steady state. Changes to the underlying assumptions are as follows (Text Table 4):

- The ***real GDP growth path*** has been revised down from 0.4 percent for 2019 in the 2019 Article IV Staff Report to -1.4 percent as the impact of tight monetary and fiscal (on-budget operations) policies kicks in immediately, combined with weakening confidence amidst deteriorating macroeconomic conditions. Following this contraction, growth is subsequently expected to recover to 1.4 percent in 2020 and is projected to reach 5.4 percent in 2024, initially due to a recovery in consumption and later in investment.

Text Table 4. Liberia: Underlying DSA Assumptions

Nominal GDP	FY2019 (In million US dollar)	FY2019-24 Average growth (In percent)	FY2024-40 Average growth (In percent)
2019 Article IV	3235	1.7	6.8
Current	3274	1.1	7.8
Exports of Goods and Service			
2019 Article IV	811	4.5	5.9
Current	776	5.4	6.5

Sources: Liberian authorities; and IMF staff projections.

- The ***inflation*** outlook deteriorated significantly in the second half of 2018. Closely following developments in the foreign exchange markets, average headline inflation increased to 21.2 percent in 2018 (compared to 11.7 estimated previously) and is forecasted at 28 in 2019. Inflation is expected to decline to 15 percent by

government debt from resident to non-resident, and thereby reduce the limited amount of external non-concessional borrowing space available under the program.

[8]The ratio is 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.

[9]See IMF Country Report No. 19/169, June 2019.

the end of 2020 with a drop-in reserve money growth and remains at about 7 percent in the medium term.

- The ***fiscal deficit*** of the budgetary central government is set to decline as fiscal consolidation begins. The fiscal deficit widened to 4.8 percent of GDP in FY2018 and widened further to 5.2 percent of GDP in FY2019, partially financed by a central bank bridge loan and drawdowns on deposits. The consolidation is set to start in FY2020, with the deficit declining to 3.8 percent of GDP by FY2024. The fiscal consolidation will be anchored by the debt-stabilizing primary balance of -3.2 percent of GDP.

- The ***current account deficit*** estimates for 2019 declined from 23.4 to 21.1 percent of GDP. The trade balance improved modestly in 2018, but it was more than offset by a decline in net transfers following the United Nations Mission in Liberia (UNMIL) withdrawal and a decline in net income. Over the medium term, the current account deficit is expected to remain high as stronger economic policies facilitate FDI and associated imports. The external sector assessment shows that Liberia's external sector position is substantially weaker than implied by fundamentals and desirable policies.

- The CBL's foreign ***reserves*** fell from 2.4 months of import cover at end-2018 to 2.1 months due to financing of the CBL's operational budget, FX intervention, and lending to the government. Reserves are expected to increase modestly thereafter to 2.6 months of imports in 2023.

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

- ***External borrowing***. The DSA assumes that public external debt would increase by about $930 million in the medium term. The average grant element of new borrowing is projected to remain at an average of 44.3 percent over the program period. The baseline assumes non-concessional loans averaging $44 million per year.

- ***Domestic borrowing***. The baseline assumes that the central government no longer relies on central bank financing to fill budgetary needs but borrows to repay past ECF and RCF budget support amounting US$107.8 million. It also assumes that the debt service burden is decreased to a more manageable levels for the GOL, with debt service to the CBL averaging US$23 million between 2020 and 2024—compared to an average of US$37.2 million in debt service of debt with existing MOUs under the baseline—of which US$15.9 million per year, on average, is allocated to interest payments. The baseline also assumes repayment of US$45 million of arrears repayment between the period of FY2021-24 with a combination of on-budget allocation and issuance of domestic debt instruments. The real interest rate is projected to remain negative in the medium term in line with current nominal rates and inflation developments.

REALISM OF THE BASELINE ASSUMPTIONS

8. Drivers of the debt dynamics seem to reflect the past well, but adjust for revisions of policies under a Fund-supported program (Figure 3).

- Figure 3 shows the evolution of past projections of external and public debt to GDP ratios for the current DSA, the previous DSA (the 2019 Article IV 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 under a Fund-supported program. The downward revision of the borrowing envelope combined with higher real GDP growth explain most of the decrease in the ratio of external-debt-to-GDP in coming years compared to the 2019 Article IV DSA. In addition, the current DSA assumes less financing on non-concessional terms relative to the 2019 Article IV DSA. However, the downward visions to real GDP growth compared to the 2014 DSA explain most of the increase in the ratio of external-debt-to GDP in the previous and current DSA. The closing of the financing gap and elimination of central bank financing for budgetary needs in the coming year explain the differences in domestic debt dynamics outlined in the previous DSA.

- A high contribution of unexpected non-interest 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 significant adverse shocks the country has gone through (the Ebola epidemic and the commodity price shock) are well captured in the chart showing unexpected changes in debt accumulation in the past 5 years. The unexpected increase in debt was about 12 percent of GDP, which is above the median of the countries producing a LIC DSA and is towards the upper end of the interquartile range (25 percent–75 percent). As expected, in countries that go through major macroeconomic shocks, drivers of this unexpected debt accumulation are equally shared among three factors: unexpected increases in primary fiscal deficits, an unexpected decline in growth, and an unexpected depreciation of the real exchange rate.

9. The improvement in the primary balance in the next three years is towards the upper half of the distribution of adjustments for countries producing the LIC DSA. The second DSF realism tool assesses the realism of the fiscal projection. Figure 5a highlights that the anticipated adjustment in the primary balance of 2.5 percentage points of GDP in the next three years is in the top quartile of adjustments for the range of countries producing the LIC DSA. The growth projection for 2020 is optimistic relative to what is suggested by the fiscal multiplier realism tool. This is because the baseline growth in 2019 is unusually low due to weakening confidence amidst deteriorating macroeconomic conditions, which are projected to improve somewhat in 2020.

COUNTRY CLASSIFICATION AND MODEL SIGNAL

10. Liberia's debt-carrying capacity based on the Composite Indicator (CI) is assessed as weak (Text Table 4).[10] The CI rating in the previous DSA was medium; however, downward revisions to the path of real growth have reduced the CI score from 2.78 at the time to 2.5 in the April 2019 WEO and to 2.41 in the October 2019 WEO. As a result, the corresponding rating has been downgraded to weak. In addition, Liberia was recently downgraded to "weak quality of debt monitoring" in line with the country's debt-recording capacity.

Text Table 5. Liberia: Composite Index

Components	Coefficients (A)	10-year average values (B)	CI Score components (A*B) = (C)	Contribution of components
CPIA	0.385	2.983	1.15	48%
Real growth rate (in percent)	2.719	0.427	0.01	0%
Import coverage of reserves (in percent)	4.052	13.582	0.55	23%
Import coverage of reserves^2 (in percent)	-3.990	1.845	-0.07	-3%
Remittances (in percent)	2.022	15.010	0.30	13%
World economic growth (in percent)	13.520	3.499	0.47	20%
CI Score			2.41	100%
CI rating			Weak	

Text Table 6. 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

[10] The CI captures the impact of the different factors through a weighted average of the World Bank's 2017 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.

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

EXTERNAL DSA

12. Liberia remains at moderate risk of external debt distress with very limited space to accommodate shocks. The PV of debt-to-GDP and the PV of debt-to-export ratios are set to remain below their policy dependent threshold, with the former peaking at just below 30 percent between FY2022-26 and the latter remaining below 140 percent in the medium-to long-term (Figure 1). The debt-service to revenue ratio remains below the threshold of 14 percent, peaking at 12.4 percent in FY2023. The debt-service to exports ratio remains below the threshold, peaking in 2030 at 8.6 percent.

13. Standard stress tests show that a further deterioration of the macroeconomic outlook will lead to breaches of the policy dependent thresholds (Table 3). All standard stress tests, namely, a shock of one-standard deviation in the primary balance, nominal export growth, other non-debt creating flows, and a one-time depreciation of the size needed to close the real exchange overvaluation will all result in breaching the thresholds on the PV of debt-to-GDP ratio. A shock to the primary balance, exports, or other debt creating flows will lead to a breaching in the threshold on the PV of debt-to-exports ratio.

PUBLIC DSA

14. Public sector debt indicators show the limited borrowing space that Liberia has, with the PV of public debt-to GDP ratio showing an extended breach. The indicator increases from an estimate of 40.1 percent in FY2019 to 45.9 percent in FY2021 and declining to 36.4 percent in FY2030 (Table 2 and Figure 2). The PV of debt-to-revenue ratio will increase to 156.4 percent in FY2023 and decline slowly to 126.8 percent by 2030, while the debt-service-to-revenue ratio will increase to 10.5 percent by FY2023 and remain above 7 percent in subsequent years.

15. Under standard sensitivity analysis, the PV of debt-to-GDP breaches the relevant threshold. Based on standard stress tests, a deterioration of other flows results in the largest breach of the threshold on the PV of debt-to-GDP ratio, followed by a shock to exports and the primary balance, real GDP growth, or 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 of 13.6 percent, 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

16. Liberia has limited borrowing space, and careful consideration to the terms of new external borrowing and the country's absorptive capacity is needed (Figure 4). The authorities' ambitious infrastructure program to rehabilitate the national road network will undoubtedly raise the PV of debt relative to its foreign exchange earning capacity. The projected disbursement path for the period of FY2019–24 is beyond what the authorities have been able to absorb in the past but reflects their ambition to secure large infrastructure loans. However, if projects are carefully selected and implemented, borrowing beyond past absorptive capacity may generate enough GDP growth to compensate for the increase in nominal debt levels. Nevertheless, the effect of the rehabilitation of roads on aggregate demand from the financing options under consideration could be limited, as only a small part of the total cost of rehabilitation of the roads would be likely to be sourced locally. Continued efforts to improve debt monitoring capacity, including through improvements to the current IT environment, is essential to derive accurate long-term debt service projections and ensure timely debt service.

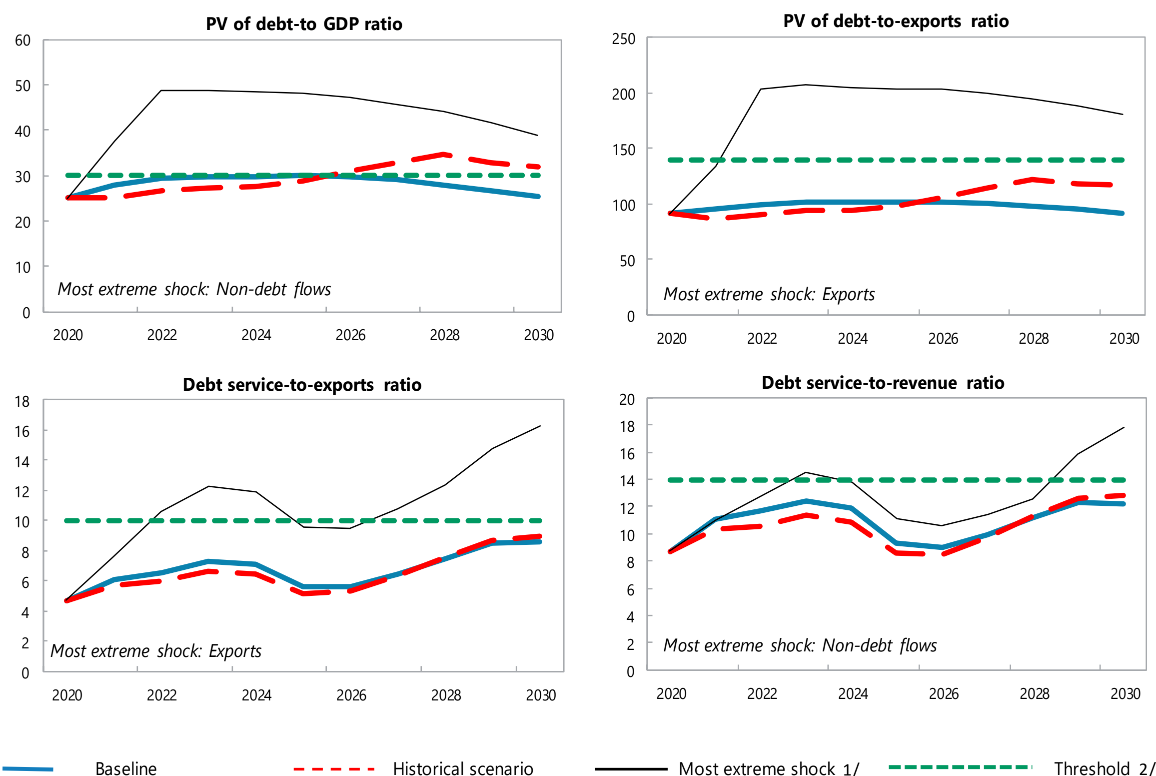
17. The proposed revision to the adjustment path will keep the thrust of the assessment of the previous DSA, though debt stabilizes at a higher level in the medium term. While most of the domestic debt is intra-government borrowing (with the CBL), the increase in the level for 2019 reflects the government's recognition of its existing debt. Despite an increase in the level, the proposed repayment plan allows for a manageable level of net repayments to the CBL—freeing resources for needed primary expenditure—while still ensuring policy solvency of the central bank.

18. Risks to the outlook are titled to the downside. On the upside, an increase in commodity prices, an increase in iron ore production, and an increase in donor grants could ease some of the macroeconomic pressures. Moreover, if the non-concessional borrowing planned in the baseline scenario beyond absorptive capacity does not materialize debt will remain at more sustainable levels. However, on the downside, potential contingent liabilities to the banking sector, a drop in commodity prices or a failure to mobilize fiscal resources to close the financing gap could lead to a further deterioration of macroeconomic conditions and increase the risk of debt distress.

AUTHORITIES' VIEWS

19. The authorities broadly agreed with the importance of maintaining debt sustainability in the medium term. The authorities expressed its commitment to refrain from additional central bank financing and buildup of arrears. Moreover, the authorities reiterated their preference for concessional financing as it recognizes that borrowing space is limited and sensitive to the terms of new loans. In this regard, the authorities expressed commitment to remain below the ceiling on non-concessional borrowing and refrain from nontransparent collateralized agreements, while ensuring that new debt is contracted transparently. However, given its stated commitment to fulfill its Pro-Poor Agenda, the authorities continue to emphasize the pressing need to move forward with their development agenda and expressed the hope that the international community would provide the current administration with assistance in meeting these needs through provision of budget support, project grants, and financing for infrastructure projects.

Figure 1. Liberia: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2020–30



Customization of Default Settings		
	Size	Interactions
Tailored Stress		
Combined CL	No	
Natural disaster	n.a.	n.a.
Commodity price	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	1.1%	1.1%
USD Discount rate	5.0%	5.0%
Avg. maturity (incl. grace period)	30	30
Avg. grace period	7	7

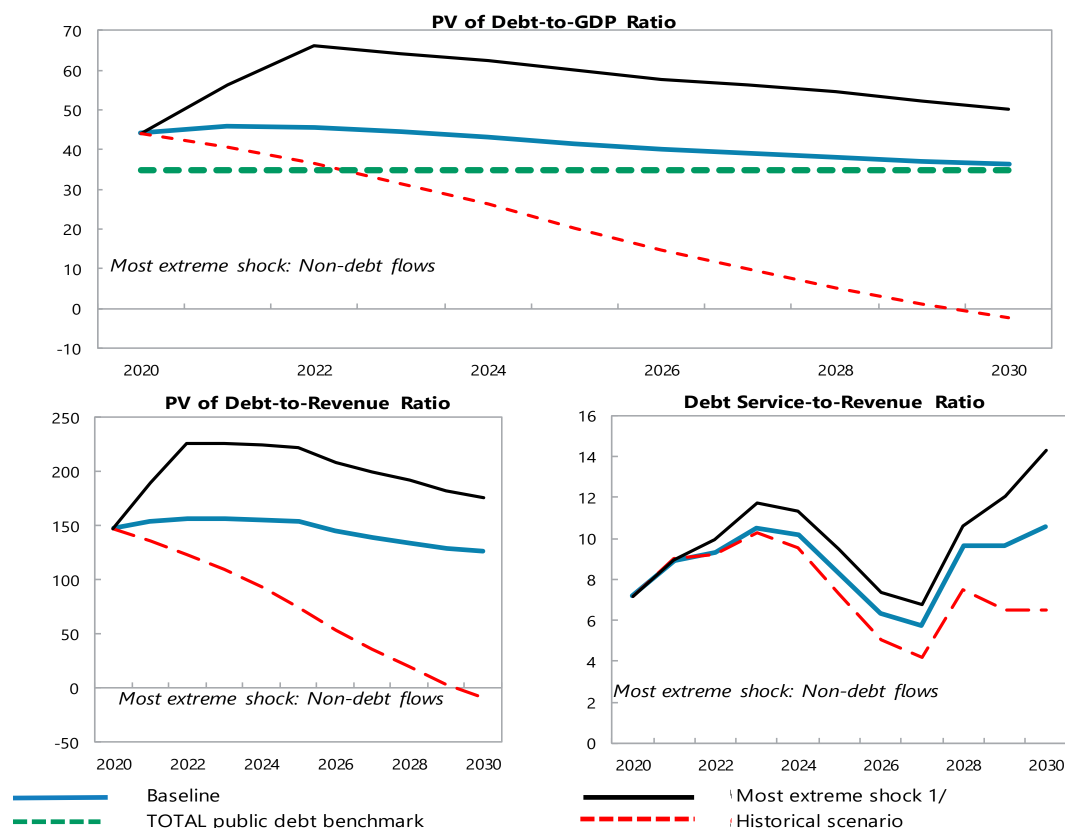
* Note: All the additional financing needs generated by the shocks under the stress tests are assumed to be covered by PPG external MLT debt in the external DSA. Default terms of marginal debt are based on baseline 10-year projections.

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 2. Liberia: Indicators of Public Debt Under Alternative Scenarios, 2020–30



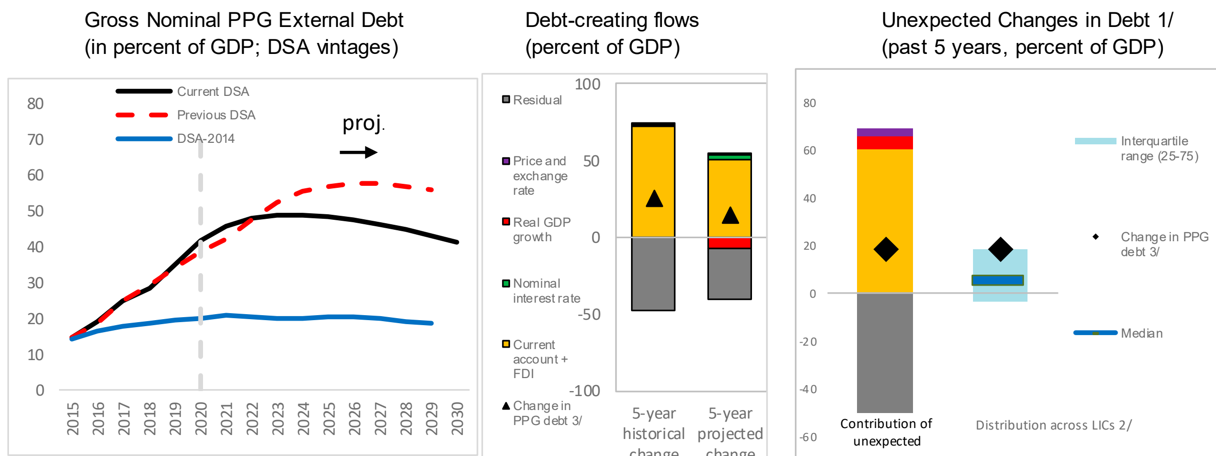
Borrowing assumptions on additional financing needs resulting from the stress tests*	Default	User defined
Shares of marginal debt		
External PPG medium and long-term	90%	90%
Domestic medium and long-term	10%	10%
Domestic short-term	0%	0%
Terms of marginal debt		
External MLT debt		
Avg. nominal interest rate on new borrowing in USD	1.1%	1.1%
Avg. maturity (incl. grace period)	30	30
Avg. grace period	7	7
Domestic MLT debt		
Avg. real interest rate on new borrowing	4.0%	4.0%
Avg. maturity (incl. grace period)	8	8
Avg. grace period	0	0
Domestic short-term debt		
Avg. real interest rate	0.0%	0.0%

* 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.

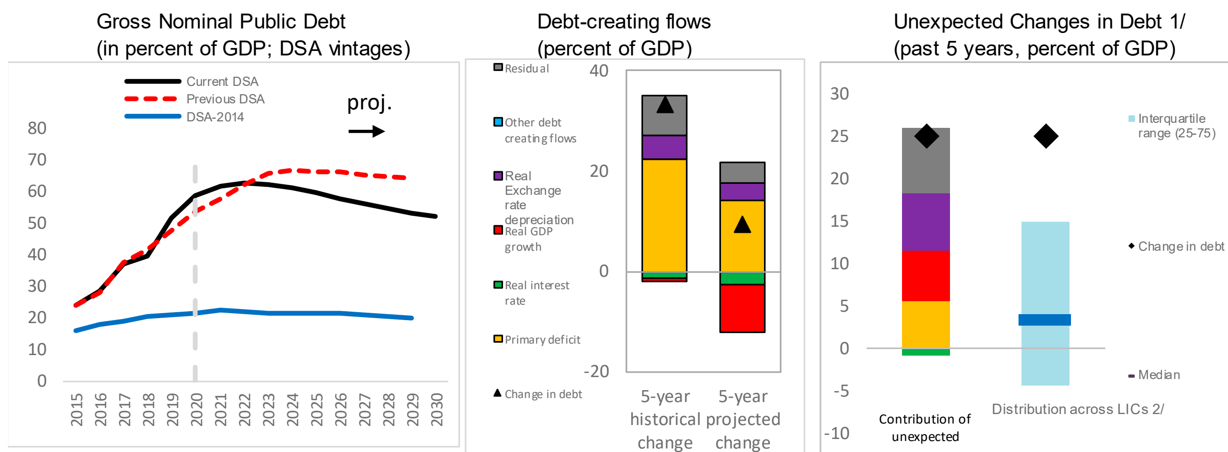
Sources: Country authorities; and staff estimates and projections.

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. Liberia: Drivers of Debt Dynamics – Baseline Scenario



Public debt

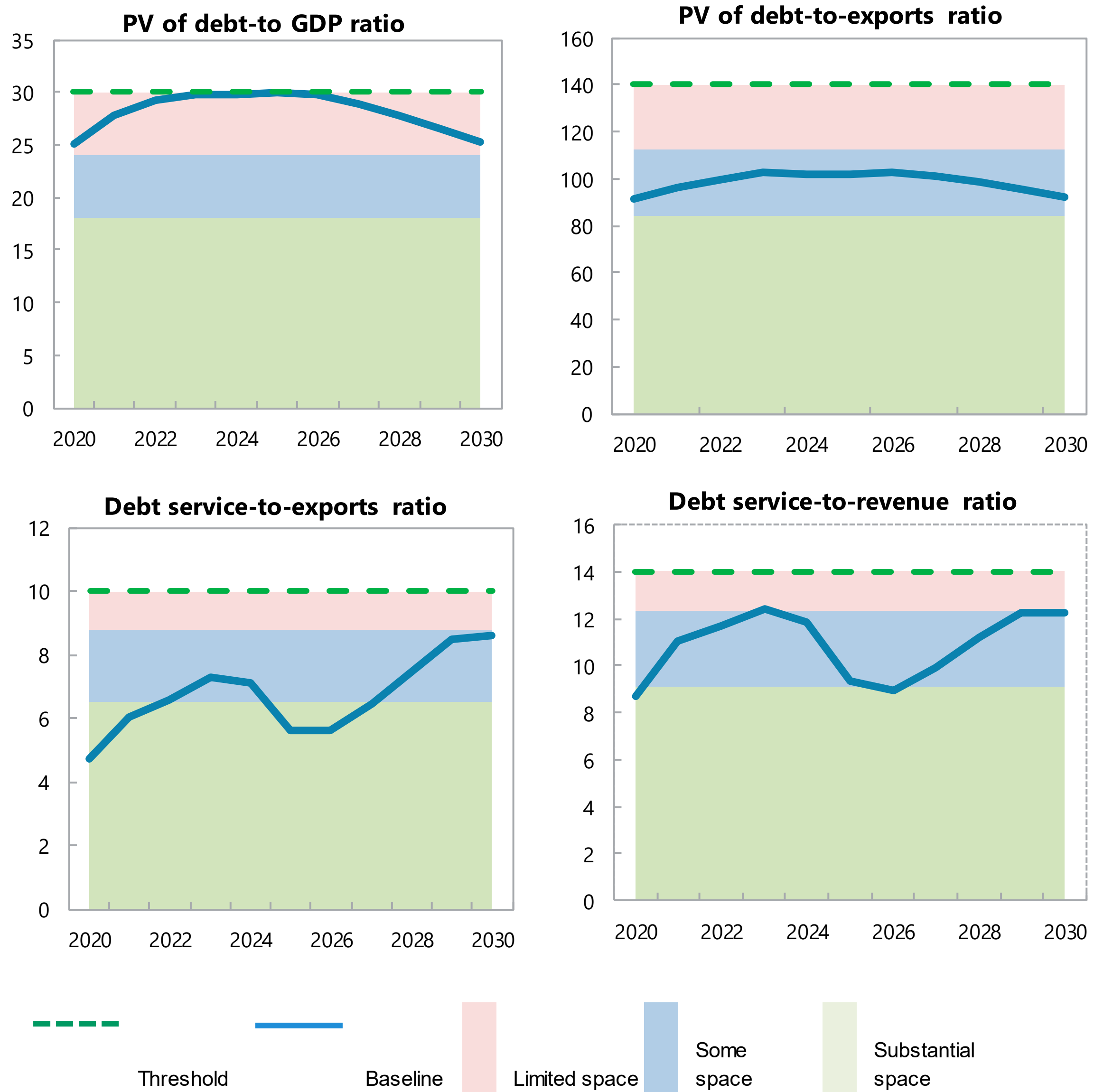


1/ Difference between anticipated and actual contributions on debt ratios.

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, 2020–30[1/]

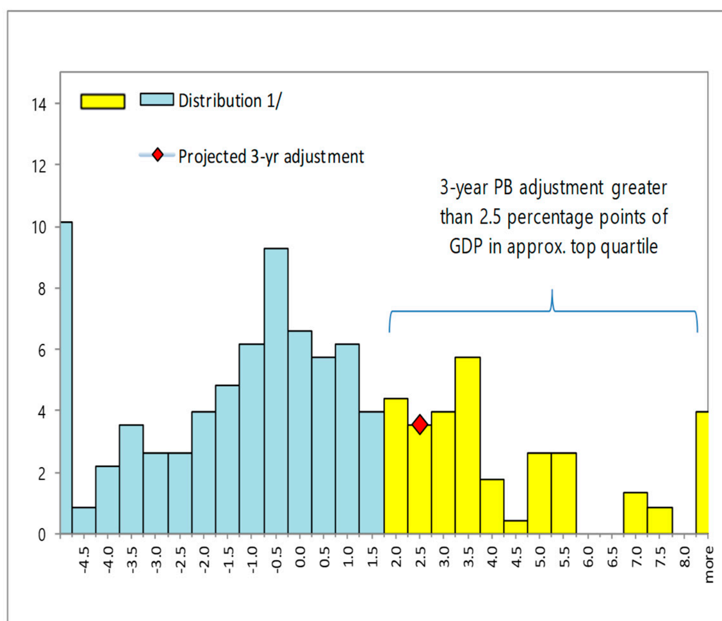


Sources: Country authorities; and staff estimates and projections.

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.

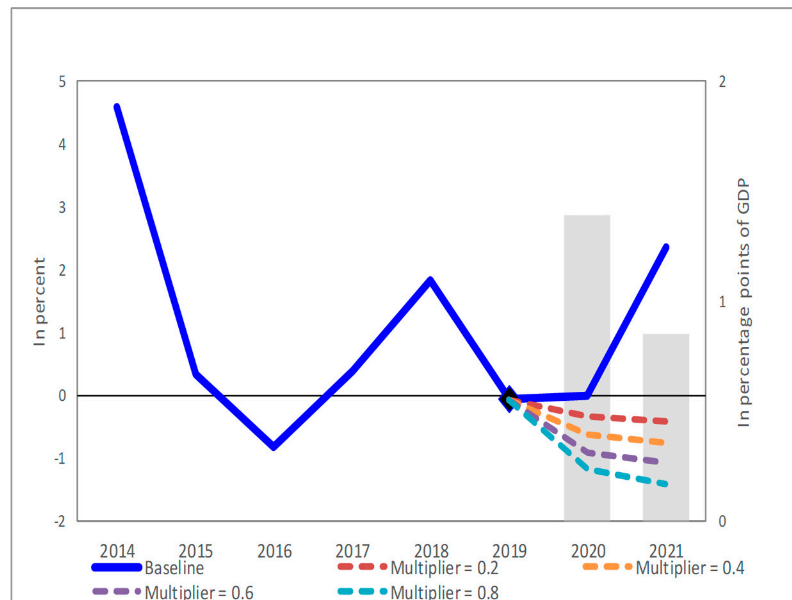
Figure 5. Liberia: Realism Tools

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/



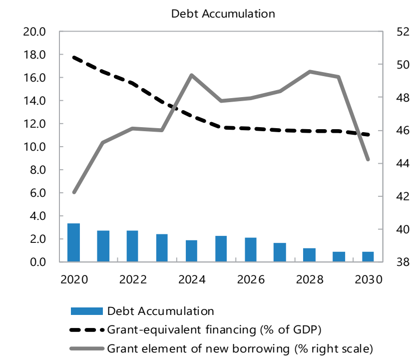
1/ Bars refer to annual projected fiscal adjustment (right-hand side scale) and lines show possible real GDP growth paths under different fiscal multipliers (left-hand side scale).

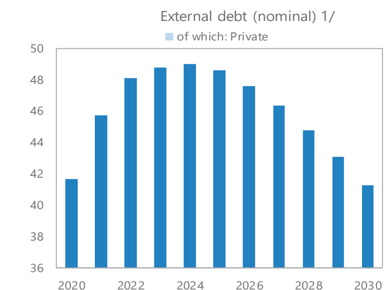
Table 1. Liberia: External Debt Sustainability Framework, Baseline Scenario, 2017–40

(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/	**24.9**	**28.5**	**34.9**	**41.7**	**45.8**	**48.1**	**48.8**	**49.0**	**48.6**	**41.2**	**29.7**	**15.8**	**45.9**
of which: public and publicly guaranteed (PPG)	**24.9**	**28.5**	**34.9**	**41.7**	**45.8**	**48.1**	**48.8**	**49.0**	**48.6**	**41.2**	**29.7**	**15.8**	**45.9**
Change in external debt	5.9	3.6	6.4	6.7	4.1	2.4	0.7	0.2	-0.4	-1.8	-1.2		
Identified net debt-creating flows	**16.1**	**14.4**	**13.4**	**12.2**	**11.0**	**8.0**	**8.0**	**7.5**	**6.0**	**7.8**	**3.5**	**10.1**	**7.4**
Non-interest current account deficit	**23.5**	**23.1**	**20.5**	**20.7**	**21.6**	**19.9**	**19.7**	**18.9**	**17.5**	**9.5**	**4.6**	**22.1**	**16.7**
Deficit in balance of goods and services	37.1	28.4	23.8	23.1	22.6	21.2	20.3	19.6	18.7	13.5	7.8	**46.0**	**18.6**
Exports	22.7	23.7	25.1	27.4	28.9	29.4	29.1	29.3	29.3	27.4	24.0		
Imports	59.7	52.1	48.9	50.6	51.6	50.6	49.5	48.9	48.0	40.9	31.8		
Net current transfers (negative = inflow)	-22.7	-18.5	-19.4	-20.0	-19.4	-18.3	-16.9	-15.5	-15.0	-11.9	-7.5	**-36.1**	**-15.5**
of which: official	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Other current account flows (negative = net inflow)	9.1	13.2	16.0	17.5	18.4	17.0	16.2	14.8	13.7	7.9	4.4	**12.3**	**13.6**
Net FDI (negative = inflow)	**-7.5**	**-8.7**	**-7.9**	**-9.0**	**-10.1**	**-10.8**	**-10.1**	**-9.5**	**-9.4**	**0.0**	**0.0**	**-12.4**	**-7.8**
Endogenous debt dynamics 2/	**0.1**	**0.1**	**0.8**	**0.5**	**-0.5**	**-1.1**	**-1.5**	**-1.8**	**-2.1**	**-1.7**	**-1.1**		
Contribution from nominal interest rate	0.2	0.3	0.3	0.5	0.5	0.5	0.6	0.6	0.3	0.4	0.4		
Contribution from real GDP growth	-0.1	-0.5	0.0	0.0	-1.0	-1.7	-2.1	-2.4	-2.5	-2.1	-1.5		
Contribution from price and exchange rate changes	0.0	0.2	0.6	...	...	...	...	...	...	...	...		
Residual 3/	**-10.2**	**-10.8**	**-7.0**	**-5.4**	**-6.9**	**-5.6**	**-7.4**	**-7.3**	**-6.4**	**-9.6**	**-4.7**	**-6.9**	**-6.9**
of which: exceptional financing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Sustainability indicators													
PV of PPG external debt-to-GDP ratio	**...**	**...**	**21.0**	**25.0**	**27.8**	**29.3**	**29.8**	**29.8**	**29.9**	**25.2**	**20.2**		
PV of PPG external debt-to-exports ratio	**...**	**...**	**83.8**	**91.2**	**96.0**	**99.6**	**102.3**	**101.8**	**102.1**	**92.0**	**84.3**		
PPG debt service-to-exports ratio	**1.3**	**2.8**	**3.5**	**4.7**	**6.1**	**6.5**	**7.3**	**7.1**	**5.6**	**8.6**	**7.5**		
PPG debt service-to-revenue ratio	**2.1**	**5.1**	**6.1**	**8.7**	**11.0**	**11.7**	**12.4**	**11.8**	**9.3**	**12.2**	**9.0**		
Gross external financing need (Million of U.S. dollars)	530.8	490.8	431.7	404.7	414.0	358.0	402.9	419.5	381.7	692.5	798.6		
Key macroeconomic assumptions													
Real GDP growth (in percent)	0.4	1.8	-0.1	0.0	2.4	3.8	4.6	5.2	5.4	5.2	5.2	**3.3**	**4.3**
GDP deflator in US dollar terms (change in percent)	0.2	-0.9	-1.9	-2.6	-2.7	0.4	1.9	0.9	1.6	2.9	2.1	**3.0**	**1.2**
Effective interest rate (percent) 4/	0.9	1.2	0.9	1.4	1.1	1.2	1.2	1.2	0.7	1.0	1.3	**1.1**	**1.0**
Growth of exports of G&S (US dollar terms, in percent)	-4.6	5.5	3.8	6.5	5.2	5.8	5.5	6.7	7.2	6.9	4.9	**7.6**	**6.4**
Growth of imports of G&S (US dollar terms, in percent)	-18.3	-12.0	-7.9	0.7	1.6	2.2	4.1	4.8	5.2	5.1	5.2	**1.4**	**3.9**
Grant element of new public sector borrowing (in percent)	...	...	...	42.2	45.3	46.1	46.0	49.4	47.8	44.2	32.2	**...**	**46.9**
Government revenues (excluding grants, in percent of GDP)	14.3	12.9	14.4	14.9	15.9	16.5	17.0	17.5	17.5	19.2	20.0	**14.9**	**17.6**
Aid flows (in Million of US dollars) 5/	663.4	549.7	588.0	555.2	527.9	520.2	498.3	492.3	488.3	694.4	1277.9		
Grant-equivalent financing (in percent of GDP) 6/	...	...	...	17.7	16.5	15.5	13.9	12.6	11.6	11.0	9.7	**...**	**13.1**
Grant-equivalent financing (in percent of external financing) 6/	...	...	...	83.0	83.8	82.9	82.2	83.9	83.3	85.2	86.0	**...**	**84.1**
Nominal GDP (Million of US dollars)	3,244	3,274	3,210	3,127	3,115	3,246	3,456	3,667	3,926	5,834	12,432		
Nominal dollar GDP growth	0.6	0.9	-2.0	-2.6	-0.4	4.2	6.5	6.1	7.1	8.3	7.3	**6.5**	**5.6**
Memorandum items:													
PV of external debt 7/	...	...	21.0	25.0	27.8	29.3	29.8	29.8	29.9	25.2	20.2		
In percent of exports	...	...	83.8	91.2	96.0	99.6	102.3	101.8	102.1	92.0	84.3		
Total external debt service-to-exports ratio	1.3	2.8	3.5	4.7	6.1	6.5	7.3	7.1	5.6	8.6	7.5		
PV of PPG external debt (in Million of US dollars)			674.8	781.6	865.9	950.4	1029.2	1093.4	1175.4	1470.9	2515.3		
(PVt-PVt-1)/GDPt-1 (in percent)				3.3	2.7	2.7	2.4	1.9	2.2	0.9	0.8		
Non-interest current account deficit that stabilizes debt ratio	17.6	19.5	14.0	13.9	17.5	17.5	19.0	18.7	17.9	11.3	5.8		

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 - ρ(1+g) + Ɛα (1+r)]/(1+g+ρ+gρ) 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.

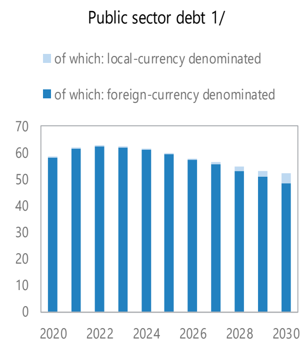
Table 2. Liberia: Public Sector Debt Sustainability Framework, Baseline Scenario, 2017–40

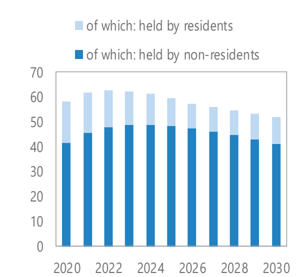
(Percent of GDP, unless otherwise indicated)

	Actual			Projections								Average 6/	
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2040	Historical	Projections
Public sector debt 1/	37.2	39.7	51.8	58.4	61.8	62.8	62.1	61.3	59.4	52.0	60.3	27.6	58.1
of which: external debt	24.9	28.5	34.9	41.7	45.8	48.1	48.8	49.0	48.6	41.2	29.7	15.8	45.9
Change in public sector debt	8.9	2.5	12.1	6.6	3.4	1.0	-0.7	-0.9	-1.9	-1.2	1.6		
Identified debt-creating flows	5.7	4.0	6.4	5.4	2.4	-0.2	-1.2	-0.8	-1.1	0.1	1.3	-4.1	0.2
Primary deficit	4.5	4.2	5.1	3.7	2.8	2.4	2.7	2.5	3.1	3.7	3.5	-4.6	3.2
Revenue and grants	31.0	25.9	28.2	29.9	29.8	29.3	28.4	27.8	27.0	28.7	28.9	24.7	28.5
of which: grants	16.7	13.0	13.8	15.1	13.9	12.8	11.4	10.3	9.5	9.5	8.9		
Primary (noninterest) expenditure	35.5	30.2	33.3	33.6	32.6	31.7	31.1	30.3	30.1	32.4	32.4	20.1	31.7
Automatic debt dynamics	1.2	-0.2	1.3	1.7	-0.5	-2.6	-3.9	-3.3	-4.2	-3.6	-2.2		
Contribution from interest rate/growth differential	-0.3	-1.2	-0.5	-0.3	-1.9	-2.9	-3.4	-3.6	-3.9	-3.2	-2.1		
of which: contribution from average real interest rate	-0.2	-0.6	-0.5	-0.3	-0.6	-0.7	-0.6	-0.6	-0.8	-0.5	0.7		
of which: contribution from real GDP growth	-0.1	-0.7	0.0	0.0	-1.4	-2.3	-2.7	-3.0	-3.1	-2.7	-2.9		
Contribution from real exchange rate depreciation	1.5	1.0	1.8	...	...	...	...	...	...	...	...		
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	3.2	-1.5	5.7	3.2	2.5	1.5	0.0	0.3	-1.0	-1.7	0.2	7.4	-0.1
Sustainability indicators													
PV of public debt-to-GDP ratio 2/	...	...	40.1	44.2	45.9	45.7	44.4	43.1	41.5	36.4	51.1		
PV of public debt-to-revenue and grants ratio	...	...	142.1	147.7	154.1	156.0	156.4	155.2	153.8	126.8	176.8		
Debt service-to-revenue and grants ratio 3/	2.4	3.6	5.3	7.2	8.9	9.3	10.5	10.1	8.3	10.6	24.9		
Gross financing need 4/	5.2	5.2	6.6	5.8	5.5	5.1	5.7	5.3	5.3	6.7	10.7		
Key macroeconomic and fiscal assumptions													
Real GDP growth (in percent)	0.4	1.8	-0.1	0.0	2.4	3.8	4.6	5.2	5.4	5.2	5.2	3.3	4.3
Average nominal interest rate on external debt (in percent)	0.9	1.3	1.0	1.6	1.2	1.3	1.3	1.3	0.8	1.0	1.3	1.1	1.1
Average real interest rate on domestic debt (in percent)	-11.5	-16.8	-16.3	-15.7	-9.5	-9.6	-7.2	-4.2	-6.2	-2.7	4.2	-9.4	-6.6
Real exchange rate depreciation (in percent, + indicates depreciation)	5.4	2.9	4.5	...	...	...	...	...	...	...	...	0.2	...
Inflation rate (GDP deflator, in percent)	14.9	23.2	28.6	23.2	14.9	14.1	12.5	9.0	7.8	6.1	5.2	12.6	10.2
Growth of real primary spending (deflated by GDP deflator, in percent)	-0.3	-13.4	10.2	1.0	-0.8	0.9	2.6	2.3	4.8	5.9	5.2	3.4	4.1
Primary deficit that stabilizes the debt-to-GDP ratio 5/	-4.4	1.8	-7.0	-3.0	-0.5	1.4	3.4	3.3	4.9	4.9	1.9	-3.2	3.2
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, 2020–30

(Percent)

	Projections 1/										
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
PV of debt-to GDP ratio											
Baseline	25	28	29	30	30	30	30	29	28	26	25
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2020-2030 2/	25	25	27	27	28	29	**31**	**33**	**35**	**33**	**32**
B. Bound Tests											
B1. Real GDP growth	25	29	**33**	**33**	**33**	**33**	**33**	**32**	**31**	30	28
B2. Primary balance	25	**33**	**40**	**41**	**41**	**41**	**40**	**39**	**38**	**36**	**34**
B3. Exports	25	**32**	**41**	**41**	**41**	**41**	**40**	**39**	**38**	**36**	**34**
B4. Other flows 3/	25	**37**	**49**	**49**	**48**	**48**	**47**	**46**	**44**	**42**	**39**
B5. Depreciation	25	**40**	**36**	**37**	**37**	**37**	**37**	**36**	**35**	**33**	**32**
B6. Combination of B1-B5	25	**36**	**44**	**44**	**44**	**44**	**43**	**42**	**40**	**38**	**36**
C. Tailored Tests											
C1. Combined contingent liabilities	25	**34**	**36**	**37**	**37**	**37**	**36**	**35**	**34**	**32**	**31**
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	91	96	100	102	102	102	102	101	98	95	92
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2020-2030 2/	91	87	90	94	94	99	106	114	122	118	117
B. Bound Tests											
B1. Real GDP growth	91	96	100	102	102	102	102	101	98	95	92
B2. Primary balance	91	115	137	140	139	139	139	137	134	130	125
B3. Exports	91	134	**203**	**207**	**205**	**204**	**204**	**200**	**195**	**189**	**180**
B4. Other flows 3/	91	130	**166**	**167**	**165**	**164**	**163**	**160**	**156**	**150**	**142**
B5. Depreciation	91	96	85	88	88	89	89	88	86	83	81
B6. Combination of B1-B5	91	133	139	**174**	**172**	**171**	**171**	**168**	**163**	**157**	**150**
C. Tailored Tests											
C1. Combined contingent liabilities	91	119	123	126	125	125	125	123	120	117	113
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	5	6	7	7	7	6	6	6	7	8	9
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2020-2030 2/	5	6	6	7	6	5	5	6	8	9	9
B. Bound Tests											
B1. Real GDP growth	5	6	7	7	7	6	6	6	7	8	9
B2. Primary balance	5	6	7	8	8	6	6	7	8	10	**11**
B3. Exports	5	8	**11**	**12**	**12**	10	10	**11**	**12**	**15**	**16**
B4. Other flows 3/	5	6	7	8	8	7	7	7	8	**11**	**12**
B5. Depreciation	5	6	7	7	7	5	5	6	7	8	8
B6. Combination of B1-B5	5	7	9	10	10	8	8	9	10	**13**	**13**
C. Tailored Tests											
C1. Combined contingent liabilities	5	6	7	8	7	6	6	7	8	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	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	9	11	12	12	12	9	9	10	11	12	12
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2020-2030 2/	9	10	11	11	11	9	9	10	11	13	13
B. Bound Tests											
B1. Real GDP growth	9	12	13	14	13	10	10	11	12	14	14
B2. Primary balance	9	11	12	14	13	10	10	11	12	**14**	**16**
B3. Exports	9	11	13	**14**	14	11	10	11	13	**15**	**16**
B4. Other flows 3/	9	11	13	**15**	14	11	11	11	13	**16**	**18**
B5. Depreciation	9	**16**	**17**	**17**	**16**	13	12	14	**16**	**17**	**16**
B6. Combination of B1-B5	9	12	13	**15**	14	11	11	12	13	**16**	**17**
C. Tailored Tests											
C1. Combined contingent liabilities	9	11	12	13	13	10	10	10	12	13	13
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, 2020–30
(Percent)

	Projections 1/										
	2020	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
PV of Debt-to-GDP Ratio											
Baseline	**44**	**46**	**46**	**44**	**43**	**42**	**40**	**39**	**38**	**37**	**36**
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2020-2030 2/	**44**	**41**	**37**	32	26	20	15	10	5	1	-2
B. Bound Tests											
B1. Real GDP growth	**44**	**47**	**49**	**48**	**48**	**47**	**46**	**46**	**46**	**46**	**46**
B2. Primary balance	**44**	**50**	**55**	**53**	**52**	**49**	**47**	**46**	**45**	**43**	**43**
B3. Exports	**44**	**49**	**55**	**53**	**52**	**50**	**48**	**47**	**46**	**44**	**43**
B4. Other flows 3/	**44**	**56**	**66**	**64**	**62**	**60**	**58**	**56**	**55**	**52**	**50**
B5. Depreciation	**44**	**51**	**47**	**44**	**41**	**38**	35	33	30	28	27
B6. Combination of B1-B5	**44**	**48**	**47**	**39**	**38**	**37**	**35**	35	34	33	32
C. Tailored Tests											
C1. Combined contingent liabilities	**44**	**52**	**50**	**48**	**47**	**45**	**43**	**42**	**41**	**40**	**39**
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	148	154	156	156	155	154	145	140	134	129	127
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2020-2030 2/	148	136	123	109	93	75	54	36	19	4	(8)
B. Bound Tests											
B1. Real GDP growth	148	154	160	163	165	167	161	159	157	155	156
B2. Primary balance	148	169	188	187	185	183	172	165	158	151	148
B3. Exports	148	166	188	188	187	185	174	167	161	154	149
B4. Other flows 3/	148	189	226	226	225	222	209	200	192	182	175
B5. Depreciation	148	178	168	160	152	144	130	120	111	101	96
B6. Combination of B1-B5	148	165	163	140	139	137	129	124	120	115	114
C. Tailored Tests											
C1. Combined contingent liabilities	148	174	172	171	169	166	156	150	145	139	137
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	9	9	10	10	8	6	6	10	10	11
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2020-2030 2/	7	9	9	10	10	7	5	4	8	7	7
B. Bound Tests											
B1. Real GDP growth	7	9	10	11	11	9	7	7	11	11	13
B2. Primary balance	7	9	11	13	12	10	8	7	11	12	13
B3. Exports	7	9	10	11	11	9	7	6	10	11	12
B4. Other flows 3/	7	9	10	12	11	9	7	7	11	12	14
B5. Depreciation	7	10	12	13	13	10	8	8	12	12	13
B6. Combination of B1-B5	7	9	9	10	10	8	6	6	10	10	10
C. Tailored Tests											
C1. Combined contingent liabilities	7	9	11	12	11	9	7	7	10	10	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.

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.