INTERNATIONAL MONETARY FUND

THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

December 11, 2019

STAFF REPORT FOR ARTICLE IV CONSULTATION AND REQUESTS FOR A THREE-YEAR ARRANGEMENT UNDER THE EXTENDED CREDIT FACILITY AND AN ARRANGEMENT UNDER THE EXTENDED FUND FACILITY—DEBT SUSTAINABILITY ANALYSIS

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Ethiopia: Joint Bank—Fund Debt Sustainability Analysis[1]	
Risk of external debt distress	*High*
Risk of overall debt distress	*High*
Granularity in the risk rating	*Sustainable*
Application of judgement	*None*

After rising rapidly in recent years, Ethiopia's external debt, as a share of GDP, has grown at a much slower pace. External sector vulnerabilities include an overvalued exchange rate and a small export base. The authorities have already taken steps by controlling SOE external borrowing and have reprofiled some of their loans. Nevertheless, two external debt indicators still breach their respective thresholds in the next few years. As a result, Ethiopia continues to be assessed at "high" risk of debt distress. Recognizing the challenges and to safeguard Ethiopia's debt sustainability, the authorities intend to undertake additional reprofiling of bilateral loans to reduce external debt servicing needs relative to exports with an aim to achieve a "moderate" risk of external debt distress rating and create some space to absorb shocks. This will underpin the strength of the program and safeguard Ethiopia's capacity to repay the Fund in line with the second exceptional access criterion under the Poverty Reduction and Growth Trust (PRGT). Further strengthening of debt management practices and continued improvement in debt reporting is recommended.

[1] This debt sustainability analysis was conducted using the Joint Bank-Fund Debt Sustainability Framework for Low-Income Countries (LIC-DSF) that was approved in 2017.

A. Debt Coverage

Text Table 1. Ethiopia: Coverage of Public and Publicly Guaranteed Debt and Parameters of Contingent Liability Shocks for the Tailored Stress Test

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

	Public debt coverage	Check box
1	Central government	X
2	State and local government	X
3	Other elements in the general government	X
4	o/w: Social security fund	X
5	o/w: Extra budgetary funds (EBFs)	X
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	X

1	The country's coverage of public debt	general government, SOEs (excl. Ethiopian airlines), and the central bank		
	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
2	Other elements of the general government not captured in 1.	0 percent of GDP	0	None
3	SoE's debt (guaranteed and not guaranteed by the government) 1/	2 percent of GDP	4	To account for potential liabilities, including from a policy bank.
4	PPP	0 percent of PPP stock	0	None
5	Financial market (the default value of 5 percent of GDP is the minimum value)	5 percent of GDP	5	None
	Total (2+3+4+5) (in percent of GDP)		9.0	

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. **Coverage of debt statistics is comprehensive in Ethiopia (Text table 1).** The authorities publish debt statistics on a quarterly basis on domestic and external debt, including that of the state-owned enterprises (SOEs). The detailed information on external debt includes outstanding debt by contracting institution (Federal government, government-guaranteed borrowing by SOEs and non-guaranteed borrowing by SOEs),[2] types of creditors and currency composition, new debt commitments during the fiscal year, global average maturity and grant element for new commitments, disbursements during a fiscal year, debt service payments, and commitments and undisbursed amounts for all contracted debt. However, reporting of external debt statistics at the public enterprises may need to be strengthened further. In addition, staff has added debt owed by the central bank, but not reported in the above-mentioned debt statistics, to two bilateral lenders for an amount of US$2 billion, which the authorities view as monetary arrangements between the central banks and not public debt but which the authorities may be required to refinance. Domestic debt data similarly covers debt of the non-financial public sector (Federal government and SOEs) and covers debt outstanding by borrowing entity, instrument, lender (including lending by the central bank and public sector financial institutions) and debt service payments. Debt reporting continues to improve under the World Bank's Development Policy Operation (DPO) program with expanded

[2] The public debt data also includes data for Ethiopian Airlines (EAL). EAL meets the criteria for exclusion set out in the 2017 Staff Guidance Note on the Debt Sustainability Framework for Low-Income Countries (Appendix III) because it is run on commercial terms, has a sizeable profit margin (as reflected in audited accounts published annually), enjoys managerial independence, and borrows without government guarantee. On this basis, this DSA does not include the debt of EAL. The DSA, however, includes the debt stock of Ethio-Telecom, which are not guaranteed by the government. The authorities view Ethio-Telecom as meeting the criteria for exclusion from the DSA.

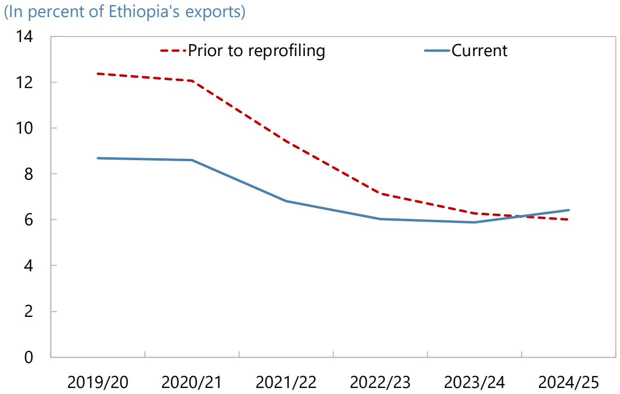
coverage of SOE domestic debt in the quarterly debt reports, public disclosure of an annual debt report, and going forward, public disclosure of audited annual statements of major SOEs. Notwithstanding the comprehensive coverage of historical debt data, staff assumes a larger contingent liability shock to account for potential liabilities, including those arising from the Development Bank of Ethiopia (DBE), which is a non-deposit taking financial institution that supports long-term private sector projects.

B. Recent Development

2. The pace of Ethiopia's external debt accumulation has decelerated in recent years on active measures. After rising by about 10 percentage points to 29.4 percent of GDP in the five-year period ending in 2014/15 (public and publicly guaranteed external debt accounted for about three-fourth of this increase), the pace of increase in the external debt stock has seen a welcome slowdown, in response to active measures taken by the authorities to contain SOEs' external borrowing, including an ongoing commitment under the World Bank's DPO program to a zero non-concessional debt policy for new loans. In 2018/19, public and publicly-guaranteed external debt/GDP ratio was about 28½ percent (including non-guaranteed public external debt, the ratio was 31.4 percent), lower by 2 percentage points from a year ago. At current level, Ethiopia's external debt/GDP ratio is below the average for low-income countries (about 40 percent of GDP), but above the median (about 26 percent of GDP).

3. The bulk of Ethiopia's external debt is official debt. Official creditors account for three-fourths of outstanding external debt, with the remaining one-fourth is attributable to private creditors, including the Eurobond issued in 2014. Among the official creditors, IDA and non-Paris club bilateral creditors account for the majority share. The entire external debt portfolio is long-term by original maturity and about two-thirds of these loans are on fixed interest rates. These external borrowings are primarily used for infrastructure investment: transport and communication; highway and railway transport infrastructure; electricity, gas, steam; and industry and tourism sectors together account for about two-third utilization of these loans. About 55 percent of these loans were outstanding with the Federal government, including those that were on-lent to SOEs, and about 13 percent was non-guaranteed external debt of SOEs, primarily for the airline and telecommunication companies. Guaranteed external debt for SOEs accounted for about 25 percent of total external debt stock as of end-June 2019.[3]

Ethiopia: External Debt Service Needs of Selected SOEs
(In percent of Ethiopia's exports)



Sources: Ethiopian authorities; and IMF staff calculation and projections.

[3] Ethiopia owes arrears to Libya, Bulgaria, Russia, and former Yugoslavia, totaling about US$538 million as of June 2019, which are deemed away under the policy on arrears to official bilateral creditors, as the underlying Paris Club agreement is adequately representative, and the authorities are making best efforts to resolve the arrears. Furthermore, there are about US$8.2 million worth of external arrears (principal and interest payments combined) to commercial creditors, all pre-dating the1990s, from former Czechoslovakia, India, Italy, and former Yugoslavia. The authorities are continuing to make a good faith effort to reach a collaborative agreement with these creditors.

4. The authorities concluded the debt reprofiling on some loans in 2018/19. While tighter control over external borrowing by public enterprises helped slow down debt accumulation, conclusion of debt reprofiling for some of the Chinese loans, including the US$2.5 billion loan for the Addis Ababa-Djibouti rail project, has also contributed to lowering of near-term debt servicing needs.

Ethiopia: External Public Sector Debt

	As at end-June 2018			As at end-June 2019		
	USD, million	Percent of Total	Percent of GDP	USD, million	Percent of Total	Percent of GDP
Total[1]	**26,773**	**100.0**	**33.2**	**29,039**	**100.0**	**31.4**
Official Creditors[1]	**20,018**	**74.8**	**24.8**	**22,104**	**76.1**	**23.9**
Multilaterals	**10,492**	**39.2**	**13.0**	**11,684**	**40.2**	**12.6**
IDA	7,754	29.0	9.6	8,877	30.6	9.6
IMF	91	0.3	0.1	38	0.1	0.0
AfDF/AfDB	2,053	7.7	2.5	2,130	7.3	2.3
Other multilateral	594	2.2	0.7	639	2.2	0.7
Bilaterals[1]	**9,527**	**35.6**	**11.8**	**10,420**	**35.9**	**11.3**
Paris Club	546	2.0	0.7	558	1.9	0.6
Non-Paris Club[1]	8,981	33.5	11.1	9,863	34.0	10.7
Private Creditors	**6,755**	**25.2**	**8.4**	**6,935**	**23.9**	**7.5**
Of which: Bond and Notes Holders	1,000	3.7	1.2	1,000	3.4	1.1

Sources: Ethiopian authorities and IMF staff calculations.

[1] Includes Ethiopian airlines and long-term external liabilities of the National Bank of Ethiopia.

5. The total public debt stock is nearly equally split between external and domestic debt. SOEs have a slightly more than 50 percent share of the public domestic debt. SOE corporate bonds account for three-fourths of their outstanding domestic debt, held by the largest public sector bank, the Commercial Bank of Ethiopia (CBE). For the Federal government, banks hold most of the domestic debt, primarily the National Bank of Ethiopia (NBE), the central banker, on account of its direct advances to the government. 91-dayTreasury bills accounted for 77 percent of outstanding T-bills and were held by non-bank financial institutions (e.g., the private organizations' employees' social security agency), albeit at a rate that is well-below prevailing and historical inflation. The reported debt stock includes guaranteed debt to public enterprises.

Ethiopia: Composition of Public Sector Debt

	As at end-June 2019		
	Billions of birr	Percent of total	Percent of GDP
Total [1]	**1618.5**	**100.0**	**60.0**
External [1]	**847.1**	**52.3**	**31.4**
Domestic	**771.4**	**47.7**	**28.6**
Central government	361.9	22.4	13.4
Banks	*254.7*	*15.7*	*9.4*
NBE	*194.7*	*12.0*	*7.2*
Other banks	*60.0*	*3.7*	*2.2*
Non-banks	*107.2*	*6.6*	*4.0*
SOEs	409.5	25.3	15.2

Source: Ethiopian authorities, IMF staff calculations.

[1] Includes Ethiopian airlines and long-term external liabilties of the National Bank of Ethiopia.

6. **Access to increased external borrowing supported a debt-financed growth model, but at the cost of increasing debt vulnerabilities.** Ethiopia was one of fastest growing economies in the world over the past decade, with growth averaging at close to 10 percent per annum. This was made possible by a ramp up in public investment in physical infrastructure, financed by external borrowing. Because of deteriorating debt service indicators, following weaknesses in exports and revenues, the 2017 DSA assessed Ethiopia at high risk of external debt distress. Ethiopia has one of lowest exports/GDP ratios among the low-income countries. Moreover, export performance, particularly that of merchandise exports, has been anemic since 2014/15, driven by weak global commodity prices and domestic supply shock (for example, flood) impacting agricultural production. Manufacturing exports have expanded at a fast pace, including garments exports, but from a small base. Services exports have done well in recent years, helped by expansion of operations by the Ethiopian Airlines. The present value (PV) of public and publicly guaranteed (PPG) external debt to exports ratio stood at slightly above 250 percent as of 2018/19. In response, the authorities have reined in borrowing by the SOEs and strengthened debt management. While this has slowed down accumulation of external debt, slower public investment has also put a brake on fast economic growth. Ethiopian Airlines' expansion in recent years has also contributed to its external debt, but at a much slower pace than the rest of the public sector. Its external debt, which are not guaranteed by the Ethiopian government and not included in the DSA, has stayed between 2.5 percent and 3 percent of GDP over the past four years.

C. Outlook and Key Assumptions

7. **Growth is expected to slow down further in the near term but strengthen over the medium term.** In 2019/20, under staff baseline, growth is expected at 6.2 percent, but will strengthen to about 8 percent by 2023/24 (see text table below). Under the reform plan, Ethiopia aspires to shift to a private-sector led growth model, an important departure from the current public-sector driven model. To facilitate the rebalancing process, the authorities will need to address the macroeconomic imbalances, including foreign exchange shortages; undertake structural reforms to ease the bottlenecks to productivity and job

growth; attract FDI notably through the opening of key sectors to foreign investors; strengthen macroeconomic policymaking; and undertake focused reforms in key strategic areas.

8. **The proposed Fund arrangement will help support the authorities' reform agenda and strengthen external buffers.** Under the program, central bank's gross reserves are expected to increase with support from external assistance to reach adequate levels over the medium term. Relative to the last Article IV DSA in 2018, the current account balance will improve over the medium term as businesses benefit from the authorities' efforts at addressing the external imbalances, including the overvaluation and severe shortage of foreign exchange. The general government balance, as a share of GDP, will improve to 1.9 percent over the medium term. Revenues which have been low and falling, will only improve with concerted tax administration and policy measures, but will remain below, as a share of GDP, the previously projected levels.

9. **Some of the key assumptions underlying the medium-term macroeconomic framework have changed since the last DSA.** These include: a slower growth path in the near term; higher gross external reserves; a lower revenue/GDP ratio for the general government to start with which only improves over the medium- and long-term; and finally, a consolidation of nonfinancial public sector balance that is expected to take place primarily at the public enterprises through limits on their borrowings. In addition, the current framework reflects updates to the global macroeconomic assumptions and official statistics from Ethiopia.

10. **The realism tool indicates that the assumed fiscal adjustments could have downside risks, while economic growth could have a modest upside risk (Figure 4).** As discussed in the main report, one of the objectives of the program is to address vulnerabilities arising from nonfinancial public sector balance sheets and there are implementation risks. However, the authorities have demonstrated in recent years that they are aware of external debt vulnerabilities and have reined in borrowing by public enterprises. On the growth projections, while cross-country historical experience of countries that transitioned out a public sector driven model could imply that growth forecasts could be optimistic, staff's current projection also considers Ethiopia's history of strong growth.

11. **This DSA makes the following assumptions on borrowing and debt servicing**:

a. Evolution of external debt reflects projection on debt service payments on outstanding debt and assumptions on disbursement of already committed, but not disbursed, loans, and new commitments by multilateral and/or Paris Club members. However, given the conditionality under the Fund-supported arrangements, no contracting or guaranteeing of new non-concessional external loans is assumed over the medium term.

b. Given Ethiopia's elevated debt vulnerabilities, the authorities' aim to reduce pressures arising from high external debt service needs (relative to exports) in the near- to medium-term. This will help strengthen debt sustainability and will be guided by their intention to reduce the risk of external debt distress to "moderate" during the program that would underpin the strength of the program and safeguard Ethiopia's capacity to repay the Fund in line with the second exceptional access criterion under the Poverty Reduction and Growth Trust (PRGT). This will also provide necessary financing during the Fund-supported program. The authorities have contacted some of their external bilateral creditors and are expected to obtain commitments from some of them by the time of the approval of the arrangements. Additional commitments from bilateral creditors are expected by the first review of the arrangements.

i. The DSA baseline reflects savings associated with the firm commitments expected at the time of the approval of the arrangements (about US$1.65 billion over 2019/20–2022/23). These savings come from deferred debt service that do not increase the present value (PV) of the reprofiled loans and avoid any bunching of debt service obligation within a few years after the end of the program. This will be consistent with bringing the debt-service to exports ratio below the relevant threshold within the program period.

ii. Reprofiling by some other bilateral lenders, for which firm commitments are expected by the first review of the arrangements, will help generate additional savings on approximately US$400 million debt service over 2020/21–2022/23. This will help create some additional space to absorb shocks relative to the debt-service to exports threshold within the program period.

c. The domestic debt stock reflects the borrowing needs under the fiscal framework. Staff's current baseline includes the authorities' decision to convert outstanding old debt stock of 91-day T-bills and central bank advances to the Federal government into 3-year and 25-year bonds respectively (latter with a 10-year grace period), and rolling over of domestic debt for the state-owned enterprises that together accounted for about 90 percent of SOE domestic debt in 2018/19 with a 3-year grace period and 10-year maturity. The DSA baseline assumes that the 3-year bond mentioned above will be paid off on maturity, while the new central bank advances will be rolled over for three years and thereafter converted to T-bills at the prevailing market rate.

d. The government's domestic borrowing will increasingly shift toward borrowing at a market-determined rate, with the real rate on domestic borrowing becoming positive toward the end of the medium term. This is consistent with the reforms to phase out financial repression. On December 4, 2019, the authorities conducted the first auctions of T-bills.

12. This DSA has also altered the borrowing profile of the public sector in line with the design of the Fund arrangement and the Bank DPO. Given the zero limit on non-concessional external debt, future debt contracts will be on concessional terms. For 2019/20, the program's indicative target on concessional debt include the authorities' current pipeline of expected commitments (text table). The identified projects reflect Ethiopia's traditional focus areas: agriculture, transport and communication, road and rail transport infrastructure etc. Future disbursements are predominantly from multilateral sources, especially over the longer horizon. As a result, the grant element of new debt is expected to be stronger than the last DSA.

Ethiopia: Public and Publicly Guaranteed External Debts

(Contracted and expected commitments for 2019/20)

	US$ million	Percent of total
By source	**1,895**	**100.0**
Concessional debt	1,895	100.0
Of which: contracted before program negotiations began	86	4.5
Multilateral	983	51.9
Of which: contracted before program negotiations began	0	0.0
Bilateral	915	48.3
Of which: contracted before program negotiations began	86	4.5
Non-concessional debt	0	0.0
Uses of debt financing	**1,895**	**100.0**
Budget financing	500	26.4
Project financing	1,395	73.6
Federal government	1,000	52.8
Public enterprises (to be on-lent by Federal government)	395	20.8

Source: Ethiopian authorities.

13. Ethiopia's debt carrying capacity is assessed as "medium", unchanged from the last DSA. The Composite Index (CI) that measures debt carrying capacity stands at 2.80, within the 2.69 and 3.05 range. As a result, the following thresholds to assess the risk of external debt distress applies to Ethiopia:

a. Present value of PPG external debt/GDP ratio: 40 percent.

b. Present value of PPG external debt/exports: 180 percent.

c. External debt service/exports: 15 percent.

d. External debt service/revenues: 18 percent.

Calculation of the CI Index

Components	Coefficients (A)	10-year average values (B)	CI Score components (A*B) = (C)	Contribution of components
CPIA	0.385	3.442	1.33	47%
Real growth rate (in percent)	2.719	8.278	0.23	8%
Import coverage of reserves (in percent)	4.052	20.072	0.81	29%
Import coverage of reserves^2 (in percent)	-3.990	4.029	-0.16	-6%
Remittances (in percent)	2.022	5.847	0.12	4%
World economic growth (in percent)	13.520	3.559	0.48	17%
CI Score			2.80	100%
CI rating			Medium	

Text Table 1. Ethiopia: Key Macroeconomic Assumptions—Comparison with the Previous Vintage of DSA

Fiscal year ending June	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2038/39
Grant Element of New External Borrowing									
2019DSA	...	35.6	36.8	40.2	44.6	49.6	53.1	52.9	50.9
2018DSA	51.5	44.6	45.9	48.8	47.6	47.6	47.7	48.1	32.3
Non-Concessional Debt Disbursements (billions of U.S. dollars)									
2019DSA	...	0.42	0.34	0.23	0.12	0.02	0.00	0.00	0.00
2018DSA	0.00	0.64	0.55	0.18	0.43	0.30	0.30	0.30	1.25
Real GDP Growth (annual percent change)									
2019DSA	9.0	6.2	6.1	7.0	7.5	8.0	7.0	6.6	4.6
2018DSA	8.5	7.6	7.1	7.0	7.0	6.5	7.0	6.6	4.5
Current Account Balance (percent of GDP)									
2019DSA	-4.5	-5.5	-4.6	-4.6	-4.0	-3.4	-3.6	-3.7	-3.6
2018DSA	-6.2	-5.8	-5.2	-4.2	-3.8	-4.2	-4.1	-3.8	-2.4
Exports of goods and services (percent of GDP)									
2019DSA	7.9	7.9	9.2	10.8	10.9	10.7	11.2	11.2	12.4
2018DSA	8.6	8.9	9.2	9.7	10.2	9.3	9.4	9.4	13.5
Exports of goods and services (annual percent change)									
2019DSA	7.9	12.8	12.7	14.0	12.4	9.7	9.2	9.4	10.5
2018DSA	12.7	12.6	12.6	13.6	14.3	10.0	9.2	8.5	9.8
Fiscal balance (percent of GDP)									
2019DSA	-2.5	-2.5	-2.2	-1.9	-1.9	-1.9	-1.8	-1.8	-1.8
2018DSA	-3.1	-3.0	-2.9	-2.8	-2.7	-3.0	-2.6	-2.5	-1.9
International reserves (billions of U.S. dollars)									
2019DSA	3.4	4.0	5.7	7.4	9.6	11.2	11.6	13.0	42.0
2018DSA	3.4	3.9	4.7	5.9	7.5	6.6	7.0	7.5	19.8
General government revenue (percent of GDP)									
2019DSA	11.5	11.7	13.0	14.2	14.5	14.7	14.8	14.7	14.6
2018DSA	13.0	13.1	13.3	13.5	13.9	12.9	13.0	13.2	22.9

Sources: Ethiopian authorities; IMF and World Bank staff estimates and projections.

D. External Debt Sustainability Analysis

Baseline

14. Under the baseline, external debt declines as a share of GDP (Figure 1). The present value (PV) to GDP ratio of external debt remains well within the threshold, while another indicator, PV of external debt to exports breaches the applicable threshold for the first four years. The breach of this indicator reflects two primary factors: (i) debt service needs from the large borrowings for public infrastructure investment projects in the last few years; and (ii) recent lackluster performance of exports of goods. Debt reprofiling by some bilateral creditors in the form of deferment of debt service payments are expected to bring the debt service/exports ratio slightly below its threshold by 2021/22. In the absence of such commitments, debt service/exports ratio would have remained about its threshold until 2022/23. The debt service to revenue ratio remains below its applicable threshold throughout the projection period. The profile of the two external debt service indicators also reflect the maturity of US$1 billion Euro bond in 2024/25, resulting in a one-off breach in the debt service/exports ratio in the post-program period. The baseline is consistent with Ethiopia reaching "moderate" risk of external debt distress (Figure 6).

Stress Tests

15. The standard stress tests show Ethiopia's vulnerabilities to export shocks. In the case of the two indicators that are currently breaching the applicable thresholds, such breaches become larger and persistent beyond the medium term under an export shock. In addition, the debt service-to-revenue ratio experiences a one-off breach under a real depreciation stress test. In this context, it should be noted that the baseline scenario already includes a profile of annual depreciation during the program that would help eliminate the estimated overvaluation existing as of 2018/19. These scenarios demonstrate Ethiopia's vulnerabilities to large shocks that impact external sector performance. Additionally, neither the public gross financing needs, which peaks at 6 percent of GDP in 2019/20, helped in part by recent conversion of pre-existing short-term debt into medium- and long-term bonds, nor the EMBI spread on Ethiopia's Euro bond (about 350 basis points as of mid-November 2019) breaches the threshold (14 percent of GDP and 570 basis points, respectively). Thus, Ethiopia's market financing risks are currently assessed to be low (Figure 5).

Alternative Scenario

16. An alternative scenario with additional debt reprofiling as described above will help Ethiopia create some additional space to absorb shocks (Figure 7). Under this scenario additional deferment of debt services (about US$400 million) are expected to take place over 2020/21–2022/23, for which commitments are expected by the first review of the arrangements. Under this scenario the debt service/export ratio goes below 13.2 percent during the last year of the program and stays at or below that level in the future except for a one-off breach in 2024/25 due to the maturing of the Euro bond. The PV of debt/export is largely similar to the baseline, while debt service/revenue ratio improves further.

E. Public Debt Sustainability Analysis

Baseline

17. Ethiopia's overall public debt has increased to about 57 percent of GDP, about half of which is external debt. Public enterprises account for a little more than 50 percent of outstanding domestic debt. Under staff's baseline, overall public debt declines steadily and stays well below the applicable threshold throughout the projection period. The PV of debt-to-revenue remains on a downward trend. However, the debt service to revenue ratio displays a nonlinear behavior, whereby it goes up in the longer term after declining over the next few years. This reflects a combination of maturing existing debt as their grace periods expire and higher real cost of new domestic borrowing. Amortization of outstanding domestic medium- to long-term debt, however, does not pose any rollover risks as these debts are held by the public sector financial institutions.

Stress tests

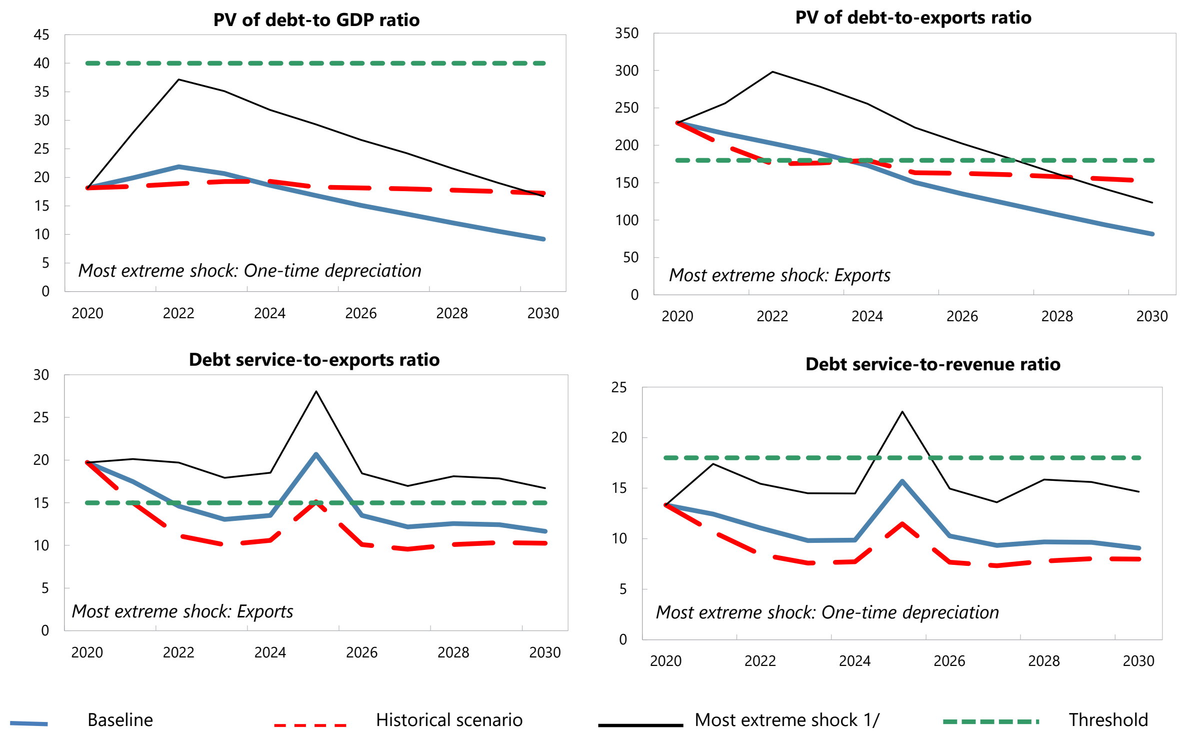
18. **Stress tests demonstrate that the overall public debt is susceptible to the materialization of contingent liabilities.** However, the overall debt/GDP ratio remain within the 55 percent threshold. Under the stress scenario, all public debt indicators worsen.

F. Assessment

19. **Based on the analysis staff arrives at the following assessment:**

- Public and publicly-guaranteed debt is sustainable. The DSA baseline includes the authorities' intention to obtain commitments for deferment of debt service obligations on some bilateral external loans by the time of the approval of the arrangements with an aim to improve the external debt distress risk rating to "moderate" during the course of the program. The debt operations are not expected to increase the PV of external debt and avoid any bunching of debt service obligation within a few years after the end of the Fund-supported program.
- Under the baseline, two external debt indicators (PV debt/GDP and debt service/revenues) and PV public debt/GDP remain below their respective thresholds. Two other indicators breach their respective thresholds in the first few years: the external debt service/exports ratio goes below its threshold within the program period, while the PV external debt/exports ratio goes below its threshold a year after the program ends. All debt indicators trend downward over the medium term except for a one-off spike in the external debt service indicators in 2024/25 due to the maturity of the US$ 1 billion Euro bond (debt service/exports breach its threshold in 2024/25). Liquidity risks are elevated for servicing external debt.
- Ethiopia is assessed at "high" risk of external debt distress because of the above-mentioned breaches in the PV of external debt/exports and external debt service/exports ratios.
- Recognizing the challenges, the authorities intend to undertake additional debt operations with external bilateral creditors and create some additional space during the course of the program, without increasing the PV of these reprofiled debt. The authorities are expected to secure these additional commitments from bilateral creditors by the first review of the arrangements.
- Ethiopia's overall public debt is assessed to be at "high" risk of debt distress because of its external debt vulnerabilities. Public debt service needs are also high relative to revenues although rollover risks of domestic debt are mitigated by the fact they are almost entirely held by the public financial institutions.
- The main external vulnerabilities arise from Ethiopia's narrow export base. Any adverse shock to exports would worsen the external debt indicators.
- On domestic debt, the vulnerabilities are related to realization of contingent liabilities.

Figure 1. Ethiopia: Indicators of Public and Publicly Guaranteed External Debt, 2020–30



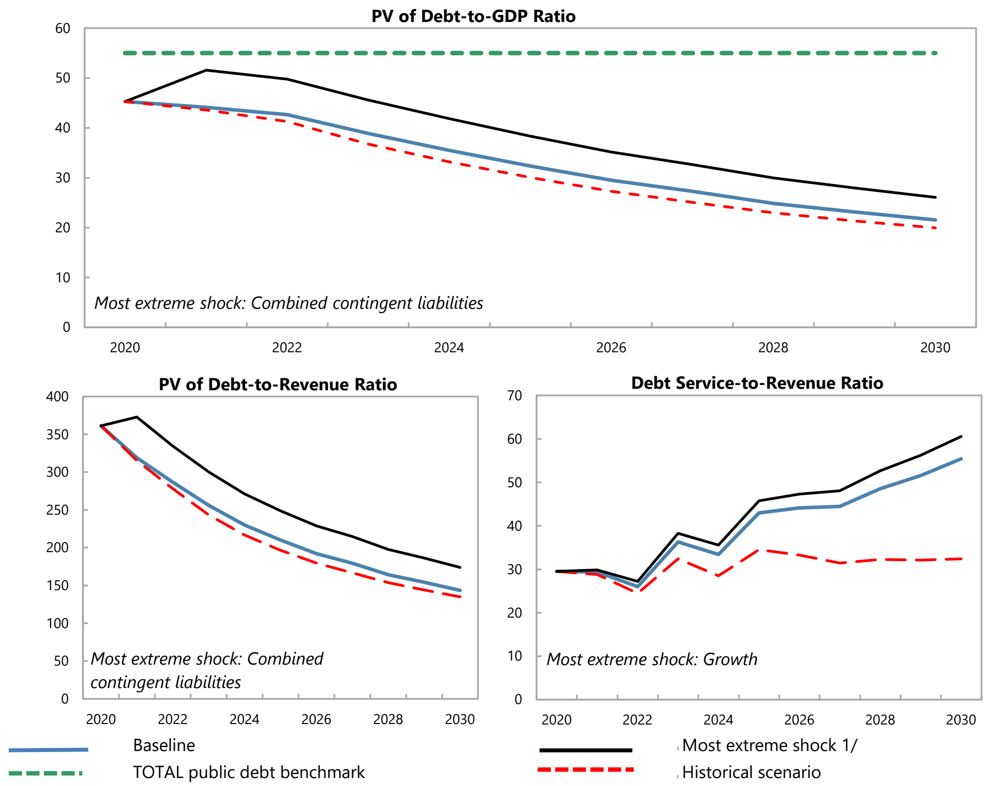
Customization of Default Settings		
	Size	Interactions
Tailored Stress		
Combined CL	Yes	
Natural disaster	n.a.	n.a.
Commodity price	n.a.	n.a.
Market financing	No	No

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)	33	33
Avg. grace period	5	5

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

Figure 2. Ethiopia: Indicators of Public Debt, 2020–30
(In percent)



Borrowing assumptions on additional financing needs resulting from the stress tests*	Default	User defined
Shares of marginal debt		
External PPG medium and long-term	29%	34%
Domestic medium and long-term	20%	54%
Domestic short-term	51%	12%
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)	33	33
Avg. grace period	5	5
Domestic MLT debt		
Avg. real interest rate on new borrowing	4.1%	4.1%
Avg. maturity (incl. grace period)	10	10
Avg. grace period	3	3
Domestic short-term debt		
Avg. real interest rate	1.4%	1.4%

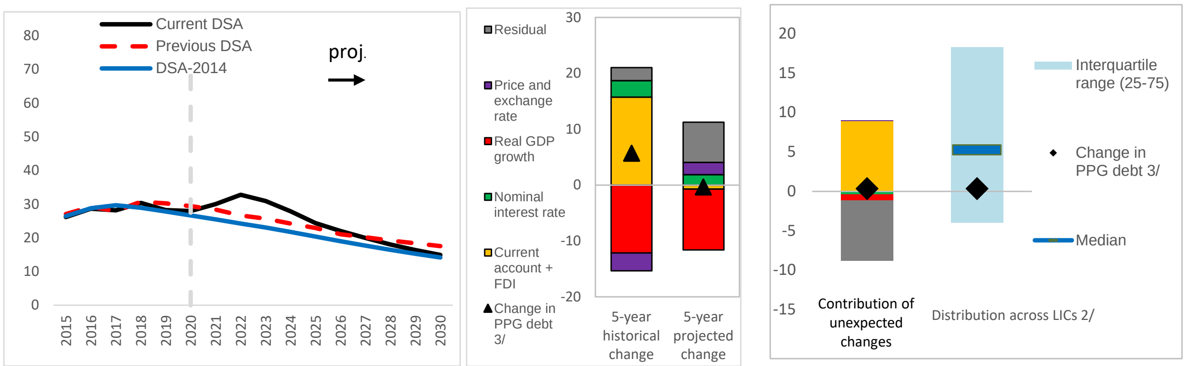
* Note: The public DSA allows for domestic financing to cover the additional financing needs generated by the shocks under the stress tests in the public DSA. Default terms of marginal debt are based on baseline 10-year projections.

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.

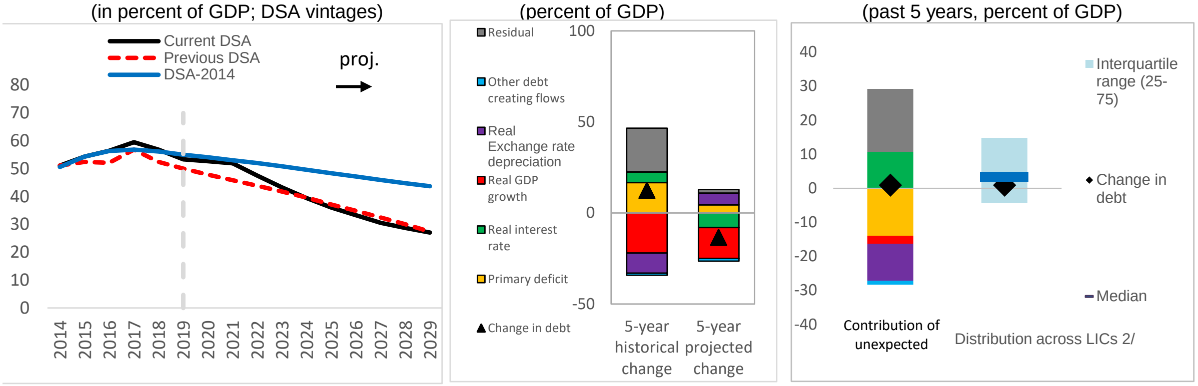
Figure 3. Ethiopia: Drivers of Debt Dynamics—External Debt

Gross Nominal PPG External Debt (in percent of GDP; DSA vintages) | Debt-creating flows (percent of GDP) | Unexpected Changes in Debt 1/ (past 5 years, percent of GDP)



Public debt

Gross Nominal Public Debt (in percent of GDP; DSA vintages) | Debt-creating flows (percent of GDP) | Unexpected Changes in Debt 1/ (past 5 years, percent of GDP)



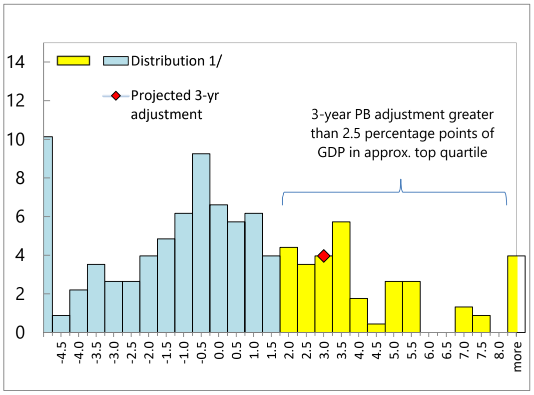
1/ Difference between anticipated and actual contributions on debt ratios.

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.

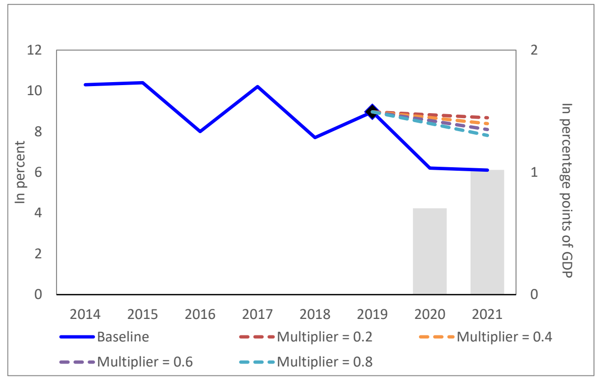
Figure 4. Ethiopia: Realism Tools

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



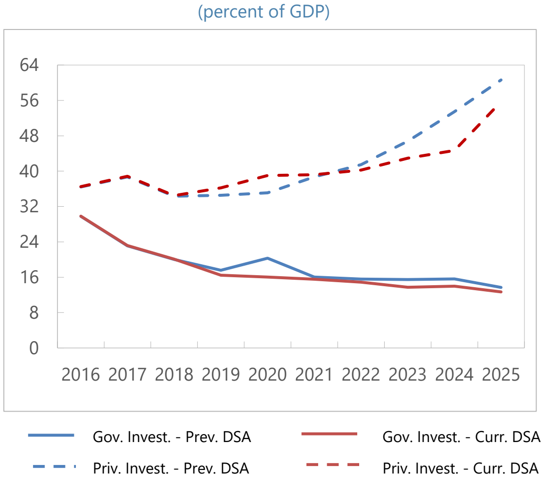
1/ Data cover Fund-supported programs for LICs (excluding emergency financing) approved since 1990. The size of 3-year adjustment from program inception is found on the horizontal axis; the percent of sample is found on the vertical axis.

Fiscal Adjustment and Possible Growth Paths 1/



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

Public and Private Investment Rates
(percent of GDP)



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

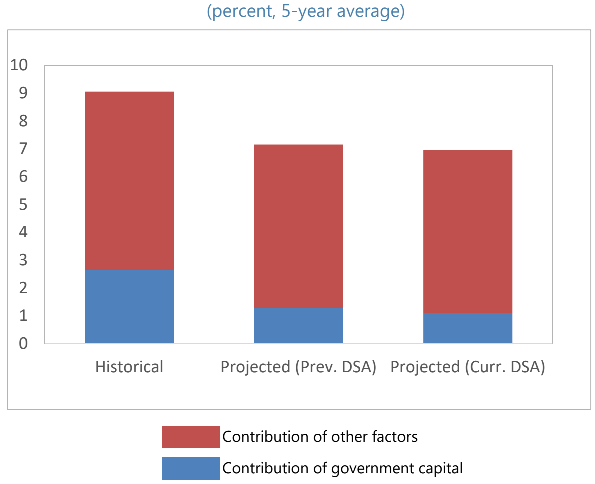
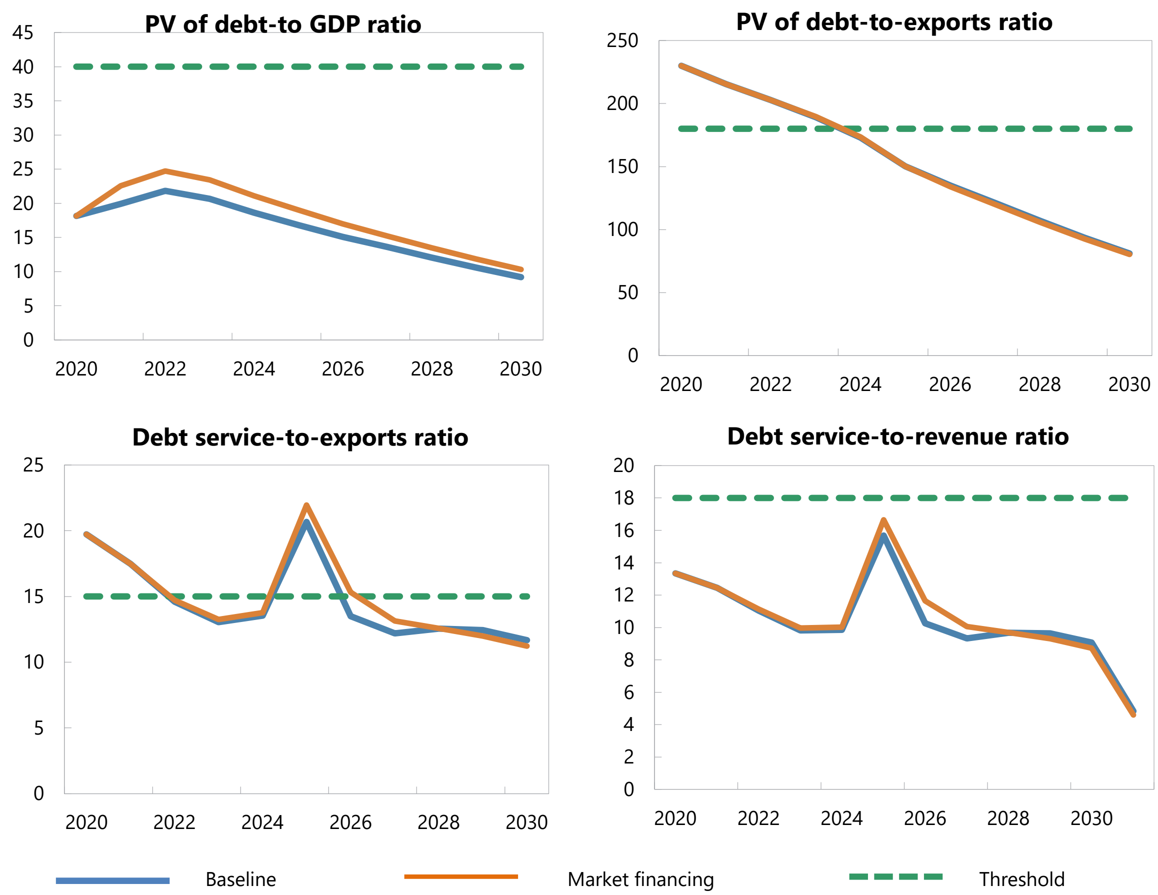


Figure 5. Ethiopia: Market-Financing Risk Indicators

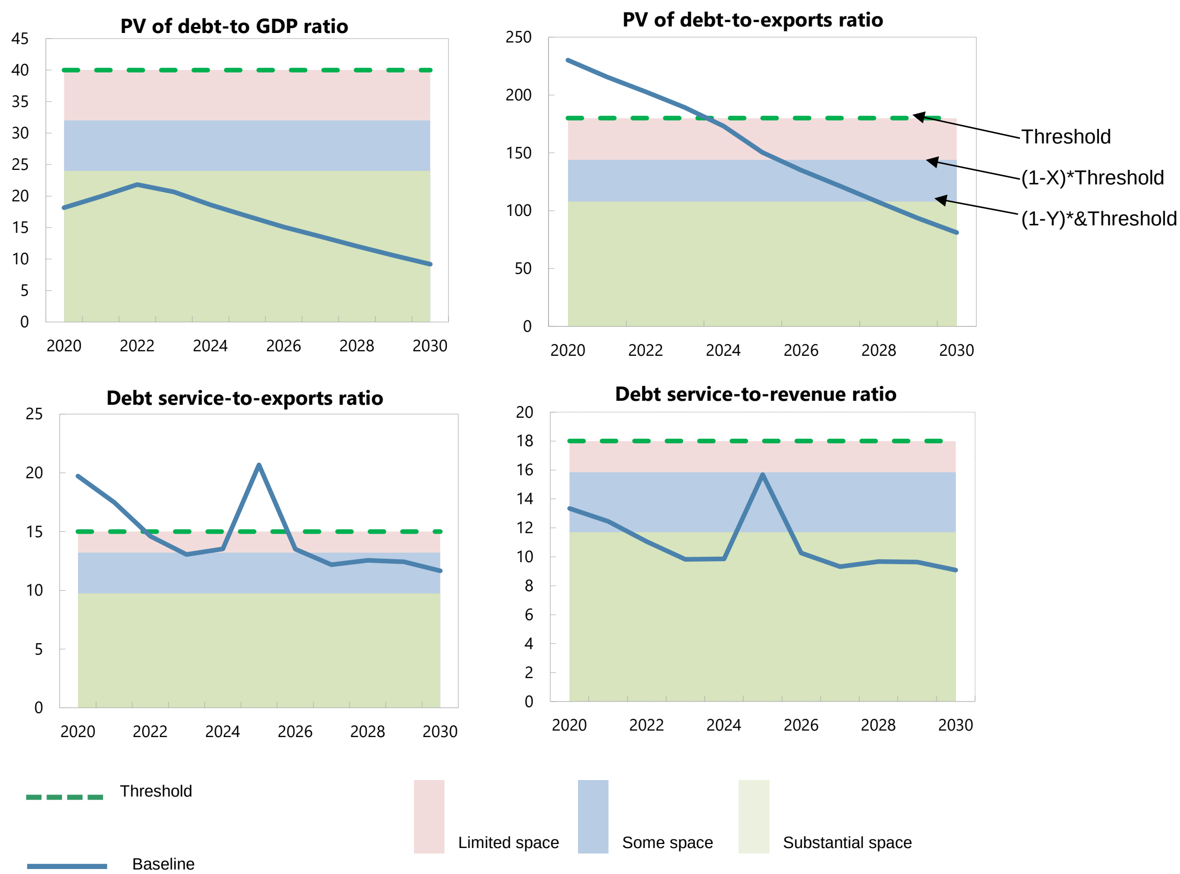
	GFN 1/	EMBI 2/
Benchmarks	14	570
Values	6	351
Breach of benchmark	No	No
Potential heightened liquidity needs	Low	

1/ Maximum gross financing needs (GFN) over 3-year baseline projection horizon.
2/ EMBI spreads correspond as of November 14, 2019.



Sources: Country authorities; and staff estimates and projections.

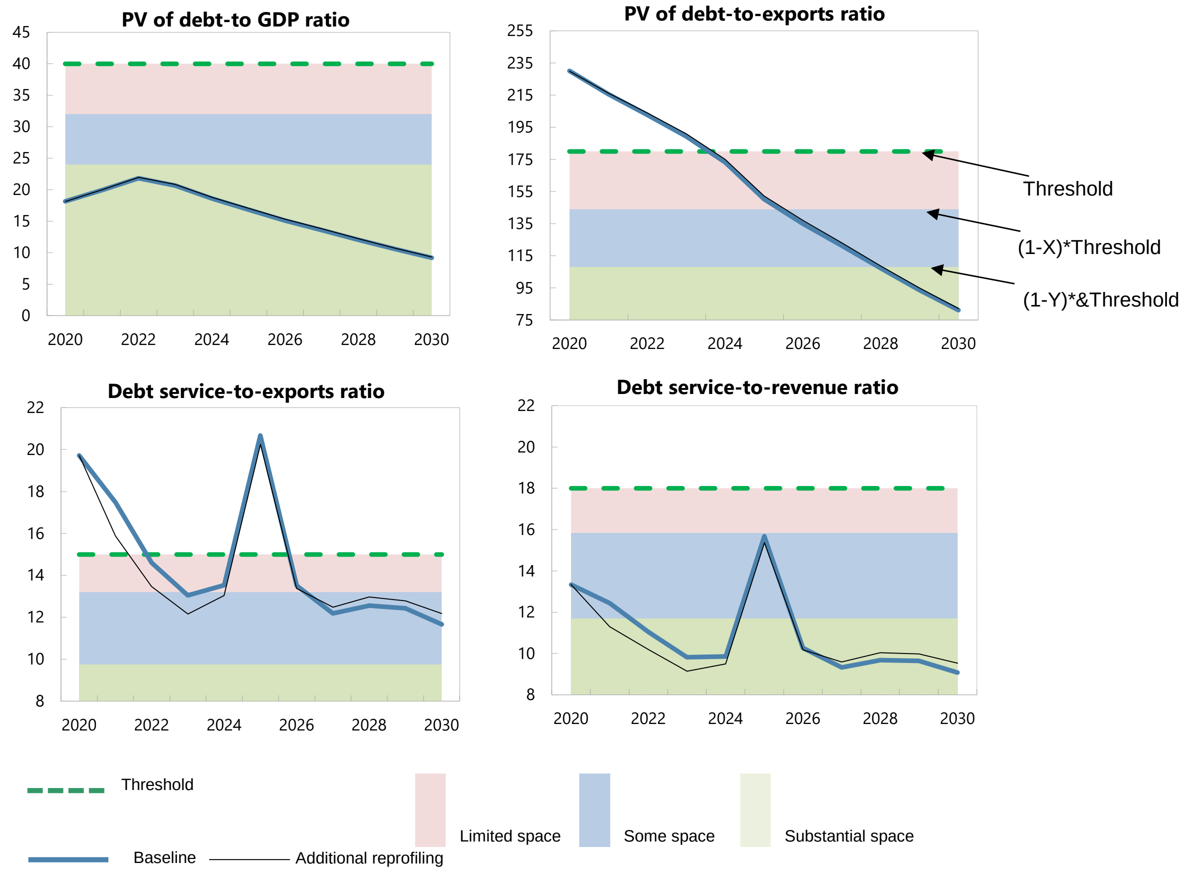
Figure 6. Ethiopia: Qualification of Moderate Category (2020–30)[1/]



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 7. Ethiopia: Qualification of Moderate Category, with Alternative Scenario (2020–30)[1/]



Sources: Country authorities; and staff estimates and projections.

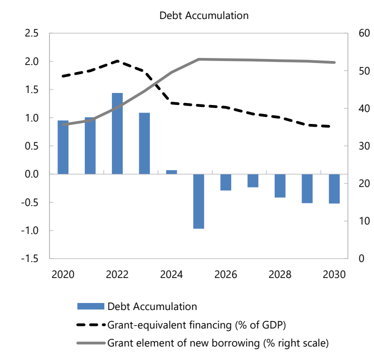
1/ For the PV debt/GDP and PV debt/exports thresholds, x is 20 percent and y is 40 percent. For debt service/Exports and debt service/revenue thresholds, x is 12 percent and y is 35 percent.

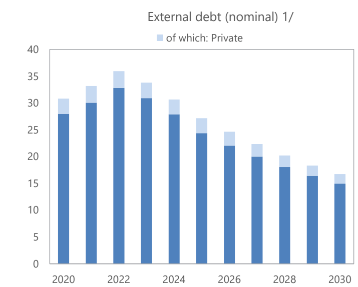
Table 1. Ethiopia: External Debt Sustainability Framework, 2017–39

(In percent of GDP, unless otherwise indicated)

	Actual			Projections								Average 8/	
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2039	Historical	Projections
External debt (nominal) 1/	**30.6**	**33.1**	**31.1**	**30.8**	**33.2**	**36.0**	**33.8**	**30.7**	**27.2**	**16.7**	**10.7**	**27.2**	**26.7**
of which: public and publicly guaranteed (PPG)	**28.2**	**30.4**	**28.2**	**28.0**	**30.1**	**32.8**	**30.9**	**27.9**	**24.4**	**15.0**	**9.8**	**24.6**	**24.1**
Change in external debt	-0.8	2.4	-2.0	-0.2	2.4	2.8	-2.2	-3.1	-3.5	-1.6	-0.3		
Identified net debt-creating flows	**-0.5**	**0.9**	**-2.7**	**-0.5**	**-1.7**	**-1.8**	**-2.6**	**-3.3**	**-2.8**	**-1.4**	**-1.3**	**0.0**	**-2.0**
Non-interest current account deficit	**7.3**	**5.6**	**3.8**	**4.9**	**4.3**	**4.4**	**3.8**	**2.9**	**3.2**	**3.5**	**3.5**	**5.9**	**3.7**
Deficit in balance of goods and services	-31.1	-31.2	-28.7	-28.3	-32.5	-36.6	-35.7	-34.1	-34.8	-32.9	-32.0	**-38.7**	**-33.6**
Exports	7.6	8.4	7.9	7.9	9.2	10.8	10.9	10.7	11.2	11.3	12.4		
Imports	-23.5	-22.8	-20.8	-20.5	-23.3	-25.8	-24.8	-23.4	-23.6	-21.6	-19.6		
Net current transfers (negative = inflow)	-8.5	-8.7	-8.9	-7.7	-10.1	-11.1	-10.5	-9.7	-9.3	-6.4	-3.5	**-10.9**	**-8.7**
of which: official	-1.7	-1.5	-2.2	-1.3	-1.2	-1.1	-1.2	-1.2	-1.0	-0.8	-0.6		
Other current account flows (negative = net inflow)	46.9	45.5	41.4	40.9	46.9	52.0	50.0	46.8	47.3	42.8	39.0	**55.5**	**46.0**
Net FDI (negative = inflow)	**-5.1**	**-4.4**	**-3.1**	**-4.3**	**-4.3**	**-4.0**	**-4.1**	**-4.3**	**-4.4**	**-4.5**	**-4.5**	**-3.5**	**-4.3**
Endogenous debt dynamics 2/	**-2.7**	**-0.4**	**-3.4**	**-1.1**	**-1.6**	**-2.1**	**-2.3**	**-1.9**	**-1.6**	**-0.5**	**-0.4**		
Contribution from nominal interest rate	0.7	0.6	0.7	0.6	0.3	0.3	0.2	0.5	0.4	0.6	0.1		
Contribution from real GDP growth	-2.9	-2.3	-2.6	-1.7	-2.0	-2.4	-2.4	-2.4	-2.0	-1.0	-0.5		
Contribution from price and exchange rate changes	-0.5	1.4	-1.5	...	...	...	...	...	...	...	...		
Residual 3/	**-0.3**	**1.6**	**0.7**	**0.3**	**4.0**	**4.5**	**0.4**	**0.1**	**-0.7**	**-0.1**	**1.0**	**1.6**	**0.7**
of which: exceptional financing	-0.1	-0.1	-0.1	0.9	1.4	2.2	1.6	0.1	-0.1	-0.3	0.0		
Sustainability indicators													
PV of PPG external debt-to-GDP ratio	**...**	**...**	**19.6**	**18.1**	**19.9**	**21.8**	**20.7**	**18.6**	**16.8**	**9.2**	**5.8**		
PV of PPG external debt-to-exports ratio	**...**	**...**	**247.6**	**230.1**	**215.6**	**202.7**	**189.3**	**173.1**	**150.3**	**81.2**	**46.8**		
PPG debt service-to-exports ratio	**20.3**	**18.5**	**24.6**	**19.7**	**17.5**	**14.6**	**13.0**	**13.5**	**20.7**	**11.7**	**3.0**		
PPG debt service-to-revenue ratio	**11.0**	**12.6**	**16.8**	**13.3**	**12.4**	**11.0**	**9.8**	**9.9**	**15.7**	**9.1**	**2.6**		
Gross external financing need (Million of U.S. dollars)	3366.7	2638.9	2811.9	2690.4	2048.4	2325.3	1705.6	632.7	2009.2	1266.2	-1848.1		
Key macroeconomic assumptions													
Real GDP growth (in percent)	10.2	7.7	9.0	6.2	6.1	7.0	7.5	8.0	7.0	6.2	4.6	**9.6**	**6.7**
GDP deflator in US dollar terms (change in percent)	1.7	-4.3	4.7	6.7	-9.5	-8.5	3.2	3.2	-2.0	2.9	3.1	**2.1**	**0.7**
Effective interest rate (percent) 4/	2.4	1.9	2.4	2.2	1.0	0.8	0.5	1.6	1.4	3.4	1.0	**1.7**	**1.7**
Growth of exports of G&S (US dollar terms, in percent)	2.9	13.1	7.9	12.8	12.7	14.0	12.4	9.7	9.2	9.6	10.5	**8.9**	**10.8**
Growth of imports of G&S (US dollar terms, in percent)	-4.8	0.2	4.1	11.3	9.4	8.5	6.6	5.1	5.9	8.3	7.1	**8.6**	**7.6**
Grant element of new public sector borrowing (in percent)	...	...	...	35.6	36.8	40.2	44.6	49.6	53.1	52.2	50.9	**...**	**47.6**
Government revenues (excluding grants, in percent of GDP)	14.1	12.3	11.5	11.7	13.0	14.2	14.5	14.7	14.8	14.5	14.6	**13.7**	**14.2**
Aid flows (in Million of US dollars) 5/	556.8	686.4	1198.8	2250.8	2284.5	2661.9	2822.3	2109.7	2242.4	2381.7	4064.1		
Grant-equivalent financing (in percent of GDP) 6/	...	...	...	1.7	1.8	2.0	1.8	1.3	1.2	0.8	0.6	**...**	**1.3**
Grant-equivalent financing (in percent of external financing) 6/	...	...	...	53.2	51.6	49.8	56.2	68.2	70.8	70.2	62.9	**...**	**63.8**
Nominal GDP (Million of US dollars)	81,788	84,298	96,140	108,934	104,577	102,353	113,579	126,571	132,658	207,406	437,264		
Nominal dollar GDP growth	12.1	3.1	14.0	13.3	-4.0	-2.1	11.0	11.4	4.8	9.3	7.9	**11.9**	**7.4**
Memorandum items:													
PV of external debt 7/	...	...	22.4	21.0	23.1	25.0	23.6	21.4	19.6	11.0	6.7		
In percent of exports	...	...	283.1	266.1	249.3	231.8	215.8	199.0	175.4	97.0	53.7		
Total external debt service-to-exports ratio	24.9	22.7	28.7	23.9	21.3	17.9	16.6	17.1	24.1	13.8	4.1		
PV of PPG external debt (in Million of US dollars)			18837.9	19753.4	20851.4	22356.6	23469.0	23548.1	22322.7	19044.5	25444.6		
(PVt-PVt-1)/GDPt-1 (in percent)				1.0	1.0	1.4	1.1	0.1	-1.0	-0.5	0.3		
Non-interest current account deficit that stabilizes debt ratio	8.1	3.2	5.8	5.1	1.9	1.6	6.0	6.1	6.7	5.1	3.8		

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. Presented on fiscal year basis (e.g., 2020 referes to fiscal year ending in June 2020).

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.

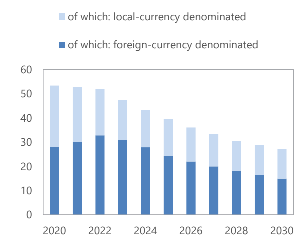
Table 2. Ethiopia: Public Sector Debt Sustainability Framework, 2017–39

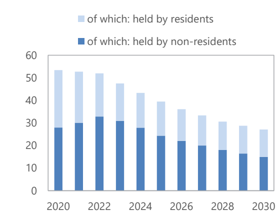
(In percent of GDP, unless otherwise indicated)

	Actual			Projections								Average 6/	
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2039	Historical	Projections
Public sector debt 1/	**56.5**	**59.5**	**56.8**	**53.4**	**52.7**	**52.0**	**47.5**	**43.3**	**39.5**	**27.1**	**12.1**	**49.2**	**40.4**
of which: external debt	**28.2**	**30.4**	**28.2**	**28.0**	**30.1**	**32.8**	**30.9**	**27.9**	**24.4**	**15.0**	**9.8**	**24.6**	**24.1**
Change in public sector debt	2.1	3.1	-2.7	-3.4	-0.7	-0.7	-4.4	-4.2	-3.8	-1.7	-1.5		
Identified debt-creating flows	**-1.5**	**0.2**	**-4.3**	**-6.6**	**-4.6**	**-3.4**	**-3.9**	**-3.4**	**-3.0**	**-1.0**	**-1.2**	**-3.7**	**-3.1**
Primary deficit	**4.5**	**4.0**	**3.3**	**2.6**	**1.6**	**0.4**	**0.0**	**-0.2**	**-0.7**	**-0.3**	**-0.8**	**2.4**	**0.1**
Revenue and grants	14.7	13.1	12.8	12.5	13.8	14.9	15.2	15.4	15.4	15.0	14.8	**15.2**	**14.8**
of which: grants	0.7	0.8	1.2	0.9	0.8	0.6	0.7	0.7	0.7	0.5	0.3		
Primary (noninterest) expenditure	19.2	17.0	16.1	15.1	15.4	15.3	15.2	15.2	14.7	14.7	14.0	**17.5**	**14.9**
Automatic debt dynamics	**-5.4**	**-3.4**	**-7.7**	**-8.7**	**-5.7**	**-3.4**	**-3.9**	**-3.3**	**-2.4**	**-0.8**	**-0.4**		
Contribution from interest rate/growth differential	-16.9	-11.0	4.3	-8.7	-5.7	-3.4	-3.9	-3.3	-2.4	-0.8	-0.4		
of which: contribution from average real interest rate	-11.9	-6.9	9.2	-5.4	-2.6	0.1	-0.3	0.3	0.5	0.9	0.2		
of which: contribution from real GDP growth	-5.0	-4.0	-4.9	-3.3	-3.1	-3.4	-3.6	-3.5	-2.8	-1.7	-0.6		
Contribution from real exchange rate depreciation	11.5	7.6	-12.0	...	...	...	...	...	...	...	...		
Other identified debt-creating flows	**-0.6**	**-0.4**	**0.0**	**-0.5**	**-0.5**	**-0.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**-0.2**	**-0.1**
Privatization receipts (negative)	-0.6	-0.4	0.0	-0.5	-0.5	-0.4	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 (liquid financial asset)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Residual	**3.7**	**2.9**	**1.6**	**3.2**	**3.9**	**2.7**	**-0.5**	**-0.7**	**-0.8**	**-0.6**	**-0.3**	**6.4**	**0.4**
Sustainability indicators													
PV of public debt-to-GDP ratio 2/	**...**	**...**	**48.8**	**45.3**	**44.1**	**42.7**	**38.9**	**35.5**	**32.4**	**21.5**	**8.2**		
PV of public debt-to-revenue and grants ratio	**...**	**...**	**381.5**	**361.2**	**319.0**	**286.6**	**255.9**	**230.2**	**210.1**	**143.7**	**55.3**		
Debt service-to-revenue and grants ratio 3/	**78.0**	**93.8**	**102.1**	**29.5**	**29.4**	**26.0**	**36.3**	**33.4**	**43.0**	**55.4**	**22.8**		
Gross financing need 4/	15.4	15.8	16.4	5.8	5.1	3.9	5.5	5.0	5.9	8.0	2.6		
Key macroeconomic and fiscal assumptions													
Real GDP growth (in percent)	10.2	7.7	9.0	6.2	6.1	7.0	7.5	8.0	7.0	6.2	4.6	**9.6**	**6.7**
Average nominal interest rate on external debt (in percent)	2.5	1.8	2.3	2.2	0.8	0.6	0.3	1.6	1.3	3.5	0.8	**1.6**	**1.6**
Average real interest rate on domestic debt (in percent)	-2.4	-5.2	-6.7	-11.4	-7.2	-3.6	-1.8	-0.1	0.8	3.1	3.1	**-7.6**	**-1.0**
Real exchange rate depreciation (in percent, + indicates depreciation)	78.7	36.9	-30.8	...	...	...	...	...	...	...	...	**16.1**	**...**
Inflation rate (GDP deflator, in percent)	7.9	11.5	12.5	18.4	13.8	10.2	8.5	8.4	8.3	8.2	8.4	**12.6**	**9.8**
Growth of real primary spending (deflated by GDP deflator, in percent)	9.8	-4.6	3.1	-0.1	8.0	6.3	6.7	8.3	3.4	6.0	4.6	**9.5**	**5.8**
Primary deficit that stabilizes the debt-to-GDP ratio 5/	2.3	0.9	6.0	6.1	2.3	1.2	4.5	4.0	3.2	1.4	0.7	**3.1**	**2.8**
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: general government, SOEs (excl. Ethiopian airlines), and the central bank . Definition of external debt is Residency-based. Presented on fiscal year basis (e.g., 2020 referes to fiscal year ending in June 2020).

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. Ethiopia: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2020–30

(In percent)

	Projections 1/										
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
PV of debt-to GDP ratio											
Baseline	18	20	22	21	19	17	15	14	12	11	9
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2020-2030 2/	18	18	19	19	19	18	18	18	18	18	17
B. Bound Tests											
B1. Real GDP growth	18	20	23	21	19	17	16	14	13	11	10
B2. Primary balance	18	20	24	23	20	19	17	15	14	12	11
B3. Exports	18	21	24	23	21	19	17	15	14	12	10
B4. Other flows 3/	18	22	26	25	22	21	19	17	15	13	12
B5. Depreciation	18	28	37	35	32	29	27	24	22	19	17
B6. Combination of B1-B5	18	22	25	24	21	20	18	16	14	13	11
C. Tailored Tests											
C1. Combined contingent liabilities	18	22	24	23	21	19	17	16	14	13	11
C2. Natural disaster	...	...	...	...	...	...	...	...	...	...	...
C3. Commodity price	...	...	...	...	...	...	...	...	...	...	...
C4. Market Financing	18	23	25	23	21	19	17	15	13	12	10
Threshold	40	40	40	40	40	40	40	40	40	40	40
PV of debt-to-exports ratio											
Baseline	**230**	**216**	**203**	**189**	173	150	135	121	107	94	81
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2020-2030 2/	**230**	**199**	175	176	180	163	162	161	158	155	152
B. Bound Tests											
B1. Real GDP growth	**230**	**216**	**203**	**189**	173	150	135	121	107	94	81
B2. Primary balance	**230**	**220**	**221**	**207**	**190**	167	151	137	122	108	95
B3. Exports	**230**	**256**	**298**	**278**	**255**	**224**	**202**	**182**	162	142	123
B4. Other flows 3/	**230**	**239**	**242**	**226**	**208**	**183**	167	150	133	117	102
B5. Depreciation	**230**	**216**	**247**	**230**	**212**	**187**	170	155	137	121	106
B6. Combination of B1-B5	**230**	**255**	**230**	**258**	**237**	**208**	**189**	170	151	132	115
C. Tailored Tests											
C1. Combined contingent liabilities	**230**	**233**	**221**	**208**	**192**	169	154	141	127	114	101
C2. Natural disaster	...	...	...	...	...	...	...	...	...	...	...
C3. Commodity price	...	...	...	...	...	...	...	...	...	...	...
C4. Market Financing	**230**	**216**	**203**	**190**	174	150	134	120	106	93	80
Threshold	180	180	180	180	180	180	180	180	180	180	180

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 3. Ethiopia: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2020–30 (concluded)

(In percent)

	Projections 1/										
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Debt service-to-exports ratio											
Baseline	**19.7**	**17.5**	14.6	13.0	13.5	**20.7**	13.5	12.2	12.6	12.4	11.7
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2020-2030 2/	**20**	15	11	10	11	**15**	10	10	10	10	10
B. Bound Tests											
B1. Real GDP growth	**20**	**17**	15	13	14	**21**	14	12	13	12	12
B2. Primary balance	**20**	**17**	15	14	14	**21**	14	13	13	13	13
B3. Exports	**20**	**20**	**20**	**18**	**19**	**28**	**18**	**17**	**18**	**18**	**17**
B4. Other flows 3/	**20**	**17**	15	14	14	**21**	14	13	14	14	13
B5. Depreciation	**20**	**17**	15	14	14	**21**	14	13	15	14	13
B6. Combination of B1-B5	**20**	**19**	**18**	**16**	**17**	**25**	**17**	**16**	**17**	**16**	**15**
C. Tailored Tests											
C1. Combined contingent liabilities	**20**	**17**	15	13	14	**21**	14	12	13	13	12
C2. Natural disaster	...	...	...	...	...	...	...	...	...	...	...
C3. Commodity price	...	...	...	...	...	...	...	...	...	...	...
C4. Market Financing	**20**	**17**	15	13	14	**22**	**15**	13	13	12	11
Threshold	15	15	15	15	15	15	15	15	15	15	15
Debt service-to-revenue ratio											
Baseline	13	12	11	10	10	16	10	9	10	10	9
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2020-2030 2/	13	11	8	8	8	11	8	7	8	8	8
B. Bound Tests											
B1. Real GDP growth	13	13	11	10	10	16	11	10	10	10	9
B2. Primary balance	13	12	11	10	10	16	11	10	10	10	10
B3. Exports	13	12	11	10	10	16	10	10	10	10	10
B4. Other flows 3/	13	12	11	10	10	16	11	10	11	11	10
B5. Depreciation	13	17	15	14	14	**23**	15	14	16	16	15
B6. Combination of B1-B5	13	12	11	10	10	16	11	10	11	11	10
C. Tailored Tests											
C1. Combined contingent liabilities	13	12	11	10	10	16	10	10	10	10	9
C2. Natural disaster	...	...	...	...	...	...	...	...	...	...	...
C3. Commodity price	...	...	...	...	...	...	...	...	...	...	...
C4. Market Financing	13	12	11	10	10	17	12	10	10	9	9
Threshold	18	18	18	18	18	18	18	18	18	18	18

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. Ethiopia: Sensitivity Analysis for Key Indicators of Public Debt, 2020–30

(In percent)

		Projections 1/									
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
PV of Debt-to-GDP Ratio											
Baseline	45	44	43	39	36	32	29	27	25	23	22
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2020-2030 2/	45	44	41	37	33	30	27	25	23	21	20
B. Bound Tests											
B1. Real GDP growth	45	45	45	41	38	35	33	31	29	27	26
B2. Primary balance	45	46	48	44	40	37	34	31	29	27	25
B3. Exports	45	45	45	41	38	34	31	29	26	25	23
B4. Other flows 3/	45	46	47	43	40	36	33	31	28	26	24
B5. Depreciation	45	45	43	38	34	30	27	24	21	19	17
B6. Combination of B1-B5	45	43	44	40	36	33	30	27	25	23	21
C. Tailored Tests											
C1. Combined contingent liabilities	45	52	50	46	42	38	35	33	30	28	26
C2. Natural disaster	...	...	...	...	...	...	...	...	...	...	...
C3. Commodity price	...	...	...	...	...	...	...	...	...	...	...
C4. Market Financing	45	44	43	39	36	32	29	27	25	23	21
TOTAL public debt benchmark	55	55	55	55	55	55	55	55	55	55	55
PV of Debt-to-Revenue Ratio											
Baseline	361	319	287	256	230	210	192	180	164	154	144
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2020-2030 2/	361	315	278	243	217	197	180	167	154	144	135
B. Bound Tests											
B1. Real GDP growth	361	326	301	272	247	229	213	202	188	180	171
B2. Primary balance	361	332	323	289	261	239	220	206	189	178	166
B3. Exports	361	324	302	270	243	223	204	191	174	164	152
B4. Other flows 3/	361	336	317	284	256	235	216	202	184	173	160
B5. Depreciation	361	326	289	253	223	198	176	159	141	127	113
B6. Combination of B1-B5	361	312	294	261	234	213	194	180	164	152	140
C. Tailored Tests											
C1. Combined contingent liabilities	361	373	335	300	271	249	229	215	198	186	174
C2. Natural disaster	...	...	...	...	...	...	...	...	...	...	...
C3. Commodity price	...	...	...	...	...	...	...	...	...	...	...
C4. Market Financing	361	319	287	256	230	210	192	179	163	154	143
Debt Service-to-Revenue Ratio											
Baseline	30	29	26	36	33	43	44	44	49	52	55
A. Alternative Scenarios											
A1. Key variables at their historical averages in 2020-2030 2/	30	29	24	32	28	35	33	31	32	32	32
B. Bound Tests											
B1. Real GDP growth	30	30	27	38	36	46	47	48	53	56	61
B2. Primary balance	30	29	29	42	37	46	48	49	53	56	59
B3. Exports	30	29	26	37	34	43	44	45	49	52	56
B4. Other flows 3/	30	29	26	37	34	43	44	45	50	53	57
B5. Depreciation	30	28	26	36	33	43	43	42	46	49	52
B6. Combination of B1-B5	30	28	26	38	34	43	44	44	48	51	54
C. Tailored Tests											
C1. Combined contingent liabilities	30	29	37	41	37	49	50	50	54	57	60
C2. Natural disaster	...	...	...	...	...	...	...	...	...	...	...
C3. Commodity price	...	...	...	...	...	...	...	...	...	...	...
C4. Market Financing	30	29	26	36	34	44	45	45	49	51	55

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.