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STAFF REPORT FOR THE 2013 ARTICLE IV CONSULTATION—DEBT SUSTAINABILITYANALYSIS

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Approved By
Michael Atingi-Ego and Elliott Harris (IMF) and Jeffrey D. Lewis and Marcelo Giugale (IDA)

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Based on the Low-Income Country debt Sustainability Analysis (LIC DSA) framework, the updated DSA found that Ethiopia's risk of external debt distress remains low. The public DSA suggests Ethiopia's overall public sector debt dynamics are sustainable under the baseline scenario but vulnerable under several alternative scenarios. Public sector debt ratios are projected to decline in the medium and long term, starting from a relatively low level in 2013. An alternative scenario with a government primary deficit fixed at the 2012 level would have a detrimental impact on debt-to-GDP and debt-to-revenue ratios, suggesting that the government must develop a strategy to contain the primary deficit as it's already assumed in the baseline. Maintaining the growth of exports through diversification of the export sector, developing a medium-term debt strategy for the public sector, and limiting non-concessional borrowing remain crucial to maintaining a low risk of external debt distress.

BACKGROUND AND KEY FINDINGS

1. **The last Debt Sustainability Analysis (DSA), prepared in August 2012, concluded that Ethiopia was at a low risk of external debt distress**. Ethiopia reached the completion point under the Heavily Indebted Poor Countries (HIPC) Initiative in 2004 and benefited from debt relief under the Multilateral Debt Relief Initiative (MDRI) in 2006[1]. In 2011/12[2], public and publicly guaranteed (PPG) external debt declined to 18.4 percent of GDP, more than 5 percentage points relative to the previous year.[3] High GDP growth and negative domestic real interest rates on public debt contributed to the decline.

2. **The previous DSA findings were robust to the inclusion of remittances and higher non-concessional loans as part of the assessment.** Last year's external DSA did not result in any breach of indicative thresholds with or without remittances and debt-to-exports ratios were about 20 percentage points better in the baseline with those private transfers. The assessment was made not taking into account remittances as recommended in the LIC DSA framework, with strong evidence of low external debt distress risks. An alternative scenario stretching the non-concessional borrowing capacity up to US$1 billion a year confirmed the capacity of the country to absorb those resources with no harm to the external DSA.

3. **Ethiopia remains at low risk of external debt distress in 2013. The present value (PV) of PPG** external debt is expected to increase slightly from 13.2 percent of GDP in 2011/12 to 14.4 percent of GDP in 2012/13. The ratio of PV of PPG external debt to exports would go from 94.3 percent to 110.6 percent in the same period, as a result of the rapid buildup of external debt and low exports growth. The inclusion of workers' remittances significantly lowers the baseline average of the debt-to-exports ratios in the projection period (2012/13–2032/33) by 16 percentage points.[4] There is no breach of any indicative threshold in either case, excluding or including workers' remittances.

4. **The current DSA assumes a decline in the share of concessional loans, particularly from International Development Association (IDA), and higher nonconcessional external loan**

[1] While Ethiopia has received debt relief from most of its creditors, it has not been able to reach agreement with bilateral official creditors from Bulgaria, Libya, and FR Yugoslavia and commercial creditors from Italy, former Czechoslovakia, and FR Yugoslavia whose outstanding loans (US$378.8 million) accounted for 7.0 percent of the debt stock in 2009/10. HIPC terms are assumed for these loans. Negotiations with Russia on outstanding loans (US$161.6 million) are at an advanced stage, and debt service on these loans is excluded from this DSA.

[2] The Ethiopian fiscal year runs from July 8 to July 7.

[3] PPG debt includes not only federal and regional governments' debt, but also encompasses all major state-owned enterprises, except Ethiopian Airlines (EAL). EAL debt is excluded from PPG debt, because, although owned by the government, it is run on commercial terms. EAL enjoys managerial independence, borrows without any government guarantees, publishes annual audited reports and has a sizeable profit margin.

[4] Based on the 2012 Country Policy and Institutional Assessment (CPIA) score, Ethiopia is classified as a medium performer. The thresholds for the debt burden for medium performers are 150, 40, and 250 for the PV of debt to exports, GDP, and revenue, respectively; debt service thresholds are 20 and 30 percent of exports and revenue, respectively. In the scenarios that include workers' remittances, the corresponding threshold for PV of debt to exports and remittances is 120 percent (compared to 135 in the 2011 DSA) and is 16 percent for debt service to exports and remittances; the PV of debt to GDP and remittances is 36 percent.

disbursements between 2013/14 and 2019/20. An increase in projected commercial loan disbursements to finance large acquisitions of capital goods by state-owned enterprises is the largest contributor to the buildup of new debt in the medium term. New commercial loans will contribute to subsequent increases in the various debt ratios and a decline in the grant element on new borrowing throughout the projection periods. This DSA assumes disbursements just below US$1 billion in nonconcessional loans a year in the next four years, with Ethiotel (the telecommunications company) taking US$1 billion over four years. The DSA assumes that nonconcessional loan disbursements will remain at around US$730 million on average over the projection period (2018–33). Over the time horizon of the DSA, 53 percent of new external loans are assumed to be concessional on average. Average maturity on all new external loans is assumed to be 26 years while new non-concessional loans are assumed to carry a maturity of 11–12 years. Average interest rates on new external loans are assumed at 2.3 percent over the horizon, and interest rates on new non-concessional loans are assumed to be in the 2–4 percent range.

Text Table 1. Ethiopia: Comparison of PPG External Debt. Baseline Scenario

	2012/13	2013/14	2014/15	2015/16	2016/17	2021/22	2031/32
			(Percent, unless otherwise indicated)				
			PV of Debt to Exports Ratio				
2013DSA	110.6	116.3	120.1	122.1	122.2	102.7	56.1
2012DSA	98.7	102.1	103.4	106.1	…	97.6	58.5
			PV of Debt to GDP Ratio				
2013DSA	14.4	16.3	17.4	18.5	19.1	17.7	10.5
2012DSA	14.3	15.4	16.0	17.1	…	16.2	9.7
			PV of Debt to Revenue Ratio				
2013DSA	100.7	127.3	131.0	139.7	144.6	132.8	77.9
2012DSA	111.2	119.2	123.1	129.5	…	118.5	74.4
			Debt Service to Exports Ratio				
2013DSA	5.8	6.4	7.2	7.1	7.4	8.5	4.9
2012DSA	5.7	6.4	7.3	7.3	…	8.3	5.4
Memorandum items:							
			Grant Element of New External Borrowing				
2013DSA	30.8	24.8	25.3	24.8	25.7	28.2	27.6
2012DSA	30.1	25.6	23.8	17.7	…	25.5	21.9
			New Commercial Loan Disbursements (billions of U.S. dollars)				
2013DSA	0.511	0.997	0.985	0.996	0.932	0.750	0.755
2012DSA	0.424	0.538	0.606	0.968	…	0.571	0.718
			Real GDP Growth (annual percent change)				
2013DSA	7.0	7.5	7.5	7.0	7.0	6.5	6.5
2012DSA	6.5	6.5	6.5	6.5	6.5	6.5	6.5
			Current Account Balance to GDP Ratio				
2013DSA	-6.4	-5.7	-6.0	-5.8	-5.6	-5.1	-4.2
2012DSA	-7.5	-6.2	-6.2	-6.3	…	-5.6	-5.2

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

5. In April 2013, IDA authorized a US$1 billion ceiling for Ethiopia for FY13 and, in principle, a similar ceiling for FY14 and FY15. This implies that Ethiopia can borrow up to US$1 billion per year from other creditors on non-concessional or commercial terms as long as these loans finance projects that are growth enhancing. According to the IDA Non-concessional Borrowing Policy, a loan counts at the point of signing the loan contract (regardless of the disbursement profile). The decision was informed by the 2012 DSA analysis, which demonstrates that such a ceiling is consistent with the maintenance of low risk of external debt distress. The 2013 DSA is consistent with the new ceiling.[5]

6. Some of the large public investment projects by state-owned enterprises could pose risks to Ethiopia's public debt sustainability. The state-owned power company, the Ethiopia Electricity Power Company, is undertaking several large investment projects. Most rely on external assistance and loans (including both concessional and nonconcessional) while the Renaissance Dam project, estimated by the authorities to cost 10 percent of 2012/13 GDP, is intended to be financed entirely domestically. The Ethiopian Railway Corporation recently signed contracts with Chinese and Turkish companies for projects whose total size is more than US$3 billion, or 6 percent of 2012/13 GDP. The telecommunications company signed two agreements with Chinese providers for a total of US$1 billion in equipment. It would be prudent for the authorities to formulate a medium-term debt management strategy and to start monitoring the overall debt (including external and domestic) of the consolidated public sector.

7. Authorities requested the exclusion of the commercial external loans in the telecom sector from the DSA. Ethiopian authorities agreed with the findings of the updated DSA, but requested the exclusion of the two specific loans that Ethiotel has signed with Chinese equipment suppliers for a total of US$1 billion. The conditions of those loans are nonconcessional and the authorities explained that there is no government guarantee. The equipment has not been delivered and the process could take several years. Staff proposed to split the disbursements in the next four years to reflect the multiyear nature of the agreement and the time needed to properly commission the equipment. Authorities agreed on the proposed treatment and the inclusion of the loans under those conditions.

MACROECONOMIC ASSUMPTIONS

8. The medium-term macroeconomic outlook underlines an upward revision on output growth and slightly lower inflation compared to the assumptions of the 2012 DSA (Box 1). Real GDP growth is forecasted at 7 percent in 2012/13 and 7.5 percent in the following two years, reflecting strong economic activity mainly led by public infrastructure investment. The projected long-run GDP growth rate is maintained at 6.5 percent.

9. Export growth is projected to continue but at a slower pace than in the previous DSA, partly reflecting developments in commodity prices. In the medium- to long-run, export growth would be supported by diversification of the export sector as emerging export industries expand, funded by greater inflows of foreign direct investment, and domestic investments to boost service exports including

[5] Some simulations implying slightly higher external non-concessional borrowing (above the US$1 billion limit) produce debt trajectories that would lead to a downgrade in Ethiopia's risk of external debt distress.

electricity. Overall, exports of goods and services are projected to grow at 11.2 percent each year from 2013/14 to 2017/18 or 1.2 percentage points below the rate assumed in the 2012 DSA.

EXTERNAL DEBT SUSTAINABILITY ANALYSIS

10. **Under the baseline scenario (not including remittances), the PPG external debt indicators will rise in the next several years, but will remain well under the relevant indicative thresholds (Figure 1)**. The PV of PPG external debt in percent of GDP would slightly increased in 2012/13 to 14.4 percent and is projected to reach 19 percent by 2017/18, reflecting the assumed steady increase in new loan disbursements, and subsequently decline to about 10 percent in the long run. The PV of debt in percent of exports reached 110.6 percent in 2012/13; and despite continued strength in exports, it is projected to continue increasing, peaking at 124 percent in 2015/16. The debt service-to-exports ratio also remains well below the relevant threshold although it keeps rising to a peak of 12.5 percent in 2019/20, reflecting servicing of non-concessional loans by public enterprises.

Box 1. Ethiopia: Macroeconomic Assumptions for the Baseline Scenario

Based on a domestic financing which is less compared to full financing of the Growth and Transformation Plan (GTP), real GDP growth is projected at 7 percent in 2012/13, 7.5 percent in the following two years, and to slightly tamp down to 7 percent until 2017/18 and 6.5 percent during rest of the projection period.[1] This assessment contrasts with the government's growth ambitions in the GTP and reflects the still difficult business environment, given the limited space for private sector growth on account of crowding out by public sector borrowing. Inflation is projected to reach 7.4 percent by the end of 2012/13 and to stay at 8 percent in the long run. The primary balance of the public sector is projected to record a large deficit (averaging 5.7 percent of GDP in 2013−18) initially reflecting investment by public enterprises, and it is expected to remain about 4.2 percent in the long run.

The external current account deficit (before official transfers) is expected to improve slightly to 9.3 percent in 2013/14 after reaching 9.5 percent in 2012/13 and gradually to reduce to about 7 percent in the long-run.

Exports of goods and services are projected to grow by 15 percent in 2013/14, after an increase of 3.3 percent in 2012/13, and with an average growth of about 9.4 percent in the long run. A decline in commodity prices, especially in gold and coffee, largely offset gains in export volumes. Investments in targeted sectors that receive government support are expected to contribute to export growth, with export volume growth projected about 15.4 percent for 2013/14 and about the same growth rate in the next four years to just below 8 percent over the remaining DSA horizon. Imports of goods and services are projected to increase slightly above GDP as demand for imported capital goods is expected to grow fast during the GTP implementation. In the long run, imports are expected to grow in line with domestic output.

Workers' remittances have played a key role in supporting the balance of payments and in 2013/14 are expected to remain at 7 percent of GDP. High growth, economic stability and the return of growth in developed countries is expected to maintain remittances at around 5.7 percent of GDP in the long run.

Foreign direct investment (FDI) is projected at 2.8 percent of GDP in 2013/14 and will increase gradually to a long run yearly average of 4.5 on account of policies to promote greater private investment to sustain high growth.

[1]Domestic financing and prospective external inflows amount roughly to two third of full financing of the GTP.

11. Under the historical scenario, the debt stock indicators would be lower than under the baseline scenario. The scenario reflects significantly higher nominal GDP and export growth (than in the baseline) which works to drive the debt ratios down. It also reflects larger net debt creating flows (than in the baseline) which work to drive up the debt ratios. The dynamic path under the historical scenario is determined by these two offsetting forces.

12. Without remittances, the terms-of-trade shock is the most extreme potential risk for the sustainability of the external debt. Even under the possibility of a large deterioration in the terms-of-trade, no indicators would breach the indicative thresholds during the period covered by the DSA. The PV of PPG external debt to exports approached the threshold without reaching the 150 mark during 2017/18 through 2020/21, declining to less than 100 by 2032/33.

PUBLIC DEBT SUSTAINABILITY ANALYSIS

13. Under the baseline scenario and similar to the findings in the 2012 DSA, the total public sector debt-to-GDP ratio would rise sharply in the near term. This reflects large domestic borrowing and continued accumulation of external PPG debt by public enterprises to implement infrastructure investment projects contemplated in the GTP. It is expected that after an initial period of high spending, total public sector expenditure would revert to a lower level in the long run.

14. Debt stock related indicators grow steadily and peak in 2020/21 and debt service related indicators peak one year earlier. All debt indicators decline gradually from the peak in the baseline scenario; this result depends on continuation of robust GDP growth, moderate public sector primary deficits, and most crucially the authorities' policy of keeping domestic interest rates low. Interest rates are assumed to remain in negative territory in real terms with inflation expected to stay at 8 percent in the long run.

15. Public sector debt would grow in the long-run as a result of a permanent negative shock on GDP growth, but debt service-to-revenue could absorb this shock (Figure 2). The scenario with unchanged primary balance from 2012/13 shows particularly sharp deterioration because of the unusually large primary deficit in that particular year, reflecting investment activities by public enterprises. The other two alternative scenarios (real GDP growth and primary balance at the historic average; permanently lower GDP growth) show trajectories with no important changes in the debt ratios during the DSA horizon.

16. The baseline scenario understates the public debt burden for the economy because it reflects actual costs of borrowing by the public sectors, which are significantly lower than inflation. Although inflation is projected to remain at a single-digit level, given the current policy of financing public investment at low costs, interest rates on public enterprise domestic borrowing would not be fully adjusted to a positive level in real terms. Ethiopia's relatively benign public sector debt outlook hinges strongly on the continuation of this current policy. If the actual cost of borrowing were to rise above inflation, the debt indicators would worsen or fiscal adjustment could be required to maintain fiscal sustainability.

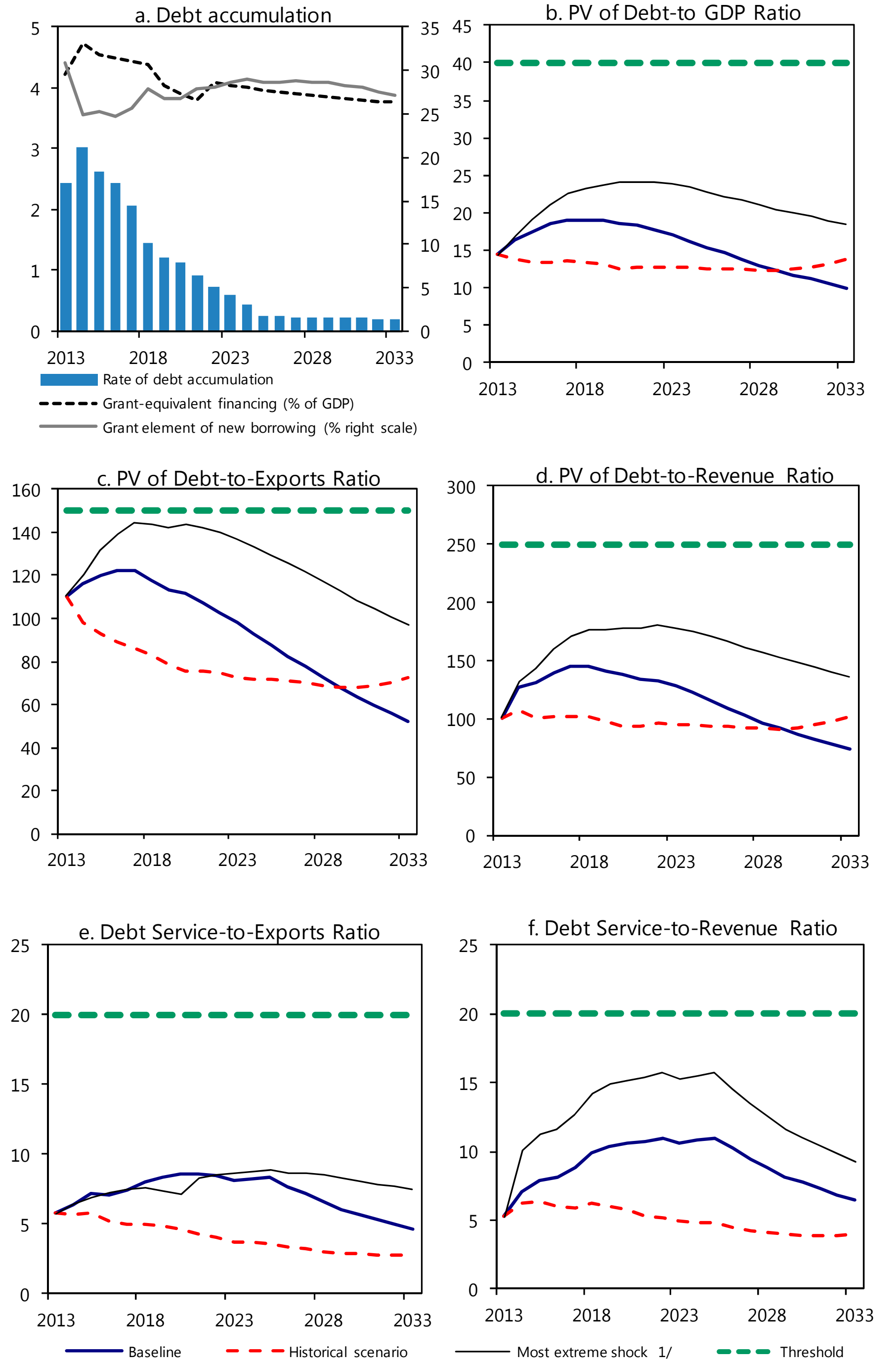
17. This analysis which maintains a low risk of debt distress assumes disbursements of external borrowing significantly lower than required for the GTP. The ongoing large public investment projects rely heavily on domestic financing and would lead to a large accumulation of public debt. Absent an appropriate pacing of the public investment projects in the GTP, the domestic financial sector could be squeezed. Monitoring the operations of the consolidated public sector including contingent liabilities arising from financial transactions among public entities is crucial.

CONCLUSION

18. The level of Ethiopia's external and public debt distress remains at a low risk rating. The external debt ratios have risen rapidly in recent years, and this trend is projected to continue in the medium-term. The results suggest the importance for Ethiopia of monitoring debt closely and remaining vigilant regarding new debt accumulation, particularly with commercial loans. The financing plan underlying the GTP needs to take into account these results. Vulnerabilities identified in various sensitivity analyses are relevant for considering policies that would help maintain the low risk rating of external debt distress. Particular emphasis must be made on adequate concessionality of new external loans.

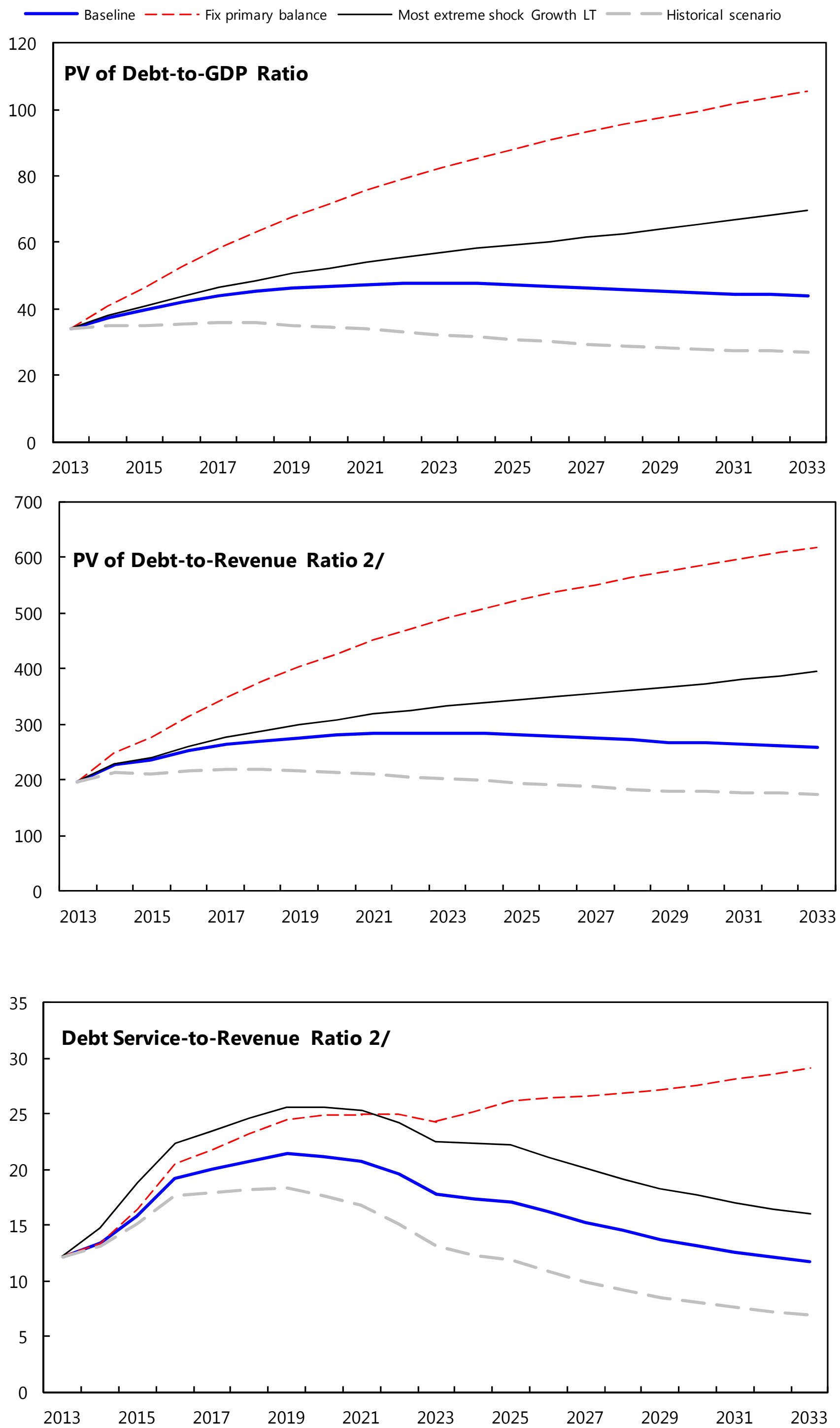
19. Domestic borrowing by the public sector continues to increase. The overall debt (including external and domestic) of the consolidated public sector must be monitored carefully. Adjustments to policies to ensure price stability, a competitive exchange rate, and greater private sector involvement in investment and trading activities would go a long way in enhancing Ethiopia's debt sustainability.

Figure 1. Ethiopia: Indicators of Public and Publicly Guaranteed External Debt Under Alternatives Scenarios, 2013–33[1]



Sources: Ethiopian authorities; IMF and World Bank staff estimates and projections.
[1] The most extreme stress test is the test that yields the highest ratio in 2023. In figure b. c. d. and e. it corresponds to a Terms shock; and in figure f. to a one-time depreciation shock.

Figure 2. Ethiopia: indicators of Public Debt Under Alternative Scenarios, 2013–33[1]



Sources: Ethiopian authorities; IMF and World Bank staff estimates and projections.
[1] The most extreme stress test is the test that yields the highest ratio in 2023.
[2] Revenue is defined inclusive of grants.

Table 1. Ethiopia: External Debt Sustainability Framework, Baseline Scenario, 2010–33[1]

	Actual											Historical 6/ Average	Standard 6/ Deviation	Projections									
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012			2013	2014	2015	2016	2017	2018	2013–2018 Average	2023	2033	2019–2033 Average
External debt (nominal) 1/	**79.6**	**80.2**	**72.4**	**48.6**	**43.2**	**13.8**	**12.9**	**15.3**	**20.1**	**26.0**	**20.6**			**22.1**	**25.7**	**27.4**	**28.9**	**29.8**	**29.8**		**27.1**	**18.5**	
Of which: public and publicly guaranteed (PPG)	79.6	80.2	72.4	48.6	40.0	11.6	11.4	14.1	19.2	23.3	18.4			19.9	22.3	23.7	25.0	25.8	25.8		23.6	14.5	
Change in external debt	...	0.6	-7.8	-23.8	-5.4	-29.4	-0.9	2.3	4.8	5.9	-5.4			1.5	3.6	1.6	1.5	0.9	0.0		-0.8	-0.7	
Identified net debt-creating flows	...	-7.3	-12.2	-8.1	-2.3	-7.7	-1.1	0.1	2.1	-4.6	-2.7			2.6	1.3	1.1	0.6	0.1	-0.5		-1.0	-2.1	
Non-interest current account deficit	**3.6**	**0.7**	**0.6**	**5.8**	**9.0**	**4.3**	**5.6**	**5.0**	**3.9**	**0.5**	**6.4**	**4.2**	**2.8**	**6.2**	**5.3**	**5.5**	**5.2**	**5.0**	**4.6**		**4.2**	**3.4**	4.2
Deficit in balance of goods and services	14.1	14.2	14.2	20.6	22.9	19.5	19.8	18.4	19.6	15.1	18.2			16.7	16.0	15.7	15.2	14.6	13.8		13.4	12.6	
Exports	12.7	13.5	15.0	15.2	14.0	12.9	11.6	10.6	13.8	17.0	14.0			13.0	14.0	14.5	15.1	15.6	16.2		17.4	19.1	
Imports	26.9	27.7	29.1	35.8	36.9	32.4	31.4	29.0	33.3	32.1	32.2			29.7	30.0	30.2	30.3	30.3	30.0		30.8	31.7	
Net current transfers (negative = inflow)	-10.2	-13.7	-13.4	-14.5	-14.0	-15.0	-14.0	-13.4	-15.7	-14.7	-11.8	-14.0	1.0	-10.6	-10.7	-10.3	-10.0	-9.6	-9.3		-9.2	-9.2	-9.1
Of which: official	-5.6	-7.1	-5.7	-6.1	-5.8	-6.2	-5.0	-4.9	-6.5	-5.9	-4.2			-3.1	-3.7	-3.6	-3.6	-3.6	-3.6		-3.5	-3.5	
Other current account flows (negative = net inflow)	-0.4	0.2	-0.1	-0.2	0.0	-0.2	-0.2	0.0	0.0	0.0	0.0			0.1	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Net FDI (negative = inflow)	**-1.3**	**-1.5**	**-1.5**	**-1.2**	**-2.4**	**-2.5**	**-3.1**	**-2.8**	**-3.3**	**-4.0**	**-2.5**	**-2.5**	**0.9**	**-2.5**	**-2.8**	**-3.1**	**-3.4**	**-3.7**	**-3.8**		**-4.1**	**-4.5**	-4.3
Endogenous debt dynamics 2/	**...**	**-6.5**	**-11.3**	**-12.7**	**-8.9**	**-9.5**	**-3.6**	**-2.1**	**1.5**	**-1.1**	**-6.6**			**-1.1**	**-1.2**	**-1.3**	**-1.2**	**-1.3**	**-1.3**		**-1.2**	**-0.9**	
Contribution from nominal interest rate	...	0.6	0.7	0.5	0.2	0.2	0.1	0.1	0.2	0.2	0.2			0.2	0.4	0.5	0.6	0.6	0.7		0.5	0.2	
Contribution from real GDP growth	...	1.5	-8.0	-7.5	-4.6	-4.0	-1.1	-1.1	-1.8	-2.1	-1.6			-1.3	-1.6	-1.8	-1.8	-1.9	-1.9		-1.7	-1.2	
Contribution from price and exchange rate changes	...	-8.7	-4.0	-5.7	-4.6	-5.7	-2.5	-1.2	3.0	0.9	-5.1			...	...	...	...	...	...		...	...	
Residual (3-4) 3/	**...**	**7.9**	**4.3**	**-15.7**	**-3.1**	**-21.7**	**0.2**	**2.2**	**2.7**	**10.4**	**-2.7**			**-1.1**	**2.3**	**0.5**	**0.9**	**0.8**	**0.6**		**0.2**	**1.4**	
Of which: exceptional financing	...	0.0	0.0	0.0	-0.6	-0.6	-0.5	-0.4	-0.4	-0.3	-0.1			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
PV of external debt 4/	...	...	...	...	...	...	...	...	...	...	15.4			16.6	19.8	21.1	22.4	23.1	23.0		20.6	14.1	
Percent of exports	...	...	...	...	...	...	...	...	...	...	110.1			127.8	140.6	145.7	147.9	147.7	142.3		118.4	73.7	
PV of PPG external debt	**...**	**...**	**...**	**...**	**...**	**...**	**...**	**...**	**...**	**...**	**13.2**			**14.4**	**16.3**	**17.4**	**18.5**	**19.1**	**19.0**		**17.0**	**10.0**	
Percent of exports	**...**	**...**	**...**	**...**	**...**	**...**	**...**	**...**	**...**	**...**	**94.3**			**110.6**	**116.3**	**120.1**	**122.1**	**122.2**	**117.7**		**97.9**	**52.3**	
Percent of government revenues	**...**	**...**	**...**	**...**	**...**	**...**	**...**	**...**	**...**	**...**	**95.9**			**100.7**	**127.3**	**131.0**	**139.7**	**144.6**	**144.8**		**127.7**	**73.9**	
Debt service-to-exports ratio (percent)	**53.0**	**16.8**	**10.7**	**8.9**	**8.0**	**7.3**	**2.9**	**2.4**	**3.2**	**4.3**	**6.6**			**8.1**	**8.4**	**10.0**	**10.3**	**10.9**	**11.6**		**10.6**	**4.6**	
PPG debt service-to-exports ratio (percent)	**53.0**	**16.8**	**10.7**	**8.8**	**7.2**	**5.0**	**1.3**	**1.3**	**2.2**	**2.9**	**4.9**			**5.8**	**6.4**	**7.2**	**7.1**	**7.4**	**8.0**		**8.2**	**4.6**	
PPG debt service-to-revenue ratio (percent)	**48.9**	**15.6**	**10.6**	**10.3**	**7.9**	**5.3**	**1.1**	**1.0**	**2.3**	**3.7**	**5.0**			**5.3**	**7.0**	**7.8**	**8.1**	**8.8**	**9.9**		**10.6**	**6.5**	
Total gross financing need (Billions of U.S. dollars)	...	...	...	...	1.2	0.5	0.7	0.8	0.3	-0.9	2.0			2.2	1.9	2.1	2.0	1.9	1.8		2.0	-0.5	
Non-interest current account deficit that stabilizes debt ratio	...	0.1	8.5	29.6	14.4	33.7	6.5	2.7	-0.9	-5.4	11.7			4.7	1.7	3.9	3.7	4.1	4.5		5.0	4.1	
Key macroeconomic assumptions																							
Real GDP growth (percent)	1.6	-2.1	11.7	12.6	11.5	11.8	11.2	10.0	10.6	11.4	8.5	9.7	4.3	7.0	7.5	7.5	7.0	7.0	7.0	7.2	6.5	6.5	6.5
GDP deflator in U.S. dollar terms (change in percent)	-6.1	12.2	5.3	8.6	10.4	15.3	22.5	9.9	-16.6	-4.1	24.7	8.8	12.1	4.0	-0.9	1.8	0.9	0.8	1.0	1.3	0.9	0.9	0.9
Effective interest rate (percent) 5/	1.2	0.8	1.1	0.9	0.6	0.5	1.2	0.9	1.1	1.1	1.2	0.9	0.2	1.3	1.8	2.0	2.2	2.3	2.4	2.0	2.0	1.2	1.7
Growth of exports of G&S (U.S. dollar terms, percent)	0.4	16.0	31.1	24.4	13.3	18.2	23.0	10.5	19.7	31.7	11.8	20.0	7.5	3.3	15.0	13.0	12.6	11.5	11.9	11.2	8.7	9.3	8.7
Growth of imports of G&S (U.S. dollar terms, percent)	7.1	13.2	23.8	50.3	27.0	13.0	32.1	11.6	6.1	2.9	35.9	21.6	15.0	2.8	7.5	10.2	8.3	7.7	7.2	7.3	8.2	7.3	7.8
Grant element of new public sector borrowing (percent)	...	...	...	...	...	...	...	...	...	...	...	...	...	30.8	24.8	25.3	24.8	25.7	27.8	26.5	28.6	27.1	28.1
Government revenue (excluding grants, percent of GDP)	13.8	14.5	15.2	13.0	12.8	12.1	13.1	14.1	13.4	13.3	13.8			14.3	12.8	13.3	13.2	13.2	13.1		13.3	13.5	13.4
Aid flows (Billions of U.S. dollars) 7/	...	...	...	1.2	1.2	1.6	1.6	2.0	2.7	2.5	2.8			2.4	2.8	2.9	3.1	3.3	3.5		4.5	8.1	
Of which: grants	0.4	0.6	0.6	0.7	0.9	1.2	1.3	1.6	1.9	1.9	1.8			1.5	1.8	2.0	2.1	2.3	2.5		3.5	7.2	
Of which: concessional loans	...	...	...	0.5	0.4	0.4	0.3	0.4	0.8	0.6	1.0			0.9	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Grant-equivalent financing (percent of GDP) 8/	...	...	...	...	...	...	...	...	...	...	...			4.2	4.7	4.6	4.5	4.4	4.4		4.0	3.8	3.9
Grant-equivalent financing (percent of external financing) 8/	...	...	...	...	...	...	...	...	...	...	...			63.3	59.4	61.3	62.4	64.7	69.1		74.9	84.3	77.6
Memorandum items:																							
Nominal GDP (Billions of U.S. dollars)	7.7	8.5	10.0	12.2	15.0	19.4	26.4	31.9	29.4	31.4	42.5			47.3	50.4	55.1	59.6	64.3	69.5		99.6	204.5	
Nominal dollar GDP growth	...	9.8	17.6	22.3	23.2	28.9	36.2	20.9	-7.8	6.8	35.4			11.3	6.5	9.4	8.0	7.9	8.1	8.5	7.5	7.5	7.5
PV of PPG external debt (Billions of U.S. dollars)											5.5			6.5	8.0	9.3	10.6	11.9	12.8		16.4	19.8	
(PVt-PVt-1)/GDPt-1 (percent)														2.4	3.0	2.6	2.4	2.1	1.4	2.3	0.6	0.2	0.5
Gross workers' remittances (Billions of U.S. dollars)	0.2	0.2	0.2	0.4	0.4	1.2	1.8	1.8	1.8	1.9	1.9			2.1	2.1	2.2	2.3	2.3	2.4		3.2	3.2	
PV of PPG external debt (percent of GDP + remittances)									...	...	12.6			13.8	15.7	16.8	17.8	18.4	18.4		16.5	9.8	
PV of PPG external debt (percent of exports + remittances)									...	...	71.1			82.1	89.3	94.2	97.5	99.1	96.9		82.7	48.4	
Debt service of PPG external debt (percent of exports + remittances)									...	...	3.7			4.3	4.9	5.6	5.7	6.0	6.6		6.9	4.3	

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

1/ Includes both public and private sector external debt.

2/ Derived as $[r - g - \rho(1+g)]/(1+g+\rho+g\rho)$ times previous period debt ratio, with r = nominal interest rate, g = real GDP growth rate, and ρ = growth rate of GDP deflator in U.S. dollar terms.

3/ Includes exceptional financing (i.e., changes in arrears and debt relief); changes in gross foreign assets; and valuation adjustments. For projections, also includes contribution from price and exchange rate changes.

4/ Assumes that PV of private sector debt is equal to its face value.

5/ Current-year interest payments divided by previous period debt stock.

6/ Historical averages and standard deviations are generally derived over the past 10 years, subject to data availability.

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

8/ Grant-equivalent financing includes grants provided directly to the government and through new borrowing (difference between the face value and the PV of new debt).

Table 2. Ethiopia: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2013–33

	Projections							
	2013	2014	2015	2016	2017	2018	**2023**	2033
PV of Debt-to GDP Ratio								
Baseline	14.4	16.3	17.4	18.5	19.1	19.0	**17.0**	10.0
A. Alternative scenarios								
A1. Key variables at their historical averages in 2013–2033 1/	14	14	13	13	13	13	**13**	14
A2. New public sector loans on less favorable terms in 2013–2033 2	14	17	19	21	23	23	**24**	18
B. Bound tests								
B1. Real GDP growth at historical average minus one standard deviation in 2014–2015	14	16	17	19	19	19	**17**	10
B2. Export value growth at historical average minus one standard deviation in 2014–2015 3/	14	16	17	18	19	19	**17**	10
B3. U.S. dollar GDP deflator at historical average minus one standard deviation in 2014–2015	14	16	18	19	20	20	**18**	10
B4. Net non-debt creating flows at historical average minus one standard deviation in 2014–2015 4/	14	15	15	16	17	17	**15**	9
B5. Combination of B1-B4 using one-half standard deviation shocks	14	13	11	12	13	13	**13**	8
B6. One-time 30 percent nominal depreciation relative to the baseline in 2014 5/	14	23	24	26	26	26	**23**	14
PV of Debt-to-Exports Ratio								
Baseline	111	116	120	122	122	118	**98**	52
A. Alternative scenarios								
A1. Key variables at their historical averages in 2013–2033 1/	111	98	93	89	86	83	**73**	72
A2. New public sector loans on less favorable terms in 2013–2033 2	111	120	131	139	144	143	**137**	97
B. Bound tests								
B1. Real GDP growth at historical average minus one standard deviation in 2014–2015	111	112	116	118	118	113	**94**	50
B2. Export value growth at historical average minus one standard deviation in 2014–2015 3/	111	117	123	125	124	120	**99**	52
B3. U.S. dollar GDP deflator at historical average minus one standard deviation in 2014–2015	111	112	116	118	118	113	**94**	50
B4. Net non-debt creating flows at historical average minus one standard deviation in 2014–2015 4/	111	106	104	106	107	104	**87**	48
B5. Combination of B1-B4 using one-half standard deviation shocks	111	96	79	83	85	83	**73**	43
B6. One-time 30 percent nominal depreciation relative to the baseline in 2014 5/	111	112	116	118	118	113	**94**	50
PV of Debt-to-Revenue Ratio								
Baseline	101	127	131	140	145	145	**128**	74
A. Alternative scenarios								
A1. Key variables at their historical averages in 2013–2033 1/	101	108	101	102	102	102	**95**	102
A2. New public sector loans on less favorable terms in 2013–2033 2	101	132	143	159	171	177	**178**	136
B. Bound tests								
B1. Real GDP growth at historical average minus one standard deviation in 2014–2015	101	125	132	140	145	145	**127**	73
B2. Export value growth at historical average minus one standard deviation in 2014–2015 3/	101	125	131	139	143	143	**125**	72
B3. U.S. dollar GDP deflator at historical average minus one standard deviation in 2014–2015	101	126	137	145	150	151	**132**	76
B4. Net non-debt creating flows at historical average minus one standard deviation in 2014–2015 4/	101	116	113	122	127	127	**114**	68
B5. Combination of B1-B4 using one-half standard deviation shocks	101	102	85	94	100	102	**94**	60
B6. One-time 30 percent nominal depreciation relative to the baseline in 2014 5/	101	176	182	193	200	200	**176**	101

Table 2. Ethiopia: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2013–33 (concluded)
(Percent)

Debt Service-to-Exports Ratio								
Baseline	6	6	7	7	7	8	**8**	5
A. Alternative scenarios								
A1. Key variables at their historical averages in 2013–2033 1/	6	6	6	5	5	5	**4**	3
A2. New public sector loans on less favorable terms in 2013–2033 2	6	6	7	7	8	8	**9**	7
B. Bound tests								
B1. Real GDP growth at historical average minus one standard deviation in 2014–2015	6	6	7	7	7	8	**8**	5
B2. Export value growth at historical average minus one standard deviation in 2014–2015 3/	6	7	7	7	8	8	**9**	5
B3. U.S. dollar GDP deflator at historical average minus one standard deviation in 2014–2015	6	6	7	7	7	8	**8**	5
B4. Net non-debt creating flows at historical average minus one standard deviation in 2014–2015 4/	6	6	7	7	7	8	**8**	4
B5. Combination of B1-B4 using one-half standard deviation shocks	6	6	7	6	6	7	**6**	4
B6. One-time 30 percent nominal depreciation relative to the baseline in 2014 5/	6	6	7	7	7	8	**8**	5
Debt Service-to-Revenue Ratio								
Baseline	5	7	8	8	9	10	**11**	6
A. Alternative scenarios								
A1. Key variables at their historical averages in 2013–2033 1/	5	6	6	6	6	6	**5**	4
A2. New public sector loans on less favorable terms in 2013–2033 2	5	7	8	8	9	9	**11**	11
B. Bound tests								
B1. Real GDP growth at historical average minus one standard deviation in 2014–2015	5	7	8	8	9	10	**11**	7
B2. Export value growth at historical average minus one standard deviation in 2014–2015 3/	5	7	8	8	9	10	**11**	7
B3. U.S. dollar GDP deflator at historical average minus one standard deviation in 2014–2015	5	7	8	9	9	11	**11**	7
B4. Net non-debt creating flows at historical average minus one standard deviation in 2014–2015 4/	5	7	8	8	8	10	**10**	6
B5. Combination of B1-B4 using one-half standard deviation shocks	5	7	7	7	8	9	**8**	5
B6. One-time 30 percent nominal depreciation relative to the baseline in 2014 5/	5	10	11	12	13	14	**15**	9
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	20	20	20	20	20	20	**20**	20

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

1/ Variables include real GDP growth, growth of GDP deflator (in U.S. dollar terms), non-interest current account in percent of GDP, and non-debt creating flows.
2/ Assumes that the interest rate on new borrowing is by 2 percentage points higher than in the baseline., while grace and maturity periods are the same as in the baseline.
3/ Exports values are assumed to remain permanently at the lower level, but the current account as a share of GDP is assumed to return to its baseline level after the shock (implicitly assuming an offsetting adjustment in import levels).
4/ Includes official and private transfers and FDI.
5/ Depreciation is defined as percentage decline in dollar/local currency rate, such that it never exceeds 100 percent.
6/ Applies to all stress scenarios except for A2 (less favorable financing) in which the terms on all new financing are as specified in footnote 2.

Table 3. Ethiopia: Public Sector Debt Sustainability Framework, Baseline Scenario, 2010–33
(Percent of GDP, unless otherwise indicated)

	Actual					Estimate				Projections					
	2010	2011	2012	Average 5/	Standard Deviation 5/	2013	2014	2015	2016	2017	2018	2013–18 Average	2023	2033	2019–33 Average
Public sector debt 1/	40.3	38.9	33.2			39.6	43.4	46.0	48.7	50.8	51.9		54.1	48.2	
Of which: foreign-currency denominated	19.2	23.3	18.4			19.9	22.3	23.7	25.0	25.8	25.8		23.6	14.5	
Change in public sector debt	4.0	-1.5	-5.6			6.4	3.8	2.6	2.7	2.1	1.1		-0.1	-0.6	
Identified debt-creating flows	-0.5	-3.6	-7.2			6.9	2.7	1.7	1.7	1.0	0.3		0.2	-0.3	
Primary deficit	1.0	2.5	3.7	3.3	1.7	9.9	5.5	5.4	5.1	4.5	4.2	5.7	4.3	3.9	4.2
Revenue and grants	19.9	19.2	18.0			17.4	16.5	16.9	16.8	16.8	16.8		16.8	17.0	
Of which: grants	6.5	5.9	4.2			3.1	3.7	3.6	3.6	3.6	3.6		3.5	3.5	
Primary (noninterest) expenditure	20.9	21.7	21.7			27.3	22.0	22.3	21.9	21.3	20.9		21.1	20.9	
Automatic debt dynamics	-1.4	-5.8	-10.6			-3.0	-2.7	-3.7	-3.4	-3.6	-3.8		-4.1	-4.3	
Contribution from interest rate/growth differential	-3.5	-6.8	-6.3			-2.8	-3.0	-3.6	-3.5	-3.7	-4.0		-4.3	-4.4	
Of which: contribution from average real interest rate	0.0	-2.6	-3.3			-0.6	-0.3	-0.6	-0.5	-0.5	-0.7		-1.0	-1.4	
Of which: contribution from real GDP growth	-3.5	-4.1	-3.1			-2.2	-2.7	-3.0	-3.0	-3.2	-3.3		-3.3	-3.0	
Contribution from real exchange rate depreciation	2.2	0.9	-4.3			-0.1	0.3	-0.1	0.1	0.2	0.2		...	...	
Other identified debt-creating flows	-0.2	-0.3	-0.4			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Privatization receipts (negative)	-0.2	-0.3	-0.4			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recognition of implicit or contingent liabilities	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Debt relief (HIPC and other)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Other (specify, e.g. bank recapitalization)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Residual, including asset changes	4.5	2.2	1.6			-0.5	1.0	0.9	1.0	1.1	0.8		-0.3	-0.3	
Other sustainability indicators															
PV of public sector debt	...	...	28.1			34.1	37.4	39.8	42.2	44.1	45.2		47.6	43.8	
Of which: foreign-currency denominated	...	...	13.2			14.4	16.3	17.4	18.5	19.1	19.0		17.0	10.0	
Of which: external	...	...	13.2			14.4	16.3	17.4	18.5	19.1	19.0		17.0	10.0	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	2.4	4.2	5.6			12.0	7.7	8.1	8.3	7.9	7.6		7.3	5.9	
PV of public sector debt-to-revenue and grants ratio (percent)	...	...	156.1			195.9	226.8	235.6	251.1	262.5	269.5		282.8	257.1	
PV of public sector debt-to-revenue ratio (percent)	...	...	203.7			238.8	291.3	298.9	319.6	334.3	343.8		357.0	323.6	
Of which: external 3/	...	...	95.9			100.7	127.3	131.0	139.7	144.6	144.8		127.7	73.9	
Debt service-to-revenue and grants ratio (percent) 4/	7.2	8.9	10.2			12.2	13.3	15.8	19.2	20.0	20.7		17.7	11.7	
Debt service-to-revenue ratio (percent) 4/	10.7	12.9	13.3			14.8	17.1	20.1	24.5	25.4	26.4		22.4	14.7	
Primary deficit that stabilizes the debt-to-GDP ratio	-2.9	3.9	9.4			3.5	1.7	2.7	2.4	2.4	3.0		4.4	4.5	
Key macroeconomic and fiscal assumptions															
Real GDP growth (percent)	10.6	11.4	8.5	9.7	4.3	7.0	7.5	7.5	7.0	7.0	7.0	7.2	6.5	6.5	6.5
Average nominal interest rate on forex debt (percent)	0.9	0.8	1.1	0.8	0.2	0.9	1.7	1.8	1.9	2.0	2.1	1.7	1.9	1.5	1.8
Average real interest rate on domestic debt (percent)	-0.1	-13.6	-21.3	-11.2	7.1	-4.2	-1.7	-3.4	-2.8	-2.9	-3.2	-3.0	-3.8	-4.3	-3.9
Real exchange rate depreciation (percent, + indicates depreciation)	16.9	5.4	-20.1	-4.8	10.4	-0.8	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, percent)	3.4	19.8	34.1	16.5	10.1	11.3	7.0	8.9	8.0	7.9	8.1	8.5	8.0	8.0	8.0
Growth of real primary spending (deflated by GDP deflator, percent)	0.1	0.2	0.1	0.1	0.1	0.3	-0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1
Grant element of new external borrowing (percent)	...	...	...	...	...	30.8	24.8	25.3	24.8	25.7	27.8	26.5	28.6	27.1	...

Sources: Ethiopian authorities; IMF and World Bank staff estimates and projections.
1/ Public sector debt covers general government and selected nonfinancial public enterprises. Gross debt is used.
2/ Gross financing need is defined as the primary deficit plus debt service plus the stock of short-term debt at the end of the last period.
3/ Revenue excluding grants.
4/ Debt service is defined as the sum of interest and amortization of medium- and long-term debt.
5/ Historical averages and standard deviations are generally derived over the past 10 years, subject to data availability.

Table 4. Ethiopia: Sensitivity Analysis for Key Indicators of Public Debt, 2013–33
(Percent)

		Projections						
	2013	2014	2015	2016	2017	2018	2023	2033
PV of Debt-to-GDP Ratio								
Baseline	34	37	40	42	44	45	48	44
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	34	35	35	36	36	36	32	27
A2. Primary balance is unchanged from 2013	34	41	47	53	58	63	82	105
A3. Permanently lower GDP growth 1/	34	38	41	44	47	49	57	70
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviation in 2014–2015	34	38	42	45	47	49	53	51
B2. Primary balance is at historical average minus one standard deviation in 2014–2015	34	37	39	42	43	45	47	43
B3. Combination of B1-B2 using one-half standard deviation shocks	34	36	38	40	42	43	46	43
B4. One-time 30 percent real depreciation in 2014	34	43	45	47	49	50	52	50
B5. 10 percent of GDP increase in other debt-creating flows in 2014	34	45	47	49	51	52	53	47
PV of Debt-to-Revenue Ratio 2/								
Baseline	196	227	236	251	263	270	283	257
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	196	213	210	215	218	219	201	174
A2. Primary balance is unchanged from 2013	196	248	276	312	346	377	489	618
A3. Permanently lower GDP growth 1/	196	229	240	260	275	287	331	394
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviation in 2014–2015	196	231	246	265	278	288	311	298
B2. Primary balance is at historical average minus one standard deviation in 2014–2015	196	224	231	247	259	266	280	255
B3. Combination of B1-B2 using one-half standard deviation shocks	196	220	224	239	251	258	273	250
B4. One-time 30 percent real depreciation in 2014	196	264	268	281	291	297	312	292
B5. 10 percent of GDP increase in other debt-creating flows in 2014	196	274	280	294	303	309	315	277
Debt Service-to-Revenue Ratio 2/								
Baseline	12	13	16	19	20	21	18	12
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	12	13	15	18	18	18	13	7
A2. Primary balance is unchanged from 2013	12	13	16	21	22	23	24	29
A3. Permanently lower GDP growth 1/	12	13	16	20	21	22	20	17
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviation in 2014–2015	12	14	16	20	21	22	19	14
B2. Primary balance is at historical average minus one standard deviation in 2014–2015	12	13	16	19	20	21	18	12
B3. Combination of B1-B2 using one-half standard deviation shocks	12	13	16	19	20	20	17	11
B4. One-time 30 percent real depreciation in 2014	12	15	19	22	23	25	22	16
B5. 10 percent of GDP increase in other debt-creating flows in 2014	12	13	17	21	21	22	20	13

Sources: Ethiopian authorities; IMF and World Bank staff estimates and projections.
1/ Assumes that real GDP growth is at baseline minus one standard deviation divided by the square root of the length of the projection period.
2/ Revenue is defined inclusive of grants.