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FIFTH AND SIXTH REVIEWS UNDER THE EXTENDED CREDIT FACILITY, REQUEST FOR WAIVERS FOR NONOBSERVANCE OF PERFORMANCE CRITERIA, AND REQUEST FOR MODIFICATION OF PERFORMANCE CRITERIA—DEBT SUSTAINABILITY ANALYSIS

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Based on updated macroeconomic projections, Ghana remains at high risk of external debt distress. The assessment is reinforced by the elevated total public debt-to-GDP ratio, and four of five external debt indicators in breach of the thresholds under the baseline scenario.[1] *Reflecting careful preparation and planning, Ghana successfully retired the Eurobond which fell due in October 2017. Going forward, gross fiscal financing needs are expected to decline significantly, helped by the lengthening of domestic debt maturities. Maintaining fiscal discipline and building buffers, supported by appropriate debt and cash management, will be key to lock in a downward debt path, particularly as Ghana is buffeted by the realization of significant contingent liabilities from the energy and financial sectors.*

[1] The World Bank's Country Policy and Institutions Assessment (CPIA) ranks Ghana as a medium performer in terms of the quality of policy and institutions (the average CPIA in 2014–16 is 3.48). Thus, the external debt burden thresholds for Ghana are (i) PV of debt-to-GDP ratio: 40 percent; (ii) PV of debt-to-exports ratio: 150 percent; (iii) PV of debt-to-revenue ratio: 250 percent; (iv) debt service-to-exports ratio: 20 percent: and (v) debt service-to-revenue ratio: 20 percent.

A. Background and Macroeconomic Assumptions

1. The fiscal performance is back on track driven by tight spending controls. The authorities managed to reduce the 2017 overall deficit to 6 percent of GDP—below the end-2017 deficit target of 6.3 percent of GDP, despite large revenue underperformance. The 2018 budget targets a deficit of 4.5 percent of GDP (excluding one-off costs for the financial sector). While this pace of consolidation is deemed appropriate and consistent with a declining debt path, it hinges on continued expenditure controls until recently announced revenue measures are implemented as part of the mid-year budget review.

2. Gross financing needs (GFNs) have declined, helped by the lengthening of domestic debt maturities. While still remaining elevated, the 2018 GFNs are projected to fall to 15 percent of GDP in 2018 from 23 percent of GDP in 2017; they also reflect contingent costs for cleaning up the financial sector, tentatively estimated at 1.9 percent of GDP. They could be met partly by the issuance of a Eurobond in the second quarter of 2018, which is included in the auction calendar.

3. The authorities have been actively pursuing debt management operations, broadly in line with the Medium-Term Debt Management Strategy (MTDS).[2] A key objective of the MTDS is to lengthen the average maturity of domestic debt by reducing the issuance of short-term domestic debt. In 2017, this objective was achieved, as robust non-resident demand enabled the authorities to issue longer-term instruments.[3] To continue implementing this strategy, proper cash management supported by appropriate cash buffers will underpin the issuance program for longer maturity debt at reasonable costs. On the external front ,the MTDS aims to manage actively the refinancing risk of maturing Eurobonds. In line with this objective, the authorities plan to issue up to a $2.5 billion Eurobond in 2018, of which $1.75 billion will be used to improve the maturity structure of the existing external debt portfolio. The remaining $0.75 billion will be allocated to the budget to undertake capital and other developmental projects, which together with a planned asset sale carried over from 2017, will help to reduce pressure on the domestic market and create space for banks to increase lending to the private sector.

4. The authorities remain committed to cautiously contracting external non-concessional loans under the debt limits. They are within the 2017 debt limits for priority projects and debt management purposes[4] (set at US$2,250 million and zero, respectively, during the fourth review). The 2018 debt limits will include an additional $1.25billion for priority projects that are key to the authorities' developmental objectives and cannot be financed with concessional loans and US$ 1.75 billion for debt management purposes, while paying attention to debt dynamics.

5. Since the completion of the fourth review, the macroeconomic situation has continued to improve (Box 1).

[2] The MTDS finalized in 2017 covers the period 2017-2019. Work on the revised MTDS for 2018-2021 is at an advanced stage.

[3] Nonresident investors are only allowed to invest in domestic notes with 2-years original maturity and longer.

[4] From the second review onwards, non-concessional debt limits have been set separately for debt management purposes (where the non-concessional borrowing, including Eurobonds, is used to improve the overall public debt profile), and for projects integral to national development. The latter limit is set on a cumulative basis from the beginning of 2015.

Box 1. Baseline Macroeconomic Assumptions

Real GDP-growth: Overall real GDP growth is estimated to have increased to 8.4 percent in 2017, 2.5 percentage points above the 4th review projection on the back of increased oil production (87 percent volume growth); and it is projected to reach 6.3 percent in 2018. Non-oil growth is estimated at 4 percent in 2017 reflecting tight fiscal and monetary policy, accompanied by cleaning-up of the banking sector, and gradually increase to its long-run steady-state growth rate of 6 percent from 2019 onwards. Tackling structural impediments including power supply, scaling up infrastructure, and diversifying the non-commodity economy will be key to increasing potential GDP. Oil production is currently expected to peak in 2019, with the possibility of new oil discoveries and gas production implying significant upside potential.

Key Macroeconomic Assumptions

	2016	2017	2018	Medium term (first 6 years)	Long-term (last 15 years)
Real GDP Growth			(annual percentage change)		
Previous DSA	3.5	5.9	8.9	6.1	4.7
Current DSA	3.7	8.4	6.3	5.5	4.6
Inflation (GDP deflator)			(annual percentage change)		
Previous DSA	18.1	14.2	9.6	8.8	6.2
Current DSA	17.8	12.7	11.1	7.9	6.3
Real interest rate (foreign debt)			(percent)		
Previous DSA	6.6	5.5	5.0	4.8	4.4
Current DSA	6.6	5.3	4.2	4.7	4.8
Current account balance			(in percent of GDP)		
Previous DSA	-6.7	-5.8	-5.4	-5.0	-4.0
Current DSA	-6.7	-4.5	-4.2	-4.0	-3.6
Primary fiscal balance			(in percent of GDP)		
Previous DSA	-1.4	0.2	2.2	1.6	0.4
Current DSA	-1.4	0.7	0.1	1.4	0.4

Inflation and exchange rate: With the continuation of a tight monetary policy stance, inflation (CPI) continued to trend down from 15.4 percent (yoy) at end-2016 to 11.8 percent in December 2017. Reflecting fiscal consolidation (including the elimination of central bank lending to government under the program) and continued tight monetary policy, inflation is expected to decline further to within the BOG's medium-term target of 8±2 percent during 2018. The exchange rate has been relatively stable, having depreciated by only 5 percent at end-December 2017 relative to end- December 2016, supported by strong non-resident participation in the domestic bond market and better than expected balance of payments performance.

Government balances: Following significant slippages in 2016, fiscal performance is back on track driven by tight spending controls. Following a significant correction in 2017-18, the primary balance is projected to remain around 1.4 percent of GDP over the medium term, provided additional domestic revenues are mobilized.

Current account balance: The current account deficit has narrowed to an estimated 4.5 percent of GDP in 2017 —1.3 percent of GDP better than previously projected—supported by a sharp increase in gold export volumes and subdued growth of imports. A gradual recovery in oil prices would help Ghana bring the current account to a more sustainable level as oil / gas production exceeds refined oil imports. With tight fiscal and monetary policies, the current account deficit would improve further to 4.1 percent of GDP in 2018, with the long-run current account deficit hovering around 3½ percent of GDP. Gross international reserves would steadily increase and remain above 3-months of imports coverage, with a gradual build-up towards the end of the projection period.

Financing flows: Mainly driven by the hydrocarbons sector, Ghana has enjoyed high FDI inflows over the last years, near 6.9 percent of GDP in 2017. Looking forward, FDI is projected to decline gradually as oil production reaches its peak and eventually stays at around 3 percent of GDP over the long run. Consistent with Ghana's improving income status and more-sustained market access, grant inflows are projected to decline to around 0.1 percent of GDP in the medium to long term. Borrowing is projected to become increasingly non-concessional, as loans are expected to be used for key infrastructure projects to raise the potential growth rate. A series of Eurobond issuances is envisaged to roll over maturing Eurobonds, which are assumed to be repaid on an amortizing basis rather than as bullet payments. The foreign up-take of the energy bond has been limited, with virtually no impact on external debt, though the bond is included in public debt in staff estimates.

6. In line with standard DSA procedures,[5] the analysis is based on the concept of gross debt. At the same time, the authorities have intensified efforts to build cash buffers, in both domestic and foreign exchange in a sinking fund, to reduce rollover risk; and they have accumulated reserve assets in oil funds.

B. External Debt Sustainability Analysis[6]

7. Debt trajectories broadly resemble those in the previous DSA, with four of five indicators breaching respective thresholds under the baseline.[7] While the thresholds for the PV of external PPG debt-to-GDP and PV-to- revenue ratios are breached for 4 and 2 years, respectively, the debt service-to-revenue ratio is projected to remain above threshold for the entire projection period. The outlook for this indicator would improve with the adoption of revenue measures and implementation of proactive debt management to further lengthen the debt maturity profile. The one-off breach of debt service-to-exports ratio under the baseline reflects the planned Eurobond buybacks of up to $1.75 billion in 2018. These results point clearly to continued high risk of external debt distress.

8. The debt outlook remains sensitive to standard shocks under the DSA. The standard stress tests suggest that Ghana is particularly vulnerable to one-time exchange rate depreciation and a decline in exports, confirming the need to diversify the economy and increase resilience to external shocks.

C. Public Debt Sustainability Analysis

9. Lack of fiscal adjustment would further worsen the public debt outlook, with more protracted breaches of the public debt benchmark (Table 4 and Figure 2). Under the baseline including fiscal adjustment, all debt indicators are expected to improve and stabilize. Yet, even with front-loaded fiscal adjustment under the IMF program, total public debt would decline below the benchmark of 56 percent of GDP only by 2026.[8] Public debt sustainability is also significantly vulnerable to exchange rate shocks. Further, the historical scenario points to unsustainable debt trajectories

10. Contingent liabilities, especially from SOEs and the banking system, also represent a material risk to debt sustainability. Costs associated with bank resolution and the recent issuance of the energy bond highlight the risk posed by contingent liabilities. High levels of systemic losses and poor fee collection capacity in the utility sector could lead to fresh liabilities building up in the sector. In addition, potential risks from the micro-finance sector should be closely monitored. Ongoing steps to strengthen the oversight over SOEs will be instrumental to stem their financial losses and prevent feedback-loops to

[5] See SM/13/292.

[6] Public external debt covers liabilities contracted or guaranteed by the central government, and major state-owned enterprises (SOEs), and short-term liabilities contracted by the Bank of Ghana (BoG) for reserve management purposes. These BoG liabilities do not include swaps contracted with resident banks and fully collateralized credit lines with foreign institutions. The authorities are continuing efforts to improve debt statistics.

[7] The relatively larger breaches in the near term are due in part to the BoG's short-term liabilities. Debt and debt service reflect nonresidents' holdings of local currency-denominated domestic debt based on the residency criterion.

[8] As the World Bank's CPIA ranks Ghana as a medium performer (see footnote 1), the relevant public debt benchmark for Ghana is 56 percent of GDP.

the budget and the banking system. To enhance oversight, the government has submitted to cabinet a law to introduce a new statutory body (Single Entity) in charge of monitoring SOEs.

D. Conclusions

11. Keeping fiscal performance on track under the Fund supported program is essential for engineering a favorable debt dynamic and maintaining confidence among foreign investors. While Ghana's gross financing needs are declining, they will nonetheless remain high in the near term. Given the increasing presence of nonresidents in the domestic debt market, continued fiscal discipline and a strong macroeconomic environment are needed to preserve investors' confidence. A derailment from the planned fiscal adjustment path could seriously jeopardize debt sustainability. Ghana should continue engaging with development partners to seek concessional financing and expedite disbursements under existing commitments from multilateral agencies.

Table 1. Ghana: External Debt Sustainability Framework, Baseline Scenario, 2014–37 1/

(In percent of GDP, unless otherwise indicated)

	Actual			Historical 6/ Average	Standard 6/ Deviation	Estimate	Projections								
	2014	2015	2016			2017	2018	2019	2020	2021	2022	2017-2022 Average	2027	2037	2023-2037 Average
External debt (nominal) 1/	**45.4**	**53.2**	**52.9**			**51.0**	**49.5**	**47.5**	**46.4**	**45.1**	**43.5**		**40.4**	**36.3**	
of which: public and publicly guaranteed (PPG)	41.1	49.2	48.9			47.0	45.5	43.5	42.4	41.1	39.5		36.4	32.3	
Change in external debt	10.1	7.7	-0.2			-1.9	-1.5	-2.1	-1.1	-1.2	-1.6		-1.1	-0.8	
Identified net debt-creating flows	9.1	1.9	-8.7			-6.2	-4.7	-4.2	-2.9	-2.6	-1.5		-0.8	-0.3	
Non-interest current account deficit	**6.8**	**4.5**	**3.2**	**7.3**	**2.6**	**1.4**	**1.1**	**1.2**	**0.9**	**0.8**	**1.0**		**0.9**	**0.5**	1.0
Deficit in balance of goods and services	10.3	11.6	7.2			4.1	4.7	4.4	3.7	3.5	4.2		4.6	3.4	
Exports	39.4	44.7	40.8			43.3	40.0	38.3	38.2	38.1	37.2		34.7	32.8	
Imports	49.6	56.3	48.0			47.3	44.8	42.7	41.8	41.6	41.4		39.3	36.2	
Net current transfers (negative = inflow)	-5.2	-7.0	-3.4	-6.3	1.7	-5.2	-4.8	-4.4	-4.2	-4.1	-4.1		-3.2	-2.0	-2.8
of which: official	0.0	-0.5	-0.1			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Other current account flows (negative = net inflow)	1.7	-0.2	-0.5			2.5	1.2	1.2	1.5	1.4	0.8		-0.5	-1.0	
Net FDI (negative = inflow)	**-8.7**	**-8.1**	**-8.1**	**-7.7**	**2.0**	**-6.9**	**-6.0**	**-5.0**	**-4.5**	**-4.2**	**-4.0**		**-2.7**	**-1.8**	-2.6
Endogenous debt dynamics 2/	**11.0**	**5.5**	**-3.8**			**-0.7**	**0.2**	**-0.4**	**0.6**	**0.8**	**1.6**		**1.0**	**1.0**	
Contribution from nominal interest rate	2.7	3.2	3.5			3.4	3.1	3.0	3.1	3.1	2.9		2.8	2.6	
Contribution from real GDP growth	-1.7	-1.8	-1.7			-4.1	-2.9	-3.4	-2.4	-2.2	-1.3		-1.8	-1.6	
Contribution from price and exchange rate changes	10.0	4.1	-5.6			...	...	...	...	...	...		...	...	
Residual (3-4) 3/	**1.0**	**5.8**	**8.4**			**4.3**	**3.2**	**2.1**	**1.9**	**1.4**	**-0.1**		**-0.3**	**-0.5**	
of which: exceptional financing	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
PV of external debt 4/	...	...	51.7			50.2	50.1	47.1	46.1	44.2	42.7		39.4	34.1	
In percent of exports	...	...	126.6			116.1	125.2	123.0	120.9	116.1	114.9		113.4	104.0	
PV of PPG external debt	**...**	**...**	**47.7**			**46.2**	**46.1**	**43.1**	**42.1**	**40.2**	**38.7**		**35.4**	**30.1**	
In percent of exports	**...**	**...**	**116.8**			**106.8**	**115.2**	**112.6**	**110.4**	**105.6**	**104.2**		**101.9**	**91.8**	
In percent of government revenues	**...**	**...**	**288.0**			**276.3**	**262.0**	**243.6**	**238.1**	**229.3**	**224.0**		**210.9**	**183.5**	
Debt service-to-exports ratio (in percent)	**15.7**	**17.2**	**19.7**			**19.1**	**26.8**	**16.7**	**15.7**	**17.1**	**20.0**		**21.3**	**18.4**	
PPG debt service-to-exports ratio (in percent)	**12.2**	**14.6**	**17.6**			**17.0**	**24.5**	**14.3**	**13.2**	**14.6**	**17.5**		**18.6**	**15.6**	
PPG debt service-to-revenue ratio (in percent)	**27.2**	**37.1**	**43.4**			**44.0**	**55.8**	**31.0**	**28.6**	**31.7**	**37.7**		**38.6**	**31.2**	
Total gross financing need (Millions of U.S. dollars)	1682.7	1504.1	1349.4			1299.0	3009.4	1456.7	1465.4	1978.1	3063.6		5480.7	8889.0	
Non-interest current account deficit that stabilizes debt ratio	-3.3	-3.3	3.5			3.3	2.6	3.2	2.0	2.0	2.6		2.0	1.2	
Key macroeconomic assumptions															
Real GDP growth (in percent)	4.0	3.8	3.7	6.8	3.4	8.4	6.3	7.6	5.5	5.1	3.2	6.0	4.6	4.7	4.7
GDP deflator in US dollar terms (change in percent)	-22.0	-8.4	11.8	1.6	13.1	1.3	3.3	2.1	1.5	1.3	3.3	2.2	2.2	2.0	2.1
Effective interest rate (percent) 5/	6.3	6.8	7.7	5.9	1.1	7.0	6.8	6.8	6.9	7.0	6.9	6.9	7.2	7.5	7.3
Growth of exports of G&S (US dollar terms, in percent)	-5.9	8.1	5.9	14.5	17.2	16.5	1.6	5.1	6.7	6.3	4.1	6.7	5.9	6.8	6.0
Growth of imports of G&S (US dollar terms, in percent)	-14.5	7.9	-1.1	10.8	17.7	8.4	3.9	4.9	4.9	5.8	6.3	5.7	5.9	6.0	5.9
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	5.2	-7.1	9.6	2.2	1.2	-1.5	1.6	0.8	-1.7	-0.5
Government revenues (excluding grants, in percent of GDP)	17.7	17.6	16.6			16.7	17.6	17.7	17.7	17.5	17.3		16.8	16.4	16.7
Aid flows (in Millions of US dollars) 7/	278.5	724.3	291.7			352.7	126.2	134.9	34.6	11.0	8.8		2.9	0.3	
of which: Grants	278.5	724.3	291.7			352.7	126.2	134.9	34.6	11.0	8.8		2.9	0.3	
of which: Concessional loans	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			1.2	-0.5	0.6	0.2	0.1	-0.1		0.0	-0.1	0.0
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			12.5	-4.7	14.4	3.4	1.6	-1.2		0.8	-1.7	-0.4
Memorandum items:															
Nominal GDP (Millions of US dollars)	38774.1	36892.6	42787.6			47015.0	51618.8	56725.0	60751.8	64703.6	68993.7		97225.6	187487.0	
Nominal dollar GDP growth	-18.9	-4.9	16.0			9.9	9.8	9.9	7.1	6.5	6.6	8.3	6.9	6.8	6.9
PV of PPG external debt (in Millions of US dollars)			19008.6			21430.9	23243.5	23673.1	24887.4	25539.1	26202.2		33727.1	55272.6	
(PVt-PVt-1)/GDPt-1 (in percent)						**5.7**	3.9	0.8	2.1	1.1	1.0	2.4	1.3	0.4	1.8
Gross workers' remittances (Millions of US dollars)	1638.4	1966.1	1572.9			2320.0	2366.4	2413.7	2462.0	2511.3	2561.5		2828.1	3427.2	
PV of PPG external debt (in percent of GDP + remittances)	...	...	46.0			44.1	44.1	41.4	40.5	38.7	37.4		34.4	29.5	
PV of PPG external debt (in percent of exports + remittances)	...	...	107.2			95.9	103.4	101.3	99.8	95.9	94.7		94.0	86.9	
Debt service of PPG external debt (in percent of exports + remittance	...	...	16.1			15.3	22.0	12.9	12.0	13.3	15.9		17.2	14.8	

Sources: Country authorities; and staff estimates and projections.

1/ Includes both public and private sector external debt. PPG external debt is based on a residency criterion, thus including local debt held by nonresidents. SoE's debt not guaranteed by the government is also included.

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

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

4/ Assumes that PV of private sector debt is equivalent 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. Ghana: Public Sector Debt Sustainability Framework, Baseline Scenario, 2014–37

(In percent of GDP, unless otherwise indicated)

	Actual					Estimate	Projections								
	2014	2015	2016	Average 5/	Standard Deviation 5/	2017	2018	2019	2020	2021	2022	2017-22 Average	2027	2037	2023-37 Average
Public sector debt 1/	66.6	72.9	73.8			72.3	70.7	67.5	65.4	64.8	63.1		53.4	45.1	
of which: foreign-currency denominated	41.1	49.2	48.9			47.0	45.5	43.5	42.4	41.1	39.5		36.4	32.3	
	0.6	0.7	0.7												
Change in public sector debt	12.4	6.3	0.9			-1.5	-1.7	-3.2	-2.1	-0.6	-1.7		-3.3	-0.9	
Identified debt-creating flows	12.0	1.1	-0.5			-5.4	-1.7	-2.7	-1.4	-0.6	-0.2		-0.7	-0.4	
Primary deficit	3.8	-1.0	0.8	3.2	2.4	-1.3	-0.3	-2.0	-1.8	-1.4	-1.3	-1.3	-0.7	-0.5	-0.6
Revenue and grants	18.4	19.6	17.2			17.5	17.9	17.9	17.8	17.6	17.3		16.8	16.4	
of which: grants	0.7	2.0	0.7			0.8	0.2	0.2	0.1	0.0	0.0		0.0	0.0	
Primary (noninterest) expenditure	22.2	18.6	18.1			16.2	17.6	16.0	15.9	16.2	16.0		16.1	15.8	
Automatic debt dynamics	8.2	2.1	-1.3			-4.2	-0.9	-0.7	0.4	0.8	1.1		0.0	0.2	
Contribution from interest rate/growth differential	-0.1	0.8	1.2			-1.8	-1.1	-1.2	0.4	0.9	1.7		0.2	0.2	
of which: contribution from average real interest rate	2.0	3.2	3.8			4.0	3.2	3.8	3.9	4.1	3.7		2.7	2.3	
of which: contribution from real GDP growth	-2.1	-2.5	-2.6			-5.7	-4.3	-5.0	-3.5	-3.2	-2.0		-2.5	-2.1	
Contribution from real exchange rate depreciation	8.3	1.3	-2.5			-2.4	0.1	0.5	0.0	-0.1	-0.6		...	...	
Other identified debt-creating flows	0.0	0.0	0.0			0.0	-0.5	0.0	0.0	0.0	0.0		0.0	0.0	
Privatization receipts (negative)	0.0	0.0	0.0			0.0	-0.5	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	0.4	5.2	1.4			3.9	0.0	-0.5	-0.7	0.0	-1.5		-2.6	-0.6	
Other Sustainability Indicators															
PV of public sector debt	...	...	72.6			71.6	71.3	67.1	65.1	63.9	62.3		52.4	42.9	
of which: foreign-currency denominated	...	...	47.7			46.2	46.1	43.1	42.1	40.2	38.7		35.4	30.1	
of which: external	...	...	47.7			46.2	46.1	43.1	42.1	40.2	38.7		35.4	30.1	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	22.6	22.5	23.9			21.7	19.7	12.0	11.4	12.0	14.2		11.6	7.5	
PV of public sector debt-to-revenue and grants ratio (in percent)	...	...	421.0			409.4	399.2	374.2	366.8	363.9	360.3		312.0	261.5	
PV of public sector debt-to-revenue ratio (in percent)	...	...	438.4			427.7	404.8	379.3	368.0	364.2	360.5		312.1	261.5	
of which: external 3/	...	...	288.0			276.3	262.0	243.6	238.1	229.3	224.0		210.9	183.5	
Debt service-to-revenue and grants ratio (in percent) 4/	70.2	73.7	73.4			82.0	92.4	67.9	66.9	72.0	78.8		66.2	46.4	
Debt service-to-revenue ratio (in percent) 4/	73.1	81.9	76.4			85.7	93.7	68.8	67.1	72.1	78.8		66.2	46.4	
Primary deficit that stabilizes the debt-to-GDP ratio	-8.7	-7.3	-0.1			0.2	1.4	1.2	0.2	-0.8	0.3		2.6	0.4	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	4.0	3.8	3.7	6.8	3.4	8.4	6.3	7.6	5.5	5.1	3.2	6.0	4.6	4.7	4.7
Average nominal interest rate on forex debt (in percent)	6.4	7.0	7.9	6.1	1.2	7.2	6.9	6.9	7.1	7.2	7.0	7.1	7.4	7.8	7.6
Average real interest rate on domestic debt (in percent)	2.8	3.7	2.9	3.1	1.4	7.1	5.8	8.3	8.3	9.3	7.4	7.7	3.8	3.5	4.0
Real exchange rate depreciation (in percent, + indicates depreciation	26.7	3.2	-4.9	1.9	10.7	-5.1	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	16.7	16.4	17.8	16.6	1.7	12.7	11.1	8.2	8.0	6.3	7.5	9.0	6.3	6.2	6.3
Growth of real primary spending (deflated by GDP deflator, in percer	4.9	-12.9	0.8	-0.6	4.6	-2.7	15.1	-2.3	5.1	6.9	1.9	4.0	4.4	4.5	4.6
Grant element of new external borrowing (in percent)	...	...	...	...	...	5.2	-7.1	9.6	2.2	1.2	-1.5	1.6	0.8	-1.7	...

Sources: Country authorities; and staff estimates and projections.

1/ The domestic debt covers the debt stock of the central government. The external debt covers those contracted and guaranteed by the central government. SoEs' debt not guaranteed by the government is also included. In this table, "foreign-currency denominated" should be read as "external".

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/ Revenues 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 3. Ghana: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2017–37

(In percent)

		Projections						
	2017	2018	2019	2020	2021	2022	**2027**	2037
PV of debt-to GDP ratio (Threshold = 40 percent)								
Baseline	46	46	43	42	40	39	**35**	30
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2017-2037 1/	46	51	52	54	54	54	**48**	30
A2. New public sector loans on less favorable terms in 2017-2037 2/	46	46	43	43	41	39	**37**	36
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	46	46	44	44	42	40	**37**	31
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	46	47	48	47	45	43	**36**	29
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	46	53	56	55	53	51	**46**	39
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	46	45	41	40	39	37	**34**	29
B5. Combination of B1-B4 using one-half standard deviation shocks	46	47	45	44	42	40	**39**	35
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	46	63	59	57	55	53	**48**	41
PV of debt-to-exports ratio (Threshold = 150 percent)								
Baseline	107	115	113	110	106	104	**102**	92
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2017-2037 1/	107	128	137	141	141	144	**140**	93
A2. New public sector loans on less favorable terms in 2017-2037 2/	107	116	113	112	108	106	**106**	109
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	107	112	109	107	103	101	**99**	89
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	107	122	140	138	133	132	**118**	101
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	107	112	109	107	103	101	**99**	89
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	107	114	108	106	102	100	**98**	89
B5. Combination of B1-B4 using one-half standard deviation shocks	107	103	92	90	87	85	**90**	84
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	107	112	109	107	103	101	**99**	89
PV of debt-to-revenue ratio (Threshold = 250 percent)								
Baseline	276	262	244	238	229	224	**211**	184
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2017-2037 1/	276	292	296	303	306	311	**289**	185
A2. New public sector loans on less favorable terms in 2017-2037 2/	276	264	245	241	234	227	**220**	217
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	276	262	251	246	239	233	**218**	189
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	276	265	270	264	257	251	**217**	178
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	276	298	317	310	301	293	**275**	239
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	276	258	233	228	221	215	**203**	177
B5. Combination of B1-B4 using one-half standard deviation shocks	276	268	253	247	239	232	**235**	213
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	276	360	331	325	315	307	**288**	250

Table 3. Ghana: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2017–37 (concluded)

(In percent)

		Projections						
	2017	2018	2019	2020	2021	2022	**2027**	2037
Debt service-to-exports ratio (Threshold = 20 percent)								
Baseline	17	25	14	13	15	18	**19**	16
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2017-2037 1/	17	25	15	14	16	19	**25**	16
A2. New public sector loans on less favorable terms in 2017-2037 2/	17	25	12	10	11	9	**18**	17
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	17	25	14	13	15	17	**18**	15
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	17	26	16	16	17	21	**24**	18
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	17	25	14	13	15	17	**18**	15
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	17	25	14	13	15	17	**18**	15
B5. Combination of B1-B4 using one-half standard deviation shocks	17	24	13	12	13	16	**15**	15
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	17	25	14	13	15	17	**18**	15
Debt service-to-revenue ratio (Threshold = 20 percent)								
Baseline	44	56	31	29	32	38	**39**	31
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2017-2037 1/	44	56	33	31	34	40	**52**	32
A2. New public sector loans on less favorable terms in 2017-2037 2/	44	56	26	22	24	19	**36**	34
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	44	57	33	30	34	40	**41**	33
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	44	56	31	30	33	39	**45**	31
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	44	65	42	38	43	51	**51**	41
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	44	56	31	28	32	37	**38**	31
B5. Combination of B1-B4 using one-half standard deviation shocks	44	61	37	33	37	44	**40**	37
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	44	79	44	40	45	53	**54**	43
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	-3	-3	-3	-3	-3	-3	**-3**	-3

Sources: Country authorities; and 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 4. Ghana: Sensitivity Analysis for Key Indicators of Public Debt, 2017–37

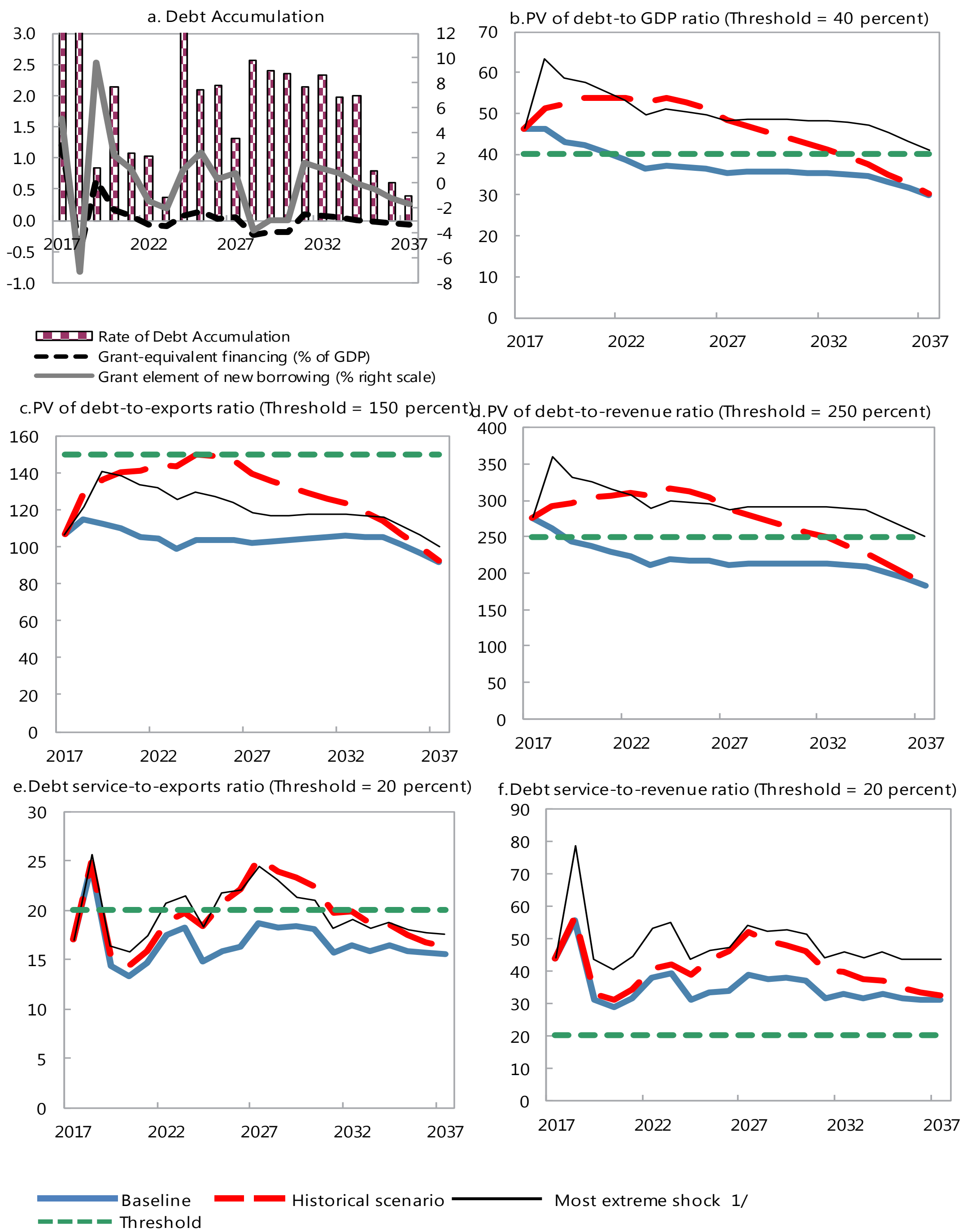
		Projections						
	2017	2018	2019	2020	2021	2022	2027	2037
PV of Debt-to-GDP Ratio								
Baseline	72	71	67	65	64	62	52	43
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	72	74	76	78	80	80	82	88
A2. Primary balance is unchanged from 2017	72	70	67	65	64	63	51	34
A3. Permanently lower GDP growth 1/	72	72	68	67	67	66	63	75
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2018-20	72	74	73	72	72	72	67	66
B2. Primary balance is at historical average minus one standard deviations in 2018-201	72	77	80	78	77	75	65	54
B3. Combination of B1-B2 using one half standard deviation shocks	72	77	81	79	78	77	69	63
B4. One-time 30 percent real depreciation in 2018	72	95	90	88	87	86	81	88
B5. 10 percent of GDP increase in other debt-creating flows in 2018	72	81	77	75	73	72	61	51
PV of Debt-to-Revenue Ratio 2/								
Baseline	409	399	374	367	364	360	312	262
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	409	417	423	438	454	463	486	539
A2. Primary balance is unchanged from 2017	409	394	373	369	367	364	304	207
A3. Permanently lower GDP growth 1/	409	403	381	379	381	384	375	458
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2018-20	409	413	409	408	412	415	397	405
B2. Primary balance is at historical average minus one standard deviations in 2018-201	409	432	449	441	438	435	385	329
B3. Combination of B1-B2 using one half standard deviation shocks	409	430	449	445	445	446	411	386
B4. One-time 30 percent real depreciation in 2018	409	532	502	497	496	499	485	537
B5. 10 percent of GDP increase in other debt-creating flows in 2018	409	456	429	421	418	415	365	311
Debt Service-to-Revenue Ratio 2/								
Baseline	82	92	68	67	72	79	66	46
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	82	92	70	75	84	94	92	97
A2. Primary balance is unchanged from 2017	82	92	67	66	73	80	65	37
A3. Permanently lower GDP growth 1/	82	93	69	69	75	83	77	80
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2018-20	82	95	73	73	80	89	81	73
B2. Primary balance is at historical average minus one standard deviations in 2018-201	82	92	71	81	91	93	81	60
B3. Combination of B1-B2 using one half standard deviation shocks	82	93	73	81	91	95	85	70
B4. One-time 30 percent real depreciation in 2018	82	105	84	86	95	108	111	119
B5. 10 percent of GDP increase in other debt-creating flows in 2018	82	92	73	84	82	89	78	57

Sources: Country authorities; and 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/ Revenues are defined inclusive of grants.

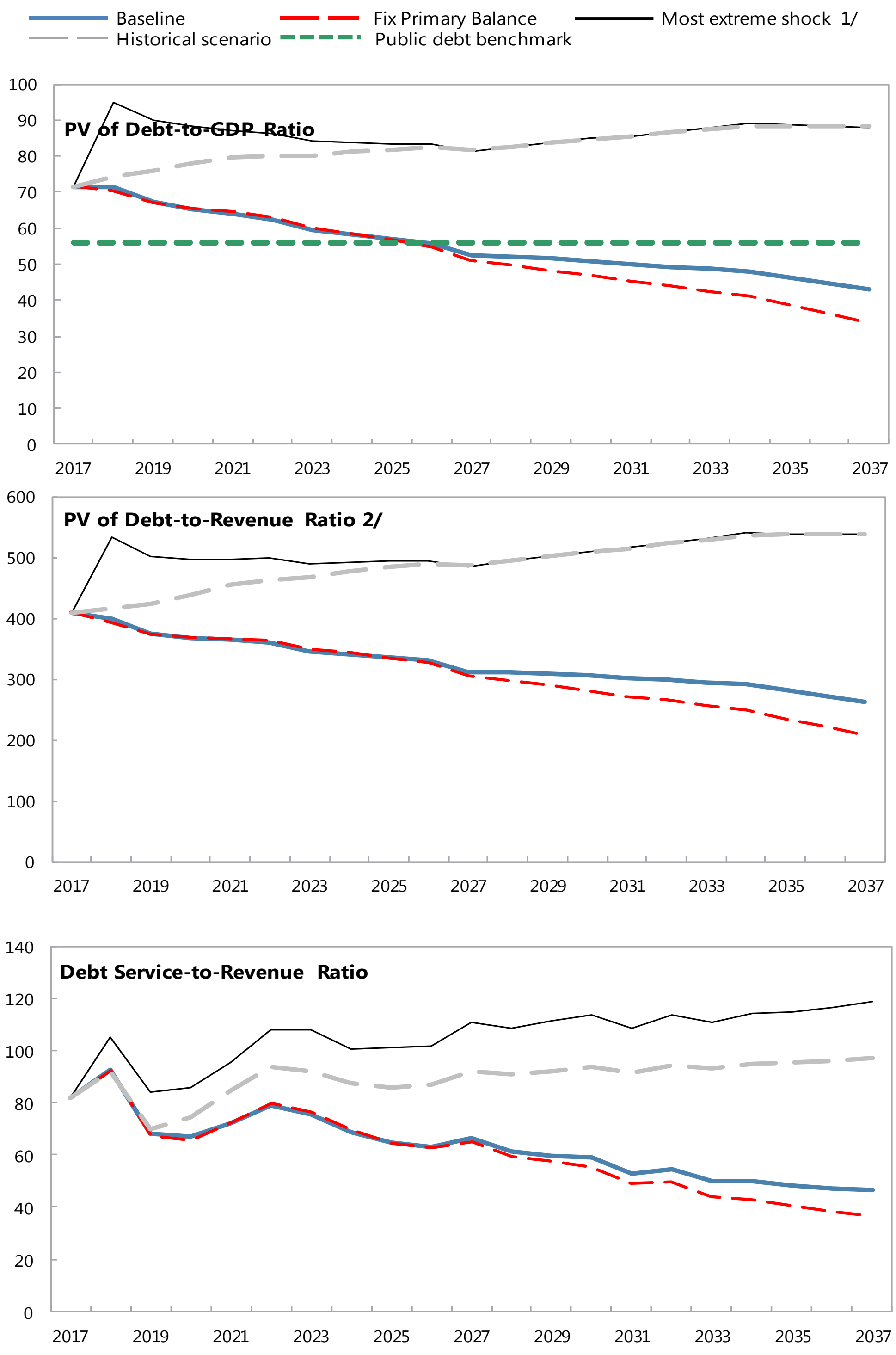
Figure 1. Ghana: Indicators of Public and Publicly Guaranteed External Debt Under Alternative Scenarios, 2017–37 1/



Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio on or before 2027. In figure b. it corresponds to a One-time depreciation shock; in c. to a Exports shock; in d. to a One-time depreciation shock; in e. to a Exports shock and in figure f. to a One-time depreciation shock

Figure 2. Ghana: Indicators of Public Debt Under Alternative Scenarios, 2017–37 1/



Sources: Country authorities; and staff estimates and projections.
1/ The most extreme stress test is the test that yields the highest ratio on or before 2027.
2/ Revenues are defined inclusive of grants.