INTERNATIONAL MONETARY FUND

CENTRAL AFRICAN REPUBLIC

June 29, 2017

SECOND REVIEW UNDER THE EXTENDED CREDIT FACILITY ARRANGEMENT, FINANCING ASSURANCES REVIEW, AND REQUEST FOR AUGMENTATION OF ACCESS—DEBT SUSTAINABILITY ANALYSIS[6]

Approved by Michael Atingi-Ego (AFR) and Zuzana Murgasova (SPR) and Paloma Anos-Casero (IDA)

Prepared by the staffs of the International Monetary Fund (IMF) and the International Development Association (IDA)

This debt sustainability analysis (DSA), conducted in the context of the joint Bank-Fund debt sustainability framework for low-income countries, confirms that Central African Republic (C.A.R.) continues to be assessed at high risk of external debt distress. Under the baseline scenario, one external debt indicator breaches the policy-related thresholds at end-2017. Alternative scenarios underline the vulnerabilities to slower GDP, revenue and export growth of both external and total public debt. The proposed augmentation of access (10 percent of quota) has a minimal impact on all indicators, leaving the analysis unchanged. Against this background, it remains critical for C.A.R. to increase domestic revenues and pursue prudent fiscal policy. To maintain debt sustainability, the government's investment program requires grant financing, highly concessional debt financing to be considered only in very few exceptional cases.

[6] C.A.R.'s average rating in the World Bank's Country Policy and Institutional Assessment (CPIA) during 2013–15 is 2.46. This corresponds to a weak policy performance under the Debt Sustainability Framework for Low-Income Countries.

BACKGROUND AND RECENT DEVELOPMENTS

1. **The C.A.R. is confronted with severe political and economic challenges.** While security has improved in Bangui, violence outside the capital took a severe toll on the population. So far the violence did have a limited impact on the economy, which has yet to recover from the 2012/2013 crisis. With low level of domestic resource mobilization (8 percent of GDP, against 12 percent of GDP before the conflict), the economy remains highly dependent on external assistance and is saddled with structural weaknesses that constrain a stronger economic rebound.

2. **GDP and export growth remain subdued.** The economy grew by 4.5 percent in 2016, below an initial projection of 5.2 percent. While continued insecurity weighs on transport, trade and mining, some sectors—especially, forestry, cotton, and coffee—have rebounded. Exports grew more than projected although formal diamond production has yet to recover as an international embargo continues to be partly in place.

STRUCTURE OF DEBT[7]

3. **In 2016, C.A.R.'s total public debt stood at 44.4 percent of GDP down from 50 percent at end-2015**. The decline is driven by an increase in nominal GDP, net clearance of domestic arrears, and slightly revised numbers (Text Table 1).[8]

4. **C.A.R.'s external public debt stands at 24.3 percent of GDP (CFAF 253.4 billion) in 2016.** No new external debt was contracted and disbursements were limited to balance of payments support from the IMF and project financing by Saudi Arabia, the World Bank, the African Development Bank and the International Fund for Agricultural Development.

5. **C.A.R. has a significant stock of external arrears.** C.A.R. owes CFAF 123.6 billion of pre-HIPC debt to Non-Paris Club Members. Under the Paris Club agreements, C.A.R. has committed to seek debt relief from its Non-Paris Club creditors with terms similar or better than those granted by the Paris Club. The government continues to reach out to the Non-Paris Club creditors to re-negotiate these obligations. During the political crisis years, C.A.R. accumulated arrears to private creditors and post-HIPC arrears to official creditors which it seeks to resolve. China has indicated its willingness to provide debt relief on all outstanding official debt.[9] A New York court ruled in January that that an Export-Import Bank located in Taiwan Province of China has claims against the C.A.R. stemming from loan agreements signed in 1991 and 1992.

6. **Domestic debt mainly consists of credit from BEAC and payment arrears.** In 2016, domestic debt accounts for 45.1 percent of the total debt, of which more than half is domestic payments arrears. The

[7] The debt (both external and public) covers gross central government debt. Debt to the IMF is included in external debt.

[8] The authorities revised up the debt stock debt from 2009 (the year of HIPC initiative) based on more complete debt data. Since 2011, the stock of debt began to increase gradually due to disbursements on new agreements signed after the initiative. The rapid increase in stock between 2013 and 2014 is due to the rise in domestic arrears.

[9] The obligations to China are included in the debt stock but no debt service is assumed.

end-2016 stock of arrears stands at CFAF 140.5 billion, of which CFAF 22.5 billion to BEAC, CFAF 14.2 billion in commercial debts, CFAF 72.2 billion in social debts, CFAF 26.1 billion to banks and CFAF 4.7 billion in cross-debt and other debts. The settlement of the audited arrears and gradual repayment of the consolidated loans from BEAC will be part of the medium-term strategy to reduce domestic debt and support the economy.

Text Table 1. Central African Republic: Total Debt Stock, Central Government, 2014–16

	2014	2015	2016		2014	2015	2016
	(CFAF billions)			(percent of total)	(Percent of GDP)		
Total	461.2	478.4	461.7	100.0	54.8	51.1	44.4
External debt	245.6	248.0	253.4	54.9	29.2	26.5	24.3
Multilateral	107.0	115.2	125.2	27.1	12.7	12.3	12.0
Bilateral and Private	138.6	132.8	128.2	27.8	16.5	14.2	12.3
Domestic debt	215.6	230.4	208.3	45.1	25.6	24.6	20.0
Stock	73.3	85.3	67.8	14.7	8.7	9.1	6.5
Arrear	142.3	145.1	140.5	30.4	16.9	15.5	13.5

Sources: C.A.R. authorities; IMF and World Bank staff estimates.

Text Table 2. External Debt by Creditor 2016

	2016	
	(CFAF billions)	(Percent of GDP)
Multilateral	125.2	12.0
World Bank	34.9	3.4
IMF	68.3	6.6
Other	22.0	2.1
Bilateral	128.2	12.3
Saudi Arabia	9.9	1.0
India	24.5	2.4
China	43.5	4.2
Congo	18.2	1.7
Kuwait	12.1	1.2
Private/Others	20.0	1.9

Sources: C.A.R. authorities; IMF and World Bank staff estimates.

UNDERLYING DSA ASSUMPTIONS

7. **The baseline macroeconomic assumptions for this DSA have been updated based on developments in 2016, consistent with the macroeconomic framework underlying the ECF arrangement (Box 1 and Text Table 2).** Staff is projecting a more gradual recovery than earlier projected due to a delay in public investments and supporting reforms. Medium-term growth is expected to average 5.3 percent. In the long run, growth is expected to register 3.5 percent, in line with previous DSAs. In the fiscal area, the domestic primary fiscal deficit is expected to improve gradually in line with the fiscal strategy under the ECF-supported arrangement. Based on an expected export recovery (forestry, cotton and diamonds), an incremental pick-up in investments, and continued strong donor support, the expectation for the medium-term non-interest current account deficit is 5.6 percent. In the long run, the non-interest current account deficit is expected to average around 3 percent, consistent with a gradually improving external position.

Box 1. Central African Republic: Macroeconomic Assumptions for 2017–36

Real GDP growth is expected to average 5.3 percent over 2018–21, Growth will be mainly driven by a rebound in agriculture, trade, forestry activities, and investment as well as the gradual resumption of mining. The lack of a significant rebound in economic activity that could be expected from a low base is attributable to the volatile security situation, the lasting damage from the conflict, and the lack of infrastructure and energy. The longer-term growth rate is maintained at 3.5 percent, as in the previous DSA.

Average inflation is expected to stabilize over the medium term, converging to 3 percent in line with CEMAC convergence criteria.

The domestic primary deficit in 2017 is expected to be 1.9 percent of GDP, after an exceptionally low level in 2016 when liquidity constraints led to expenditure compression. From 2018 onwards, the projection for the domestic primary deficit will improve steadily. The long-run primary deficit, which includes budget grants and externally financed capital expenditure, will increase gradually to 2 percent. Domestic revenues are expected to remain at 12 percent of GDP, which is the current estimated potential, while grant financing as a share of GDP diminishes gradually. Primary expenditure is projected to average around 15 percent of GDP in the long run.

The non-interest current account deficit is projected to decline gradually in the medium to long term. Exports are expected to pick up resulting from the expected recovery of mining, forestry, and agricultural activities, boosted by improved security conditions and the expected full lifting of the diamond export ban in the medium term. Nevertheless, exports in percent of GDP will eventually decline due to the narrow export base and the increase in nominal GDP. Imports are projected to decline in percent of GDP as higher domestic production capacity will lessen the need for imports.

External assistance: Grant-equivalent financing is assumed to decline from an average of 6 percent of GDP in 2017–19 to about 2 percent of GDP in the long run.

8. **C.A.R. contracted one small new loan in 2017.** The African Development Bank will provide a highly concessional budget support loan of CFAF 8.8 billion with a grant element of 60.6 percent.

Text Table 3. Central African Republic: Macroeconomic Projections

	Jul-17	
	2017	Aver. 2018-21
	(Percent of GDP; unless otherwise indicated)	
GDP growth (percent)	4.7	5.3
Inflation (GDP deflator, percent)	5.6	4.9
Non-interest current account balance	-10.0	-5.6
Overall fiscal balance (excl. grants)	-5.7	-4.8
Overall fiscal balance (incl. grants)	-0.3	1.1
Domestic primary balance	-1.9	-0.5
External debt	24.4	19.0

EXTERNAL DEBT SUSTAINABILITY RESULTS

9. **Under the baseline scenario, one external debt indicator breaches the threshold.**[10] The present value (PV) of debt-to-exports ratio is projected to breach the policy threshold until 2019. This reflects C.A.R.'s narrow export base. The PV of debt-to-revenue ratio stands slightly below the policy threshold despite the low revenue level. The ratios for debt service-to-exports and debt service-to-revenue remain well below the thresholds due to the concessionality of outstanding debt and low debt service burdens.

10. **These results differ somewhat from the 2016 DSA.** This can be explained by an upward revision of the stock of the PV of external debt[11] and updated projections for debt service payments following information provided by the authorities. Together with improved macroeconomic management, this will lead to a decline and stabilization of the PV of debt-to-exports and of the PV of debt-to-revenue ratios in the medium-term.

11. **The current DSA confirms the finding that C.A.R.'s risk of external debt distress is high**. In the most extreme scenario, all indicators breach the threshold and the increase of external debt would be significant. The PV of debt-to-exports ratio remains above the policy threshold under the extreme scenario throughout the projection period. And the PV of debt-to-revenue ratio stays above the policy threshold under the extreme scenario till 2025.

12. **Alternative scenarios and stress tests highlight the vulnerabilities.** The historical scenario may not adequately reflect the baseline prospects for C.A.R. as the historical scenario captures the 2009 HIPC

[10] Negative residuals in the external debt sustainability framework (Table 1 on p. 11) are explained by project grants and other short-term flows, projected in the capital account of the balance of payments.

[11] Mainly due to a re-classification of IMF debt as external.

debt relief and the crises years. The results of the sensitivity analysis, however, underscore the vulnerabilities particularly to a combined shock or lower exports.

Text Table 4. Central African Republic: Policy-Based Thresholds and External Debt Burden Indicators

	Thresholds 1/	Baseline Scenario Rates 2017	2018-37 Peak
PV of PPG external debt in percent of			
GDP	30	15.6	14.5
Exports	100	121.6	110.7
Revenue	200	176.4	153.6
PPG external debt service in percent of			
Exports	15	6.8	10
Revenue	18	9.8	13.9

Sources: C.A.R. authorities; and IMF and World Bank estimates

1/ Policy-based thresholds as defined in the LIC DSA framework for a weak policy performer based on the 3-year average CPIA score.

PUBLIC DEBT SUSTAINABILITY RESULTS

13. **The PV of debt-to-GDP ratio is vulnerable to lower growth.** The current fiscal strategy envisages significant domestic arrears clearance under the ECF in the coming years. This together with nominal GDP growth will help to substantially reduce the total public debt level in the baseline scenario before the PV of public debt-to-GDP ratio stabilizes at a level below 20 percent (see Figure 2 and Text Table 5).

14. **The alternative scenarios suggest that permanently lower growth would significantly worsen the debt dynamics.** The most extreme shock—a one-standard deviation drop in the growth rate for 2018–19—would put C.A.R.'s PV of debt-to-GDP ratio above the benchmark and on an unsustainable trajectory (Figure 2 and Table 2).

Text Table 5. Central African Republic: Comparative Debt Ratios, 2016–20
(Percent)

	2016	2017	2018	2019	2020
			Proj.		
PV of debt to GDP ratio					
2016 DSA	41.3	37.9	34.6	31.3	28.5
New DSA	35.3	30.6	26.0	22.0	19.2
PV debt to revenue and grants ratio					
2016 DSA	318.3	286.9	251.8	218.7	183.3
New DSA	250.1	215.9	169.3	138.3	115.3
Debt service to revenue and grants ratio					
2016 DSA	15.2	10.3	11.3	11.3	10.7
New DSA	12.6	10.6	13.1	11.2	8.6
Revenue and Grants (in percent of GDP)					
2016 DSA	13.0	13.2	13.7	14.3	15.5
New DSA	14.1	14.2	15.4	15.9	16.7

Source: C.A.R. authorities; and IMF and World Bank staff estimates and projections.

15. **C.A.R.'s overall risk of debt distress is also considered elevated because of significant vulnerabilities related to total debt.** The public debt level increased significantly due to the accumulation of domestic arrears and the collapse in GDP after the 2013 crisis. The country continues to display significant vulnerabilities to shocks to GDP growth and exports. In addition, materializing contingent liabilities could undermine debt sustainability given weak administrative capacity, lack of coordination within the public sector, and fiscal risks from state-owned enterprises. Staff and the authorities agree that it is a priority to reduce potential adverse shocks to growth and exports to avoid debt distress. Meanwhile, reforms should focus on enhancing revenue administration and public financial management as well as improving the business environment to increase potential economic growth.

16. **The authorities concur with staff's assessment.** They recognize the critical situation with respect to debt sustainability. Consistent with the conclusions, they remain committed to secure grants to finance investments and contract highly concessional loans only in exceptional cases when grant financing could not be secured and within the limits of the ECF-arrangement.

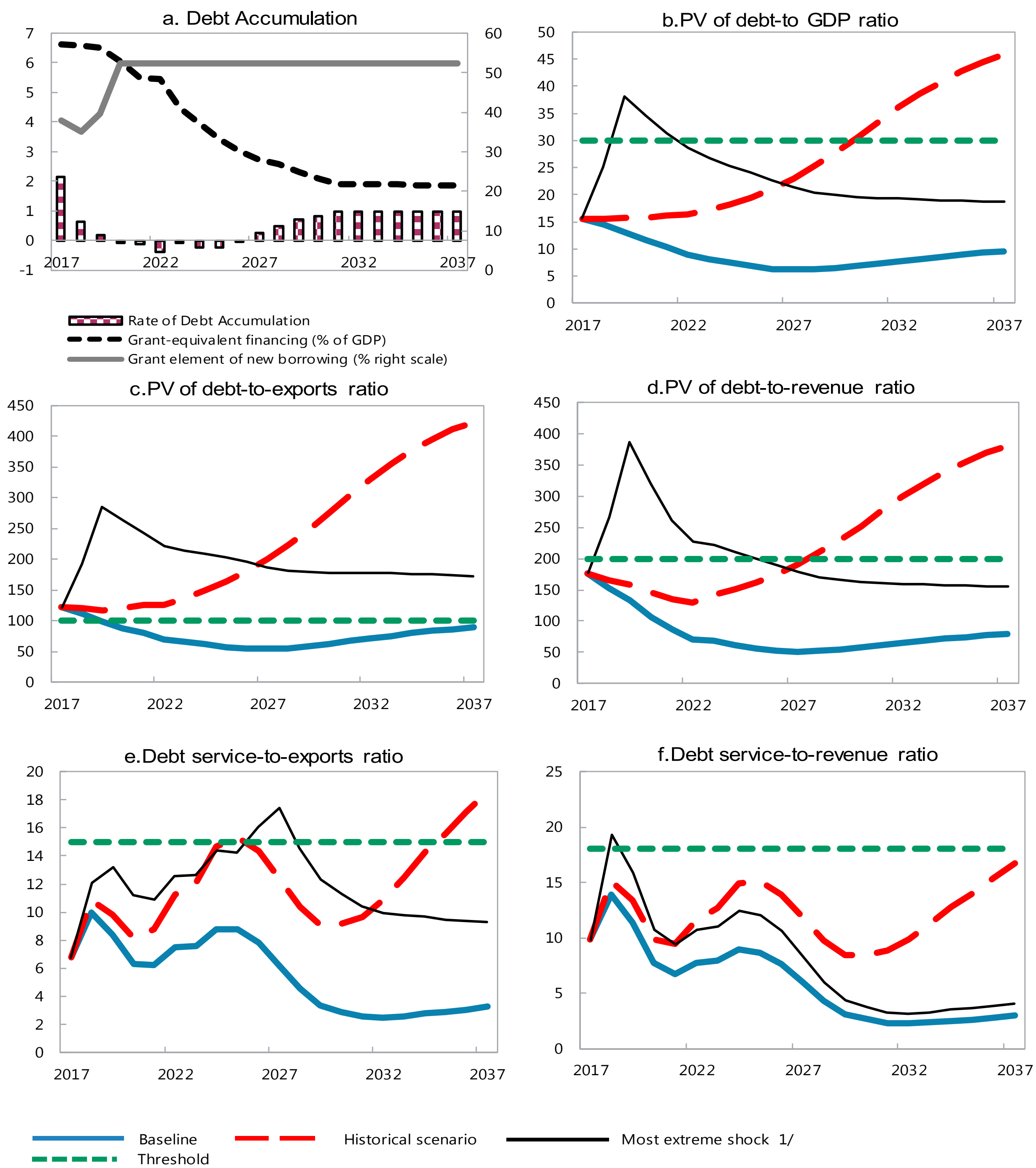
CONCLUSION

17. **As in the previous DSA, C.A.R.'s debt remains at high risk of distress.** Only the PV of external debt-to-exports ratio remains for some time above the policy threshold under the baseline scenario. The PV of the external debt-to-GDP ratio stays below the benchmark as do the indicators for external debt service. However, alternative scenarios and the sensitivity analysis show that C.A.R.'s debt sustainability is vulnerable to shocks, in particular, slower GDP, revenue and export growth.

18. **C.A.R. urgently needs to improve domestic revenue mobilization and promote exports.** The government's current program supported by the ECF envisages a gradual increase of domestic revenues to 10 percent of GDP by 2019. To this end, it will be critical to fully implement tax policy reforms as well as the actions plans to improve tax and customs administration. Staff encourages the authorities to strengthen public debt management and continue efforts to resolve external arrears in a timely manner. Consolidating peace and structural policies to improve the business climate, boost productivity and diversify the export base will further strengthen debt sustainability.

19. **C.A.R. should pursue a financing strategy limited to grant and, only in very few exceptional cases, highly concessional financing.** Staff urges the authorities to seek maximum concessionality in their external financing and to contract new concessional debt only in exceptional cases for critical projects when grant financing could not be secured. For any such project, there would be a need to: thoroughly and independently analyze the costs and benefits to ensure they are profitable and have no fiscal impact; ensure adequate due diligence, including the respect of procurement law; fully integrate them into the regular budget process.

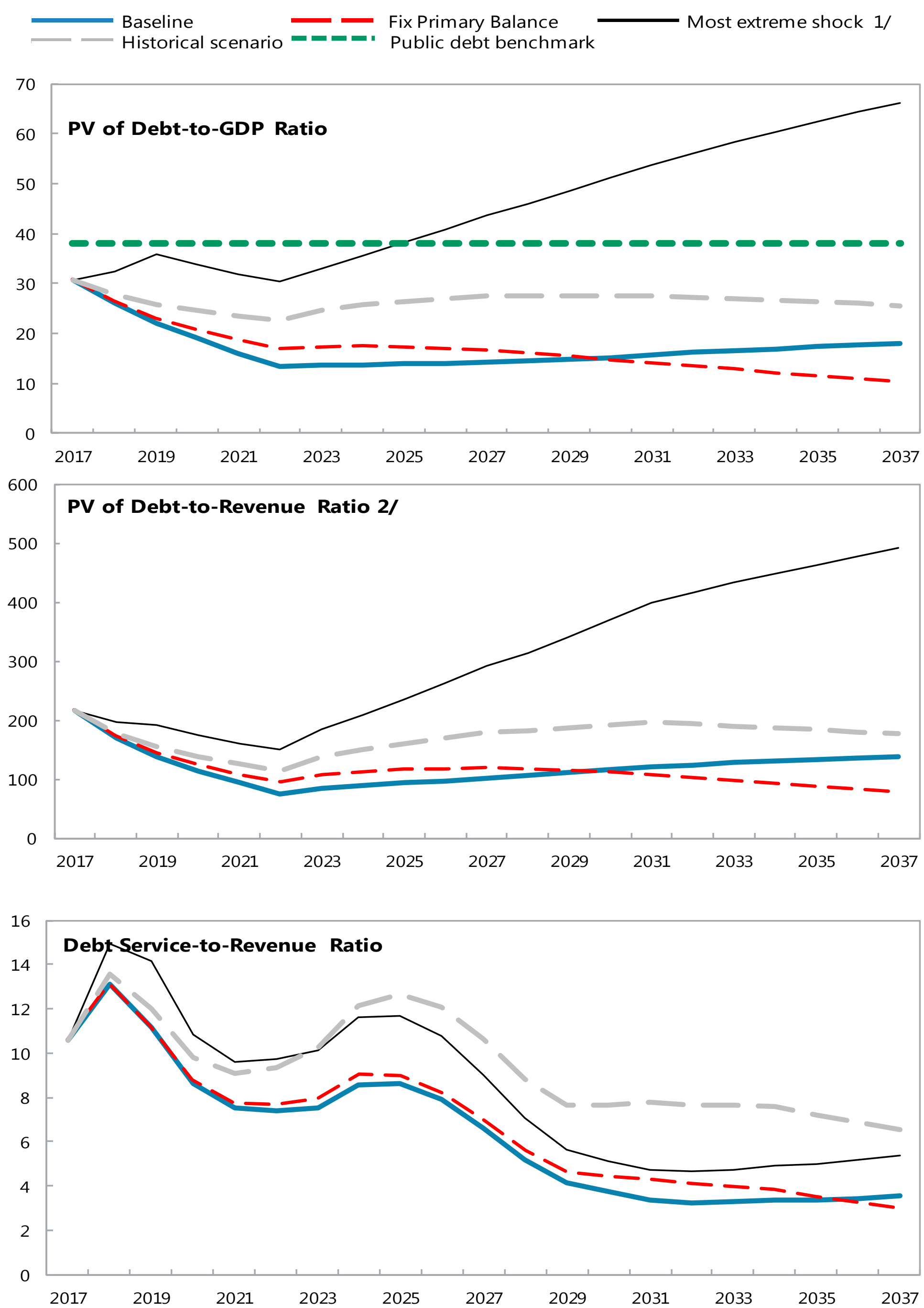
Figure 1. Central African Republic: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2017–37 1/



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 Combination shock; in c. to a Combination shock; in d. to a Combination shock; in e. to a Combination shock and in figure f. to a One-time depreciation shock

Figure 2. Central African Republic: 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.

CENTRAL AFRICAN REPUBLIC

Table 1. Central African Republic: External Debt Sustainability Framework, Baseline Scenario, 2014–37 1/

(Percent of GDP, unless otherwise indicated)

	Actual			Historical 6/ Average	Standard 6/ Deviation	Projections									
	2014	2015	2016			2017	2018	2019	2020	2021	2022	2017-2022 Average	2027	2037	2023-2037 Average
External debt (nominal) 1/	**29.2**	**26.5**	**24.3**			**24.4**	**22.4**	**20.1**	**17.7**	**15.6**	**13.7**		**11.1**	**17.1**	
of which: public and publicly guaranteed (PPG)	29.2	26.5	24.3			24.4	22.4	20.1	17.7	15.6	13.7		11.1	17.1	
Change in external debt	14.6	-2.7	-2.1			0.1	-2.0	-2.3	-2.5	-2.1	-1.9		0.1	0.4	
Identified net debt-creating flows	3.8	10.8	5.9			7.0	4.3	3.3	2.9	2.6	2.6		0.8	1.6	
Non-interest current account deficit	**5.2**	**8.7**	**8.7**	**7.0**	**2.4**	**10.0**	**7.1**	**6.0**	**5.3**	**4.8**	**4.8**		**2.6**	**3.5**	2.8
Deficit in balance of goods and services	24.5	22.0	18.8			19.5	16.8	15.0	13.6	12.3	11.7		8.6	7.9	
Exports	13.0	12.6	12.8			12.8	13.1	13.4	13.2	13.0	13.0		11.5	10.8	
Imports	37.6	34.6	31.6			32.3	29.9	28.5	26.8	25.2	24.7		20.1	18.7	
Net current transfers (negative = inflow)	-18.5	-12.5	-9.8	-7.2	5.0	-12.0	-13.1	-12.4	-11.5	-10.7	-10.4		-5.7	-4.1	-5.3
of which: official	-11.3	-5.8	-5.3			-5.0	-5.5	-4.7	-4.1	-3.6	-3.3		-3.2	-2.5	
Other current account flows (negative = net inflow)	-0.8	-0.8	-0.3			2.5	3.4	3.3	3.2	3.2	3.4		-0.2	-0.2	
Net FDI (negative = inflow)	**-0.1**	**-0.3**	**-0.4**	**-2.0**	**1.9**	**-2.2**	**-2.0**	**-1.8**	**-1.6**	**-1.5**	**-1.5**		**-1.6**	**-1.5**	-1.7
Endogenous debt dynamics 2/	**-1.3**	**2.4**	**-2.4**			**-0.9**	**-0.9**	**-0.9**	**-0.8**	**-0.7**	**-0.6**		**-0.2**	**-0.4**	
Contribution from nominal interest rate	0.3	0.4	0.3			0.2	0.2	0.2	0.2	0.2	0.2		0.1	0.1	
Contribution from real GDP growth	-0.1	-1.5	-1.1			-1.0	-1.1	-1.0	-1.0	-0.9	-0.8		-0.3	-0.5	
Contribution from price and exchange rate changes	-1.5	3.6	-1.7			...	...	...	...	...	...		...	...	
Residual (3-4) 3/	**10.8**	**-13.5**	**-8.0**			**-6.9**	**-6.2**	**-5.6**	**-5.3**	**-4.7**	**-4.5**		**-0.7**	**-1.2**	
of which: exceptional financing	-0.8	0.0	-0.2			0.2	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
PV of external debt 4/	...	...	15.3			15.6	14.5	13.1	11.6	10.3	9.0		6.1	9.6	
In percent of exports	...	...	120.1			121.6	110.7	97.5	87.8	79.4	69.3		53.7	88.5	
PV of PPG external debt	**...**	**...**	**15.3**			**15.6**	**14.5**	**13.1**	**11.6**	**10.3**	**9.0**		**6.1**	**9.6**	
In percent of exports	**...**	**...**	**120.1**			**121.6**	**110.7**	**97.5**	**87.8**	**79.4**	**69.3**		**53.7**	**88.5**	
In percent of government revenues	**...**	**...**	**188.0**			**176.4**	**153.6**	**132.7**	**107.0**	**85.7**	**71.2**		**51.4**	**79.8**	
Debt service-to-exports ratio (in percent)	**7.6**	**8.5**	**9.3**			**6.8**	**10.0**	**8.4**	**6.3**	**6.2**	**7.5**		**6.2**	**3.3**	
PPG debt service-to-exports ratio (in percent)	**7.6**	**8.5**	**9.3**			**6.8**	**10.0**	**8.4**	**6.3**	**6.2**	**7.5**		**6.2**	**3.3**	
PPG debt service-to-revenue ratio (in percent)	**20.2**	**15.1**	**14.6**			**9.8**	**13.9**	**11.4**	**7.7**	**6.7**	**7.7**		**6.0**	**2.9**	
Total gross financing need (Billions of U.S. dollars)	0.1	0.2	0.2			0.2	0.1	0.1	0.1	0.1	0.1		0.1	0.2	
Non-interest current account deficit that stabilizes debt ratio	-9.4	11.4	10.9			9.9	9.1	8.3	7.7	6.9	6.7		2.5	3.1	
Key macroeconomic assumptions															
Real GDP growth (in percent)	1.0	4.8	4.5	-0.7	12.7	4.7	5.0	5.2	5.5	5.6	5.6	5.3	3.3	3.4	3.5
GDP deflator in US dollar terms (change in percent)	11.2	-10.9	6.9	4.1	8.5	6.8	6.7	6.2	6.3	6.2	4.0	6.1	3.3	3.3	3.3
Effective interest rate (percent) 5/	2.7	1.2	1.5	1.9	0.7	0.8	0.8	0.9	1.0	1.1	1.1	0.9	1.2	0.9	1.1
Growth of exports of G&S (US dollar terms, in percent)	1.3	-9.6	13.1	1.7	14.0	12.3	14.2	14.7	10.4	10.0	10.3	12.0	5.1	7.0	5.7
Growth of imports of G&S (US dollar terms, in percent)	68.8	-14.0	2.1	8.2	25.9	14.5	3.6	6.5	5.5	5.8	7.7	7.2	5.4	7.4	5.0
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	38.0	35.1	39.5	52.3	52.3	52.3	44.9	52.3	52.3	52.3
Government revenues (excluding grants, in percent of GDP)	4.9	7.1	8.2			8.8	9.4	9.9	10.8	12.0	12.7		12.0	12.0	12.0
Aid flows (in Billions of US dollars) 7/	0.2	0.1	0.1			0.1	0.1	0.2	0.2	0.2	0.2		0.2	0.3	
of which: Grants	0.2	0.1	0.1			0.1	0.1	0.2	0.2	0.2	0.2		0.1	0.1	
of which: Concessional loans	...	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.1	0.2	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			6.6	6.6	6.5	6.0	5.5	5.5		2.7	1.9	2.5
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			76.1	85.0	91.1	97.1	97.1	97.3		80.6	69.5	76.3
Memorandum items:															
Nominal GDP (Billions of US dollars)	1.7	1.6	1.8			2.0	2.2	2.5	2.8	3.1	3.4		4.9	9.5	
Nominal dollar GDP growth	12.3	-6.6	11.7			11.9	12.1	11.7	12.2	12.2	9.9	11.7	6.8	6.8	7.0
PV of PPG external debt (in Billions of US dollars)			0.3			0.3	0.3	0.3	0.3	0.3	0.3		0.3	0.9	
(PVt-PVt-1)/GDPt-1 (in percent)						2.1	0.6	0.2	-0.1	-0.1	-0.4	0.4	0.3	1.0	0.6
Gross workers' remittances (Billions of US dollars)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
PV of PPG external debt (in percent of GDP + remittances)	...	...	15.4			15.6	14.5	13.1	11.6	10.3	9.0		6.2	9.6	
PV of PPG external debt (in percent of exports + remittances)	...	...	123.5			124.9	113.5	99.7	89.7	81.1	70.6		54.7	89.7	
Debt service of PPG external debt (in percent of exports + remittanc	...	...	9.6			7.0	10.3	8.6	6.5	6.4	7.6		6.3	3.3	

Sources: Country authorities; and staff estimates and projections.

1/ Includes both public and private sector external debt.

2/ Derived as [r - g - ρ(1+g)]/(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. Central African Republic: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2017–37

(Percent)

	Projections							
	2017	2018	2019	2020	2021	2022	**2027**	2037
PV of debt-to GDP ratio								
Baseline	16	14	13	12	10	9	**6**	10
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2017-2037 1/	16	16	16	16	16	16	**23**	46
A2. New public sector loans on less favorable terms in 2017-2037 2	16	15	14	12	11	10	**8**	15
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	16	18	19	17	15	13	**9**	14
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	16	16	17	16	14	12	**9**	11
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	16	16	16	14	13	11	**8**	12
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	16	21	25	23	20	19	**14**	12
B5. Combination of B1-B4 using one-half standard deviation shocks	16	25	38	35	31	29	**21**	19
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	16	20	18	16	14	13	**9**	13
PV of debt-to-exports ratio								
Baseline	122	111	98	88	79	69	**54**	88
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2017-2037 1/	122	119	117	120	125	125	**200**	422
A2. New public sector loans on less favorable terms in 2017-2037 2	122	113	102	92	84	74	**73**	138
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	122	111	98	88	79	69	**54**	88
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	122	160	220	201	183	163	**133**	167
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	122	111	98	88	79	69	**54**	88
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	122	160	186	172	158	144	**121**	115
B5. Combination of B1-B4 using one-half standard deviation shocks	122	192	285	263	243	221	**187**	173
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	122	111	98	88	79	69	**54**	88
PV of debt-to-revenue ratio								
Baseline	176	154	133	107	86	71	**51**	80
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2017-2037 1/	176	166	159	146	135	129	**191**	380
A2. New public sector loans on less favorable terms in 2017-2037 2	176	157	138	112	90	76	**70**	124
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	176	187	197	159	126	105	**76**	118
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	176	170	176	144	116	98	**74**	88
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	176	172	166	134	106	88	**64**	99
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	176	222	253	209	171	148	**116**	104
B5. Combination of B1-B4 using one-half standard deviation shocks	176	267	387	319	261	226	**179**	155
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	176	215	186	150	119	99	**71**	111

Table 2. Central African Republic: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2017–37 (concluded)

(Percent)

Debt service-to-exports ratio								
Baseline	7	10	8	6	6	8	**6**	3
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2017-2037 1/	7	11	10	8	9	11	**12**	19
A2. New public sector loans on less favorable terms in 2017-2037 2	7	10	9	7	7	8	**5**	6
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	7	10	8	6	6	8	**6**	3
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	7	13	15	12	11	13	**14**	7
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	7	10	8	6	6	8	**6**	3
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	7	10	9	8	7	9	**11**	6
B5. Combination of B1-B4 using one-half standard deviation shocks	7	12	13	11	11	13	**17**	9
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	7	10	8	6	6	8	**6**	3
Debt service-to-revenue ratio								
Baseline	10	14	11	8	7	8	**6**	3
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2017-2037 1/	10	15	13	10	9	12	**12**	17
A2. New public sector loans on less favorable terms in 2017-2037 2	10	14	12	8	7	8	**5**	6
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	10	17	17	11	10	11	**9**	4
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	10	14	12	8	7	8	**8**	4
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	10	16	14	10	8	10	**7**	4
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	10	14	12	9	8	9	**11**	5
B5. Combination of B1-B4 using one-half standard deviation shocks	10	17	18	14	12	13	**17**	8
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	10	19	16	11	9	11	**8**	4
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	50	50	50	50	50	50	**50**	50

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 3. Central African Republic: 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/	54.8	51.1	44.3			39.4	33.9	29.1	25.3	21.5	18.3		19.3	25.5	
of which: foreign-currency denominated	29.2	26.5	24.3			24.4	22.4	20.1	17.7	15.6	13.7		11.1	17.1	
Change in public sector debt	16.2	-3.7	-6.7			-4.9	-5.4	-4.9	-3.8	-3.8	-3.2		0.5	0.4	
Identified debt-creating flows	-6.7	-3.2	-7.0			-4.2	-4.7	-4.3	-4.2	-4.2	-3.7		0.3	0.7	
Primary deficit	-3.6	0.1	-2.1	-0.3	2.7	-0.1	-1.1	-1.3	-1.7	-2.1	-2.2	-1.4	1.1	2.1	1.3
Revenue and grants	15.7	14.3	14.1			14.2	15.4	15.9	16.7	17.3	18.0		14.0	13.0	
of which: grants	10.8	7.2	6.0			5.3	5.9	6.1	5.8	5.3	5.3		2.0	1.0	
Primary (noninterest) expenditure	12.1	14.4	12.0			14.0	14.2	14.6	15.0	15.2	15.7		15.1	15.1	
Automatic debt dynamics	-2.1	-2.3	-4.8			-4.0	-3.5	-3.0	-2.5	-2.1	-1.5		-0.9	-1.3	
Contribution from interest rate/growth differential	-3.6	-5.0	-4.6			-3.8	-3.3	-2.7	-2.3	-1.9	-1.5		-0.9	-1.3	
of which: contribution from average real interest rate	-3.2	-2.5	-2.4			-1.8	-1.4	-1.0	-0.8	-0.5	-0.4		-0.2	-0.5	
of which: contribution from real GDP growth	-0.4	-2.5	-2.2			-2.0	-1.9	-1.7	-1.5	-1.3	-1.1		-0.6	-0.8	
Contribution from real exchange rate depreciation	1.5	2.7	-0.2			-0.3	-0.2	-0.3	-0.3	-0.2	0.0		...	...	
Other identified debt-creating flows	-1.0	-1.0	-0.1			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Privatization receipts (negative)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recognition of 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)	-1.0	-1.0	-0.1			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	22.9	-0.5	0.2			-0.8	-0.8	-0.6	0.4	0.3	0.5		0.2	-0.3	
Other Sustainability Indicators															
PV of public sector debt	...	...	35.3			30.6	26.0	22.0	19.2	16.2	13.6		14.4	18.0	
of which: foreign-currency denominated	...	...	15.3			15.6	14.5	13.1	11.6	10.3	9.0		6.1	9.6	
of which: external	...	...	15.3			15.6	14.5	13.1	11.6	10.3	9.0		6.1	9.6	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	-1.9	1.8	-0.3			1.4	0.9	0.5	-0.2	-0.8	-0.9		2.1	2.5	
PV of public sector debt-to-revenue and grants ratio (in percent)	...	...	250.1			215.9	169.3	138.3	115.3	93.7	75.9		102.7	138.4	
PV of public sector debt-to-revenue ratio (in percent)	...	...	433.2			346.3	276.1	223.6	177.4	135.0	107.6		119.9	149.6	
of which: external 3/	...	...	188.0			176.4	153.6	132.7	107.0	85.7	71.2		51.4	79.8	
Debt service-to-revenue and grants ratio (in percent) 4/	10.5	11.9	12.6			10.6	13.1	11.2	8.6	7.5	7.4		6.6	3.6	
Debt service-to-revenue ratio (in percent) 4/	33.7	24.1	21.8			17.0	21.4	18.0	13.3	10.9	10.5		7.7	3.8	
Primary deficit that stabilizes the debt-to-GDP ratio	-19.8	3.8	4.6			4.8	4.3	3.5	2.1	1.7	1.0		0.6	1.6	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	1.0	4.8	4.5	-0.7	12.7	4.7	5.0	5.2	5.5	5.6	5.6	5.3	3.3	3.4	3.5
Average nominal interest rate on forex debt (in percent)	2.7	1.2	1.5	1.9	0.7	0.8	0.8	0.9	1.0	1.1	1.1	0.9	1.2	0.9	1.1
Average real interest rate on domestic debt (in percent)	-8.9	-4.8	-5.1	1.3	7.1	-3.8	-2.6	-1.6	-0.8	0.0	1.1	-1.3	-0.4	-1.9	-0.6
Real exchange rate depreciation (in percent, + indicates depreciation	11.2	10.3	-0.9	1.8	7.1	-1.2	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	11.1	6.2	6.4	5.0	3.1	5.6	5.5	5.0	4.7	4.3	4.0	4.9	3.3	3.3	3.3
Growth of real primary spending (deflated by GDP deflator, in percer	-13.9	24.2	-12.6	-0.2	10.2	22.5	6.4	8.1	8.3	7.0	9.2	10.3	3.3	3.4	3.2
Grant element of new external borrowing (in percent)	...	...	...	...	...	38.0	35.1	39.5	52.3	52.3	52.3	44.9	52.3	52.3	...

Sources: Country authorities; and staff estimates and projections.

1/ [Indicate coverage of public sector, e.g., general government or nonfinancial public sector. Also whether net or 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/ 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 4. Central African Republic: Sensitivity Analysis for Key Indicators of Public Debt, 2017–37

		Projections						
	2017	2018	2019	2020	2021	2022	2027	20
PV of Debt-to-GDP Ratio								
Baseline	31	26	22	19	16	13	14	
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	31	28	26	25	23	23	27	
A2. Primary balance is unchanged from 2017	31	26	23	21	19	17	17	
A3. Permanently lower GDP growth 1/	31	27	24	21	19	18	28	
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2018-2019	31	32	36	34	32	30	43	
B2. Primary balance is at historical average minus one standard deviations in 2018-2019	31	28	25	22	19	16	17	
B3. Combination of B1-B2 using one half standard deviation shocks	31	30	31	28	26	24	32	
B4. One-time 30 percent real depreciation in 2018	31	32	27	24	20	17	16	
B5. 10 percent of GDP increase in other debt-creating flows in 2018	31	31	27	23	20	17	17	
PV of Debt-to-Revenue Ratio 2/								
Baseline	217	169	138	114	93	75	102	
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	217	178	154	138	125	114	178	
A2. Primary balance is unchanged from 2017	217	172	144	125	108	94	118	
A3. Permanently lower GDP growth 1/	217	172	145	125	108	94	192	
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2018-2019	217	195	191	174	160	149	291	
B2. Primary balance is at historical average minus one standard deviations in 2018-2019	217	180	159	133	110	91	119	
B3. Combination of B1-B2 using one half standard deviation shocks	217	189	174	154	137	123	219	
B4. One-time 30 percent real depreciation in 2018	217	207	170	141	116	95	112	
B5. 10 percent of GDP increase in other debt-creating flows in 2018	217	201	167	139	115	96	125	
Debt Service-to-Revenue Ratio 2/								
Baseline	11	13	11	9	8	7	7	
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	11	14	12	10	9	9	11	
A2. Primary balance is unchanged from 2017	11	13	11	9	8	8	7	
A3. Permanently lower GDP growth 1/	11	13	12	9	8	8	9	
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2018-2019	11	15	14	11	10	10	12	
B2. Primary balance is at historical average minus one standard deviations in 2018-2019	11	13	11	9	8	8	7	
B3. Combination of B1-B2 using one half standard deviation shocks	11	14	13	10	9	9	10	
B4. One-time 30 percent real depreciation in 2018	11	15	14	11	10	10	9	
B5. 10 percent of GDP increase in other debt-creating flows in 2018	11	13	12	10	8	8	8	

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.