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CENTRAL AFRICAN REPUBLIC

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THIRD REVIEW UNDER THE EXTENDED CREDIT FACILITY ARRANGEMENT, REQUESTS FOR WAIVER OF NON-OBSERVANCE OF PERFORMANCE CRITERION, MODIFICATION OF PERFORMANCE CRITERIA, AUGMENTATION OF ACCESS, AND FINANCING ASSURANCES REVIEW—DEBT SUSTAINABILITY ANALYSIS UPDATE[1]

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This debt sustainability analysis (DSA) updates the joint IMF/IDA DSA from the second review under the ECF arrangement of July 2017 (Country report 17/245). It reflects updated information on the macroeconomic outlook and the proposed augmentation from the IMF. The Central African Republic (C.A.R.) continues to be assessed at high risk of external debt distress—unchanged from the previous analysis. Under the baseline scenario, one external debt indicator breaches the policy-related thresholds at end-2017. Alternative scenarios underline the vulnerabilities to slower GDP growth, revenue and export growth of both external and total public debt. C.A.R.'s overall risk of debt distress is also high due to vulnerabilities related to total debt. The proposed augmentation of access (35 percent of quota) has a manageable impact on external debt sustainability. To safeguard external debt sustainability, the government's investment program requires grant financing, with highly concessional debt financing to be considered only in exceptional cases.

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[1] C.A.R.'s average rating in the World Bank's Country Policy and Institutional Assessment (CPIA) during 2014-2016 is 2.44. This corresponds to a weak policy performance under the Debt Sustainability Framework for Low-Income Countries.

STRUCTURE OF DEBT[2]

1.   **In 2016, C.A.R.'s total public debt stood at 56.0 percent of GDP (Text Table 1)**. External public debt accounted for 36 percent of GDP (CFAF 253.4 billion) at end-2016. C.A.R. has about CFAF 101 billion of pre-HIPC debt to Non-Paris Club Members (Text Table 1). 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 conflict years, C.A.R. accumulated post-HIPC arrears to official creditors of 1 percent of GDP by end 2016 which it seeks to resolve. China has indicated its willingness to provide debt relief on all outstanding official debt while discussions with India about modalities to resolve a modest amount of post-HIPC arrears (0.2 percent of GDP) continue.[3] C.A.R. has also arrears to private creditors, and is continuing to make good-faith efforts to reach a collaborative agreement with them.

2.   **Domestic debt mainly consists of wage and pension and commercial arrears and central bank advances.** At end 2016, domestic debt stands at CFAF 208.3 billion, of which CFAF 78.5 billion to BEAC, CFAF 14.2 billion in arrears to suppliers, CFAF 72.2 billion in wage, benefits and pension arrears, CFAF 26.1 billion in arrears to banks and CFAF 7.8 billion in cross-debt and other debts.

Text Table 1. Central African Republic: Domestic and External Debt Stock 2016

Domestic Debt 2016

Type of Creditor	Current	Arrears	Total	(in percent of GDP)
Domestic				
Total	68.1	140.2	208.3	20.0
BEAC	56.0	22.5	78.5	7.5
Commercial Banks	0.0	26.1	26.1	2.5
Private Suppliers	0.0	14.2	14.2	1.4
Social Arrears	0.0	72.2	72.2	6.9
T-Bills	9.5	0.0	9.5	0.9
Cross Debt and Other	2.6	5.2	7.8	0.7

Sources: C.A.R. authorities and IMF Staff calculations.

External Debt 2016

Type of Creditor	Total (in CFAF billion)	(in percent of GDP)	of which in arrears
External			
Total[1]	374.5	36.0	155.1
Multilateral	122.7	11.8	
World Bank	34.9	3.4	
IMF	65.8	6.3	
Other	22.0	2.1	
Bilateral	108.2	10.4	11.5
Saudi Arabia	9.9	1.0	
India	24.5	2.4	3.3
China	43.5	4.2	8.2
Congo	18.2	1.7	
Kuwait	12.1	1.2	
Pre-HIPC Arrears			
Argentina	19.4	1.9	19.4
Eq. Guinea	2.4	0.2	2.4
Iraq	2.7	0.3	2.7
Libya	7.4	0.7	7.4
Taiwan Province of China	68.9	6.6	68.9
Private	42.8	4.1	42.8

Sources: C.A.R. authorities and IMF Staff calculations.
[1] Includes pre-HIPC arrears

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[2] The debt (both external and public) covers gross central government debt. Debt to the IMF and pre-HIPC arrears are included in external debt.

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

MACROECONOMIC PROJECTIONS, 2017–37

3.   **Macroeconomic assumptions have changed since the July DSA.** The most important changes are that medium-term growth from 2017–22 has been lowered to 4 percent and that exports are assumed somewhat stronger in the medium to long term, reflecting the recent buoyant performance of some export sectors (timber, diamonds) (Text table 2).

- Real GDP growth is expected to average 4 percent over 2018–21 compared to 5.3 percent in the previous DSA. The lack of a significant rebound in economic activity that could be expected from a low base is attributable to the lasting damage from the 2013–14 conflict and continued high level of violence. Longer-term growth is expected to average 3.4 percent per year, a conservative assumption given the low level of per-capita GDP.

- On fiscal policy, the assumption for the longer term primary deficit remains unchanged at 1.4 percent of GDP. Differences in the short term reflect the revised growth outlook and updated assumptions on external assistance. As before, revenues are expected to reach 14 percent of GDP in the longer run.

- The non-interest current account deficit is expected to decline gradually in the medium to long term, as assumed in the July DSA. However, exports will pick up somewhat stronger due to the recent recovery of the mining and forestry sectors and to better reflect pre-crisis levels.

- Grant-equivalent financing is assumed to decline from an average of 6 percent of GDP in 2017–19 to about 2.5 percent of GDP in the long run.

Text Table 2. Central African Republic: Macroeconomic Projections

	Jul-17			Dec-17		
	2017	Aver. 2018-21	Aver. 2023-2037	2017	Aver. 2018-21	Aver. 2023-2037
	(Percent of GDP; unless otherwise indicated)					
GDP growth (percent)	4.7	5.3	3.5	4.0	4.0	3.4
Inflation (GDP deflator, percent)	5.6	4.9	3.3	3.5	3.2	3.4
Non-interest current account balance	-10.0	-5.6	-2.8	-8.3	-3.6	-3.0
Primary balance	0.1	1.6	1.3	0.9	1.1	1.4
Exports	12.8	13.2	11.3	12.8	12.7	13.2
Revenues	14.2	16.3	13.8	15.0	16.2	13.9

4.   **C.A.R. has contracted one small new loan in 2017.** The African Development Bank provided a highly concessional budget support loan of USD15 million with a grant element of 60.6 percent. Looking ahead, the DSA assumes that C.A.R. will sign a highly concessional loan of USD13 million with a grant element of 50 percent for a critical infrastructure project in 2018. Furthermore, this updated DSA reflects the proposed augmentation of Fund support. C.A.R. undertook two Debt Management Performance Assessments (DeMPA) and receives support by technical partners to strengthen debt management.

EXTERNAL DEBT SUSTAINABILITY RESULTS

5.   **Under the baseline scenario, one external debt indicator breaches the threshold.[4]** The present value (PV) of debt-to-exports ratio is projected to breach the policy threshold until 2023. This mainly reflects C.A.R.'s narrow export base. 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 the low debt service burden. The augmentation of IMF financial support has a noticeable but manageable impact on debt service indicators from 2024 onwards.

6.   **Alternative scenarios and stress tests highlight the vulnerabilities.** 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.The historical scenario may not adequately reflect the baseline prospects for C.A.R. as the historical scenario captures the 2009 HIPC debt relief and the crisis years. The results of the sensitivity analysis, however, underscore the vulnerabilities particularly to lower growth and exports.

PUBLIC DEBT SUSTAINABILITY RESULTS

7.   **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. Contingent liabilities could further exacerbate sustainability concerns. The stress tests show that total debt is vulnerable to lower growth or a higher deficit of the primary balance. The analysis captures the strategy to repay domestic arrears over the coming years, which will lead to a significant reduction of domestic debt.
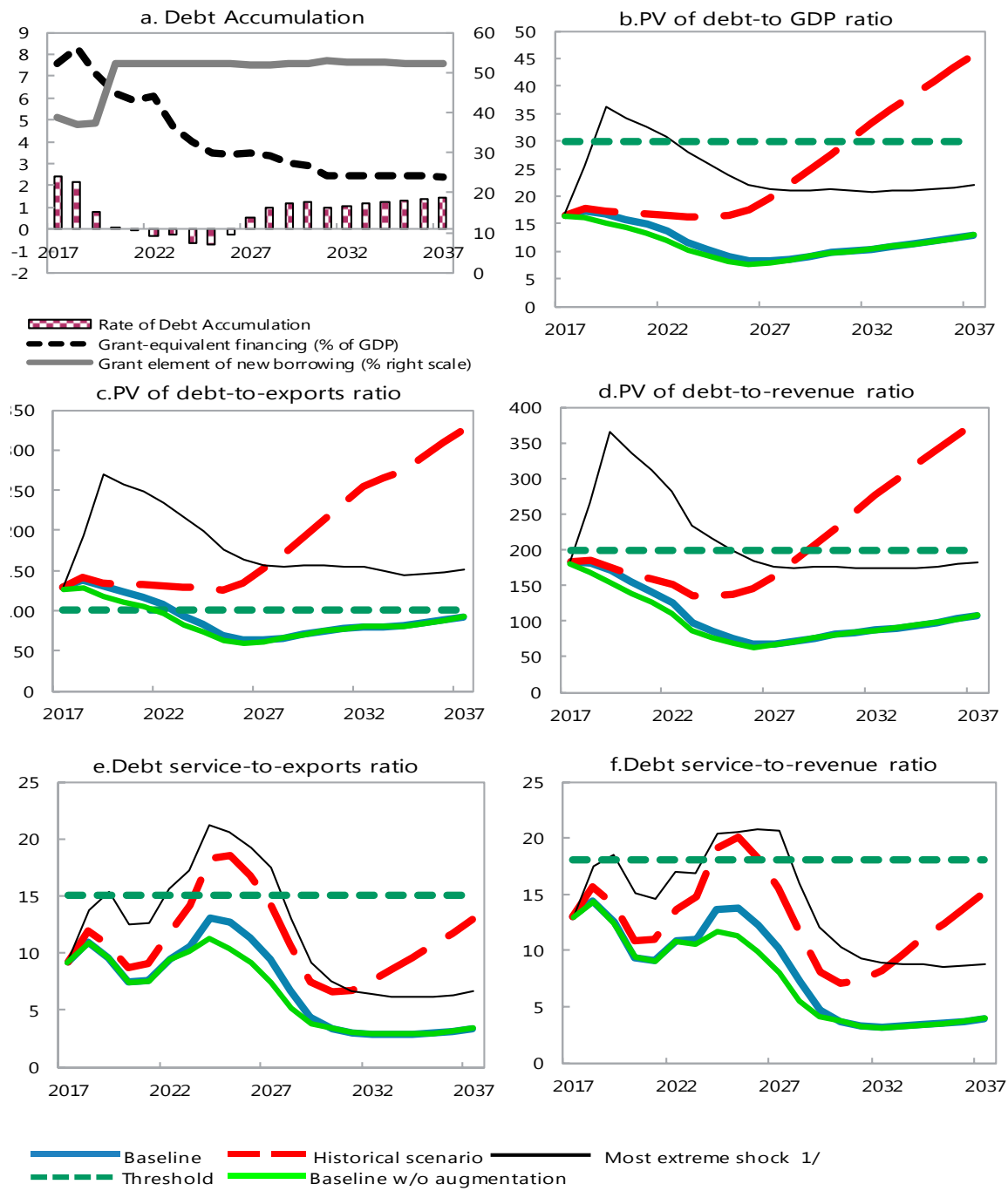
CONCLUSION

8.   **The updated DSA confirms that C.A.R. is at high risk of debt distress.** This rating reflects mainly the past collapse of GDP, tax revenues and exports. Alternative scenarios show that C.A.R.'s debt trajectory is vulnerable to GDP, export and revenue shocks and materializing contingent liabilities could exacerbate debt sustainability concerns. The PV of external debt-to-exports ratio remains for some time above the policy threshold under the baseline scenario. The proposed augmentation of Fund financial support would have a noticeable but manageable impact on debt sustainability.

9.   **The authorities concur with staff's assessment.** Consistent with the conclusions, they remain committed to securing grants to finance investments and contracting highly concessional loans only in exceptional cases.

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[4] The high residual in the external debt sustainability framework (Table 1 on p. 11) can be explained by project grants (recorded in the capital account) and unrecorded non-debt creating inflows.
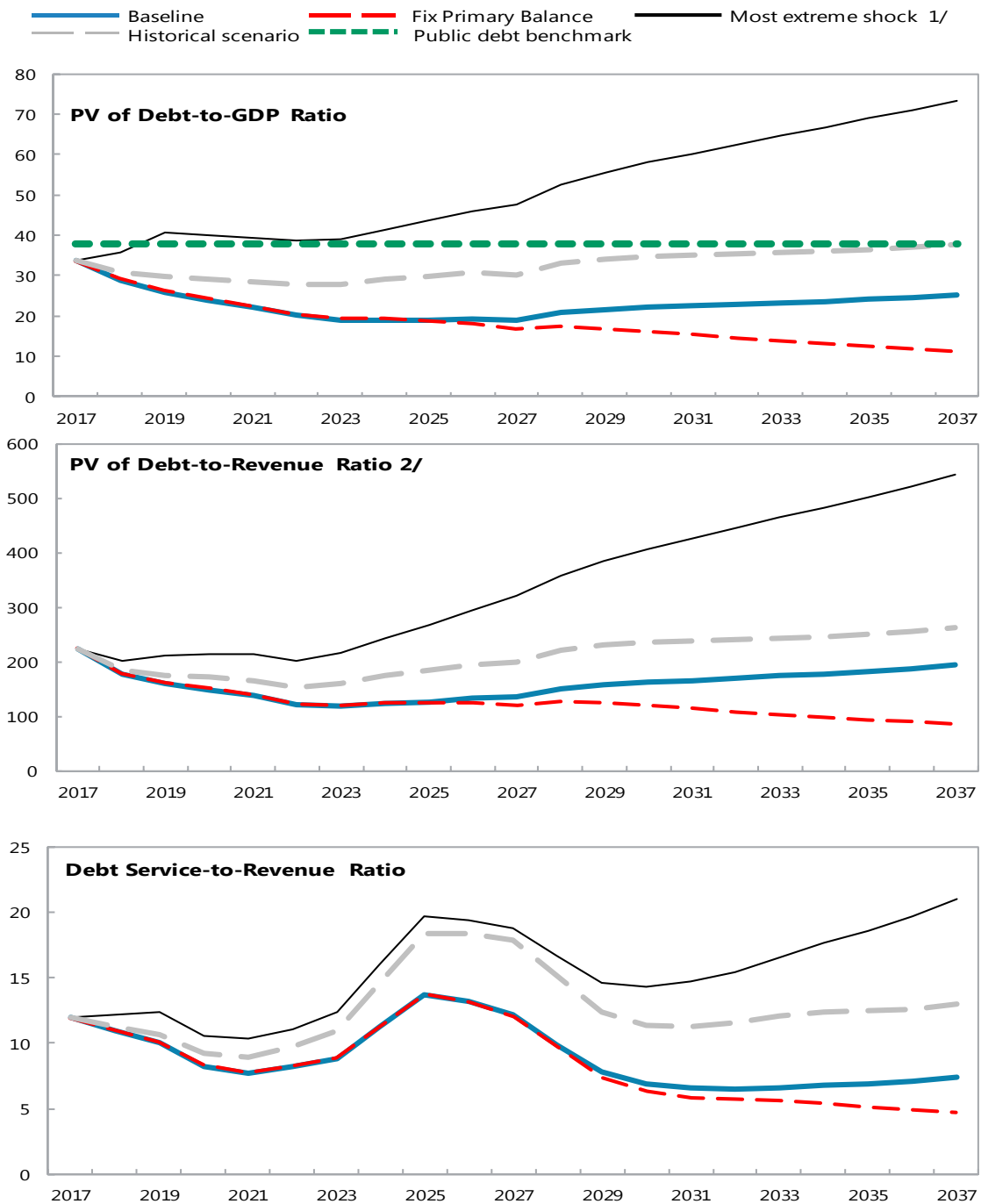
Figure 1. Central African Republic: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2017–37 [1/]

a. Debt Accumulation

b.PV of debt-to GDP ratio

Rate of Debt Accumulation
Grant-equivalent financing (% of GDP)
Grant element of new borrowing (% right scale)

c.PV of debt-to-exports ratio

d.PV of debt-to-revenue ratio

e.Debt service-to-exports ratio

f.Debt service-to-revenue ratio

Baseline — Historical scenario — Most extreme shock 1/
Threshold — Baseline w/o augmentation

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 Exports shock and in figure f. to a Combination shock

Figure 2. Central African Republic: Indicators of Public Debt Under Alternative Scenarios, 2017–37 [1]

Legend:
- Baseline
- Fix Primary Balance
- Most extreme shock [1]
- Historical scenario
- Public debt benchmark

PV of Debt-to-GDP Ratio

PV of Debt-to-Revenue Ratio [2]

Debt Service-to-Revenue Ratio

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.

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						2017-2022 Average			2023-2037 Average
	2014	2015	2016			2017	2018	2019	2020	2021	2022		2027	2037	
External debt (nominal) 1/	**43.9**	**39.8**	**36.0**			**34.7**	**35.0**	**33.5**	**31.1**	**28.9**	**26.6**		**19.1**	**25.6**	
of which: public and publicly guaranteed (PPG)	43.9	39.8	36.0			34.7	35.0	33.5	31.1	28.9	26.6		19.1	25.6	
Change in external debt	29.3	-4.1	-3.7			-1.4	0.4	-1.6	-2.4	-2.2	-2.3		0.6	0.8	
Identified net debt-creating flows	3.8	12.1	4.8			6.3	5.9	5.0	4.0	3.4	3.1		0.4	0.8	
Non-interest current account deficit	**5.2**	**8.7**	**8.8**	**7.0**	**2.4**	**8.3**	**7.7**	**7.3**	**6.5**	**5.7**	**5.2**		**2.2**	**2.8**	**3.0**
Deficit in balance of goods and services	24.5	22.0	18.9			19.3	18.7	17.6	16.2	15.1	14.4		9.8	7.0	
Exports	13.0	12.6	12.8			12.8	12.6	12.9	12.8	12.7	12.6		13.0	14.0	
Imports	37.6	34.6	31.7			32.2	31.3	30.5	29.0	27.8	27.0		22.8	21.0	
Net current transfers (negative = inflow)	-18.5	-12.5	-9.8	-7.2	5.0	-10.7	-10.6	-9.8	-9.3	-9.0	-8.8		-7.9	-4.5	-6.7
of which: official	-11.3	-5.8	-5.3			-5.7	-6.8	-5.8	-4.9	-4.6	-4.6		-4.1	-2.9	
Other current account flows (negative = net inflow)	-0.8	-0.8	-0.3			-0.3	-0.3	-0.5	-0.4	-0.4	-0.4		0.3	0.3	
Net FDI (negative = inflow)	**-0.1**	**-0.3**	**-0.4**	**-2.0**	**1.9**	**-0.9**	**-0.8**	**-1.2**	**-1.4**	**-1.3**	**-1.3**		**-1.3**	**-1.4**	**-1.5**
Endogenous debt dynamics 2/	**-1.3**	**3.7**	**-3.6**			**-1.1**	**-1.0**	**-1.1**	**-1.0**	**-0.9**	**-0.9**		**-0.4**	**-0.6**	
Contribution from nominal interest rate	0.3	0.4	0.3			0.2	0.2	0.2	0.2	0.2	0.2		0.2	0.2	
Contribution from real GDP growth	-0.1	-2.3	-1.6			-1.3	-1.2	-1.3	-1.2	-1.2	-1.1		-0.6	-0.8	
Contribution from price and exchange rate changes	-1.5	5.6	-2.3			...	...	...	...	...	...		...	...	
Residual (3-4) 3/	25.5	-16.2	-8.5			-7.7	-5.5	-6.6	-6.4	-5.6	-5.4		0.1	0.0	
of which: exceptional financing	-0.8	0.0	-0.2			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
PV of external debt 4/	...	...	16.7			16.6	17.3	16.8	15.8	14.8	13.6		8.2	12.9	
In percent of exports	...	...	130.4			129.1	137.6	130.5	123.6	117.1	108.4		62.8	92.2	
PV of PPG external debt	...	...	16.7			16.6	17.3	16.8	15.8	14.8	13.6		8.2	12.9	
In percent of exports	...	...	130.4			129.1	137.6	130.5	123.6	117.1	108.4		62.8	92.2	
In percent of government revenues	...	...	204.9			182.2	180.6	170.4	155.2	141.4	125.0		68.0	107.6	
Debt service-to-exports ratio (in percent)	7.6	8.3	8.8			9.2	11.0	9.5	7.5	7.6	9.4		9.4	3.4	
PPG debt service-to-exports ratio (in percent)	7.6	8.3	8.8			9.2	11.0	9.5	7.5	7.6	9.4		9.4	3.4	
PPG debt service-to-revenue ratio (in percent)	20.2	14.7	13.8			13.0	14.4	12.5	9.4	9.1	10.9		10.2	4.0	
Total gross financing need (Billions of U.S. dollars)	0.1	0.1	0.2			0.2	0.2	0.2	0.1	0.1	0.1		0.1	0.1	
Non-interest current account deficit that stabilizes debt ratio	-24.1	12.8	12.5			9.7	7.4	8.9	8.8	7.9	7.5		1.6	2.0	
Key macroeconomic assumptions															
Real GDP growth (in percent)	1.0	4.8	4.5	-0.7	12.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.3	3.3	3.4
GDP deflator in US dollar terms (change in percent)	11.2	-11.4	6.0	3.9	8.6	5.5	8.2	3.6	3.2	2.6	2.5	4.3	3.3	3.3	3.5
Effective interest rate (percent) 5/	2.7	0.8	0.8	1.8	0.8	0.6	0.6	0.7	0.7	0.8	0.8	0.7	0.9	0.9	0.9
Growth of exports of G&S (US dollar terms, in percent)	1.3	-10.0	12.5	1.6	14.0	10.0	10.3	10.5	6.4	5.6	5.7	8.1	6.7	6.8	7.8
Growth of imports of G&S (US dollar terms, in percent)	68.8	-14.5	1.5	8.1	25.9	11.5	9.5	5.0	1.9	2.1	3.7	5.6	6.7	6.8	5.3
Grant element of new public sector borrowing (in percent)	...	...	...			38.8	36.9	37.4	52.3	52.3	52.3	45.0	51.8	52.2	52.3
Government revenues (excluding grants, in percent of GDP)	4.9	7.1	8.2			9.1	9.6	9.9	10.2	10.5	10.9		12.0	12.0	12.0
Aid flows (in Billions of US dollars) 7/	0.2	0.1	0.1			0.1	0.2	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	0.1	0.1	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/	...	...	...			7.6	8.3	7.1	6.2	5.9	6.1		3.5	2.4	3.0
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			74.3	76.4	85.8	96.0	96.1	96.4		72.0	65.7	74.8
Memorandum items:															
Nominal GDP (Billions of US dollars)	1.7	1.6	1.8			1.9	2.2	2.3	2.5	2.7	2.8		4.1	7.8	
Nominal dollar GDP growth	12.3	-7.1	10.8			9.8	12.5	7.8	7.2	6.7	6.6	8.4	6.7	6.8	7.0
PV of PPG external debt (in Billions of US dollars)			0.3			0.3	0.4	0.4	0.4	0.4	0.4		0.3	1.0	
(PVt-PVt-1)/GDPt-1 (in percent)						2.4	2.2	0.8	0.1	0.0	-0.3	0.8	0.5	1.4	0.7
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)	...	...	16.8			16.6	17.4	16.9	15.9	14.9	13.7		8.2	12.9	
PV of PPG external debt (in percent of exports + remittances)	...	...	134.2			132.6	141.2	133.8	126.5	119.7	110.7		63.9	93.2	
Debt service of PPG external debt (in percent of exports + remittances)	...	...	9.0			9.4	11.2	9.8	7.7	7.7	9.7		9.6	3.4	

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	17	17	17	16	15	14	**8**	13
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2017-2037 1/	17	18	17	17	17	16	**20**	46
A2. New public sector loans on less favorable terms in 2017-2037 2	17	17	17	16	15	14	**12**	21
A3. Alternative Scenario :Baseline w/o augmentation	17	15	13	10	7	4	**-10**	-11
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	17	20	23	22	21	19	**12**	19
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	17	18	20	19	18	16	**11**	14
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	17	19	20	19	18	16	**10**	16
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	17	21	25	24	23	21	**15**	15
B5. Combination of B1-B4 using one-half standard deviation shocks	17	25	36	34	33	31	**21**	22
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	17	23	22	21	20	18	**11**	18
PV of debt-to-exports ratio								
Baseline	129	138	131	124	117	108	**63**	92
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2017-2037 1/	129	141	135	132	132	130	**151**	326
A2. New public sector loans on less favorable terms in 2017-2037 2	129	138	134	127	122	114	**89**	147
A3. Alternative Scenario :Baseline w/o augmentation	130	121	99	78	55	31	**-76**	-82
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	129	133	126	119	112	104	**63**	92
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	129	180	245	233	222	208	**132**	158
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	129	133	126	119	112	104	**63**	92
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	129	169	194	185	178	168	**112**	109
B5. Combination of B1-B4 using one-half standard deviation shocks	129	194	269	258	248	235	**157**	151
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	129	133	126	119	112	104	**63**	92
PV of debt-to-revenue ratio								
Baseline	182	181	170	155	141	125	**68**	108
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2017-2037 1/	182	185	176	166	159	150	**164**	380
A2. New public sector loans on less favorable terms in 2017-2037 2	182	182	174	160	147	131	**96**	172
A3. Alternative Scenario :Baseline w/o augmentation	183	158	130	98	67	36	**-82**	-95
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	182	210	237	215	196	173	**98**	155
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	182	188	201	184	169	151	**90**	116
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	182	198	203	184	168	148	**84**	133
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	182	222	253	232	215	194	**121**	128
B5. Combination of B1-B4 using one-half standard deviation shocks	182	266	365	336	311	281	**177**	183
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	182	242	227	206	188	166	**94**	149

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	9	11	10	7	8	9	**9**	3
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2017-2037 1/	9	12	11	9	9	12	**14**	13
A2. New public sector loans on less favorable terms in 2017-2037 2	9	11	10	8	8	10	**7**	7
A3. Alternative Scenario :Baseline w/o augmentation	9	11	10	7	7	9	**7**	-4
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	9	11	10	7	8	9	**9**	3
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	9	14	15	13	13	16	**17**	7
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	9	11	10	7	8	9	**9**	3
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	9	11	10	8	8	10	**13**	5
B5. Combination of B1-B4 using one-half standard deviation shocks	9	13	14	12	12	14	**18**	7
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	9	11	10	7	8	9	**9**	3

Debt service-to-revenue ratio

Baseline	13	14	12	9	9	11	**10**	4
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2017-2037 1/	13	16	14	11	11	14	**15**	15
A2. New public sector loans on less favorable terms in 2017-2037 2	13	14	13	10	10	12	**8**	8
A3. Alternative Scenario :Baseline w/o augmentation	13	15	13	9	9	11	**8**	-5
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	13	17	18	14	13	16	**15**	6
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	13	14	13	10	10	11	**12**	5
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	13	16	15	12	11	13	**13**	5
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	13	14	13	11	10	12	**14**	6
B5. Combination of B1-B4 using one-half standard deviation shocks	13	17	19	15	15	17	**21**	9
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	13	20	17	13	13	15	**14**	5
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 assu
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 2014	2015	2016	Average 5/	Standard Deviation 5/	Estimate 2017	2018	2019	2020	2021	2022	2017-22 Average	2027	2037	2023-37 Average
Public sector debt 1/	69.2	64.0	56.0			51.8	47.0	42.9	39.6	36.6	33.4		29.9	37.9	
of which: foreign-currency denominated	43.9	39.8	36.0			34.7	35.0	33.5	31.1	28.9	26.6		19.1	25.6	
Change in public sector debt	30.6	-5.2	-8.0			-4.2	-4.8	-4.1	-3.2	-3.0	-3.2		0.3	0.8	
Identified debt-creating flows	-6.7	-2.1	-6.9			-6.8	-5.3	-4.2	-3.2	-2.9	-3.0		0.1	0.6	
Primary deficit	-3.6	0.1	-2.1	-0.3	2.7	-0.9	-1.7	-1.2	-0.7	-0.7	-1.1	-1.0	1.3	2.3	1.4
Revenue and grants	15.7	14.3	14.1			15.0	16.4	16.3	16.1	16.1	16.7		14.0	13.0	
of which: grants	10.8	7.2	6.0			5.9	6.8	6.4	5.9	5.6	5.8		2.0	1.0	
Primary (noninterest) expenditure	12.1	14.4	12.0			14.1	14.7	15.1	15.4	15.4	15.6		15.4	15.3	
Automatic debt dynamics	-2.1	-1.2	-4.7			-5.9	-3.6	-3.0	-2.5	-2.2	-2.0		-1.2	-1.7	
Contribution from interest rate/growth differential	-3.6	-6.5	-5.9			-3.5	-3.5	-2.9	-2.5	-2.3	-2.1		-1.2	-1.7	
of which: contribution from average real interest rate	-3.2	-3.3	-3.1			-1.4	-1.5	-1.1	-0.9	-0.8	-0.7		-0.3	-0.5	
of which: contribution from real GDP growth	-0.4	-3.2	-2.8			-2.2	-2.0	-1.8	-1.6	-1.5	-1.4		-0.9	-1.2	
Contribution from real exchange rate depreciation	1.5	5.3	1.2			-2.4	-0.1	-0.1	0.1	0.1	0.1		...	...	
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	37.3	-3.1	-1.1			2.6	0.5	0.1	-0.1	-0.1	-0.1		0.2	0.2	
Other Sustainability Indicators															
PV of public sector debt	...	...	36.7			33.6	29.2	26.2	24.3	22.5	20.4		18.9	25.2	
of which: foreign-currency denominated	...	...	16.7			16.6	17.3	16.8	15.8	14.8	13.6		8.2	12.9	
of which: external	...	...	16.7			16.6	17.3	16.8	15.8	14.8	13.6		8.2	12.9	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	-1.9	1.7	-0.4			0.9	2.7	3.1	1.9	0.5	0.3		3.0	3.2	
PV of public sector debt-to-revenue and grants ratio (in percent)	...	...	259.4			224.1	178.6	160.9	150.8	139.6	122.2		135.0	193.6	
PV of public sector debt-to-revenue ratio (in percent)	...	...	449.4			369.8	304.8	265.3	238.7	214.2	187.3		157.8	210.3	
of which: external 3/	...	...	204.9			182.2	180.6	170.4	155.2	141.4	125.0		68.0	107.6	
Debt service-to-revenue and grants ratio (in percent) 4/	10.5	11.7	11.9			11.9	11.0	10.0	8.2	7.7	8.2		12.1	7.4	
Debt service-to-revenue ratio (in percent) 4/	33.7	23.6	20.6			19.7	18.7	16.5	13.0	11.9	12.6		14.2	8.1	
Primary deficit that stabilizes the debt-to-GDP ratio	-34.2	5.2	5.9			3.3	3.1	2.9	2.6	2.3	2.1		1.1	1.5	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	1.0	4.8	4.5	-0.7	12.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.3	3.3	3.4
Average nominal interest rate on forex debt (in percent)	2.7	0.8	0.9	1.8	0.8	0.6	0.6	0.7	0.7	0.8	0.8	0.7	0.9	0.9	0.9
Average real interest rate on domestic debt (in percent)	-8.9	-4.9	-5.1	1.3	7.1	-2.1	-3.1	-2.4	-2.2	-2.1	-1.4	-2.2	1.2	0.9	0.7
Real exchange rate depreciation (in percent, + indicates depreciation)	11.2	13.3	3.2	2.5	7.4	-7.1	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	11.1	6.2	6.3	5.0	3.1	3.5	3.8	3.1	3.0	2.9	2.9	3.2	3.3	3.3	3.4
Growth of real primary spending (deflated by GDP deflator, in percent)	-13.9	24.3	-12.5	-0.2	10.2	22.0	7.9	7.1	6.4	3.7	5.6	8.8	3.1	3.3	3.2
Grant element of new external borrowing (in percent)	...	...	...	...	...	38.8	36.9	37.4	52.3	52.3	52.3	45.0	51.8	52.2	...

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	2037
PV of Debt-to-GDP Ratio								
Baseline	34	29	26	24	22	20	19	25
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	34	31	30	29	29	28	30	38
A2. Primary balance is unchanged from 2017	34	29	26	24	22	21	17	11
A3. Permanently lower GDP growth 1/	34	30	28	27	26	25	34	83
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2018-2019	34	36	41	40	39	39	48	73
B2. Primary balance is at historical average minus one standard deviations in 2018-2019	34	31	30	28	26	24	22	27
B3. Combination of B1-B2 using one half standard deviation shocks	34	34	35	34	33	32	36	53
B4. One-time 30 percent real depreciation in 2018	34	35	31	29	27	25	20	23
B5. 10 percent of GDP increase in other debt-creating flows in 2018	34	34	31	29	27	25	22	27
PV of Debt-to-Revenue Ratio 2/								
Baseline	224	176	159	149	137	120	135	194
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	224	185	175	171	165	152	199	262
A2. Primary balance is unchanged from 2017	224	178	162	151	139	123	118	85
A3. Permanently lower GDP growth 1/	224	180	166	161	156	144	232	600
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2018-2019	224	200	212	213	212	201	320	542
B2. Primary balance is at historical average minus one standard deviations in 2018-2019	224	188	181	171	159	141	155	206
B3. Combination of B1-B2 using one half standard deviation shocks	224	196	196	193	188	174	248	399
B4. One-time 30 percent real depreciation in 2018	224	213	192	180	167	147	143	178
B5. 10 percent of GDP increase in other debt-creating flows in 2018	224	206	188	177	165	147	160	210
Debt Service-to-Revenue Ratio 2/								
Baseline	12	11	10	8	8	8	12	7
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	12	11	11	9	9	10	18	13
A2. Primary balance is unchanged from 2017	12	11	10	8	8	8	12	5
A3. Permanently lower GDP growth 1/	12	11	10	9	8	9	16	21
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2018-2019	12	12	12	11	10	11	19	21
B2. Primary balance is at historical average minus one standard deviations in 2018-2019	12	11	10	9	8	9	13	8
B3. Combination of B1-B2 using one half standard deviation shocks	12	12	12	10	9	10	16	16
B4. One-time 30 percent real depreciation in 2018	12	13	14	11	11	12	16	10
B5. 10 percent of GDP increase in other debt-creating flows in 2018	12	11	10	9	8	9	14	9

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.