INTERNATIONAL MONETARY FUND
AND INTERNATIONAL DEVELOPMENT ASSOCIATION

CENTRAL AFRICAN REPUBLIC

Joint World Bank/IMF Debt Sustainability Analysis 2008

Prepared by the Staffs of the International Monetary Fund
and the International Development Association

Approved by Emilio Sacerdoti and Patricia Alonso-Gamo (IMF) and
Carlos Braga and Sudhir Shetty (World Bank)

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According to the joint IMF-World Bank Debt Sustainability Framework for Low-Income Countries, the Central African Republic's external debt is at high risk of distress. Debt relief is needed to reduce debt ratios to sustainable levels. Debt indicators in the initial years are significantly above the policy-dependent thresholds, particularly the NPV of external debt-to-export ratio. The public sector debt sustainability analysis (DSA) indicates that improvement in revenue collection and reduction of domestic borrowing are needed to bring down public debt to a sustainable level.[4]

I. BACKGROUND

1. **At the end of 2007 total public debt, including arrears, of the Central African Republic (C.A.R.) is estimated to have been 78 percent of GDP.** External public and publicly guaranteed debt accounts for 54 percent of GDP, of which multilateral creditors account for more than half and official bilateral creditors about one-third. Domestic public debt (including budgetary arrears and domestic debt of public enterprises) amounts to 24 percent of GDP. It consists of outstanding credits to the government from domestic commercial banks (8 percent), government debt with the Bank for Central African States (BEAC, 30 percent), budgetary arrears (59 percent), and public enterprise debt (4 percent).

2. **The external debt indicators show the C.A.R. as being at high risk of debt distress** (Text Table 1). All the debt stock indicators are significantly above the policy-dependent indicative thresholds in the initial years. These ratios are projected to gradually decline over time, assuming the fiscal stance stays prudent and most new borrowing is on concessional terms. However, the NPV of debt-to-export ratio is projected to stay above the threshold until 2018.

[4] The DSA has been produced jointly by Fund and Bank staffs. The fiscal year for the C.A.R. is January 1–December 31. The previous joint DSA was included in the HIPC decision point document of September 2007 (IMF Country Report No. 08/14, January 14, 2008), and a provisional update was attached to the staff report for the second PRGF review (IMF Country Report No. 08/215, July 03, 2008).

Text Table 1. Central African Republic: External Debt Indicators

	Indicative Threshold [1]	2007 Est.	2028 Proj.
NPV of external debt-to-GDP	30	41	9
NPV of external debt-to-exports	100	296	63
NPV of external debt-to-revenue (excluding grants)	200	405	49
External debt service-to-exports	15	14	4
External debt service-to-revenue (excluding grants)	25	19	3

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

[1] Countries with a similar evaluation of policies and institutions that are over the policy-dependent threshold would face a probability of about 20 percent of experiencing a prolonged incident of debt distress in the coming year. The threshold corresponds to "weak policy", reflecting C.A.R.'s average rating on the Country Policy and Institutional Assessment (CPIA) Index in 2005–07.

3. **In September 2007 the C.A.R. reached the decision point for the enhanced Heavily Indebted Poor Countries (HIPC) Initiative.** The C.A.R. is receiving interim HIPC relief from several multilateral creditors. In April 2007 the Paris Club agreed to provide a 90 percent debt service cancellation and a deferral of debt service payments until 2009.

II. Underlying DSA Assumptions

4. **The medium-to long-term macroeconomic framework underlying this assessment of debt sustainability is based on continued steady growth,** supported by a stable political and social situation that should lead to a durable improvement in business confidence and to higher investment (Box 1). A critical element in the baseline scenario is continued reengagement of the international community in providing financial and technical assistance to support growth and structural reform.

5. **The medium-term real GDP growth rate was increased by about 1 percentage point over the previous joint DSA (September 2007), reflecting several favorable factors discussed in the preliminary update (June 2008).** In light of the recent developments, however, near-term growth projections for 2008–09 have been revised downward. Given the decline in nominal exports in 2008, in the medium term the export-to-GDP ratio would be lower than in the previous DSA.

Box 1. Baseline Macroeconomic Assumptions

Real GDP growth: Average annual real GDP growth through 2028 is projected at 5¼ percent, predicated on sustained security and political stability, an improvement in the country's institutional and administrative capacity, and appropriate macroeconomic policies. This environment should encourage an increase in private investment, especially in forestry, mining, and telecommunications. Public investment in infrastructure will help revive agriculture, which dominates economic activity. On these assumptions, the projected growth rate is significantly higher than the historical average experienced during the period of conflicts.

Inflation: After unexpected high inflation in 2008, the GDP deflator is projected to increase by 2½ percent on average through 2028; this assumes that inflation will moderate from the current level. The projected inflation rate is below the Central African Economic and Monetary Community (CEMAC)'s convergence criterion of 3 percent (defined by CPI).

Current account balance: The current account deficit (including grants) is projected to average about 7½ percent through 2028. The trade balance is projected to improve over time, driven by stronger export performance as a result of structural reform and infrastructure investment that will enhance the competitiveness and diversification of the export base; the deficits in service trade would remain large. The current account deficits would be financed primarily by official development assistance (project loans), foreign direct investment and regional capital inflows from the government securities markets. Two major mining projects are expected to start in 2010 and be implemented over several years; the ground is being prepared for sustained FDI inflows by the adoption of the new forestry and mining codes.

Government balance: The domestic primary surplus will be maintained at around 1 percent of GDP, and the overall fiscal deficit (including grants) is projected to average about ¾ percent of GDP through 2028. Tax and nontax revenue is projected to rise from almost 11 percent of GDP in 2008 to about 18 percent at the end of 2028, mainly as a result of tax and customs administration reform and tax buoyancy from sustained growth. Expenditures are projected to rise from about 14 percent of GDP in 2008 to about 23 percent in 2028.

External assistance: Total grants and loans are assumed to converge to about 4 percent of GDP in the long run. Grants are assumed to account for about 80 percent of total external assistance, and the grant element of new external loans would average 50 percent for the period.

Domestic borrowing: It is assumed that in 2009 the government will start accessing the securities markets that are being developed in the CEMAC region. This will allow it to improve liquidity and reduce domestic arrears; domestic debt will continue to decline because fiscal policy will continue to be prudent.

Real interest rate on domestic currency debt: The average real interest rate on domestic currency debt (including bonds from the regional markets) will converge to about 4 percent in the long run.

III. External DSA

A. Baseline

6. **In the baseline scenario, which includes delivery of only interim HIPC assistance, all debt indicators in 2008 are above the policy-dependent thresholds**

(Figure 1 and Table 1a).[5] In particular, the NPV of external public and publicly guaranteed (PPG) debt in 2008, estimated at 37 percent of GDP, is above the threshold. More significantly, the NPV of external PPG debt-to-exports ratio in 2008, estimated at 287 percent, is close to triple the threshold.

7. **These ratios decline gradually through 2028.** Compared to the previous joint DSA, all external debt indicators for 2008 improve because of higher nominal GDP in local currency terms and the appreciation of the CFA franc (pegged to the euro) against the U.S. dollar. However, the NPV of external debt-to-export ratio would not improve as much as the other indicators; it stays above the threshold (100 percent) until 2018 because of lower export proceeds. The NPV of external PPG debt-to-revenue ratio, on the other hand, is projected to decline faster because of an expected improvement in revenue collection. The debt service indicators—relative to both exports and revenue—are more favorable, indicating adequate capacity to repay debt. However, given the accumulation of arrears in the past and the high debt service burden relative to exports in the initial periods, firm management of cash flows would be required to ensure timely debt service.

B. Alternative Scenarios and Stress Tests[6]

8. **The historical scenario produces more favorable paths for debt indicators than the baseline scenario** (Table 1b). The historical average over the past 10 years for the noninterest current account deficit is 2.2 percent of GDP, which is significantly better than the projected deficit of 7.2 percent in the baseline. On the other hand, real GDP and export growth were much less favorable in the past than what the baseline scenario assumes: real GDP growth of 0.9 percent over the past 10 years against 5.2 percent projected for the next 20; export growth of 0.5 percent over the past 10 years against 8.0 percent projected for the next 20. On balance, the staffs consider the macroeconomic projections in the baseline scenario to be realistic.

9. **The alternative scenario, including full delivery of HIPC and MDRI relief, would allow much faster up-front reduction of debt ratios.** The scenario assumes that the C.A.R. reaches the HIPC completion point by 2010. If so, the NPV of debt-to-export ratio would be reduced to 125 percent in 2008 and plunge below the threshold (100 percent) by 2013.

10. **The terms of new loans would have little impact on the projected debt indicators.** The projected NPV of external PPG debt-to-exports ratio increases by only 3 percentage points in 2028 in the alternative scenario assuming less favorable terms for new borrowing.

[5] The LIC DSA differs from the HIPC DSA in that forward-looking debt ratios are assessed against policy-dependent indicative thresholds. In contrast, in the HIPC DSA, debt ratios are derived on the basis of three-year backward-looking averages and assessed against thresholds that are uniform across countries. In addition, the results of the two DSAs differ because of differences in the definition of discount and exchange rates.

[6] The alternative scenarios—which include a scenario assuming full delivery of HIPC and MDRI relief—and stress tests in both the external and public DSA templates all clearly reflect the vulnerabilities of C.A.R debt dynamics.

This is mainly because the baseline scenario assumed new external borrowing equivalent only to 1 percent of GDP on average for the next 20 years. Given its current serious debt distress, there is little scope for the C.A.R. to borrow on nonconcessional terms without putting at risk the attainment of debt sustainability through debt relief.

11. **Several bound tests indicate that the downward trend of debt ratios could be preserved despite plausible shocks.** The most extreme case would be a hypothetical 30 percent depreciation of the exchange rate in 2009: this would push up the NPV of debt-to-GDP ratio beyond 50 percent. Other than this particular case, the increase in debt ratios under the various shocks would be modest.

IV. Public Debt Sustainability Analysis

A. Baseline

12. **In the baseline scenario, total public debt is expected to decline steadily** (Table 2a), as fiscal revenue improves steadily. On the financing side, it is assumed that in 2009 the government will begin to access regional government securities markets, which would allow it to eliminate expensive credits from commercial banks over the next several years and to clear most arrears (in particular on salaries and pensions) within the first 10 years of the simulation period. Given these assumptions, the NPV of public debt-to-GDP ratio would decline from 62 percent of GDP in 2008 to 14 percent in 2028 and the NPV of public debt-to-revenue ratio from 582 percent to 76 percent.

B. Alternative Scenarios and Stress Tests

13. **In the most extreme stress test, the NPV of public debt-to-GDP ratio will remain high throughout the projection period** (Table 2b). This would occur if real GDP growth is at its historical average (0.9 percent) minus one standard deviation (3.7 percentage points) in 2009–10. The no-reform scenario pushes down the debt ratios to almost zero, but the staffs believe that assuming the same level of the primary balance as the historical average (a surplus of 0.9 percent of GDP) is not appropriate for the C.A.R.

V. Debt Distress Qualification and Conclusions

14. **The C.A.R. faces a high risk of debt distress requiring that debt ratios be reduced to make its external debt sustainable.** Key debt indicators in the initial years are significantly above policy-dependent thresholds, particularly the NPV of external debt-to-export ratio. Although debt and debt-service ratios decline over time in the baseline scenario, the stress tests find debt service to be very sensitive to GDP growth rates lower than those forecast in the baseline scenario.

15. **The public sector DSA indicates that improvement in revenue collection and reduction of domestic borrowing would be required to bring public debt down to a sustainable level.** However, the most extreme stress test indicates that the NPV of public debt-to-GDP ratio could start rising if there is an extreme negative growth shock.

Table 1a. Central African Republic: External Debt Sustainability Framework, Baseline Scenario, 2005-28 1/

(In percent of GDP, unless otherwise indicated)

	Actual			Historical Average 8/	Standard Deviation 8/	Projections									
	2005	2006	2007			2008	2009	2010	2011	2012	2013	2008-13 Average	2018	2028	2014-28 Average
External debt (nominal) 1/	**81.6**	**69.9**	**54.2**	**82.8**		**54.9**	**50.5**	**44.2**	**39.5**	**35.2**	**30.5**		**19.0**	**15.2**	**17.0**
Of which: public and publicly guaranteed (PPG)	81.6	69.9	54.2	82.8		54.9	50.5	44.2	39.5	35.2	30.5		19.0	15.2	17.0
Change in external debt	2.8	-11.7	-15.7	-4.2		0.8	-4.4	-6.4	-4.7	-4.4	-4.6		-1.5	1.2	-1.0
Identified net debt-creating flows	-0.8	-6.1	-6.9	-2.8		2.2	0.9	1.0	1.7	1.6	1.6		1.1	2.7	1.6
Non-interest current account deficit	**6.0**	**2.4**	**5.6**	**2.2**	**2.3**	**8.2**	**7.9**	**7.6**	**8.1**	**8.0**	**7.9**		**6.9**	**7.3**	**6.9**
Deficit in balance of goods and services	8.0	7.7	9.2	6.1		11.6	10.3	10.1	10.4	10.1	9.7		8.2	9.1	8.3
Exports	12.7	14.2	14.0	15.9		12.7	12.7	12.6	12.8	13.1	13.1		13.6	14.2	13.8
Imports	20.8	21.8	23.2	22.0		24.4	23.0	22.8	23.2	23.1	22.9		21.8	23.3	22.1
Net current transfers (negative = inflow)	-2.3	-5.5	-3.7	-3.8	1.2	-3.8	-2.9	-2.8	-2.7	-2.6	-2.6		-2.4	-2.3	-2.3
Of which: official	-2.0	-5.2	-3.5	-3.8		-3.5	-2.6	-2.5	-2.5	-2.5	-2.5		-2.4	-2.4	-2.4
Other current account flows (negative = net inflow)	0.2	0.2	0.1	-0.1		0.4	0.5	0.2	0.4	0.6	0.7		1.1	0.5	1.0
Net FDI (negative = inflow)	**-2.4**	**-2.3**	**-3.3**	**-1.4**	**1.2**	**-5.1**	**-5.1**	**-5.1**	**-5.1**	**-5.1**	**-5.1**		**-5.0**	**-4.0**	**-4.7**
Endogenous debt dynamics 2/	**-4.4**	**-6.2**	**-9.2**	**-3.6**		**-0.9**	**-1.9**	**-1.5**	**-1.4**	**-1.3**	**-1.1**		**-0.8**	**-0.6**	**-0.7**
Contribution from nominal interest rate	0.5	0.6	0.4	0.9		0.7	0.6	0.8	0.7	0.5	0.5		0.2	0.2	0.2
Contribution from real GDP growth	-1.8	-3.0	-2.5	-0.6		-1.6	-2.5	-2.3	-2.0	-1.8	-1.6		-1.0	-0.7	-0.9
Contribution from price and exchange rate changes	-3.1	-3.8	-7.1	-3.9		…	…	…	…	…	…		…	…	…
Residual 3/	**3.7**	**-5.6**	**-8.8**	**-1.4**		**-1.4**	**-5.3**	**-7.3**	**-6.4**	**-6.0**	**-6.3**		**-2.7**	**-1.5**	**-2.6**
Of which: exceptional financing	-2.5	5.3	-0.1	0.2		-1.9	-2.1	-2.9	-2.1	-2.0	-2.3		-0.6	-0.2	-0.6
PV of external debt 4/	...	...	41.3			36.5	38.2	33.7	30.2	26.9	23.0		14.1	9.0	11.9
In percent of exports	...	...	295.6			286.6	300.9	267.3	236.1	205.7	175.4		103.6	63.1	87.2
PV of PPG external debt	**...**	**...**	**41.3**			**36.5**	**38.2**	**33.7**	**30.2**	**26.9**	**23.0**		**14.1**	**9.0**	**11.9**
In percent of exports	**...**	**...**	**295.6**			**286.6**	**300.9**	**267.3**	**236.1**	**205.7**	**175.4**		**103.6**	**63.1**	**87.2**
In percent of government revenues	**...**	**...**	**405.2**			**345.2**	**339.9**	**292.4**	**256.4**	**221.8**	**185.1**		**99.8**	**48.6**	**81.0**
Debt service-to-exports ratio (in percent)	**17.0**	**18.6**	**14.1**	**19.9**		**12.8**	**10.6**	**27.6**	**24.2**	**22.9**	**26.9**		**9.2**	**4.0**	**9.0**
PPG debt service-to-exports ratio (in percent)	**17.0**	**18.6**	**14.1**	**19.9**		**12.8**	**10.6**	**27.6**	**24.2**	**22.9**	**26.9**		**9.2**	**4.0**	**9.0**
PPG debt service-to-revenue ratio (in percent)	**26.3**	**27.8**	**19.4**	**34.4**		**15.4**	**12.0**	**30.1**	**26.3**	**24.7**	**28.4**		**8.8**	**3.1**	**8.5**
Total gross financing need (billions of U.S. dollars)	0.1	0.0	0.1	0.0		0.1	0.1	0.1	0.1	0.1	0.2		0.1	0.3	0.2
Non-interest current account deficit that stabilizes debt rati	3.1	14.1	21.3	6.4		7.5	12.3	13.9	12.8	12.3	12.5		8.5	6.0	7.9
Key macroeconomic assumptions															
Real GDP growth (in percent)	2.4	4.0	4.2	0.9	3.7	3.5	4.5	5.0	5.0	5.0	5.0	4.7	5.5	5.5	5.4
GDP deflator in US dollar terms (change in percent)	4.1	4.9	11.3	5.1	7.2	12.5	-6.1	2.8	2.8	2.8	2.9	2.9	2.4	2.4	2.4
Effective interest rate (percent) 5/	0.6	0.8	0.7	1.1	0.4	1.5	1.0	1.8	1.7	1.5	1.5	1.5	1.1	1.2	1.3
Growth of exports of G&S (US dollar terms, in percent)	-1.3	21.3	14.4	0.5	12.4	6.2	-2.1	7.1	9.4	10.2	8.7	6.6	8.2	8.8	8.5
Growth of imports of G&S (US dollar terms, in percent)	9.3	14.6	23.0	4.6	13.8	22.5	-7.4	6.8	10.2	7.5	6.9	7.7	7.0	10.5	8.1
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	30.1	28.9	51.5	51.5	51.5	51.5	44.2	51.5	51.5	51.5
Government revenues (excluding grants, in percent of GDI	8.2	9.5	10.2			10.6	11.2	11.5	11.8	12.1	12.5		14.1	18.5	15.4
Aid flows (in billions of US dollars) 6/	0.1	0.2	0.1			0.1	0.1	0.1	0.2	0.2	0.2		0.4	1.5	
Of which: grants	0.1	0.2	0.1			0.1	0.1	0.1	0.1	0.1	0.1		0.2	0.3	
Of which: concessional loans	0.0	0.0	0.0			0.0	0.0	0.0	0.1	0.1	0.1		0.2	1.2	
Grant-equivalent financing (in percent of GDP) 7/	...	...	...			3.6	5.6	4.2	4.7	4.7	4.6		4.5	5.4	4.6
Grant-equivalent financing (in percent of external financin	...	...	...			80.5	91.6	100.0	90.6	90.6	90.5		90.3	80.4	88.3
Memorandum items:															
Nominal GDP (billions of US dollars)	1.4	1.5	1.7			2.0	2.0	2.1	2.3	2.5	2.7		3.9	8.4	
Nominal dollar GDP growth	6.6	9.1	16.0			16.4	-1.9	8.0	8.0	8.0	8.0	**7.7**	8.0	8.0	7.9
PV of PPG external debt (in billions of US dollars)	...	...	0.7			0.7	0.7	0.7	0.7	0.7	0.6		0.5	0.8	
(PVt-PVt-1)/GDPt-1 (in percent)						1.2	1.0	-1.8	-1.1	-1.2	-2.0	-0.7	-0.1	1.2	0.0

Sources: C.A.R. authorities; and staff estimates and projections.

1/ Includes both public and private sector external debt.

2/ Derived as [r - g - r(1+g)]/(1+g+r+gr) times previous period debt ratio, with r = nominal interest rate; g = real GDP growth rate, and r = 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/ Defined as grants, concessional loans, and debt relief.

7/ 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).

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

Table 1b. Central African Republic: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2008-28
(In percent)

	Projections																				
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	**2018**	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
PV of debt-to GDP ratio																					
Baseline	36	38	34	30	27	23	20	18	17	15	**14**	13	12	11	9	8	8	8	8	8	9
A. Alternative Scenarios																					
A1. Key variables at their historical averages in 2008-2028 1/	36	34	30	26	22	18	14	12	10	8	**7**	5	4	3	2	1	0	0	0	0	-1
A2. New public sector loans on less favorable terms in 2008-2028 2/	36	38	34	30	27	23	20	18	17	16	**14**	13	12	11	10	9	8	8	8	9	9
A3. Full delivery of HIPC assistance and MDRI	16	16	15	14	13	12	11	10	10	9	**9**	8	8	8	7	7	7	7	7	8	8
B. Bound Tests																					
B1. Real GDP growth at historical average minus one standard deviation in 2009-2010	36	41	39	35	31	27	23	21	19	18	**16**	15	14	13	11	10	9	9	9	10	10
B2. Export value growth at historical average minus one standard deviation in 2009-2010 3/	36	39	36	32	29	25	22	20	18	17	**16**	14	13	12	11	10	9	9	9	9	10
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-2010	36	37	34	30	27	23	20	18	17	15	**14**	13	12	11	9	9	8	8	8	9	9
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-2010 4/	36	41	39	35	32	28	24	22	21	19	**18**	16	15	14	12	11	10	10	10	10	10
B5. Combination of B1-B4 using one-half standard deviation shocks	36	39	41	37	33	29	25	24	22	20	**19**	17	16	15	13	11	11	10	10	10	11
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	36	56	50	44	39	34	29	27	24	22	**21**	19	17	16	14	12	12	12	12	12	13
PV of debt-to-exports ratio																					
Baseline	287	301	267	236	206	175	150	136	123	113	**104**	93	85	79	68	61	58	57	57	60	63
A. Alternative Scenarios																					
A1. Key variables at their historical averages in 2008-2028 1/	287	268	234	200	167	134	105	88	73	61	**51**	39	31	24	12	5	0	-1	-3	-3	-4
A2. New public sector loans on less favorable terms in 2008-2028 2/	287	299	266	235	205	175	150	137	125	115	**107**	96	88	81	70	63	60	60	60	63	66
A3. Full delivery of HIPC assistance and MDRI	125	128	121	112	102	93	85	76	71	66	**62**	60	58	56	51	49	48	49	51	55	59
B. Bound Tests																					
B1. Real GDP growth at historical average minus one standard deviation in 2009-2010	287	301	267	236	206	175	150	136	123	112	**103**	93	85	79	68	61	58	57	57	60	63
B2. Export value growth at historical average minus one standard deviation in 2009-2010 3/	287	340	385	342	299	258	222	203	185	170	**157**	142	130	120	103	93	87	86	84	87	91
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-2010	287	301	267	236	206	175	150	136	123	112	**103**	93	85	79	68	61	58	57	57	60	63
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-2010 4/	287	321	307	274	242	210	183	168	154	142	**132**	120	109	100	87	78	72	70	69	70	72
B5. Combination of B1-B4 using one-half standard deviation shocks	287	330	363	324	285	248	216	199	182	168	**156**	142	129	118	102	92	86	83	81	83	85
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	287	301	267	236	206	175	150	136	123	112	**103**	93	85	79	68	61	58	57	57	60	63
PV of debt-to-revenue ratio																					
Baseline	345	340	292	256	222	185	155	138	123	111	**100**	88	79	71	60	53	48	47	46	47	49
A. Alternative Scenarios																					
A1. Key variables at their historical averages in 2008-2028 1/	345	303	256	217	180	141	109	90	73	60	**49**	37	28	21	11	5	0	0	-2	-2	-3
A2. New public sector loans on less favorable terms in 2008-2028 2/	345	338	291	255	221	184	155	139	125	113	**103**	91	81	73	62	54	50	49	48	49	51
A3. Full delivery of HIPC assistance and MDRI	151	144	132	121	110	98	88	77	71	65	**60**	56	53	50	45	42	40	40	41	43	45
B. Bound Tests																					
B1. Real GDP growth at historical average minus one standard deviation in 2009-2010	345	365	339	297	257	214	180	160	143	128	**116**	102	91	82	69	61	56	55	53	55	56
B2. Export value growth at historical average minus one standard deviation in 2009-2010 3/	345	345	312	275	239	201	170	153	137	124	**112**	99	89	80	67	59	54	52	50	51	52
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-2010	345	326	294	258	223	186	156	139	124	111	**100**	88	79	72	60	53	49	47	46	47	49
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-2010 4/	345	363	336	298	261	222	189	171	154	139	**127**	113	101	90	76	67	61	58	55	55	55
B5. Combination of B1-B4 using one-half standard deviation shocks	345	350	353	312	273	232	199	179	162	146	**133**	119	106	95	80	70	64	61	58	58	58
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	345	499	430	377	326	272	228	203	181	162	**146**	129	116	105	88	77	71	69	67	69	71

Table 1b. Central African Republic: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2008-28 (continued)

(In percent)

											Projections										
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	**2018**	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Debt service-to-exports ratio																					
Baseline	13	11	28	24	23	27	24	13	12	10	**9**	11	8	7	12	8	6	4	5	3	4
A. Alternative Scenarios																					
A1. Key variables at their historical averages in 2008-2028 1/	13	10	26	23	22	26	23	12	11	10	**9**	10	8	6	11	7	4	1	2	0	1
A2. New public sector loans on less favorable terms in 2008-2028 2/	13	11	28	24	23	27	23	11	11	9	**9**	11	9	8	13	9	6	4	5	4	5
A3. Full delivery of HIPC assistance and MDRI	13	11	4	8	8	10	9	10	6	6	**5**	4	3	4	6	4	4	3	3	2	3
B. Bound Tests																					
B1. Real GDP growth at historical average minus one standard deviation in 2009-2010	13	11	28	24	23	27	24	13	12	10	**9**	11	8	7	12	8	6	4	5	3	4
B2. Export value growth at historical average minus one standard deviation in 2009-2010 3/	13	12	37	33	31	37	32	17	16	14	**13**	15	12	11	17	12	9	6	7	5	6
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-2010	13	11	28	24	23	27	24	13	12	10	**9**	11	8	7	12	8	6	4	5	3	4
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-2010 4/	13	11	28	25	23	27	24	13	12	10	**10**	12	10	9	14	10	7	5	6	4	5
B5. Combination of B1-B4 using one-half standard deviation shocks	13	11	33	29	28	32	28	15	14	12	**11**	14	12	11	16	12	9	6	7	5	6
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	13	11	28	24	23	27	24	13	12	10	**9**	11	8	7	12	8	6	4	5	3	4
Debt service-to-revenue ratio																					
Baseline	15	12	30	26	25	28	24	13	12	10	**9**	10	8	7	11	7	5	3	4	3	3
A. Alternative Scenarios																					
A1. Key variables at their historical averages in 2008-2028 1/	15	11	28	25	24	28	24	12	11	10	**9**	10	7	6	10	6	3	1	2	0	1
A2. New public sector loans on less favorable terms in 2008-2028 2/	15	12	30	26	25	29	24	11	11	9	**8**	10	8	7	11	8	5	3	4	3	4
A3. Full delivery of HIPC assistance and MDRI	15	12	5	9	8	10	9	10	6	6	**5**	4	3	3	5	4	3	2	3	2	2
B. Bound Tests																					
B1. Real GDP growth at historical average minus one standard deviation in 2009-2010	15	13	35	30	29	33	28	15	14	11	**10**	12	9	8	12	8	6	3	4	3	4
B2. Export value growth at historical average minus one standard deviation in 2009-2010 3/	15	12	30	27	25	29	25	13	12	10	**9**	10	8	7	11	8	5	3	4	3	3
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-2010	15	11	30	26	25	29	25	13	12	10	**9**	10	8	7	11	7	5	3	4	3	3
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-2010 4/	15	12	30	27	25	29	25	13	12	10	**9**	11	10	8	12	8	6	4	5	3	4
B5. Combination of B1-B4 using one-half standard deviation shocks	15	12	32	28	26	30	26	14	13	11	**10**	12	10	9	13	9	6	4	5	4	4
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	15	18	44	39	36	42	36	19	17	15	**13**	15	11	10	16	10	7	4	6	4	5
Memorandum item:																					
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	49	49	49	49	49	49	49	49	49	49	**49**	49	49	49	49	49	49	49	49	49	49

Source: Staff projections and simulations.

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 2a. Central African Republic: Public Sector Debt Sustainability Framework, Baseline Scenario, 2005-28
(In percent of GDP, unless otherwise indicated)

	Actual			Historical Average 5/	Standard Deviation 5/	Estimate	Projections								
	2005	2006	2007			2008	2009	2010	2011	2012	2013	2008-13 Average	2018	2028	2014-28 Average
Public sector debt 1/	106.0	93.7	77.8	92.4		76.2	69.3	63.6	58.1	53.0	47.7	61.3	33.9	20.2	29.8
Of which: foreign-currency denominated debt	81.6	69.9	54.2	82.8		54.9	50.5	44.2	39.5	35.2	30.5	42.5	19.0	15.2	17.0
Change in public sector debt	3.1	-12.3	-15.9	-1.8		-1.6	-6.9	-5.8	-5.5	-5.1	-5.2	-5.0	-1.8	-1.0	-1.8
Identified debt-creating flows	6.5	-23.5	-13.2	-10.1		-0.9	-5.5	-4.8	-3.4	-3.1	-3.0	-3.5	-1.2	-0.6	-1.1
Primary deficit	3.6	-9.9	-2.7	-0.9	3.6	-0.9	-0.7	-1.2	-0.2	-0.3	-0.5	-0.6	0.2	0.4	0.0
Revenue and grants	12.4	22.8	14.3	14.7		13.8	16.6	15.7	15.9	16.2	16.6	15.8	18.1	22.5	19.4
Of which: grants	4.1	13.3	4.1	5.6		3.3	5.3	4.2	4.2	4.1	4.1	4.2	4.0	4.0	4.0
Primary (noninterest) expenditure	16.0	12.9	11.5	13.8		12.9	15.9	14.5	15.7	16.0	16.1	15.2	18.3	22.8	19.4
Automatic debt dynamics	2.9	-13.6	-10.4	-7.0		0.0	-4.8	-3.6	-3.2	-2.8	-2.5	-2.8	-1.4	-1.0	-1.2
Contribution from interest rate/growth differential	-4.8	-6.5	-4.7	-5.3		-3.1	-3.9	-3.1	-2.8	-2.5	-2.2	-2.9	-1.3	-0.9	-1.1
Of which: contribution from average real interest rate	-2.3	-2.4	-0.9	-1.9		-0.5	-0.6	0.2	0.3	0.3	0.4	0.0	0.6	0.2	0.5
Of which: contribution from real GDP growth	-2.4	-4.1	-3.8	-0.8		-2.6	-3.3	-3.3	-3.0	-2.8	-2.5	-2.9	-1.9	-1.1	-1.6
Contribution from real exchange rate depreciation	7.7	-7.1	-5.7	-2.7		3.1	-1.0	-0.4	-0.4	-0.3	-0.3	0.1	...	...	...
Other identified debt-creating flows	0.0	0.0	0.0	0.0		0.0	0.0	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	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	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	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	0.0	0.0	0.0
Residual, including asset changes	-3.4	11.2	-2.7	1.7		-0.7	-1.3	-1.0	-2.1	-2.0	-2.3	-1.6	-0.6	-0.4	-0.7
Other Sustainability Indicators															
PV of public sector debt	24.4	23.8	62.5	15.0		61.6	57.0	53.0	48.7	44.6	40.2	50.8	29.0	14.0	24.7
Of which: foreign-currency denominated debt	0.0	0.0	38.9	4.3		40.3	38.2	33.6	30.1	26.8	23.0	32.0	14.1	9.0	11.9
Of which: external	...	...	38.9			40.3	38.2	33.6	30.1	26.8	23.0	32.0	14.1	9.0	11.9
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...	...	...	...	...
Gross financing need 2/	6.2	-6.9	0.0	1.2		1.3	1.2	2.9	3.9	4.3	5.0	3.1	5.0	3.2	4.5
PV of public sector debt-to-revenue and grants ratio (in percent)	197.0	104.3	438.5	94.6		445.2	343.2	337.1	305.4	274.4	242.7	324.7	160.5	62.2	131.3
PV of public sector debt-to-revenue ratio (in percent)	296.0	250.6	613.8	145.0		582.4	506.3	460.1	413.6	368.3	322.8	442.3	205.6	75.6	167.1
Of which: external 3/	…	…	381.6			381.1	339.2	291.9	255.9	221.4	184.7	279.0	99.6	48.5	80.8
Debt service-to-revenue and grants ratio (in percent) 4/	21.0	13.1	18.8	20.5		16.0	11.3	26.1	25.8	28.3	33.3	23.5	26.7	12.7	23.4
Debt service-to-revenue ratio (in percent) 4/	31.5	31.5	26.3	22.5		20.9	16.7	35.6	35.0	38.0	44.3	31.8	34.2	15.4	29.7
Primary deficit that stabilizes the debt-to-GDP ratio	0.5	2.4	13.2	5.4		0.7	6.2	4.6	5.2	4.8	4.7	4.4	1.9	1.3	1.9
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	2.4	4.0	4.2	0.9	3.7	3.5	4.5	5.0	5.0	5.0	5.0	4.7	5.5	5.5	5.4
Average nominal interest rate on forex debt (in percent)	0.6	0.8	0.7	1.1	0.4	1.5	1.0	1.8	1.7	1.5	1.5	1.5	1.1	1.2	1.3
Average real interest rate on domestic debt (in percent)	-1.7	-2.6	1.2	-1.1	2.0	-1.8	-0.6	1.2	1.9	2.4	2.9	1.0	5.2	4.2	4.8
Real exchange rate depreciation (in percent, + indicates depreciation)	10.2	-9.3	-8.7	-4.5	8.9	5.9	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	3.7	4.3	2.0	2.9	2.7	4.5	3.3	2.4	2.4	2.4	2.4	2.9	2.4	2.4	2.4
Growth of real primary spending (deflated by GDP deflator, in percent)	0.3	-0.2	-0.1	0.0	0.2	0.2	0.3	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Grant element of new external borrowing (in percent)	...	...	...	…	…	30.1	28.9	51.5	51.5	51.5	51.5	44.2	51.5	51.5	...

Sources: C.A.R. authorities; and staff estimates and projections.

1/ Includes public and publicly-guaranteed external debt, domestic public debt, budgetary arrears of the central government, and domestic debt of state-owned enterprises.

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.

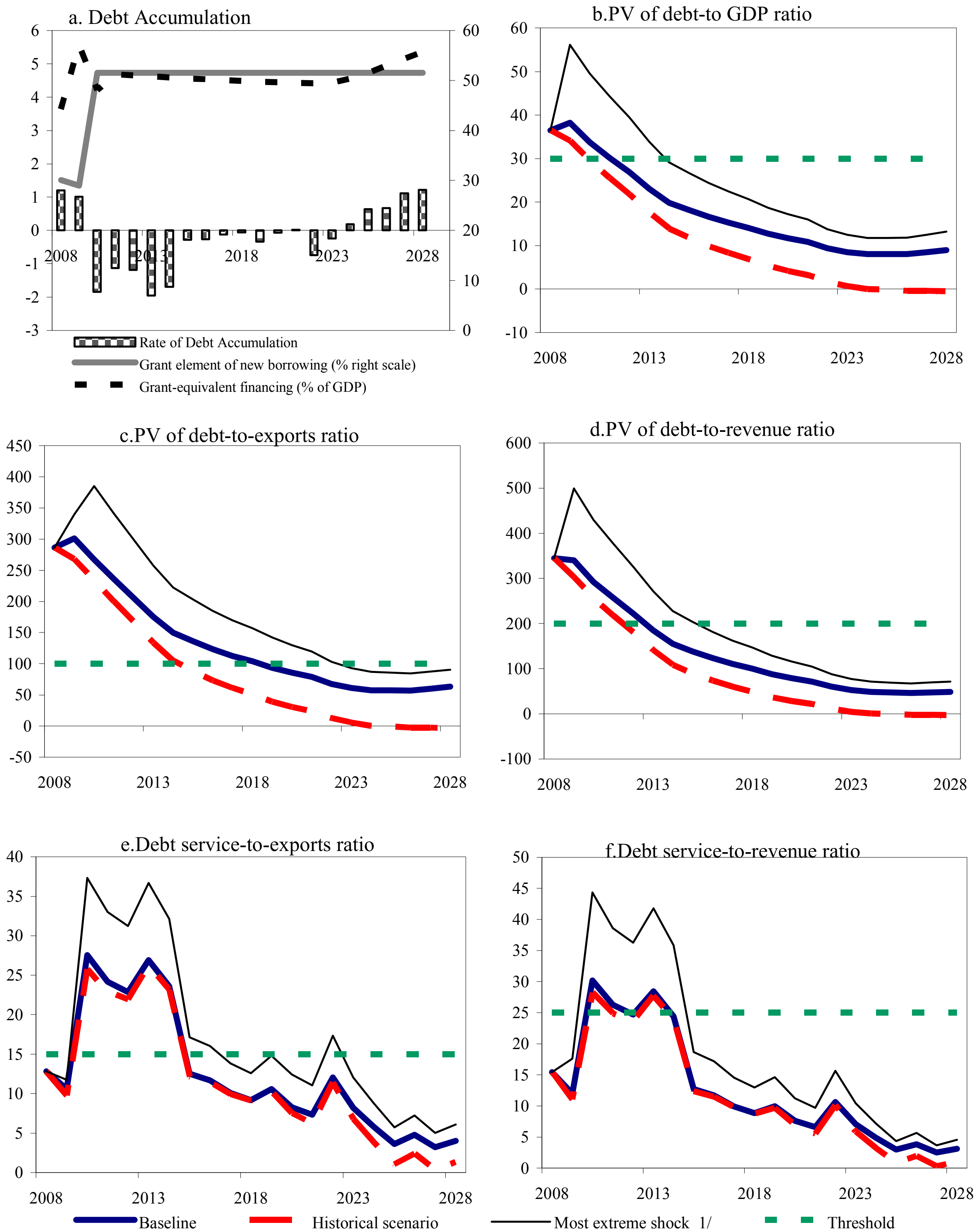
5/ Historical averages and standard deviations are generally derived over the past 10 years, subject to data availability.

Table 2b. Central African Republic: Sensitivity Analysis for Key Indicators of Public Debt, 2008-28

	Projections							
	2008	2009	2010	2011	2012	2013	2018	2028
PV of Debt-to-GDP Ratio								
Baseline	62	57	53	49	45	40	29	14
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	62	59	57	54	51	47	38	15
A2. Primary balance is unchanged from 2008	62	57	53	48	43	39	24	2
A3. Permanently lower GDP growth 1/	62	57	54	50	47	43	37	39
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	62	62	64	61	58	54	50	51
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	62	60	60	55	51	47	35	18
B3. Combination of B1-B2 using one half standard deviation shocks	62	62	63	59	56	52	41	10
B4. One-time 30 percent real depreciation in 2009	62	74	69	64	59	54	41	21
B5. 10 percent of GDP increase in other debt-creating flows in 2009	62	67	62	58	54	49	37	19
PV of Debt-to-Revenue Ratio 2/								
Baseline	445	343	337	305	274	243	160	62
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	445	350	357	329	301	272	189	53
A2. Primary balance is unchanged from 2008	445	338	331	293	257	222	119	6
A3. Permanently lower GDP growth 1/	445	346	343	314	286	258	198	169
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	445	365	391	366	342	316	269	220
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	445	363	381	348	315	282	191	80
B3. Combination of B1-B2 using one half standard deviation shocks	445	367	393	361	330	297	204	38
B4. One-time 30 percent real depreciation in 2009	445	444	440	402	365	328	224	93
B5. 10 percent of GDP increase in other debt-creating flows in 2009	445	401	397	362	329	295	202	87
Debt Service-to-Revenue Ratio 2/								
Baseline	16	11	26	26	28	33	27	13
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	16	12	27	28	33	36	31	13
A2. Primary balance is unchanged from 2008	16	11	26	24	28	29	19	3
A3. Permanently lower GDP growth 1/	16	11	26	27	30	36	34	33
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	16	12	29	33	39	47	47	42
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	16	11	27	40	44	42	31	16
B3. Combination of B1-B2 using one half standard deviation shocks	16	12	29	35	39	45	35	8
B4. One-time 30 percent real depreciation in 2009	16	13	36	36	42	49	39	21
B5. 10 percent of GDP increase in other debt-creating flows in 2009	16	11	30	62	33	54	31	18

Source: Staff projections and simulations.
1/ Assumes that real GDP growth is at baseline minus one standard deviation divided by the length of the projection period.
2/ Revenues are defined inclusive of grants.

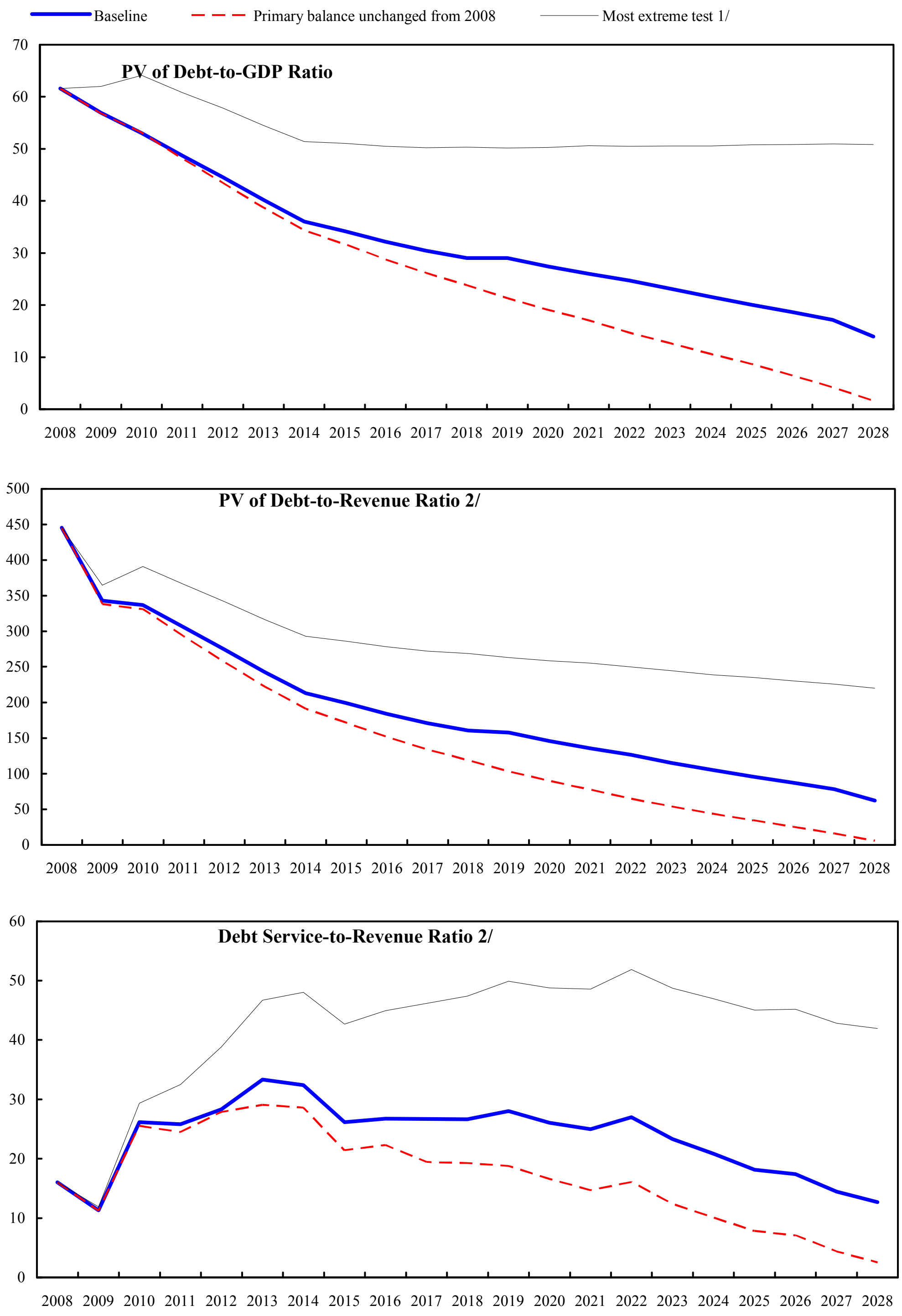
Figure 1. Central African Republic: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2008-28 1/



Source: Staff projections and simulations.

1/ The most extreme stress test in figure b. corresponds to a one-time depreciation shock; in c. to an exports shock; in d. to a one-time depreciation shock; in e. to an exports shock; and in f. to a one-time depreciation shock.

Figure 2. Central African Republic: Indicators of Public Debt Under Alternative Scenarios, 2008-28



Source: Staff projections and simulations.
1/ The most extreme test corresponds to the case of the negative growth shock (B1).
2/ Revenues are defined inclusive of grants.