

INTERNATIONAL MONETARY FUND  
AND INTERNATIONAL DEVELOPMENT ASSOCIATION

CENTRAL AFRICAN REPUBLIC

**Joint IMF/World Bank Debt Sustainability Analysis 2010**

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

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*According to the analysis based on the joint IMF-World Bank debt sustainability framework for low-income countries,<sup>1</sup> Central African Republic (C.A.R.) remains at moderate risk of debt distress.<sup>2</sup> Thanks to debt relief under the enhanced HIPC initiative and MDRI,<sup>3</sup> C.A.R.'s external and public debt burden indicators improved significantly throughout the projection period. The debt sustainability analysis shows, however, that C.A.R. continues to be vulnerable to certain shocks which could breach the policy-related threshold for the PV of external debt-to-exports ratio. The analysis further shows that C.A.R. should maintain the minimum concessionality requirement for future borrowing, as the debt distress rating hinges on highly concessional financing. Overall, the DSA results suggest that C.A.R. needs to pursue prudent fiscal policies over the medium-term and to consolidate the basis for growth by fostering domestic security, maintaining political stability, and improving the country's institutional and administrative capacity.*

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<sup>1</sup> See "Debt Sustainability in Low-Income Countries: Proposal for an Operational Framework and Policy Implications" (<http://www.imf.org/external/np/pdr/sustain/2004/020304.htm>) and "Debt Sustainability in Low-Income Countries: Further Considerations on an Operational Framework and Policy Implications" (<http://www.imf.org/external/np/pdr/sustain/2004/091004.htm>)

<sup>2</sup> The LIC DSA compares the evolution over the projection period of debt-burden indicators against policy-dependent indicative thresholds, using the three-year average of the World Bank's Country Policy and Institutional Assessment (CPIA). C.A.R.'s policies and institutions, as measured by the World Bank's (CPIA), are classified as a "weak performer" with an average rating of 2.46 in 2006–08.

<sup>3</sup> All multilateral creditors except the Central African States Development Bank, International Fund for Agricultural Development, and the OPEC Fund have provided debt relief. Agreements were already signed with Austria, Italy, Switzerland, U.S.A., France, Germany, and Japan for Paris Club creditors. Agreements were signed with Saudi Arabia, France Telecom, and GERBER Company for non-Paris Club creditors. The signature by Assistance Publique des Hôpitaux is expected soon; negotiations continue with other creditors. Since this debt sustainability analysis assumes that Taiwan Province of China, which is the largest bilateral creditor for C.A.R., would participate in the enhanced HIPC initiative, a delay in negotiations with Taiwan Province of China would harm the debt indicators.

## I. BACKGROUND

1. **This analysis is based on the forward-looking debt sustainability framework for low-income countries (LIC DSA)**, and four key updates are incorporated relative to the previous one:<sup>4</sup> (i) the use of the recent general SDR allocation is incorporated (CFAF 29.2 billion in 2009); (ii) the baseline scenario assumes smaller current account deficits in the long run based on recent stronger export performance, and more favorable fiscal positions mainly due to early repayment of higher-cost borrowings from commercial banks by using the SDR allocation; (iii) the actual real GDP growth in 2008/09 was revised downward, and the projected growth in 2010 was raised by 0.2 percentage points of GDP, resulting in an overall reduction of real GDP of 0.7 percentage points over the three years compared to the previous LIC DSA; and (iv) the discount rate has been revised down to 4.0 percent from 5.0 percent.

2. **The main change compared to the previous LIC DSA was the end–2009 outcome.** Real GDP growth was overestimated by 0.7 percentage point in the previous LIC DSA, however, the current account deficit was underestimated by 2 percent of GDP because C.A.R. experienced a faster recovery of exports and higher aid flows than projected. The fiscal performance assumed in the previous DSA was also underestimated, and the actual domestic primary balance in 2009 is about 2 percent of GDP higher than that assumed in the previous DSA.

3. **Total public debt including domestic arrears of C.A.R. is estimated at 32 percent of GDP at the end of 2009.**<sup>5</sup> External public and publicly guaranteed debt amounts to 12½ percent of GDP in nominal terms, of which multilateral creditors account for 64 percent, official bilateral creditors for 33 percent, and commercial creditors for 3 percent.<sup>6</sup> Domestic public debt (including budgetary arrears and domestic debt of public enterprises) amounts to 19 percent of GDP. It consists of outstanding credits to the government from domestic commercial banks (6½ percent of total domestic debt), government debt with the Bank for Central African States (BEAC, 37 percent), budgetary arrears (52 percent), public enterprise debt (4½ percent), and debt to nonbanks (0.1 percent).

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<sup>4</sup> The previous joint LIC DSA was published in June 2009 (IMF Country Report No. 09/259 and IDA Report No. 47247).

<sup>5</sup> Public debt includes public and publicly-guaranteed external debt, domestic public debt, budgetary arrears of the central government, and external and domestic debt of state-owned enterprises.

<sup>6</sup> The main creditors on a net present value basis after HIPC/MDRI debt relief are multilateral institutions (72 percent) and Taiwan Province of China (10 percent).

## II. UNDERLYING DSA ASSUMPTIONS

4. **The near-term macroeconomic outlook remains influenced by the adverse impact of the international financial crisis.** Despite favorable developments for the price of oil and an emerging recovery in external demand for wood products and diamonds, GDP growth is expected to be below its long-run potential in 2010. However, the domestic primary balance achieved a surplus in 2009 due to higher non-recurring nontax revenue and lower capital spending, with the latter caused mainly by administrative capacity constraints.

5. **Over the longer term, C.A.R. is expected to achieve steady-state growth of around 4¼ percent, supported by enhanced political and social stability.** A sustained improvement in business confidence based on reforms of legislative, judicial, and administrative systems and, consequently, higher private investment should underpin this growth projection (Box 1). Growing exports of a diversified range of primary goods, including gold and uranium with the commissioning of a major gold mine in 2011, are expected to lift real GDP growth to 5.5 percent over the next few years before settling on the steady state growth of 4.3 percent. Stronger exports will help improve the external current account deficit over time to around 2½ percent of GDP, with financing primarily provided by foreign direct investment, highly concessional project loans, and the regional market for government securities, to which access is projected in 2011. In order to preserve debt sustainability, fiscal policy would remain prudent. The authorities' fiscal anchor is the domestic primary balance—which excludes grants and foreign-financed capital spending—would be in surplus until 2017 and broadly balanced thereafter. The primary balance including grants, which determines the debt trajectory more directly, would initially be higher than the primary balance needed to stabilize the public debt-to-GDP ratio and would then register modest deficits over the projection period, consistent with a stable public debt-to-GDP ratio.

6. **The risks to C.A.R.'s macroeconomic outlook, however, remain significant.** Potentially, domestic political uncertainty and a worsening social and security situation could hamper donor support and investor confidence. Exogenous shocks, including a prolonged impact of the global economic crisis on exports, could lead to slower growth and lower revenue. Moreover, insufficient investments in infrastructure and slow progress improving the business environment could cause delays in private sector investment that are needed to boost the C.A.R. economy and reduce poverty.

### **Box 1. Central African Republic: Baseline Macroeconomic Assumptions**

**Real GDP growth:** Average annual real GDP growth for 2010–30 is projected at 4.5 percent. Although the growth accounting exercise presented in the last Article IV report (IMF Report No. 10/21) concluded that the baseline of the long-term growth is likely to be in the 4.6 to 5.5 percent range, the staffs adopted lower projections in this LIC DSA exercise taking into account the negative impact caused by the international financial crisis and the economic vulnerability of the country. This growth assumption is predicated on sustained security and political stability, an improvement in the country's institutional and administrative capacity to effectively implement projects by improving ministries' administrative structure and training of officials, and appropriate macroeconomic policies. This environment should encourage an increase in private investment, especially in forestry, mining, and telecommunications. Public investment is expected to increase throughout the projection period to reach about 8 percent of GDP per year in 2030, thus improving the infrastructure to help revive the agriculture sector, which dominates economic activity. A major gold mining project is assumed to start operating in 2011. The new forestry and mining codes should prepare the ground for sustained FDI inflows in these sectors. With these assumptions, the projected growth rate is significantly higher than the past 10-year average, which was characterized by conflicts, civil strife, reconstruction of the economy, and the international financial crisis.

**Inflation:** After unexpectedly high inflation in 2008 driven by food and oil prices, the GDP deflator is projected at 2½ percent on average for 2010–30; the actual CPI in 2009 declined towards the assumed 2½ percent. The projected inflation rate is in line with the Central African Economic and Monetary Community (CEMAC)'s convergence criterion for CPI inflation of 3 percent.

**Current account balance:** The current account deficit (including grants) is projected to average 5½ percent of GDP for 2010–30. The trade balance is projected to improve over time, driven by stronger export performance as a result of structural reforms and development of infrastructure that will enhance competitiveness and diversify the export base; the deficits in the services balance would remain large. The current account deficits would be financed primarily by highly concessional official development assistance (project loans), foreign direct investment, and some regional capital inflows from the future regional government securities market.

**Government balance:** The primary deficit would decline to 0.6 percent of GDP by 2015 and then remain at around ½ percent of GDP between 2016–30. The overall fiscal deficit (including grants) would average about 1 percent of GDP for 2010–30, with primary deficits initially lower than needed to stabilize the debt-to-GDP ratio. Domestic revenue is projected to rise from 10½ percent of GDP in 2010 to 14 percent of GDP at end-2030, mainly as a result of steady tax and customs administration improvements and tax policy reform (introduction of broad-based and more neutral taxes to replace nuisance taxes and fees). Primary expenditures are projected to rise from about 18 percent of GDP in 2010 to 20 percent of GDP in 2030 with most of the increases concentrated in capital spending.

**External assistance:** Grant-equivalent financing is assumed at about 5½ percent of GDP annually in the long run, accounting for 90 percent of total external assistance over the period 2011–30. The grant element of new external loans averages 45 percent for the period. All creditors are expected to provide HIPC relief even though some of them have not currently signed bilateral debt agreements.

**Domestic borrowing:** It is assumed that in 2011, the government will start accessing the securities markets that are being developed in the CEMAC region. This will allow it to improve liquidity management, repay domestic arrears, and eventually reduce financing costs. On the other hand, some government securities issued in the regional bond market could be held by CEMAC nonresidents and therefore should be classified as external debt using the residency criterion. Classifying all such debt as domestic understates the external public debt level used in this DSA, an issue that will be monitored over time. Given the continued prudent fiscal policy stance, domestic debt is expected to decline gradually during the projection period (from 20 percent of GDP in 2009 to about 3 percent of GDP in 2030). The average real interest rate on domestic currency debt (including bonds from the regional markets) should converge to about 4 percent in the long run.

### III. EXTERNAL DEBT SUSTAINABILITY ANALYSIS

7. **Except for the PV of debt-to-export ratio, all debt indicators are below the relevant thresholds throughout the projection period in the baseline scenario (Text Table 1, Figure 1, and Table 1a).** The PV of debt-to-export ratio exceeds marginally the threshold for the first two years, 2010 and 2011, when the export levels are still affected by the crisis, because the authorities drew on the general SDR allocation in 2009. The SDR allocation was used for repaying high-interest domestic borrowings, and thus improved the public debt composition from a cost perspective over the medium term. The debt service-to-export ratio and the debt service-to-revenue ratio increase temporarily over the medium term because larger amounts of principal repayment to non-Paris club creditors and the IMF are scheduled for this period, but the ratios would stay well below the country-specific, indicative thresholds. Except for the PV of debt-to-exports ratio, all other debt indicators remain well below the thresholds for the projection period and show stable downward trends.

Text Table 1. Central African Republic: Policy-Based Thresholds and External Debt Burden Indicators

	Thresholds <sup>1</sup>	Baseline Scenario Ratios		
		2009 Est.	2010–30 <sup>2</sup> Proj.	2010–30 Peak
PV of external debt in percent of:				
GDP	30	10.7	8.2	11.7
Exports	100	112.9	64.2	116.4
Revenue	200	99.0	65.2	108.5
External debt service in percent of:				
Exports	15	12.1	4.2	10.9
Revenue	25	10.6	4.3	11.4

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

<sup>1</sup> Policy-dependent thresholds used in the joint IMF-WB LIC DSA framework are for a weak policy performer. C.A.R. received an average rating of 2.46 in 2006–08 in the World Bank's Country Policy and Institutional Assessment (CPIA), which qualifies it as a weak policy performer.

<sup>2</sup> Simple average.

8. **One alternative scenario signals the risk that debt indicators would come close to the threshold with less favorable aid support.** The baseline scenario assumes stable grant inflows and relatively high concessional loans over the projection period, while the alternative scenario assumes lower grants inflows and less favorable loan terms, under which grants decline gradually from 5.4 percent of GDP in 2010 to 3.7 percent of GDP in 2030 and the grant element of concessional loans just reaches 35 percent. In this scenario all indicators point upward after 2020, especially the PV of debt-to-exports ratio, which reaches 93 percent of GDP in 2030. This suggests that C.A.R. is quite vulnerable to a reduction in external

concessional support. The staffs decided against assuming a decline in grant support over the projections period, because C.A.R.'s level of grant support is not very high, and good policy performance could offset the tendency for reduction over time.

9. **The historical scenario, which shows a similar path as the baseline scenario, needs to be treated cautiously (Figure 1 and Table 1b).** The historical scenario includes the years of civil strife before 2003; during this period, external financing was constrained by many of the same factors that limited growth. With the noninterest current account being roughly in balance over the historical period, this offset much of the effect of lower growth and explains why the historical and baseline scenarios are so similar. However, the assumptions in the historical scenario are quite different from the assumptions in the baseline scenario.

10. **The bound tests underscore potential risks, especially regarding lower export growth.** The most extreme stress test scenario, which assumes a combination of shocks, acts mostly by lowering export values, and would raise the PV of the debt-to-exports ratio above the threshold for the entire period (Figure 1c and Table 1b).<sup>7</sup> The debt service-to-exports ratio would also exceed the threshold during 2015–16 under the low export growth scenario (Table 1b).<sup>8</sup> Although exogenous shocks, including a prolonged impact of the global economic crisis on exports, are beyond the authorities' control, the deterioration of debt indicators under these two scenarios signals that continuous efforts are necessary to develop C.A.R.'s exports, including improving the business climate for foreign investments, reducing transport costs, and improving productivity.

#### IV. PUBLIC DEBT SUSTAINABILITY ANALYSIS

11. **Public debt indicators remain at low levels through the projection period (Figure 2 and Table 2a).** Assuming lower program grants than in the recent past (1 percent of GDP over the long term) and highly concessional financing, all debt indicators are expected to decline gradually. It is further assumed that the government would continue its prudent fiscal policy by maintaining the primary deficit close to balance over the long term; mobilizing higher domestic revenues relative to GDP; and maximizing low-cost financing. Accessing the regional government securities markets starting in 2011 and the elimination of expensive credits from commercial banks assumed in 2010 would allow continued clearance

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<sup>7</sup> As shown in Table 1b, the combination of shocks consists of (i) real GDP growth at historical average minus one-half standard deviation in 2011–12; (ii) export value growth at historical average minus one-half standard deviation in 2011–12 in US dollar terms; (iii) US dollar GDP deflator at historical average minus one-half standard deviation in 2011–12; and (iv) net non-debt creating flows at historical average minus one standard deviation in 2011–12.

<sup>8</sup> The export shock, which is the second most extreme stress test scenario, is significant as it represents a 24 percent decline in exports on a US dollar basis over 2011–12 compared to an increase in exports of 28 percent for the same period in the baseline.

of domestic arrears.<sup>9</sup> Under these assumptions, the public debt-to-GDP ratio could decline by more than 10 percentage points to 20 percent of GDP by 2014 and stabilize at close to 15 percent of GDP in the long run. The PV of public debt-to-GDP ratio would decline from 27 percent of GDP in 2010 to 11 percent of GDP in 2030, while the PV of public debt-to-revenue (including grant) ratio would fall from 165 percent to 59 percent.

12. **All debt indicators would deteriorate rapidly, if real GDP growth were to drop temporarily in two consecutive years (Figure 2 and Table 2b).** A temporary growth decline—real GDP growth would be -2.2 percent annually in 2011–12 versus 3.3 percent in 2010 and 4.0 percent in 2011 in the baseline—represents the most extreme scenario.<sup>10</sup> In this case, the PV of the debt-to-GDP ratio, the PV of the debt-to-revenue ratio, and the debt service-to-revenue ratio would rise over time. The results suggest that the baseline is very sensitive to the growth assumptions. However, the shocks may be somewhat extreme because the growth standard deviation is high due to the inclusion of an outlier related to the civil war in 2003. Excluding this outlier would significantly increase the average historical growth and reduce its standard deviation.

## V. DEBT DISTRESS QUALIFICATION AND CONCLUSIONS

13. **C.A.R. qualifies as having a “moderate risk of debt distress”, and high loan concessionality should be required.** All debt indicators improved dramatically following the HIPC completion point and MDRI debt relief, but the overall debt position could still be vulnerable to a variety of shocks. The external debt indicators are particularly sensitive to export growth, net FDI inflows, and less favorable financing terms, indicating that policies to diversify the export base including improving the business climate for foreign investments reducing transport costs, improving productivity, and prudent borrowing are essential for preserving external debt sustainability. Considering the fact that C.A.R. is categorized as having “lower debt vulnerabilities and lower capacity” under the concessionality options matrix,<sup>11</sup> the requirement for high concessionality should be maintained. The public debt is highly vulnerable to slower GDP growth and an increase in debt-creating flows, confirming that C.A.R. needs to pursue prudent fiscal policies over the medium-term and to consolidate the basis for growth by fostering domestic security, maintaining political stability, and improving the country’s institutional and administrative capacity.

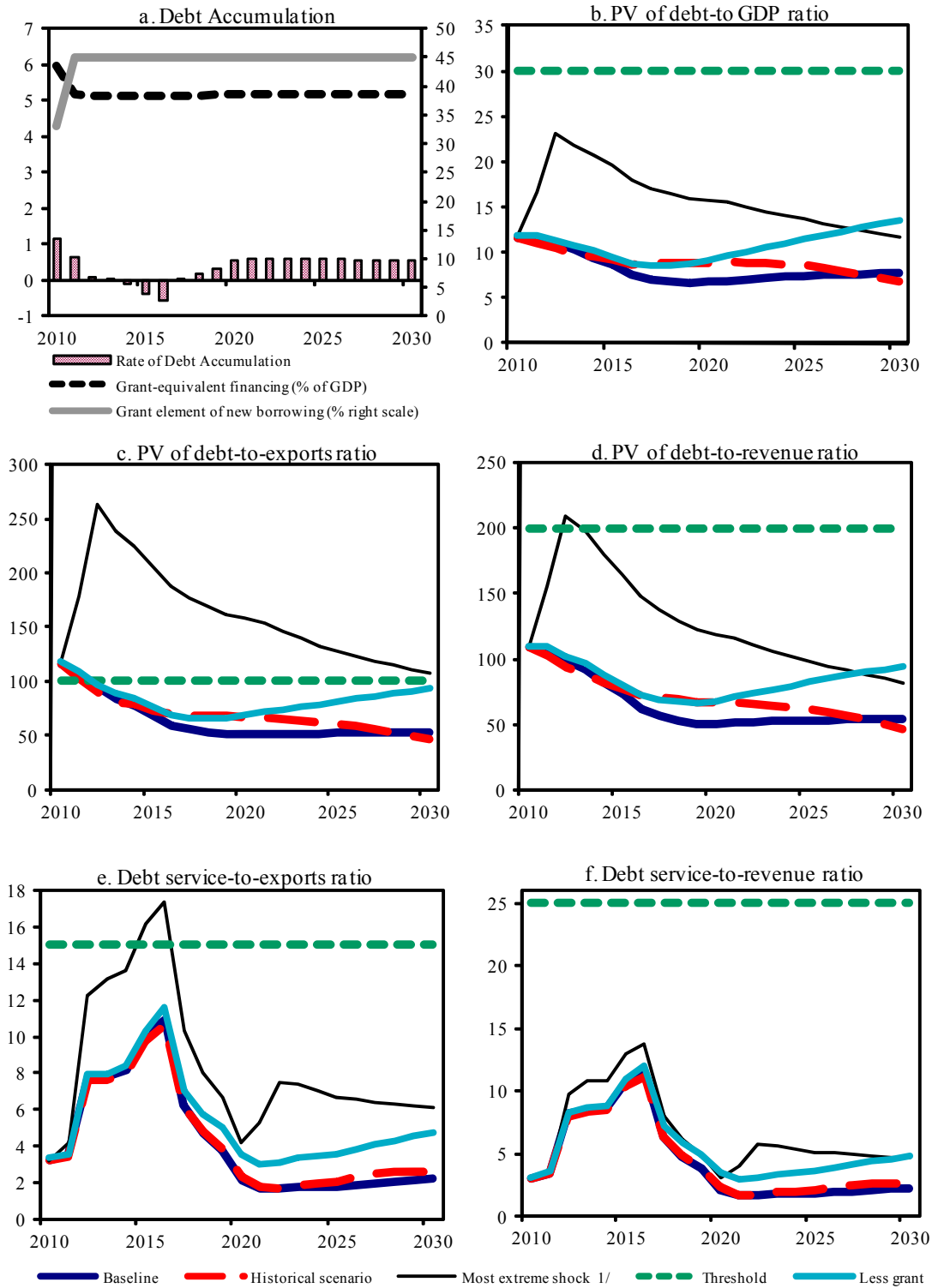
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<sup>9</sup> For the purpose of this debt sustainability analysis, the PV of domestic arrears is calculated the same way as for other domestic public debt, and domestic arrears are included in the formula for total domestic debt.

<sup>10</sup> The low growth shock is defined as the average of real GDP growth minus one standard deviation calculated over the past 10 years.

<sup>11</sup> See “Debt Limits in Fund-Supported Programs-Proposed New Guidelines,” IMF Policy Paper, August 5, 2009. <http://www.imf.org/external/np/pp/eng/2009/080509.pdf> and “IDA’s Non-Concessional Borrowing Policy—Progress Update” (SecM2010–0240).

Figure 1. Central African Republic: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2010–30 1/

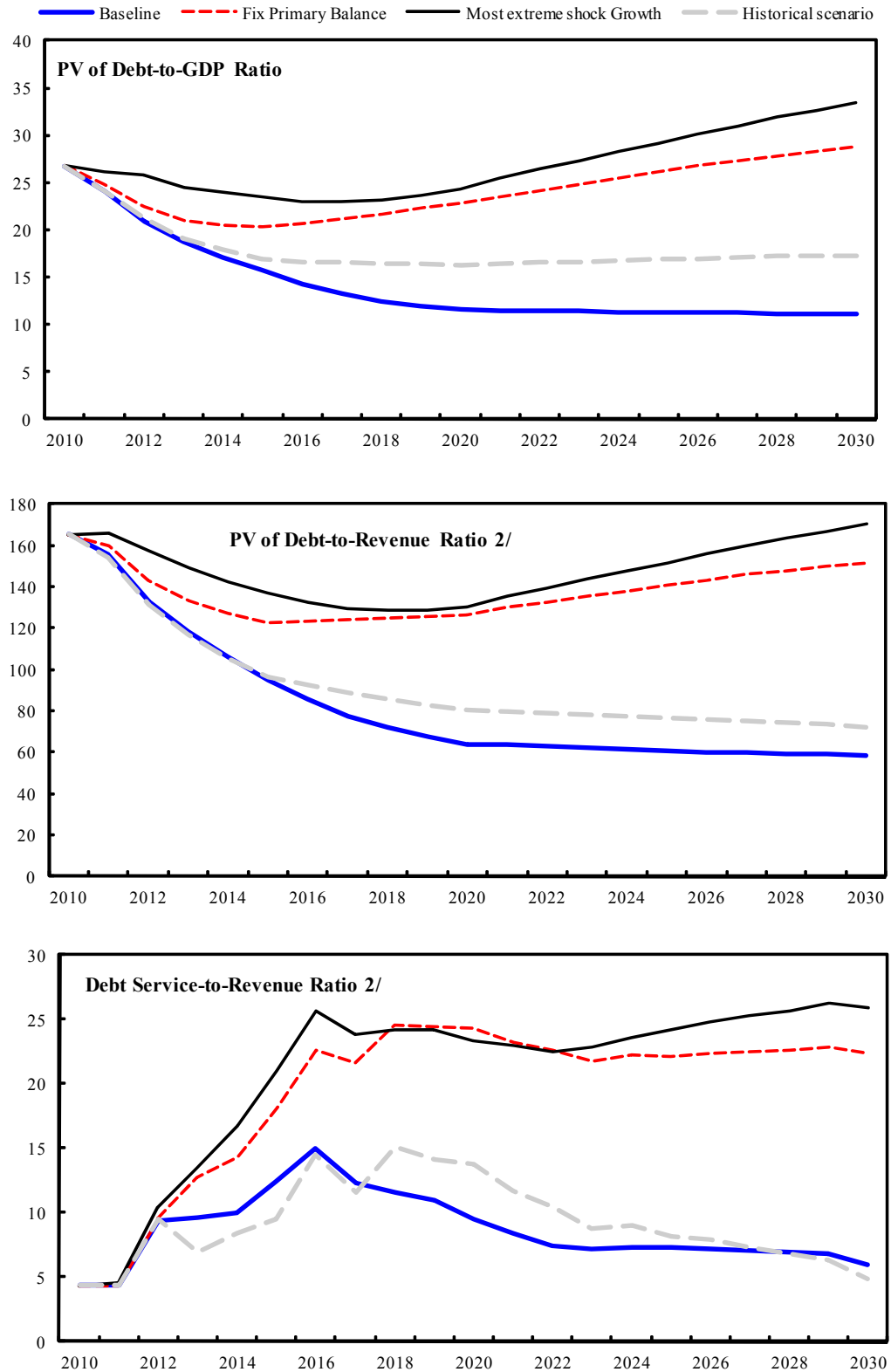


Sources: C.A.R. authorities; and IMF and World Bank staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2020. In figures b-f, it corresponds to the combination shock.



Figure 2. Central African Republic: Indicators of Public Debt Under Alternative Scenarios, 2010–30 1/



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

1/ The most extreme stress test is the test that yields the highest ratio in 2020.

2/ Revenues are defined inclusive of grants.

Table 1a. Central African Republic: External Debt Sustainability Framework, Baseline Scenario, 2007–30 1/  
(In percent of GDP, unless otherwise indicated)

	Actual		Prel.	10-year		Projections						2010–15		2016–30	
	2007	2008	2009	Historical Average	Standard Deviation	2010	2011	2012	2013	2014	2015	Average	2020	2030	Average
1 External debt (nominal) 1/	54.5	56.9	12.7			14.1	14.2	13.6	13.0	12.3	11.5		10.2	11.7	
2 Of which: public and publicly guaranteed (PPG)	54.5	56.9	12.7			14.1	14.2	13.6	13.0	12.3	11.5		10.2	11.7	
3 Change in external debt	-15.5	-2.4	-44.2			1.4	0.1	-0.6	-0.6	-0.7	-0.7		0.2	0.1	
4 Identified net debt-creating flows	-7.3	-9.4	-0.2			0.7	1.0	0.2	0.0	-0.5	-0.8		0.2	1.0	
5 Non-interest current account deficit 2/	2.7	6.0	2.5	0.2	3.4	3.9	4.3	4.2	3.7	3.7	3.8		2.0	-1.4	1.0
Deficit in balance of goods and services	9.4	13.0	11.5			12.7	11.4	11.0	10.5	10.4	10.6		8.9	5.5	
Exports	14.1	10.8	9.5			10.0	10.8	11.6	12.1	12.1	12.5		13.2	14.5	
Imports	23.5	23.9	20.9			22.7	22.2	22.6	22.6	22.6	23.2		22.0	19.9	
Net current transfers (negative = inflow)	-3.8	-3.8	-4.1	-4.0	1.1	-5.0	-3.3	-3.1	-3.1	-3.0	-3.1		-3.0	-3.0	-3.0
Of which: official	-3.5	-3.6	-3.8			-4.7	-3.1	-2.9	-2.9	-2.9	-3.0		-3.0	-3.0	
Other current account flows (negative = net inflow)	-2.9	-3.2	-4.9			-3.7	-3.7	-3.7	-3.7	-3.7	-3.8		-3.8	-3.9	
6 Net FDI (negative = inflow)	-1.1	-8.3	-3.3	0.5	4.5	-3.0	-3.1	-3.6	-3.3	-3.8	-4.1		-1.5	2.7	-0.3
7 Endogenous debt dynamics 3/	-8.9	-7.1	0.6			-0.2	-0.3	-0.4	-0.5	-0.5	-0.5		-0.3	-0.4	
Contribution from nominal interest rate	0.4	0.9	0.5			0.2	0.2	0.2	0.2	0.2	0.2		0.1	0.1	
Contribution from real GDP growth	-2.2	-0.9	-1.0			-0.4	-0.5	-0.7	-0.7	-0.7	-0.6		-0.4	-0.5	
Contribution from price and exchange rate changes	-7.0	-7.1	1.1			...	...	...	...	...	...		...	...	
8 Residual (3-4) 4/	-8.2	11.8	-44.1			0.7	-0.9	-0.7	-0.6	-0.1	0.1		0.0	-0.9	
Of which: exceptional financing	-0.1	-1.9	-0.7			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
PV of external debt 5/	...	...	10.7			11.7	11.6	11.0	10.2	9.5	8.6		6.8	7.7	
In percent of exports	...	...	112.9			116.4	107.7	94.7	84.6	78.3	69.1		51.2	53.3	
PV of PPG external debt	...	...	10.7			11.7	11.6	11.0	10.2	9.5	8.6		6.8	7.7	
In percent of exports	...	...	112.9			116.4	107.7	94.7	84.6	78.3	69.1		51.2	53.3	
In percent of government revenues	...	...	99.0			108.5	107.9	99.0	92.2	82.4	73.0		50.7	53.9	
Debt service-to-exports ratio (in percent)	14.0	21.0	12.1			3.2	3.5	7.8	7.8	8.2	10.1		2.2	2.2	
PPG debt service-to-exports ratio (in percent)	14.0	21.0	12.1			3.2	3.5	7.8	7.8	8.2	10.1		2.2	2.2	
PPG debt service-to-revenue ratio (in percent)	19.2	21.9	10.6			3.0	3.5	8.2	8.5	8.6	10.6		2.1	2.2	
Total gross financing need (Billions of U.S. dollars)	0.1	0.1	0.1			0.1	0.1	0.1	0.1	0.1	0.1		0.1	0.0	
Non-interest current account deficit that stabilizes debt ratio	18.2	3.6	46.8			2.5	4.2	4.7	4.4	4.4	4.5		1.8	-1.4	
<b>Key macroeconomic assumptions</b>															
Real GDP growth (in percent)	3.7	2.0	1.7	0.9	3.1	3.3	4.0	5.0	5.5	5.5	5.5	4.8	4.3	4.3	4.4
GDP deflator in US dollar terms (change in percent)	11.2	14.9	-2.0	6.2	10.0	3.2	1.4	1.8	1.7	1.7	0.0	1.6	2.4	2.4	2.4
Effective interest rate (percent) 6/	0.7	2.0	0.8	1.1	0.5	1.6	1.8	1.8	1.8	1.6	1.5	1.7	1.3	1.1	1.2
Growth of exports of G&S (US dollar terms, in percent)	14.6	-9.9	-13.1	0.4	12.4	12.9	13.9	14.5	12.1	7.4	8.9	11.6	8.2	7.4	7.9
Growth of imports of G&S (US dollar terms, in percent)	23.6	19.3	-12.7	6.5	14.1	15.6	3.3	8.6	7.6	7.1	8.2	8.4	5.9	5.6	5.8
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	33.2	44.8	44.8	44.8	44.8	44.8	42.9	44.8	44.8	44.8
Government revenues (excluding grants, in percent of GDP)	10.3	10.4	10.8			10.7	10.8	11.1	11.1	11.5	11.8		13.3	14.3	13.5
Aid flows (in Billions of US dollars) 7/	0.1	0.1	0.1			0.1	0.1	0.1	0.1	0.2	0.2		0.2	0.5	
Of which: grants	0.1	0.1	0.1			0.1	0.1	0.1	0.1	0.1	0.1		0.2	0.4	
Of which: concessional loans	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.1	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			6.0	5.2	5.1	5.1	5.1	5.1		5.2	5.2	5.2
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			84.4	90.4	90.3	90.3	90.3	90.3		90.3	90.3	90.3
<b>Memorandum items:</b>															
Nominal GDP (Billions of US dollars)	1.7	2.0	2.0			2.1	2.2	2.4	2.6	2.7	2.9		4.1	7.9	
Nominal dollar GDP growth	15.3	17.2	-0.3			6.6	5.4	6.9	7.3	7.3	5.5	6.5	6.8	6.8	6.9
PV of PPG external debt (in Billions of US dollars)	...	...	0.2			0.2	0.3	0.3	0.3	0.3	0.2		0.3	0.6	
(PVt-PVt-1)/GDPt-1 (in percent)	...	...	...			1.2	0.6	0.1	0.0	-0.1	-0.4	0.2	0.6	0.6	0.4
Gross 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)	...	...	10.7			11.7	11.7	11.0	10.3	9.5	8.7		6.8	7.7	
PV of PPG external debt (in percent of exports + remittances)	...	...	119.8			122.9	113.0	98.9	88.0	81.2	71.5		52.6	54.1	
Debt service of PPG external debt (in percent of exports + remittances)	...	...	12.8			3.4	3.7	8.2	8.1	8.5	10.4		2.2	2.2	

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

1/ Includes both public and private sector external debt.

2/ Includes capital grants.

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

4/ Includes HIPC debt relief in 2009 and 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.

5/ Assumes that PV of private sector debt is equivalent to its face value.

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

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 1b. Central African Republic: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2010–30  
(In percent)

	Projections							
	2010	2011	2012	2013	2014	2015	2020	2030
<b>PV of debt-to GDP ratio</b>								
<b>Baseline</b>	12	12	11	10	9	9	7	8
<b>A. Alternative Scenarios</b>								
A1. Key variables at their historical averages in 2010–30 1/	12	11	10	10	10	9	9	7
A2. New public sector loans on less favorable terms in 2010–30 2/	12	9	6	3	0	0	0	0
A3. Alternative Scenario : Less grants and less concessionality loan.	12	12	11	11	10	10	9	13
<b>B. Bound Tests</b>								
B1. Real GDP growth at historical average minus one standard deviation in 2011–12	12	12	12	12	11	10	8	9
B2. Export value growth at historical average minus one standard deviation in 2011–12 3/	12	13	15	14	13	12	10	9
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011–12	12	12	12	11	11	10	8	9
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011–12 4/	12	16	21	20	18	17	14	11
B5. Combination of B1-B4 using one-half standard deviation shocks	12	17	23	22	21	20	16	12
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	12	16	16	15	13	12	10	11
<b>PV of debt-to-exports ratio</b>								
<b>Baseline</b>	116	108	95	85	78	69	51	53
<b>A. Alternative Scenarios</b>								
A1. Key variables at their historical averages in 2010–30 1/	116	102	90	81	79	73	68	47
A2. New public sector loans on less favorable terms in 2010–30 2/	116	83	49	22	0	0	0	0
A3. Alternative Scenario : Less grants and less concessionality loan.	118	110	98	89	84	77	69	93
<b>B. Bound Tests</b>								
B1. Real GDP growth at historical average minus one standard deviation in 2011–12	116	107	94	84	78	69	51	53
B2. Export value growth at historical average minus one standard deviation in 2011–12 3/	116	156	219	197	184	166	126	104
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011–12	116	107	94	84	78	69	51	53
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011–12 4/	116	152	178	162	153	140	107	73
B5. Combination of B1-B4 using one-half standard deviation shocks	116	178	263	239	225	206	158	107
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	116	107	94	84	78	69	51	53
<b>PV of debt-to-revenue ratio</b>								
<b>Baseline</b>	109	108	99	92	82	73	51	54
<b>A. Alternative Scenarios</b>								
A1. Key variables at their historical averages in 2010–30 1/	109	103	94	89	83	77	67	47
A2. New public sector loans on less favorable terms in 2010–30 2/	109	83	51	24	0	0	0	0
A3. Alternative Scenario : Less grants and less concessionality loan.	110	110	102	96	88	81	68	94
<b>B. Bound Tests</b>								
B1. Real GDP growth at historical average minus one standard deviation in 2011–12	109	114	113	105	94	83	58	61
B2. Export value growth at historical average minus one standard deviation in 2011–12 3/	109	121	136	127	115	104	74	62
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011–12	109	113	110	102	92	81	56	60
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011–12 4/	109	153	186	176	161	148	106	74
B5. Combination of B1-B4 using one-half standard deviation shocks	109	155	208	197	180	165	119	82
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	109	153	140	131	117	103	72	76

Table 1b. Central African Republic: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2010–30 (concluded)  
(In percent)

	Projections							
	2010	2011	2012	2013	2014	2015	2020	2030
<b>Debt service-to-exports ratio</b>								
<b>Baseline</b>	3	3	8	8	8	10	2	2
<b>A. Alternative Scenarios</b>								
A1. Key variables at their historical averages in 2010–30 1/	3	3	8	8	8	10	2	3
A2. New public sector loans on less favorable terms in 2010–30 2/	3	3	7	7	6	8	0	0
A3. Alternative Scenario : Less grants and less concessionality loan.	3	4	8	8	8	10	4	5
<b>B. Bound Tests</b>								
B1. Real GDP growth at historical average minus one standard deviation in 2011–12	3	3	8	8	8	10	2	2
B2. Export value growth at historical average minus one standard deviation in 2011–12 3/	3	5	13	14	15	18	4	5
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011–12	3	3	8	8	8	10	2	2
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011–12 4/	3	3	8	9	9	11	3	4
B5. Combination of B1-B4 using one-half standard deviation shocks	3	4	12	13	14	16	4	6
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	3	3	8	8	8	10	2	2
<b>Debt service-to-revenue ratio</b>								
<b>Baseline</b>	3	3	8	9	9	11	2	2
<b>A. Alternative Scenarios</b>								
A1. Key variables at their historical averages in 2010–30 1/	3	3	8	8	8	10	2	3
A2. New public sector loans on less favorable terms in 2010–30 2/	3	3	7	7	7	8	0	0
A3. Alternative Scenario : Less grants and less concessionality loan.	3	4	8	9	9	11	4	5
<b>B. Bound Tests</b>								
B1. Real GDP growth at historical average minus one standard deviation in 2011–12	3	4	9	10	10	12	2	3
B2. Export value growth at historical average minus one standard deviation in 2011–12 3/	3	3	8	9	9	11	2	3
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011–12	3	4	9	10	10	12	2	2
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011–12 4/	3	3	9	10	10	12	3	4
B5. Combination of B1-B4 using one-half standard deviation shocks	3	4	10	11	11	13	3	5
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	3	5	12	12	12	15	3	3
<i>Memorandum item:</i>								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	42	42	42	42	42	42	42	42

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

1/ Variables include real GDP growth, growth of GDP deflator (in U.S. dollar terms), non-interest current account in percent of GDP, and non-debt creating flows.

2/ Assumes that the interest rate on new borrowing is by 2 percentage points higher than in the baseline, with grace and maturity periods 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, 2007–30  
(In percent of GDP, unless otherwise indicated)

	Actual		Prel.	10-year		Projections										
	2007	2008	2009	Average	Standard Deviation	2010	2011	2012	2013	2014	2015	2010–15 Average		2020	2030	2016–30 Average
<b>Public sector debt 1/</b>	79.1	80.2	32.4			29.2	26.7	23.6	21.4	19.9	18.6			15.0	15.1	
Of which: foreign-currency denominated	54.5	56.9	12.7			14.1	14.2	13.6	13.0	12.3	11.5			10.2	11.7	
Change in public sector debt	-14.9	1.1	-47.8			-3.3	-2.5	-3.0	-2.2	-1.5	-1.3			-0.3	0.0	
Identified debt-creating flows	-10.9	-1.5	-7.9			1.3	0.1	-0.3	-0.1	-0.4	-0.2			-0.2	0.0	
Primary deficit	-1.0	-0.3	-1.2	0.5	1.1	2.1	1.3	1.0	1.1	0.7	0.6	1.1		0.4	0.6	0.4
Revenue and grants	14.4	15.2	16.1			16.2	15.5	15.8	15.8	16.2	16.5			18.0	19.0	
Of which: grants	4.1	4.8	5.3			5.4	4.7	4.7	4.7	4.7	4.7			4.7	4.7	
Primary (noninterest) expenditure	13.3	14.9	14.9			18.3	16.8	16.8	16.9	16.9	17.1			18.4	19.6	
Automatic debt dynamics	-9.8	-1.2	-6.8			-0.8	-1.2	-1.3	-1.2	-1.1	-0.8			-0.6	-0.6	
Contribution from interest rate/growth differential	-3.5	-4.8	-3.1			-1.4	-1.3	-1.4	-1.3	-1.2	-1.1			-0.6	-0.6	
Of which: contribution from average real interest rate	-0.2	-3.2	-1.8			-0.4	-0.2	-0.2	-0.1	-0.1	0.0			0.1	0.0	
Of which: contribution from real GDP growth	-3.4	-1.6	-1.3			-1.0	-1.1	-1.3	-1.2	-1.1	-1.0			-0.6	-0.6	
Contribution from real exchange rate depreciation	-6.3	3.6	-3.6			0.7	0.1	0.1	0.1	0.1	0.3			...	...	
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	
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) 2/	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	
Other (specify, e.g. bank recapitalization)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	
Residual, including asset changes 2/	-4.0	2.6	-39.8			-4.6	-2.6	-2.7	-2.0	-1.1	-1.1			-0.1	0.0	
<b>Other Sustainability Indicators</b>																
<b>PV of public sector debt</b>	24.5	23.2	30.4			26.8	24.1	21.0	18.7	17.1	15.7			11.6	11.1	
Of which: foreign-currency denominated	0.0	0.0	10.7			11.7	11.6	11.0	10.2	9.5	8.6			6.8	7.7	
Of which: external	...	...	10.7			11.7	11.6	11.0	10.2	9.5	8.6			6.8	7.7	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...			...	...	
Gross financing need 3/	1.9	2.8	0.5			2.8	2.0	2.5	2.6	2.4	2.6			2.1	1.8	
PV of public sector debt-to-revenue and grants ratio (in percent)	170.6	153.3	189.4			165.4	155.3	133.0	118.6	106.0	95.2			64.2	58.7	
PV of public sector debt-to-revenue ratio (in percent)	238.8	223.3	282.2			249.0	223.4	189.1	168.4	148.9	132.8			86.8	78.0	
Of which: external 4/	...	...	99.0			108.5	107.9	99.0	92.2	82.4	73.0			50.7	53.9	
Debt service-to-revenue and grants ratio (in percent) 5/	20.6	20.7	10.2			4.3	4.4	9.3	9.6	10.0	12.5			9.5	6.0	
Debt service-to-revenue ratio (in percent) 5/	28.8	30.2	15.2			6.5	6.3	13.3	13.7	14.0	17.4			12.8	8.0	
Primary deficit that stabilizes the debt-to-GDP ratio	13.8	-1.4	46.6			5.4	3.9	4.1	3.3	2.2	1.9			0.6	0.6	
<b>Key macroeconomic and fiscal assumptions</b>																
Real GDP growth (in percent)	3.7	2.0	1.7	0.9	3.1	3.3	4.0	5.0	5.5	5.5	5.5	4.8	4.3	4.3	4.4	
Average nominal interest rate on forex debt (in percent)	0.7	2.0	0.8	1.1	0.5	1.6	1.8	1.8	1.8	1.6	1.5	1.7	1.3	1.1	1.2	
Average real interest rate on domestic debt (in percent)	2.5	-3.0	-1.3	-1.2	2.2	-1.2	-0.8	-0.6	-0.3	0.4	1.1	-0.2	3.3	4.3	3.8	
Real exchange rate depreciation (in percent, + indicates depreciation)	-9.4	7.0	-6.7	-5.5	10.2	5.4	...	...	...	...	...	...	...	...	...	
Inflation rate (GDP deflator, in percent)	1.8	7.0	3.6	3.0	2.1	3.2	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.4	2.4	
Growth of real primary spending (deflated by GDP deflator, in percent)	-0.1	0.1	0.0	0.0	0.2	0.3	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	
Grant element of new external borrowing (in percent)	...	...	...	...	...	33.2	44.8	44.8	44.8	44.8	44.8	42.9	44.8	44.8	44.8	

Sources: C.A.R. authorities; and IMF and World Bank 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 in gross terms.

2/ Debt relief, domestic arrears payment, and unidentified financing needs are included in Residual.

3/ 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.

4/ Revenues excluding grants.

5/ Debt service is defined as the sum of interest and amortization of medium and long-term debt.

6/ 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 2010–30

	Projections							
	2010	2011	2012	2013	2014	2015	2020	2030
<b>PV of Debt-to-GDP Ratio</b>								
<b>Baseline</b>	27	24	21	19	17	16	12	11
<b>A. Alternative scenarios</b>								
A1. Real GDP growth and primary balance are at historical averages	27	24	21	19	18	17	16	17
A2. Primary balance is unchanged from 2010	27	25	23	21	21	20	23	29
A3. Permanently lower GDP growth 1/	27	24	21	19	18	17	16	26
<b>B. Bound tests</b>								
B1. Real GDP growth is at historical average minus one standard deviations in 2011–12	27	26	26	25	24	23	24	33
B2. Primary balance is at historical average minus one standard deviations in 2011–12	27	24	22	19	18	16	12	11
B3. Combination of B1-B2 using one half standard deviation shocks	27	25	23	21	21	20	20	27
B4. One-time 30 percent real depreciation in 2011	27	29	25	23	21	19	14	12
B5. 10 percent of GDP increase in other debt-creating flows in 2011	27	33	29	26	24	22	17	15
<b>PV of Debt-to-Revenue Ratio 2/</b>								
<b>Baseline</b>	165	155	133	119	106	95	64	59
<b>A. Alternative scenarios</b>								
A1. Real GDP growth and primary balance are at historical averages	165	154	132	117	105	96	81	73
A2. Primary balance is unchanged from 2010	165	160	143	134	127	123	127	152
A3. Permanently lower GDP growth 1/	165	156	135	123	112	103	86	131
<b>B. Bound tests</b>								
B1. Real GDP growth is at historical average minus one standard deviations in 2011–12	165	166	157	149	142	137	130	170
B2. Primary balance is at historical average minus one standard deviations in 2011–12	165	157	138	123	110	99	67	60
B3. Combination of B1-B2 using one half standard deviation shocks	165	159	140	131	124	118	108	139
B4. One-time 30 percent real depreciation in 2011	165	186	161	145	129	116	75	62
B5. 10 percent of GDP increase in other debt-creating flows in 2011	165	210	186	166	150	135	94	77
<b>Debt Service-to-Revenue Ratio 2/</b>								
<b>Baseline</b>	4	4	9	10	10	12	9	6
<b>A. Alternative scenarios</b>								
A1. Real GDP growth and primary balance are at historical averages	4	4	10	7	8	10	14	5
A2. Primary balance is unchanged from 2010	4	4	10	13	14	18	24	22
A3. Permanently lower GDP growth 1/	4	4	9	10	11	14	14	20
<b>B. Bound tests</b>								
B1. Real GDP growth is at historical average minus one standard deviations in 2011–12	4	5	10	13	17	21	23	26
B2. Primary balance is at historical average minus one standard deviations in 2011–12	4	4	9	11	12	13	10	6
B3. Combination of B1-B2 using one half standard deviation shocks	4	4	10	9	11	17	19	20
B4. One-time 30 percent real depreciation in 2011	4	5	12	13	14	17	13	9
B5. 10 percent of GDP increase in other debt-creating flows in 2011	4	4	12	45	13	32	11	9
<b>Debt Service-to-GDP Ratio</b>								
<b>Baseline</b>	1	1	1	2	2	2	2	1
<b>A. Alternative scenarios</b>								
A1. Real GDP growth and primary balance are at historical averages	1	1	2	1	1	2	3	1
A2. Primary balance is unchanged from 2006	1	1	2	2	2	3	4	4
A3. Permanently lower GDP growth 1/	1	1	1	2	2	2	3	4
<b>B. Bound tests</b>								
B1. Real GDP growth is at historical average minus one standard deviations in 2008–09	1	1	2	2	3	4	4	5
B2. Primary balance is at historical average minus one standard deviations in 2008–09	1	1	1	2	2	2	2	1
B3. Combination of B1-B2 using one half standard deviation shocks	1	1	2	1	2	3	4	4
B4. One-time 30 percent real depreciation in 2008	1	1	2	2	2	3	2	2
B5. 10 percent of GDP increase in other debt-creating flows in 2008	1	1	2	7	2	5	2	2

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

1/ Assumes that real GDP growth is at baseline minus one standard deviation divided by the square root of the length of the projection period.

2/ Revenues are defined inclusive of grants.