Annex II. Joint IMF/World Bank Debt Sustainability Analysis 2010[1]

Comoros is in debt distress. *The debt sustainability analysis (DSA) shows that Comoros is in debt distress and would remain so under the baseline scenario for most of the projection period.*[2] *In the alternative scenario, which for illustrative purposes assumes a hypothetical access to HIPC decision point in mid-2010 and HIPC completion point and MDRI debt relief within the next two years, debt would become manageable.*

A. Introduction

1. **This DSA is based on the Debt Sustainability Framework (DSF) for Low-Income Countries.** The DSA presents the projected path of Comoros' external and public sector debt burden indicators, and assesses the country's future sustainability of debt. Methodologically, the DSA differs from the HIPC Debt Relief Analysis (DRA) in the decision point document in that it compares the evolution over the projection period of debt-burden indicators against policy-dependent indicative thresholds. In contrast, under the HIPC DRA, the historical debt burden indicators are compared to uniform thresholds in order to evaluate eligibility and calculate the amount of debt relief that the country qualifies for under the HIPC initiative. Moreover, the DSA uses uniform discount rate and exchange rate projections; and same-year exports to calculate debt ratios, whereas the HIPC DRA uses currency-specific discount rates, base year exchange rates, and three-year average exports.

2. **The last fully elaborated DSA for Comoros, which was prepared in 2008, and the 2009 update assessed the country as being in debt distress.** At that time Comoros was accumulating arrears to external creditors and the relevant debt indicators in NPV terms breached the indicative thresholds. Compared to the 2009 assessment[3], the DSA results presented below show more favorable dynamics of debt indicators in the medium term, reflecting improved macroeconomic performance, as well as arrears clearance operations,

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[1] This DSA has been prepared jointly by the World Bank and Fund staffs using the Debt Sustainability Framework (DSF) for Low Income Countries approved by the Executive Boards of the IMF and IDA. The fiscal year cover s the period from January to December.

[2] 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 IDA/SECM2004/0035, 2/3/04), "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 and IDA/SECM2004/0629, 9/10/04), and "Staff Guidance Note on the Application of the Joint Bank-Fund Debt Sustainability Framework for Low-Income Countries" (http://www.imf.org/external/pp/longres.aspx?id=4419). Comoros is classified as a "weak performer" based on the quality of its policies and institutions as measured by the World Bank's Country Policy and Institutional Assessment (CPIA) average score for the period 2006-2008. The corresponding indicative thresholds are 30 percent for the NPV of debt-to-GDP ratio, 100 percent for the NPV of debt-to-exports ratio, 200 percent for the NPV of debt-to-revenue ratio, 15 percent for the debt service-to-exports ratio, and 25 percent for the debt service-to-revenue ratio.

[3] EBS/09/132, Supplement 1 (August 31, 2009).

HIPC initiative interim debt relief, debt relief granted under the November 2009 Paris Club agreement, and the assumption of relief on comparable terms by other creditors.

B. Baseline Scenario

3. **The baseline macroeconomic assumptions for the present DSA are consistent with the long-term macroeconomic projections underlying the ECF arrangement and the HIPC DRA.** Sustained by a gradual improvement in the external environment, steady inflows of remittances and FDI, notably in tourism, as well as enhanced financial intermediation, economic activity is expected to rebound in the medium term. The upward revision from the previous growth projections for the period 2010-12 reflects mostly a better growth outcome for 2009 when credit to the private sector expanded significantly following the entry of two new banks and aggressive bank lending. The better-than-initially anticipated growth performance in 2009 was also driven by a surge in construction activity. GDP growth is assumed to accelerate further to around 4 percent in the long run as the prospects for improving terms of trade trigger additional investment in the agricultural sector, which together with improvements in economic infrastructure would enhance competitiveness and facilitate exports.

4. **After accelerating to above 7 percent in 2008, inflation fell to 2.1 percent in 2009 (y-o-y) contained by easing food and energy costs**. Pressures on domestic prices are expected to remain subdued in the coming years. A long-term projection of 3 percent annual change in the CPI is compatible with the fixed exchange rate regime under the Franc Zone arrangement, which provides an important anchor of price stability.

5. A key assumption underlying the DSA is a steady strengthening of the fiscal policy position consistent with the ECF-supported program. Under the latter, the domestic primary deficit is projected at 1.5 percent of GDP in 2010 (2.6 percent of GDP in 2009). Fiscal consolidation is expected to continue in the medium term, allowing the achievement of a positive primary fiscal balance by 2015.

6. **The current account deficit is projected to deteriorate slightly in 2010-11, driven by strong growth-supporting imports**. Over the long run, the current account (including official grants), would gradually converge to about -4.6 percent of GDP by 2030 (-7.9 percent of GDP in 2009) as food and consumer goods imports slacken. As a share of GDP, goods imports are projected to revert to long-run historical averages (20-25 percent of GDP) reflecting the impact of terms of trade improvements and import substitution in agriculture and manufacturing. Exports of goods are projected to grow in volume terms in line with real GDP; they would however decline in relation to nominal GDP as a result of stagnating prices. The growth rate of nonfactor services exports (tourism) would slightly exceed that of nominal GDP. Remittances, which constitute a major source of external financing, are projected to remain robust, although increasing at more moderate rates. The improved outlook for FDI compared to prospects under the previous macroeconomic

framework mostly reflects the resumption of projects in tourism and other pledges made at the March 2010 Arab League conference on development and investment in Comoros. Official capital transfers (investment grants) will continue to be an important source of external financing for Comoros.

7. **The baseline scenario for the DSA takes account of recent arrears clearance operations,[4] and debt relief granted under the November 2009 Paris Club agreement together with assumed relief on comparable terms by other official bilateral and commercial creditors, as well as delivery of interim of IMF and IDA HIPC assistance starting in mid-2010 up to end-2012**.[5] Consistent with the DSF guidelines, the baseline does not include the delivery of HIPC, MDRI and bilateral or multilateral beyond-HIPC assistance. The evolution of Comoros debt indicators which incorporate the full impact of the HIPC Initiative and MDRI debt relief is presented as an alternative scenario.

C. Debt Sustainability Analysis

External debt sustainability

8. **Under the baseline scenario, the NPV of debt-to-exports ratio breaches the indicative threshold during the projections period (Table 1a, Figure 1).** While remittances are a significant source of external financing for Comoros, including them in the DSA would not alter the assessment that Comoros is in debt distress because of the existing external arrears and protracted breaches of the debt ratio thresholds. However, once the arrears are cleared, remittances would likely play an important role in determining the country's debt rating.. The ratios of NPV of debt-to-GDP and to- revenue remain close to or slightly above the respective thresholds in the medium term and steadily decline thereafter. Overall, there is an improvement in the projected paths of the debt burden indicators from the previous DSA, especially in initial years. The improvement largely derives from the new debt service schedule consistent with the assumptions of the baseline scenario, and to a smaller extent from changes in the underlying macroeconomic framework. The debt service ratios are below the indicative thresholds and remain so throughout the projections horizon. The differences in the baseline debt indicators presented in the HIPC DRA and the LIC DSA can be explained both by differences in the methodology and in the underlying assumptions about debt service. In particular, HIPC DRA and LIC DSA use different denominators (three-year historical moving average versus current year) and discount rates, and recent arrears clearance and rescheduling operations are added back into the base of the HIPC DRA

[4] The bulk of arrears to the AfDF were cleared between December 2007 and April 2009 and Comoros has engaged in negotiations with the remaining creditors to clear arrears as part of the HIPC Initiative process.

[5] Paris Club debt relief is assumed to be topped up to standard Cologne terms at the decision point. For those multilateral creditors for which debt service is not being paid and have not previously rescheduled, it is assumed that outstanding arrears and current debt service falling due is deferred to end-2012. After 2012, it is assumed that Comoros will resume paying debt service falling due, while the stock of existing arrears is considered to be deferred/under discussion pending resolution and is left outstanding.

debt stock. Also, the LIC DSA takes into account the Paris Club debt relief granted in November, which went beyond the traditional terms used in the HIPC DRA. Overall, about 80 percent of the difference in the NPV of debt-to-exports ratios is due to the debt numerator and the remaining 20 percent is attributable to the different export values in the denominator. The drop in the debt ratios in 2010 in the LIC DSA reflects attainment of the decision point and the assumption that debt relief on terms comparable to the Paris Club treatment is granted by non-Paris Club official creditors and commercial creditors.

9. **Bound tests indicate that Comoros' external debt outlook is subject to significant vulnerabilities (Table 1b, Figure 1)**. Sensitivity analysis based on standardized tests suggests that in case of adverse temporary shocks the external debt indicators for Comoros would deteriorate considerably. In the scenario, which in the first two years assumes one standard deviation below the historical average of non-debt flows (including FDI and current transfers), the NPV of debt-to-exports ratio increases to almost 300 percent and stays significantly above the indicative threshold for the rest of the projections period. This highlights the unsustainable nature of the country's debt situation and its strong dependence on external non-debt financing. Similarly, in the scenario that assumes a one-time 30 percent nominal depreciation of the national currency, the NPV of debt-to GDP and NPV of debt-to-revenue ratios breach the corresponding thresholds for a prolonged period of time. Shocks tend to have a lesser effect on the debt service ratios, in part owing to the high degree of concessionality of new loans. The historical scenario, which assesses the evolution of the debt ratios under the assumption that key variables are at their historical averages, implies a more pronounced improvement in the debt burden indicators in the initial years.[6] This pattern is largely explained by the lower current account deficit in earlier years as compared to the one prevailing in 2009 and in the medium-term balance of payments projections.

10. **The alternative country-specific scenario, which assumes additional delivery of debt relief at completion point, indicates a marked improvement in Comoros' external debt outlook.** Under this scenario, the NPV of debt-to-exports ratio still exceeds the 100 percent indicative threshold but the debt burden is at a much more manageable level compared to the baseline. The ratios of NPV of debt to GDP and to revenue fall comfortably below the respective thresholds and remain in sustainable ranges. This underscores the importance of debt relief under the HIPC Initiative and MDRI in securing external debt sustainability for Comoros.

[6] In the sensitivity analysis calculations, the historical averages have been computed for the recent 7-year period as opposed to the 10-year period set as default in the DSA template. This change has been made to exclude observations, which due to data reporting problems, introduce a considerable upward bias in the historical current account balance.

Public Sector Debt Sustainability

11. **When domestic public debt is included in the analysis, the debt burden indicators deteriorate only slightly (Table 2a, Figure 2).** In the baseline scenario, the debt-to-GDP ratio and the debt-to-revenue ratio steadily decline over time, driven largely by the dynamics of the external public debt.

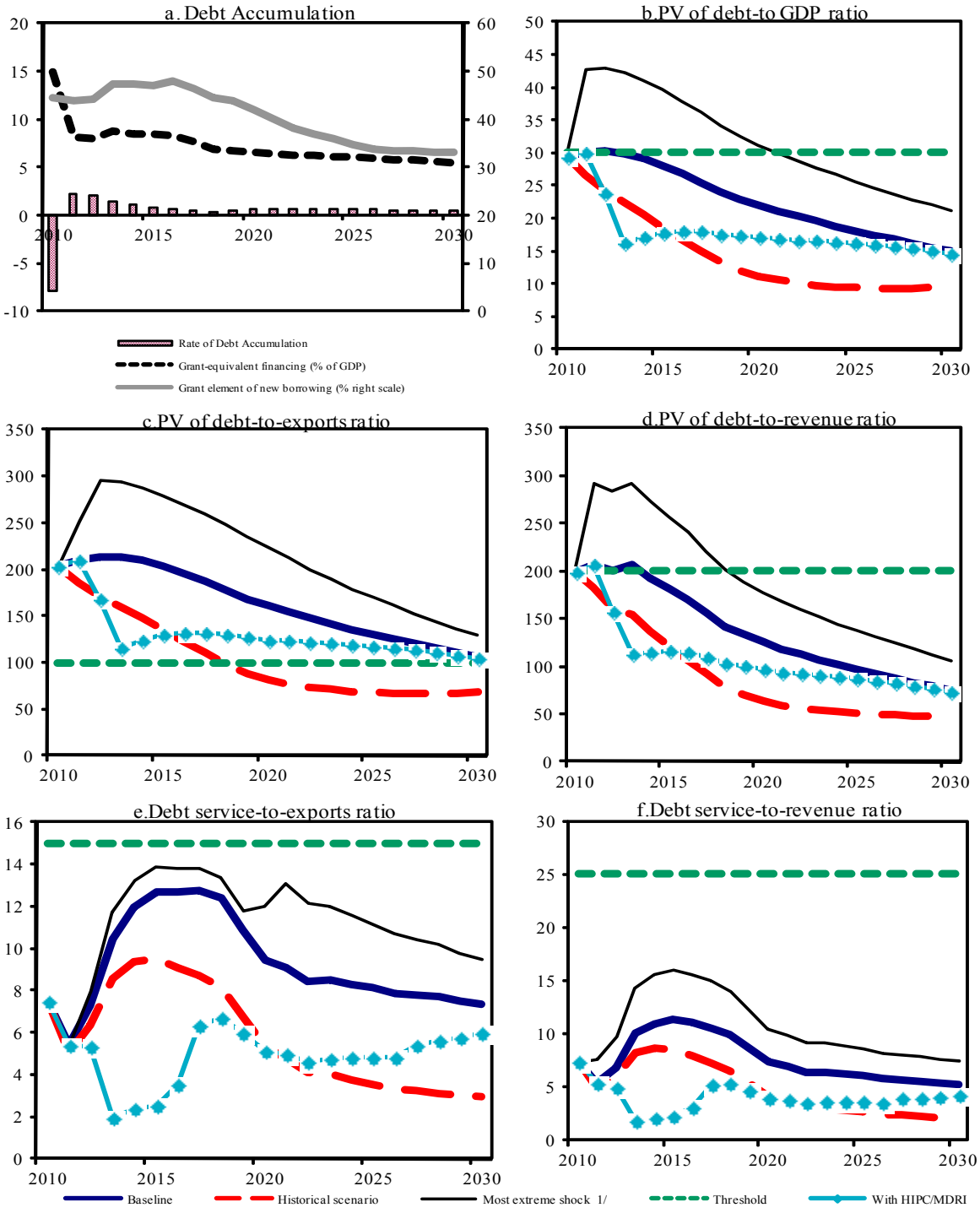
12. Sensitivity analysis suggests that public debt dynamics are vulnerable to adverse shocks (Table 2b, Figure 2). Lower long-run economic growth would have a noticeable effect on key debt burden ratios. When historical averages are used for GDP growth and the primary budget balance, the debt indicators deteriorate markedly, thereby confirming the need for both stronger growth and steady fiscal consolidation as outlined in the ECF-supported program.

D. Conclusion

13. The low-income country debt sustainability analysis shows that Comoros is in debt distress and is likely to remain so under the baseline scenario for a prolonged time period. Full delivery of HIPC debt relief and MDRI will significantly improve the country's external debt situation. These conclusions are consistent with the results from the 2009 DSA update.

14. Alternative scenarios and stress tests highlight the vulnerability of Comoros to negative shocks. Besides comprehensive debt relief, maintaining sustainable levels of indebtedness would require steady implementation of growth-enhancing economic policies, including fiscal prudence, as well as prudent debt management, as evidenced by the results from the public DSA.

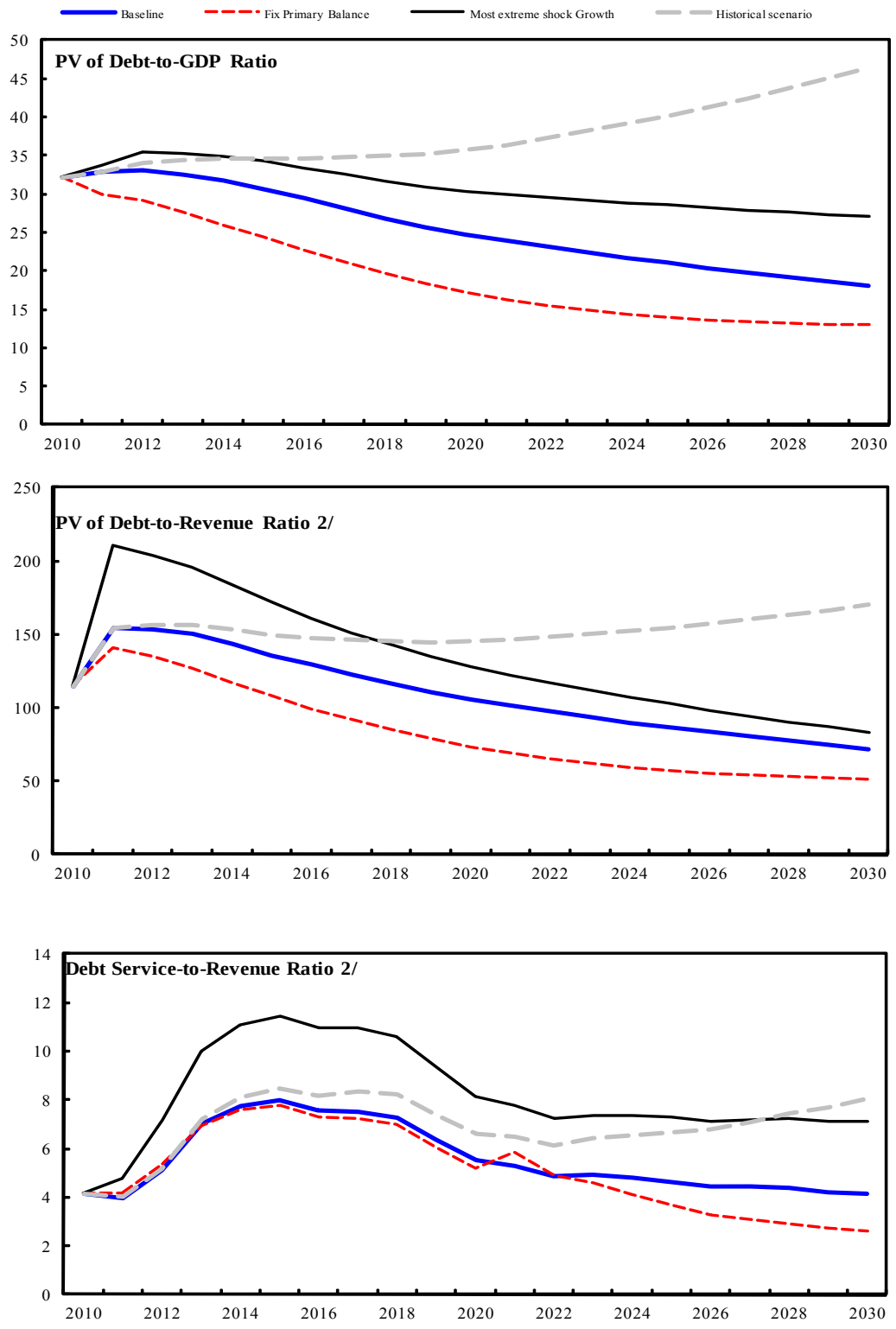
Figure 1. Comoros: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2010-2030 1/



Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2020. In figure b. it corresponds to a One-time depreciation shock; in c. to a Non-debt flows shock; in d. to a One-time depreciation shock; in e. to a Non-debt flows shock and in figure f. to a One-time depreciation shock

Figure 2.Comoros: Indicators of Public Debt Under Alternative Scenarios, 2010-2030 1/



Sources: Country authorities; and 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.: External Debt Sustainability Framework, Baseline Scenario, 2007-2030 1/
(In percent of GDP, unless otherwise indicated)

	Actual			Historical 0 Average	Standard 0 Deviation	Projections									
	2007	2008	2009			2010	2011	2012	2013	2014	2015	2010-2015 Average	2020	2030	2016-2030 Average
External debt (nominal) 1/	**57.6**	**54.2**	**51.3**			**45.0**	**45.5**	**45.5**	**44.8**	**43.8**	**42.4**		**33.2**	**21.1**	
o/w public and publicly guaranteed (PPG)	57.6	54.2	51.3			45.0	45.5	45.5	44.8	43.8	42.4		33.2	21.1	
Change in external debt	-12.2	-3.3	-2.9			-6.4	0.5	0.0	-0.6	-1.0	-1.4		-1.6	-1.0	
Identified net debt-creating flows	-4.7	3.1	4.8			1.6	7.3	6.2	5.0	4.9	4.7		4.2	3.5	
Non-interest current account deficit	**5.9**	**10.5**	**7.5**	**4.4**	**3.6**	**5.2**	**10.7**	**10.0**	**8.8**	**8.5**	**8.2**		**6.3**	**4.4**	5.8
Deficit in balance of goods and services	27.2	34.9	34.0			35.9	32.8	31.9	30.6	29.9	29.2		24.7	18.4	
Exports	14.1	13.4	14.2			14.5	14.4	14.2	14.0	13.9	13.8		13.7	14.1	
Imports	41.3	48.3	48.2			50.5	47.2	46.1	44.6	43.8	43.0		38.4	32.5	
Net current transfers (negative = inflow)	-19.9	-23.3	-25.7	-17.3	4.5	-27.0	-20.1	-19.7	-19.2	-18.7	-18.2		-16.0	-12.1	-14.8
o/w official	-2.8	-2.8	-5.9			-7.8	-0.7	-0.7	-0.6	-0.6	-0.7		-0.7	-0.7	
Other current account flows (negative = net inflow)	-1.4	-1.1	-0.7			-3.7	-2.0	-2.2	-2.7	-2.7	-2.8		-2.4	-1.9	
Net FDI (negative = inflow)	**-1.7**	**-0.9**	**-2.6**	**-0.7**	**0.8**	**-2.9**	**-2.6**	**-2.6**	**-2.5**	**-2.3**	**-2.2**		**-1.1**	**-0.3**	-0.9
Endogenous debt dynamics 2/	**-8.9**	**-6.6**	**-0.1**			**-0.7**	**-0.8**	**-1.2**	**-1.3**	**-1.3**	**-1.3**		**-1.0**	**-0.6**	
Contribution from nominal interest rate	0.4	0.5	0.4			0.3	0.2	0.3	0.4	0.4	0.4		0.3	0.2	
Contribution from real GDP growth	-0.3	-0.5	-1.0			-1.1	-1.1	-1.5	-1.7	-1.7	-1.6		-1.3	-0.8	
Contribution from price and exchange rate changes	-9.0	-6.6	0.4			…	…	…	…	…	…		…	…	
Residual (3-4) 3/	**-7.5**	**-6.4**	**-7.7**			**-8.0**	**-6.8**	**-6.2**	**-5.6**	**-5.9**	**-6.1**		**-5.8**	**-4.5**	
o/w exceptional financing	-4.6	-0.2	-3.1			-8.1	-0.4	-0.1	0.0	0.0	0.0		0.0	0.0	
PV of external debt 4/	...	...	36.9			29.5	30.2	30.4	29.9	29.1	28.1		22.0	14.9	
In percent of exports	...	...	260.4			202.8	209.8	213.9	213.5	209.5	203.7		160.4	106.0	
PV of PPG external debt	**...**	**...**	**36.9**			**29.5**	**30.2**	**30.4**	**29.9**	**29.1**	**28.1**		**22.0**	**14.9**	
In percent of exports	**...**	**...**	**260.4**			**202.8**	**209.8**	**213.9**	**213.5**	**209.5**	**203.7**		**160.4**	**106.0**	
In percent of government revenues	**...**	**...**	**265.2**			**199.2**	**207.0**	**200.8**	**206.5**	**193.1**	**182.0**		**125.6**	**75.1**	
Debt service-to-exports ratio (in percent)	**12.0**	**13.3**	**10.7**			**7.5**	**5.4**	**7.3**	**10.4**	**11.9**	**12.7**		**9.4**	**7.4**	
PPG debt service-to-exports ratio (in percent)	**12.0**	**13.3**	**10.7**			**7.5**	**5.4**	**7.3**	**10.4**	**11.9**	**12.7**		**9.4**	**7.4**	
PPG debt service-to-revenue ratio (in percent)	**13.3**	**13.6**	**10.9**			**7.4**	**5.3**	**6.8**	**10.1**	**11.0**	**11.4**		**7.4**	**5.2**	
Total gross financing need (Billions of U.S. dollars)	0.0	0.1	0.0			0.0	0.1	0.1	0.1	0.1	0.1		0.1	0.1	
Non-interest current account deficit that stabilizes debt ratio	18.1	13.9	10.4			11.6	10.2	10.0	9.4	9.5	9.6		7.9	5.3	
Key macroeconomic assumptions															
Real GDP growth (in percent)	0.5	1.0	1.8	2.0	1.5	2.1	2.5	3.5	4.0	4.0	4.0	3.3	4.0	4.0	4.0
GDP deflator in US dollar terms (change in percent)	14.8	12.9	-0.8	7.5	10.0	1.9	2.2	2.4	2.5	2.8	2.8	2.4	3.0	3.0	3.0
Effective interest rate (percent) 5/	0.6	1.0	0.7	1.0	0.2	0.7	0.6	0.7	0.9	0.9	0.9	0.8	0.8	1.0	0.9
Growth of exports of G&S (US dollar terms, in percent)	20.8	8.3	6.7	10.9	11.9	6.7	3.6	4.8	5.1	5.9	6.0	5.3	7.7	7.5	7.2
Growth of imports of G&S (US dollar terms, in percent)	23.4	33.2	0.7	13.9	14.1	9.0	-2.1	3.5	3.3	4.9	4.9	3.9	5.0	5.5	5.1
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	44.6	43.9	44.3	47.3	47.3	47.1	45.7	41.9	33.1	38.5
Government revenues (excluding grants, in percent of GDP)	12.7	13.1	13.9			14.8	14.6	15.2	14.5	15.1	15.4		17.5	19.9	18.1
Aid flows (in Billions of US dollars) 7/	0.0	0.1	0.1			0.1	0.0	0.0	0.0	0.0	0.1		0.1	0.1	
o/w Grants	0.0	0.1	0.1			0.1	0.0	0.0	0.0	0.0	0.1		0.1	0.1	
o/w Concessional loans	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			15.0	8.2	8.0	8.7	8.5	8.5		6.6	5.5	6.4
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			87.2	81.7	81.3	83.5	83.9	85.1		87.1	86.4	86.5
Memorandum items:															
Nominal GDP (Billions of US dollars)	0.5	0.5	0.5			0.6	0.6	0.6	0.7	0.7	0.8		1.1	2.1	
Nominal dollar GDP growth	15.3	14.0	1.0			4.1	4.7	5.9	6.6	6.9	6.9	5.8	7.1	7.1	7.1
PV of PPG external debt (in Billions of US dollars)			0.2			0.2	0.2	0.2	0.2	0.2	0.2		0.2	0.3	
(PVt-PVt-1)/GDPt-1 (in percent)						-7.8	2.3	2.0	1.5	1.2	0.9	0.0	0.6	0.4	0.5

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 derived over the past 7 years.

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.Comoros: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2010-2030
(In percent)

	Projections							
	2010	2011	2012	2013	2014	2015	**2020**	2030
PV of debt-to GDP ratio								
Baseline	29	30	30	30	29	28	**22**	15
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2010-2030 1/	29	27	24	22	21	19	**11**	10
A2. New public sector loans on less favorable terms in 2010-2030 2	29	31	32	33	33	32	**28**	23
A3. Alternative Scenario :With HIPC/MDRI	29	30	24	16	17	18	**17**	15
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	29	31	32	32	31	30	**23**	16
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	29	31	32	31	31	30	**23**	15
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	29	31	31	31	30	29	**23**	15
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/	29	36	42	41	40	39	**31**	18
B5. Combination of B1-B4 using one-half standard deviation shocks	29	34	37	37	36	34	**27**	17
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	29	43	43	42	41	40	**31**	21
PV of debt-to-exports ratio								
Baseline	203	210	214	214	209	204	**160**	106
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2010-2030 1/	203	185	171	160	148	135	**82**	68
A2. New public sector loans on less favorable terms in 2010-2030 2	203	215	226	232	234	234	**207**	162
A3. Alternative Scenario :With HIPC/MDRI	203	210	168	116	123	129	**124**	104
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	203	209	213	213	209	203	**160**	106
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	203	228	260	259	254	247	**196**	126
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	203	209	213	213	209	203	**160**	106
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/	203	251	295	293	287	280	**223**	129
B5. Combination of B1-B4 using one-half standard deviation shocks	203	237	270	269	263	256	**204**	122
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	203	209	213	213	209	203	**160**	106
PV of debt-to-revenue ratio								
Baseline	199	207	201	206	193	182	**126**	75
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2010-2030 1/	199	182	161	155	136	121	**64**	48
A2. New public sector loans on less favorable terms in 2010-2030 2	199	212	212	224	216	209	**162**	114
A3. Alternative Scenario :With HIPC/MDRI	199	207	158	112	114	116	**97**	74
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	199	211	212	218	204	192	**133**	79
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	199	210	211	217	203	191	**133**	77
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	199	209	206	212	199	187	**130**	77
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/	199	248	277	284	265	250	**175**	91
B5. Combination of B1-B4 using one-half standard deviation shocks	199	230	247	253	236	223	**155**	84
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	199	292	283	292	273	257	**178**	106

Table 1b. Comoros: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2010-2030 (continued)
(In percent)

Debt service-to-exports ratio								
Baseline	7	5	7	10	12	13	**9**	7
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2010-2030 1/	7	5	6	9	9	10	**5**	3
A2. New public sector loans on less favorable terms in 2010-2030 2	7	5	8	11	13	14	**10**	11
A3. Alternative Scenario :With HIPC/MDRI	7	5	5	2	2	3	**5**	6
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	7	5	7	10	12	13	**9**	7
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	7	6	8	12	14	15	**11**	9
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	7	5	7	10	12	13	**9**	7
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/	7	5	8	12	13	14	**12**	10
B5. Combination of B1-B4 using one-half standard deviation shocks	7	5	8	11	13	14	**11**	9
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	7	5	7	10	12	13	**9**	7
Debt service-to-revenue ratio								
Baseline	7	5	7	10	11	11	**7**	5
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2010-2030 1/	7	5	6	8	9	9	**4**	2
A2. New public sector loans on less favorable terms in 2010-2030 2	7	5	7	11	12	13	**8**	8
A3. Alternative Scenario :With HIPC/MDRI	7	5	5	2	2	2	**4**	4
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	7	5	7	11	12	12	**8**	6
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	7	5	7	10	11	12	**8**	5
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	7	5	7	10	11	12	**8**	5
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/	7	5	7	11	12	12	**9**	7
B5. Combination of B1-B4 using one-half standard deviation shocks	7	5	7	11	12	12	**9**	6
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	7	8	10	14	16	16	**10**	7
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	40	40	40	40	40	40	**40**	40

Sources: Country authorities; and staff estimates and projections.

1/ Variables include real GDP growth, growth of GDP deflator (in U.S. dollar terms), non-interest current account in percent of GDP, and non-debt creating flows.
2/ Assumes that the interest rate on new borrowing is by 2 percentage points higher than in the baseline., while grace and maturity periods are the same as in the baseline.
3/ Exports values are assumed to remain permanently at the lower level, but the current account as a share of GDP is assumed to return to its baseline level after the shock (implicitly assuming an offsetting adjustment in import levels).
4/ Includes official and private transfers and FDI.
5/ Depreciation is defined as percentage decline in dollar/local currency rate, such that it never exceeds 100 percent.
6/ Applies to all stress scenarios except for A2 (less favorable financing) in which the terms on all new financing are as specified in footnote 2.

Table 2a. Comoros: Public Sector Debt Sustainability Framework, Baseline Scenario, 2007-2030
(In percent of GDP, unless otherwise indicated)

	Actual					Estimate	Projections								
	2007	2008	2009	Average	Standard Deviation	2010	2011	2012	2013	2014	2015	2010-15 Average	2020	2030	2016-30 Average
Public sector debt 1/	60.9	57.3	54.1			47.7	48.2	48.2	47.5	46.4	45.0		36.0	24.1	
o/w foreign-currency denominated	57.6	54.2	51.3			45.0	45.5	45.5	44.8	43.8	42.4		33.2	21.1	
Change in public sector debt	-12.3	-3.6	-3.1			-6.5	0.5	0.0	-0.7	-1.1	-1.4		-1.6	-1.0	
Identified debt-creating flows	-13.5	1.8	-9.0			-12.9	-1.0	-1.7	-1.7	-2.0	-2.3		-2.5	-2.7	
Primary deficit	1.6	2.0	-1.0	1.4	1.3	-5.2	1.5	0.8	1.0	0.6	0.4	-0.2	-0.3	-1.2	-0.6
Revenue and grants	20.3	23.5	23.6			28.0	21.3	21.7	21.7	22.1	22.6		23.4	25.0	
of which: grants	7.6	10.4	9.7			13.2	6.7	6.5	7.2	7.1	7.2		5.9	5.1	
Primary (noninterest) expenditure	21.9	25.5	22.7			22.8	22.8	22.4	22.7	22.8	23.0		23.1	23.7	
Automatic debt dynamics	-10.5	0.0	-4.9			0.4	-2.1	-2.4	-2.6	-2.7	-2.6		-2.2	-1.4	
Contribution from interest rate/growth differential	-2.3	-2.0	-2.1			-1.7	-1.8	-2.2	-2.3	-2.3	-2.3		-1.9	-1.2	
of which: contribution from average real interest rate	-1.9	-1.4	-1.1			-0.5	-0.7	-0.6	-0.5	-0.5	-0.5		-0.4	-0.3	
of which: contribution from real GDP growth	-0.4	-0.6	-1.0			-1.1	-1.1	-1.6	-1.9	-1.8	-1.8		-1.4	-1.0	
Contribution from real exchange rate depreciation	-8.3	1.9	-2.8			2.1	-0.3	-0.2	-0.3	-0.4	-0.4		...	...	
Other identified debt-creating flows	-4.6	-0.2	-3.1			-8.1	-0.4	-0.1	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)	-4.6	-0.2	-3.1			-8.1	-0.4	-0.1	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	1.1	-5.4	5.8			6.5	1.5	1.7	1.0	1.0	0.9		0.9	1.7	
Other Sustainability Indicators															
PV of public sector debt	3.3	3.1	39.7			32.2	32.9	33.1	32.6	31.7	30.6		24.8	18.0	
o/w foreign-currency denominated	0.0	0.0	36.9			29.5	30.2	30.4	29.9	29.1	28.1		22.0	14.9	
o/w external	...	...	36.9			29.5	30.2	30.4	29.9	29.1	28.1		22.0	14.9	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	5.8	6.2	3.0			-1.9	4.6	4.2	4.8	4.7	4.5		3.5	2.6	
PV of public sector debt-to-revenue and grants ratio (in percent)	16.5	13.0	168.2			114.8	154.4	152.9	150.1	143.1	135.5		105.7	72.0	
PV of public sector debt-to-revenue ratio (in percent)	26.4	23.4	285.2			217.5	225.7	218.6	224.6	210.2	198.6		141.5	90.4	
o/w external 3/	...	...	265.2			199.2	207.0	200.8	206.5	193.1	182.0		125.6	75.1	
Debt service-to-revenue and grants ratio (in percent) 4/	8.6	7.9	7.1			4.2	4.0	5.1	7.0	7.8	8.0		5.5	4.2	
Debt service-to-revenue ratio (in percent) 4/	13.8	14.3	12.1			7.9	5.8	7.3	10.5	11.4	11.7		7.4	5.2	
Primary deficit that stabilizes the debt-to-GDP ratio	14.0	5.6	2.2			1.2	1.0	0.8	1.7	1.7	1.8		1.3	-0.3	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	0.5	1.0	1.8	2.0	1.5	2.1	2.5	3.5	4.0	4.0	4.0	3.3	4.0	4.0	4.0
Average nominal interest rate on forex debt (in percent)	0.6	1.0	0.7	1.0	0.2	0.7	0.6	0.7	0.9	0.9	0.9	0.8	0.8	1.0	0.9
Average real interest rate on domestic debt (in percent)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Real exchange rate depreciation (in percent, + indicates depreciation)	-12.2	3.4	-5.3	-4.8	10.8	4.2	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	5.2	5.5	4.6	4.3	2.1	3.8	3.3	3.0	3.1	3.3	3.3	3.3	3.0	3.0	3.0
Growth of real primary spending (deflated by GDP deflator, in percent)	0.1	0.2	-0.1	0.1	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Grant element of new external borrowing (in percent)	...	...	...	...	...	44.6	43.9	44.3	47.3	47.3	47.1	45.7	41.9	33.1	...

Sources: Country authorities; and staff estimates and projections.
1/ Covers general government gross debt.
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 derived over the past 7 years.

Table 2b. Comoros: Sensitivity Analysis for Key Indicators of Public Debt 2010-2030

	Projections							
	2010	2011	2012	2013	2014	2015	2020	2030
PV of Debt-to-GDP Ratio								
Baseline	32	33	33	33	32	31	25	18
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	32	33	34	34	35	35	36	46
A2. Primary balance is unchanged from 2009	32	30	29	28	26	24	17	13
A3. Permanently lower GDP growth 1/	32	33	33	33	32	32	27	26
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2011-2012	32	34	35	35	35	34	30	27
B2. Primary balance is at historical average minus one standard deviations in 2011-2012	32	34	35	34	34	32	26	19
B3. Combination of B1-B2 using one half standard deviation shocks	32	34	35	35	34	34	29	24
B4. One-time 30 percent real depreciation in 2011	32	45	44	43	41	39	30	21
B5. 10 percent of GDP increase in other debt-creating flows in 2011	32	40	40	39	38	37	30	21
PV of Debt-to-Revenue Ratio 2/								
Baseline	115	154	153	150	143	136	106	72
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	115	154	156	156	153	149	145	170
A2. Primary balance is unchanged from 2009	115	141	135	127	117	108	74	52
A3. Permanently lower GDP growth 1/	115	155	154	152	146	139	116	103
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2011-2012	115	157	161	160	155	149	128	107
B2. Primary balance is at historical average minus one standard deviations in 2011-2012	115	158	162	159	152	144	112	75
B3. Combination of B1-B2 using one half standard deviation shocks	115	157	162	160	154	147	123	97
B4. One-time 30 percent real depreciation in 2011	115	211	204	196	184	171	128	83
B5. 10 percent of GDP increase in other debt-creating flows in 2011	115	186	183	179	171	162	127	82
Debt Service-to-Revenue Ratio 2/								
Baseline	4	4	5	7	8	8	6	4
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	4	4	5	7	8	8	7	8
A2. Primary balance is unchanged from 2009	4	4	5	7	8	8	5	3
A3. Permanently lower GDP growth 1/	4	4	5	7	8	8	6	5
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2011-2012	4	4	5	7	8	8	6	6
B2. Primary balance is at historical average minus one standard deviations in 2011-2012	4	4	5	7	8	8	6	5
B3. Combination of B1-B2 using one half standard deviation shocks	4	4	5	7	8	8	6	5
B4. One-time 30 percent real depreciation in 2011	4	5	7	10	11	11	8	7
B5. 10 percent of GDP increase in other debt-creating flows in 2011	4	4	6	8	8	8	6	6

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.