INTERNATIONAL MONETARY FUND

AND

INTERNATIONAL DEVELOPMENT ASSOCIATION

SENEGAL

Joint IMF/IDA Debt Sustainability Analysis

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

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Senegal is at a low risk of debt distress. The debt sustainability analysis (DSA) indicates that debt remains well contained under the baseline and various shock scenarios. Both external debt, which reflects HIPC and MDRI debt relief, and domestic debt are projected to remain relatively low. The main vulnerabilities for public debt sustainability are sustained external borrowing at nonconcessional terms and sustained high fiscal deficits.

VI. BACKGROUND

1. **HIPC and MDRI debt relief lowered external public debt from 33 percent of GDP at end-2005 to below 20 percent of GDP at end-2008.**[1]

2. More than 60 percent of end-2008 external debt was owed to multilateral institutions (especially the World Bank and AfDB); Arab countries held 21 percent and Paris Club creditors 11 percent.

3. **Domestic public debt remains low at 5 percent of GDP at end-2008, or one-fifth of total debt.** [2] This debt is denominated in local currency and held by WAEMU banks. With bank liquidity tight, domestic debt issuance in 2008 (including one undersubscribed ten-year bond) was just sufficient to roll over maturing debt.

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[1] Details of the two debt initiatives for Senegal are provided in last year's DSA (see *Senegal: Joint IMF/IDA Debt Sustainability Analysis*, May 2008 in IMF Country Report No. 08/209 on www.imf.org and *IDA report number - IDA/SecM2008-0466* on www.worldbank.org*)*.

[2] Domestic debt includes debt issued in the WAEMU financial market.

4. **Private sector exposure also appears relatively limited**. Private external debt was 22 percent of GDP at end-2006, whereas private sector external assets amounted to 13 percent of GDP,[3] which may help limit private sector exposure depending on their ownership and maturity structure. Three-quarters of the private external debt was trade credits, and the remainder primarily consisted of loans obtained abroad and Senegalese banks' liabilities to nonresidents.

VII. Underlying Assumptions

5. **Implementation of sound macroeconomic and structural policies and recourse to types of external financing that limit debt creation underpin the macroeconomic framework for 2009–29** (Box 1).

- Growth is projected to accelerate over the next few years, as the effects of the international economic and financial crisis dissipate and the authorities continue their structural reforms aimed at raising growth. The reforms involve pursuing sound macroeconomic policies, improving the business environment, developing infrastructure and providing for reliable energy provisioning, diversifying exports, and reforming labor markets.

- FDI (net), which is projected to pick up more slowly than foreseen earlier as projects are put on hold pending the resolution of the international crisis, could average 3½ percent of GDP in the long term.

- Most of Senegal's public financing needs are projected to be filled through external concessional borrowing, and any remaining needs will be covered in the regional market as liquidity conditions in the WAEMU are projected to improve. Gross external borrowing on concessional terms is projected to be around 3½ percent of GDP, with a slightly declining grant element over the projection period averaging around 50 percent; overall aid flows on a net basis could be close to 6 percent of GDP per year during the projection period. The primary fiscal deficit is projected to be unchanged at 3¼ percent of GDP through the end of the next decade, and subsequently to decline to 2 percent of GDP by the end of the projection period to steady the ratio of debt to GDP.

6. **Compared to the previous DSA, macroeconomic assumptions have been revised to reflect the impact of the ongoing crisis.** GDP growth, FDI, exports, and current transfers pick up over the medium term but are projected to remain lower than before. Imports have been reduced to reflect the lower FDI. Overall, this results in an improvement in the current account balance compared to the previous DSA.

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[3] Latest BCEAO data on the International Investment Position.

Box 1. Macroeconomic Assumptions for 2009–29

Real GDP growth: 3¾ percent over 2009-11, 4¾ percent over 20012–14, and 5¼ percent over 2015–29.

Inflation: at historical level of just above two percent.

Current account deficit (including grants): a widening to over 10 percent of GDP by the middle of the next decade as FDI picks up, followed by a narrowing (to below 6 percent of GDP, or 5¼ percent of GDP without interest) as growth of exports overtakes that of imports. Net FDI inflow may approach 3½ percent of GDP.

Fiscal deficit: 4 percent of GDP till the end of the next decade (or about 3¼ percent of GDP without interest) and thereafter a gradual decline to under 3 percent of GDP (or 2 percent of GDP without interest) as public expenditure management—a reform focus under the program supported by the IMF Policy Support Instrument and the Bank's budget support operation (PFSC)—continues to be improved, and further efficiency gains are being made in tax administration.

Aid flows (grants and concessional loans): around 7 percent of GDP on a gross basis, and about a percentage point lower on a net basis.

Public domestic borrowing: its share would be less than one-third of the total public debt stock and largely held by commercial banks, with an assumed interest rate of 5½ percent and average maturity of five years.

Nonconcessional borrowing: to remain the exception. The DSA assumes that the government in 2009 will obtain the second tranche of the nonconcessional loan from France contracted at end-2008 and borrow CFAF 80 billion to help finance the Dakar-Diamniadio toll road.[1]

[1] Last year's DSA discussed the projected high return of the toll road.

VIII. EXTERNAL DSA

7. **External public debt indicators under the baseline scenario remain relatively stable over time and well below the policy-dependent thresholds**.[4] External public debt indicators decline early in the projection period and debt service ratios increase as the nonconcessional external loans taken out in 2008–09 are paid off (Figure 1). External debt burden indicators will decline further during the later part of the projection period with the narrowing of fiscal deficits. The decline is most pronounced in the PV of external public debt-to-exports ratio, because export

[4] The indicative external debt burden thresholds for Senegal are shown in Figure 1. They are based on Senegal's classification as a "medium" performer given its (three-year average) score of 3.71 on the World Bank's Country Policy and Institutional Assessment index (CPIA). The CPIA measures the quality of policies and institutions; weak performers score below 3.25, strong performers above 3.75.

growth is projected to outpace debt growth toward the end of the projection period. External public debt service increases slightly but remains very low. Overall external debt also remains contained and declines relative to GDP towards the end of the projection period (see Table 1) due to a narrowing of the current account deficit and continued FDI flows (which do not create debt).

8. **Stress tests do not reveal serious vulnerabilities for external public debt, as the various indicators remain below the thresholds** (Figure 1, Table 2)**.**

- The most extreme stress test for all indicators is an increase by 2 percentage points in the interest rate on new external public borrowing. This sharply reduces the concessionality of new debt and, without policy adjustments, leads to marked increases over time in debt ratios. However, they remain below thresholds.

- Given uncertainties about the current economic and financial environment and its impact on Senegal, an additional stress test was included in which exports and real GDP grow by 5 and 2 percentage points less, respectively, in 2009–10 than in the baseline (Table 2, scenario A.3). Under this scenario, which returns to the baseline's macroeconomic assumptions over the medium term, debt ratios also remain well short of thresholds.

IX. PUBLIC DSA

9. **Indicators of overall (external plus domestic) public debt and debt service are largely similar to those for external public debt alone.** After rising somewhat in the earlier part of the period, debt ratios in the baseline subsequently decline as the fiscal deficit is gradually reduced (Figure 2, Table 3).[5] The debt service-to-revenue ratio remains well contained after peaking early on due to the relatively rapid repayment requirements of the 2008–09 nonconcessional loans.

10. **Public debt sustainability hinges on containing the fiscal deficit.** If the fiscal balance were to remain at its 2009 level, with a primary deficit of 3½ percent of GDP over the entire projection period, the PV of overall public debt-to-GDP ratio would rise continuously and nearly double (Table 4). The financing needs created by such accumulating deficits would risk crowding out the private sector. The PV of debt-to-revenue ratio would also rise substantially, reinforcing the need for the prudent fiscal policy that is envisioned in the baseline.

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[5] Baseline projections reflect the settlement of payment delays remaining at the beginning of 2009 as well as expected—larger—privatization receipts in 2009. Both are treated as budget financing items in the baseline but, by design, ignored in the stress tests—thereby on balance marginally worsening the results of the tests in this case.

11. **The public debt position remains vulnerable to unexpected shocks.**

- The most extreme stress test, which adds 10 percent of GDP to public debt in 2010 and results in the highest debt ratio in 2019 compared to other tests, illustrates the importance for debt sustainability of avoiding sudden, large increases in debt. Such an increase could, for example, result from a renewed build-up of payment delays in the future, which the authorities are well advised to prevent.

- The second most extreme stress test entails a reduction in 2010–11 GDP growth and illustrates the relevance of growth-enhancing policies for debt sustainability in particular and macroeconomic management in general.[6]

- In the additional stress test with a more severe impact of the global crisis on Senegal in 2009–10, GDP growth is 2 percentage points lower and the primary fiscal deficit 4 percentage points higher in 2009-10 than in the baseline (Table 4, scenario A.4). Under this scenario, the deterioration in public debt burden indicators is contained by the assumed return to baseline policies, illustrating the need for a prudent fiscal policy over the medium term.

X. Conclusion

12. **In sum, based on the staffs' analysis, Senegal's external debt burden is subject to a low risk of debt distress; in addition, Senegal's public debt remains sustainable even after considering domestic debt in the analysis.** The baseline projections and the associated standard stress tests show low risk related to external debt, as all of the indicators remain below the indicative debt burden thresholds. However, public debt sustainability is vulnerable to shocks, such as sharp increases in debt or declines in growth. Consequently, Senegal would benefit from continued fiscal discipline, prudent nonconcessional borrowing, and sensible debt management.

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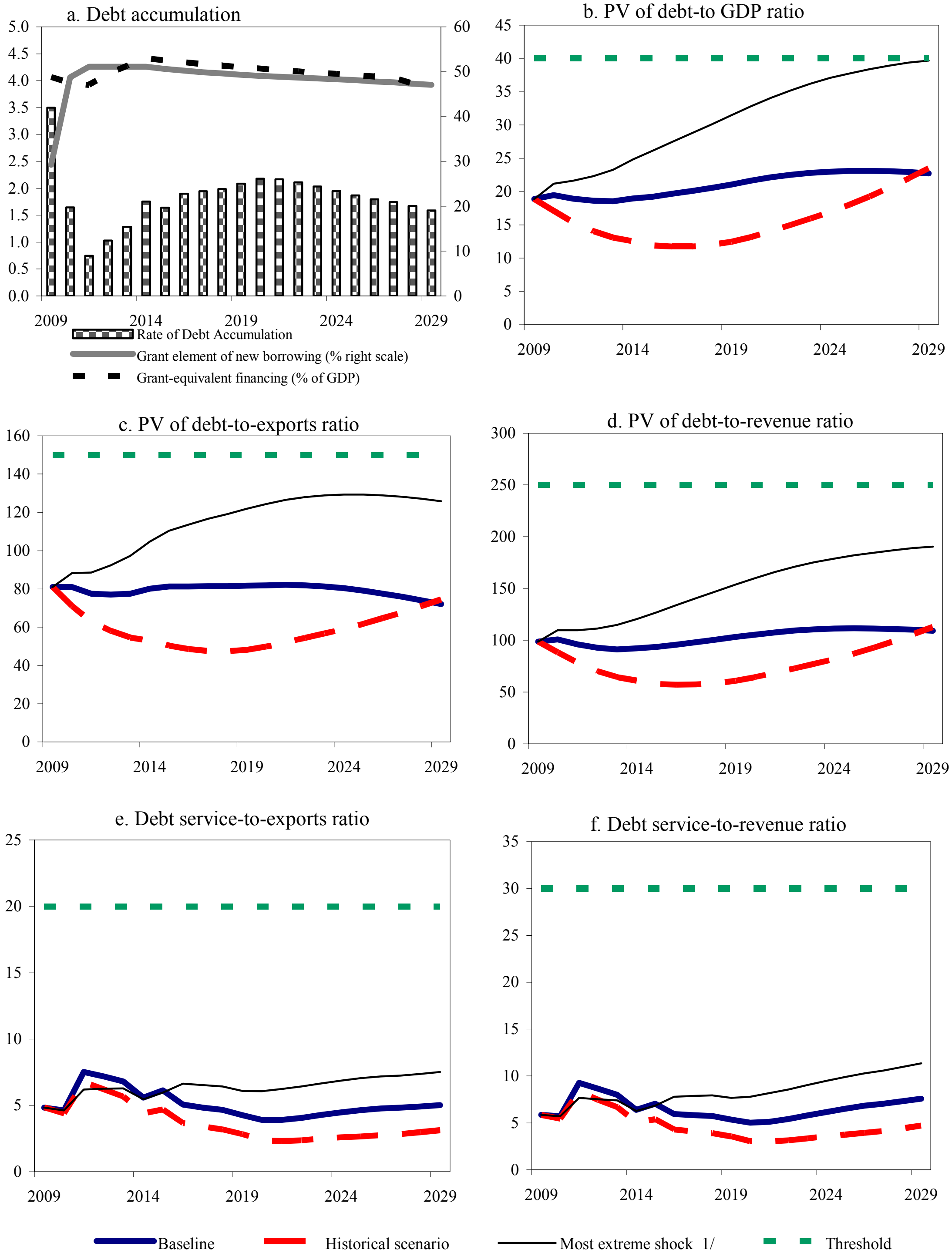
[6] Senegal's economy is prey to large fluctuations in real GDP growth, with a standard deviation of growth of 2 percentage points over the last 10 years. Real GDP growth dropped by 3 percentage points in 2006 as ICS production collapsed and 2¼ points in 2008 due to government payment delays.

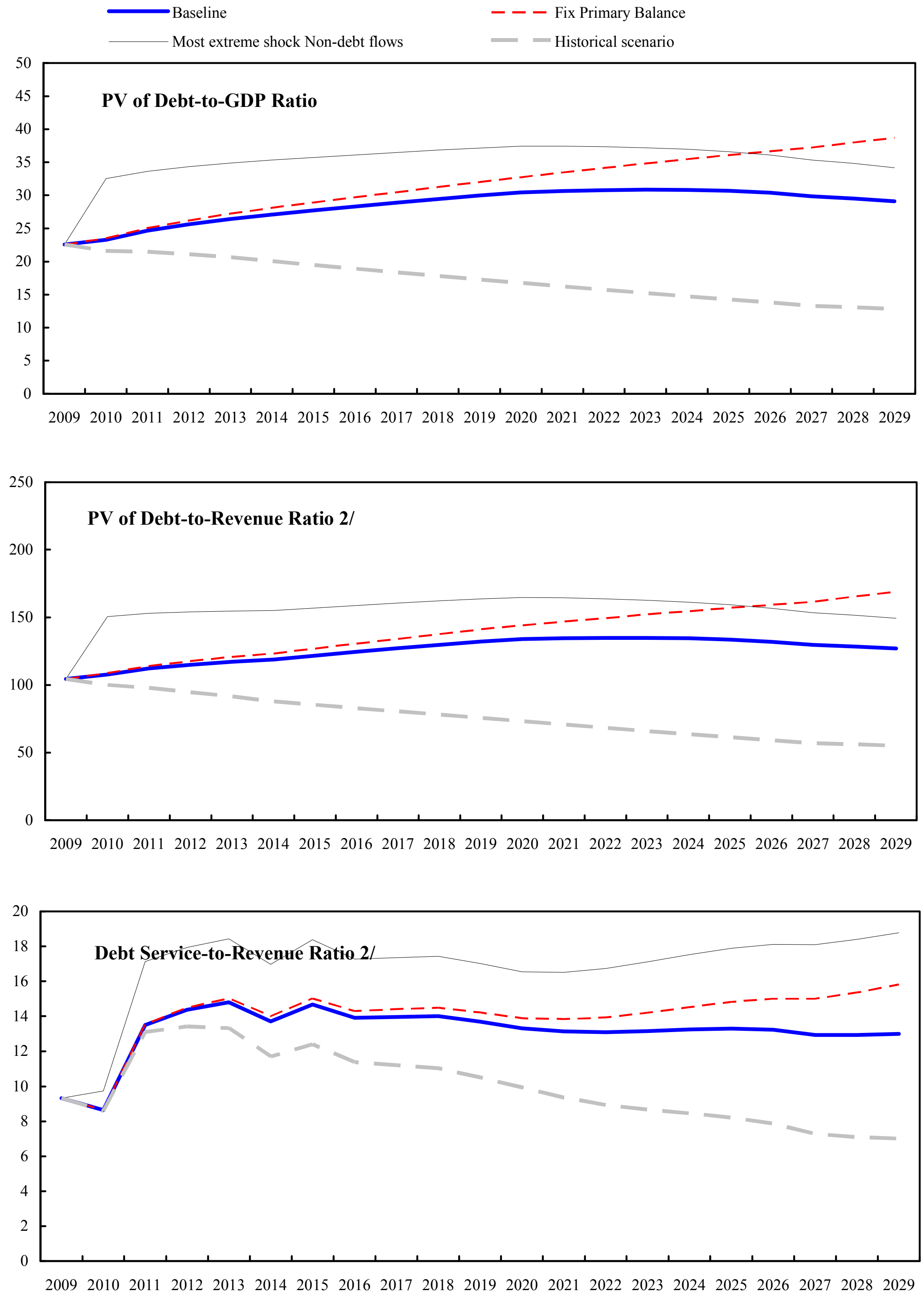
Figure 1. Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2009-2029 1/



Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2019. In figure b. it corresponds to a Borrowing terms shock; in figure c. to a Borrowing terms shock; in figure d. to a Borrowing terms shock; in figure e. to a Borrowing terms shock; and in figure f. to a Borrowing terms shock.

Figure 2. Indicators of Public Debt Under Alternative Scenarios, 2009-2029 1/



Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2019.

2/ Revenues are defined inclusive of grants.

Table 1. External Debt Sustainability Framework, Baseline Scenario, 2006-2029 1/
(In percent of GDP, unless otherwise indicated)

	Actual			Historical Average 6/	Standard Deviation 6/	Projections									
	2006	2007	2008			2009	2010	2011	2012	2013	2014	2009-2014 Average	2019	2029	2015-2029 Average
External debt (nominal) 1/	**39.9**	**42.0**	**43.8**			**48.7**	**51.0**	**52.6**	**54.0**	**55.8**	**57.7**		**64.1**	**65.2**	
o/w public and publicly guaranteed (PPG)	17.7	17.9	19.7			24.4	26.0	26.4	27.0	27.9	29.4		34.9	38.3	
Change in external debt	-23.1	2.1	1.8			4.8	2.3	1.6	1.5	1.8	1.8		1.0	-0.5	
Identified net debt-creating flows	3.3	2.8	4.1			7.9	7.1	5.3	5.0	5.0	4.9		3.4	-0.3	
Non-interest current account deficit	**8.8**	**11.3**	**11.9**	**6.9**	**3.0**	**11.1**	**10.1**	**9.4**	**9.3**	**9.4**	**9.5**		**8.8**	**5.0**	7.7
Deficit in balance of goods and services	18.4	23.2	23.3			20.7	19.0	17.9	17.9	18.2	18.3		17.4	13.7	
Exports	27.5	27.2	26.6			23.3	24.0	24.4	24.2	24.0	23.7		25.8	31.5	
Imports	45.9	50.5	49.8			44.0	43.0	42.3	42.1	42.2	42.0		43.2	45.2	
Net current transfers (negative = inflow)	-8.9	-11.4	-10.9	-7.7	2.6	-8.9	-8.1	-7.8	-7.9	-8.1	-8.2		-7.9	-8.0	-7.9
o/w official	-0.6	-1.0	-0.5			-0.8	-0.6	-0.6	-0.6	-0.6	-0.7		-0.7	-0.8	
Other current account flows (negative = net inflow)	-0.7	-0.5	-0.5			-0.8	-0.7	-0.7	-0.7	-0.6	-0.6		-0.6	-0.7	
Net FDI (negative = inflow)	**-2.2**	**-2.7**	**-2.3**	**-1.5**	**0.9**	**-3.6**	**-2.9**	**-3.4**	**-3.3**	**-3.3**	**-3.3**		**-3.5**	**-3.1**	-3.4
Endogenous debt dynamics 2/	**-3.2**	**-5.8**	**-5.5**			**0.4**	**-0.1**	**-0.7**	**-1.0**	**-1.2**	**-1.3**		**-1.9**	**-2.2**	
Contribution from nominal interest rate	1.1	1.0	1.0			1.9	1.5	1.4	1.3	1.3	1.2		1.2	1.1	
Contribution from real GDP growth	-1.4	-1.6	-0.9			-1.5	-1.6	-2.1	-2.4	-2.5	-2.5		-3.1	-3.4	
Contribution from price and exchange rate changes	-2.9	-5.3	-5.6			…	…	…	…	…	…		…	…	
Residual (3-4) 3/	**-26.4**	**-0.7**	**-2.3**			**-3.1**	**-4.8**	**-3.7**	**-3.6**	**-3.2**	**-3.1**		**-2.4**	**-0.2**	
o/w exceptional financing	-48.1	-1.8	-0.6			-0.7	-0.6	-0.5	-0.5	-0.4	-0.4		-0.3	-0.1	
PV of external debt 4/	...	...	39.5			43.1	44.4	45.2	45.7	46.5	47.3		50.3	49.6	
In percent of exports	...	...	148.5			185.1	185.0	184.9	189.0	193.9	199.5		194.9	157.2	
PV of PPG external debt	**...**	**...**	**15.3**			**18.9**	**19.5**	**18.9**	**18.6**	**18.6**	**19.0**		**21.1**	**22.8**	
In percent of exports	**...**	**...**	**57.6**			**81.1**	**81.1**	**77.6**	**77.0**	**77.4**	**80.1**		**81.6**	**72.2**	
In percent of government revenues	**...**	**...**	**79.0**			**98.5**	**100.7**	**96.0**	**92.7**	**91.3**	**92.1**		**103.0**	**109.2**	
Debt service-to-exports ratio (in percent)	**12.0**	**10.6**	**9.3**			**15.9**	**15.2**	**18.1**	**18.3**	**18.4**	**17.6**		**17.0**	**14.3**	
PPG debt service-to-exports ratio (in percent)	**3.9**	**3.2**	**2.7**			**4.8**	**4.6**	**7.5**	**7.2**	**6.8**	**5.6**		**4.2**	**5.0**	
PPG debt service-to-revenue ratio (in percent)	**5.4**	**4.1**	**3.8**			**5.9**	**5.7**	**9.3**	**8.6**	**8.0**	**6.4**		**5.4**	**7.6**	
Total gross financing need (Billions of U.S. dollars)	0.9	1.3	1.6			1.4	1.4	1.5	1.6	1.7	1.8		2.4	3.3	
Non-interest current account deficit that stabilizes debt ratio	31.9	9.2	10.1			6.2	7.8	7.8	7.9	7.7	7.7		7.8	5.5	
Key macroeconomic assumptions															
Real GDP growth (in percent)	2.4	4.7	2.5	4.3	2.0	3.1	3.4	4.3	4.8	4.9	4.9	4.2	5.2	5.5	5.3
GDP deflator in US dollar terms (change in percent)	4.8	15.2	15.3	6.1	9.9	-9.1	1.8	2.2	2.4	2.4	2.1	0.3	2.1	2.2	2.2
Effective interest rate (percent) 5/	1.9	3.0	2.8	2.0	0.6	4.1	3.2	3.0	2.7	2.5	2.3	3.0	2.0	1.9	2.0
Growth of exports of G&S (US dollar terms, in percent)	0.5	19.5	15.2	9.3	10.4	-17.8	8.5	8.4	6.2	6.4	5.9	2.9	9.8	9.9	9.7
Growth of imports of G&S (US dollar terms, in percent)	7.3	32.6	16.6	14.0	11.0	-17.2	2.9	4.9	6.7	7.6	6.6	1.9	8.1	8.2	8.1
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	29.2	48.8	51.2	51.1	51.1	51.1	47.1	49.3	47.1	48.7
Government revenues (excluding grants, in percent of GDP)	19.7	21.1	19.4			19.2	19.3	19.7	20.1	20.3	20.6		20.5	20.8	20.6
Aid flows (in Billions of US dollars) 7/	0.4	0.6	0.9			0.7	0.7	0.7	0.9	1.0	1.1		1.5	2.7	
o/w Grants	0.1	0.3	0.3			0.3	0.3	0.3	0.3	0.4	0.4		0.6	1.1	
o/w Concessional loans	0.3	0.3	0.6			0.4	0.4	0.4	0.5	0.6	0.7		0.9	1.7	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			4.1	4.0	3.9	4.1	4.3	4.4		4.3	3.8	4.2
Memorandum items:															
Nominal GDP (Billions of US dollars)	9.4	11.3	13.3			12.5	13.2	14.0	15.1	16.2	17.3		24.7	51.8	
Nominal dollar GDP growth	7.4	20.6	18.1			-6.3	5.2	6.6	7.3	7.4	7.1	4.6	7.5	7.9	7.6
PV of PPG external debt (in Billions of US dollars)			1.9			2.4	2.6	2.7	2.8	3.0	3.3		5.2	11.8	
(PVt-PVt-1)/GDPt-1 (in percent)						3.5	1.6	0.7	1.0	1.3	1.8	1.7	2.1	1.6	1.9

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

7/ Defined as grants, concessional loans, and debt relief.

8/ Grant-equivalent financing includes grants provided directly to the government and through new borrowing (difference between the face value and the PV of new debt).

Table 2. Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2009-2029
(In percent)

	Projections							
	2009	2010	2011	2012	2013	2014	**2019**	2029
PV of debt-to GDP ratio								
Baseline	19	19	19	19	19	19	**21**	23
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	19	17	15	14	13	13	**12**	23
A2. New public sector loans on less favorable terms in 2009-2029 2	19	21	22	22	23	25	**31**	40
A3. Additional scenario: lower GDP and export growth in 2009-10	20	22	22	21	21	22	**24**	25
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	19	19	19	18	18	18	**19**	19
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	19	20	22	21	20	20	**21**	20
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	19	20	20	20	19	19	**20**	21
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010-2011 4/	19	22	24	23	23	23	**23**	21
B5. Combination of B1-B4 using one-half standard deviation shocks	19	22	25	24	23	23	**23**	21
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	19	27	26	25	24	24	**26**	27
PV of debt-to-exports ratio								
Baseline	81	81	78	77	77	80	**82**	72
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	81	71	63	58	55	53	**48**	75
A2. New public sector loans on less favorable terms in 2009-2029 2	81	88	89	92	97	105	**122**	126
A3. Additional scenario: lower GDP and export growth in 2009-10	90	101	96	93	94	96	**99**	85
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	81	79	74	72	71	73	**70**	60
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	81	92	106	103	102	103	**97**	76
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	81	79	74	72	71	73	**70**	60
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010-2011 4/	81	92	99	96	95	95	**88**	65
B5. Combination of B1-B4 using one-half standard deviation shocks	81	94	106	103	102	103	**95**	71
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	81	79	74	72	71	73	**70**	60
PV of debt-to-revenue ratio								
Baseline	98	101	96	93	91	92	**103**	109
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	98	88	78	70	64	61	**61**	113
A2. New public sector loans on less favorable terms in 2009-2029 2	98	110	110	111	115	121	**154**	190
A3. Additional scenario: lower GDP and export growth in 2009-10	102	116	111	107	105	105	**115**	118
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	98	100	95	90	87	86	**92**	94
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	98	105	109	104	100	99	**102**	95
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	98	104	103	98	95	94	**100**	102
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010-2011 4/	98	114	122	116	111	110	**111**	99
B5. Combination of B1-B4 using one-half standard deviation shocks	98	112	124	118	114	112	**114**	101
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	98	140	131	124	119	119	**126**	129

Table 2. Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2009-2029 (continued)
(In percent)

Debt service-to-exports ratio

Baseline	5	5	8	7	7	6	**4**	5
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	5	4	7	6	6	4	**3**	3
A2. New public sector loans on less favorable terms in 2009-2029 2	5	5	6	6	6	5	**6**	8
A3. Additional scenario: lower GDP and export growth in 2009-10	5	5	8	8	7	6	**5**	6
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	5	5	7	7	7	5	**4**	4
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	5	5	9	9	8	7	**5**	6
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	5	5	7	7	7	5	**4**	4
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010-2011 4/	5	5	8	8	7	6	**4**	5
B5. Combination of B1-B4 using one-half standard deviation shocks	5	5	8	8	8	6	**5**	5
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	5	5	7	7	7	5	**4**	4

Debt service-to-revenue ratio

Baseline	6	6	9	9	8	6	**5**	8
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	6	5	8	7	7	5	**4**	5
A2. New public sector loans on less favorable terms in 2009-2029 2	6	6	8	8	7	6	**8**	11
A3. Additional scenario: lower GDP and export growth in 2009-10	6	6	10	9	8	7	**6**	8
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	6	6	10	9	8	6	**5**	7
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	6	6	9	9	8	7	**5**	7
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	6	6	10	10	9	7	**6**	8
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010-2011 4/	6	6	10	9	9	7	**6**	8
B5. Combination of B1-B4 using one-half standard deviation shocks	6	6	10	9	9	7	**6**	8
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	6	8	13	12	11	9	**7**	10
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	45	45	45	45	45	45	**45**	45

Sources: Country authorities; and staff estimates and projections.

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

Table 3. Public Sector Debt Sustainability Framework, Baseline Scenario, 2006-2029
(In percent of GDP, unless otherwise indicated)

	Actual					Estimate	Projections								
	2006	2007	2008	Average	Standard Deviation	2009	2010	2011	2012	2013	2014	2009-14 Average	2019	2029	2015-29 Average
Public sector debt 1/	21.9	23.5	24.7			28.1	29.9	32.1	34.0	35.8	37.5		43.8	44.7	
o/w foreign-currency denominated	17.7	17.9	19.7			24.4	26.0	26.4	27.0	27.9	29.4		34.9	38.3	
Change in public sector debt	-23.7	1.6	1.2			3.4	1.8	2.2	1.9	1.8	1.7		1.0	-0.4	
Identified debt-creating flows	-2.1	-0.4	3.2			3.3	2.2	1.8	1.6	1.5	1.4		0.9	-0.7	
Primary deficit	5.2	3.2	4.1	1.6	2.3	3.7	3.2	3.3	3.3	3.2	3.3	3.3	3.2	1.9	2.7
Revenue and grants	21.2	23.6	21.7			21.6	21.6	22.0	22.3	22.6	22.8		22.7	22.9	
of which: grants	1.5	2.6	2.3			2.4	2.3	2.2	2.2	2.2	2.2		2.2	2.1	
Primary (noninterest) expenditure	26.4	26.9	25.8			25.3	24.9	25.2	25.6	25.8	26.1		25.9	24.8	
Automatic debt dynamics	-6.5	-3.3	-0.6			0.2	-0.7	-1.2	-1.4	-1.5	-1.6		-2.1	-2.5	
Contribution from interest rate/growth differential	-1.6	-2.4	-0.6			5.1	-2.9	-0.7	-0.9	-1.0	-1.0		-1.5	-1.7	
of which: contribution from average real interest rate	-0.5	-1.4	0.0			5.8	-1.9	0.5	0.6	0.6	0.7		0.7	0.6	
of which: contribution from real GDP growth	-1.1	-1.0	-0.6			-0.7	-0.9	-1.2	-1.5	-1.6	-1.7		-2.1	-2.4	
Contribution from real exchange rate depreciation	-4.9	-0.9	0.0			-4.9	2.1	-0.5	-0.6	-0.6	-0.6		...	...	
Other identified debt-creating flows	-0.8	-0.4	-0.3			-0.4	-0.3	-0.2	-0.2	-0.2	-0.2		-0.1	-0.1	
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)	-0.8	-0.4	-0.3			-0.4	-0.3	-0.2	-0.2	-0.2	-0.2		-0.1	-0.1	
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	-21.6	2.0	-2.0			0.1	-0.5	0.4	0.3	0.3	0.3		0.2	0.2	
Other Sustainability Indicators															
PV of public sector debt	4.3	5.6	20.3			22.6	23.3	24.7	25.6	26.4	27.1		30.0	29.1	
o/w foreign-currency denominated	0.0	0.0	15.3			18.9	19.5	18.9	18.6	18.6	19.0		21.1	22.8	
o/w external	...	...	15.3			18.9	19.5	18.9	18.6	18.6	19.0		21.1	22.8	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	6.4	4.3	5.1			5.5	6.2	7.3	7.5	7.6	7.4		7.3	5.9	
PV of public sector debt-to-revenue and grants ratio (in percent)	20.1	23.6	93.6			104.4	107.9	112.2	114.9	117.2	118.9		132.1	127.0	
PV of public sector debt-to-revenue ratio (in percent)	21.6	26.5	104.9			117.6	120.5	124.9	127.7	130.1	131.7		146.4	139.6	
o/w external 3/	…	…	79.0			98.5	100.7	96.0	92.7	91.3	92.1		103.0	109.2	
Debt service-to-revenue and grants ratio (in percent) 4/	5.7	4.5	4.5			9.3	8.6	13.5	14.4	14.8	13.7		13.7	13.0	
Debt service-to-revenue ratio (in percent) 4/	6.1	5.0	5.1			10.5	9.7	15.0	16.0	16.4	15.2		15.2	14.3	
Primary deficit that stabilizes the debt-to-GDP ratio	28.9	1.7	2.9			0.3	1.5	1.1	1.4	1.4	1.5		2.1	2.4	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	2.4	4.7	2.5	4.3	2.0	3.1	3.4	4.3	4.8	4.9	4.9	4.2	5.2	5.5	5.3
Average nominal interest rate on forex debt (in percent)	1.0	1.4	1.6	1.4	0.3	2.6	2.2	2.0	1.7	1.5	1.3	1.9	1.2	1.2	1.2
Average real interest rate on domestic debt (in percent)	...	...	...	...	...	...	4.1	3.8	3.3	3.3	3.3	3.6	3.3	3.2	3.3
Real exchange rate depreciation (in percent, + indicates depreciation)	-11.9	-5.6	-0.2	-4.6	8.5	-19.6	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	4.0	5.5	7.4	2.9	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2
Growth of real primary spending (deflated by GDP deflator, in percent)	0.2	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0
Grant element of new external borrowing (in percent)	...	...	...	…	…	29.2	48.8	51.2	51.1	51.1	51.1	47.1	49.3	47.1	...

Sources: Country authorities; and staff estimates and projections.
1/ Includes central government domestic debt and public and publicly guaranteed external debt. Gross debt is used.
2/ Gross financing need is defined as the primary deficit plus debt service plus the stock of short-term debt at the end of the last period.
3/ Revenues excluding grants.
4/ Debt service is defined as the sum of interest and amortization of medium and long-term debt.
5/ Historical averages and standard deviations are generally derived over the past 10 years, subject to data availability.

Table 4. Sensitivity Analysis for Key Indicators of Public Debt, 2009-2029

	Projections							
	2009	2010	2011	2012	2013	2014	2019	2029
PV of Debt-to-GDP Ratio								
Baseline	23	23	25	26	26	27	30	29
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	23	22	21	21	21	20	17	13
A2. Primary balance is unchanged from 2009	23	24	25	26	27	28	32	39
A3. Permanently lower GDP growth 1/	23	23	25	26	28	29	35	46
A4. Additional scenario: lower GDP growth, higher fiscal deficits in 2009-10	25	29	30	31	31	32	34	32
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2010-2011	23	24	26	28	29	30	36	39
B2. Primary balance is at historical average minus one standard deviations in 2010-2011	23	24	26	27	28	28	31	30
B3. Combination of B1-B2 using one half standard deviation shocks	23	23	24	25	26	27	31	32
B4. One-time 30 percent real depreciation in 2010	23	31	31	31	31	31	31	28
B5. 10 percent of GDP increase in other debt-creating flows in 2010	23	33	34	34	35	35	37	34
PV of Debt-to-Revenue Ratio 2/								
Baseline	104	108	112	115	117	119	132	127
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	104	100	98	95	92	88	76	55
A2. Primary balance is unchanged from 2009	104	109	114	118	121	123	141	169
A3. Permanently lower GDP growth 1/	104	109	114	118	122	126	155	199
A4. Additional scenario: lower GDP growth, higher fiscal deficits in 2009-10	128	146	137	138	140	140	150	139
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2010-2011	104	110	119	124	129	133	158	169
B2. Primary balance is at historical average minus one standard deviations in 2010-2011	104	111	118	120	122	124	136	130
B3. Combination of B1-B2 using one half standard deviation shocks	104	106	109	113	116	119	137	140
B4. One-time 30 percent real depreciation in 2010	104	142	142	141	139	136	137	124
B5. 10 percent of GDP increase in other debt-creating flows in 2010	104	150	153	154	155	155	164	149
Debt Service-to-Revenue Ratio 2/								
Baseline	9	9	13	14	15	14	14	13
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	9	9	13	13	13	12	11	7
A2. Primary balance is unchanged from 2009	9	9	14	14	15	14	14	16
A3. Permanently lower GDP growth 1/	9	9	14	15	15	14	15	18
A4. Additional scenario: lower GDP growth, higher fiscal deficits in 2009-10	10	10	15	16	16	15	15	14
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2010-2011	9	9	14	15	16	15	15	16
B2. Primary balance is at historical average minus one standard deviations in 2010-2011	9	9	14	15	15	14	14	13
B3. Combination of B1-B2 using one half standard deviation shocks	9	9	14	14	15	14	14	14
B4. One-time 30 percent real depreciation in 2010	9	10	17	18	18	17	17	19
B5. 10 percent of GDP increase in other debt-creating flows in 2010	9	9	15	18	19	17	15	16
Debt Service-to-GDP Ratio								
Baseline	2	2	3	3	3	3	3	3
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	2	2	3	3	3	3	2	2
A2. Primary balance is unchanged from 2006	2	2	3	3	3	3	3	4
A3. Permanently lower GDP growth 1/	2	2	3	3	3	3	3	4
A4. Additional scenario: lower GDP growth, higher fiscal deficits in 2009-10	2	2	3	4	4	3	3	3
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2008-2009	2	2	3	3	4	3	4	4
B2. Primary balance is at historical average minus one standard deviations in 2008-2009	2	2	3	3	3	3	3	3
B3. Combination of B1-B2 using one half standard deviation shocks	2	2	3	3	3	3	3	3
B4. One-time 30 percent real depreciation in 2008	2	2	4	4	4	4	4	4
B5. 10 percent of GDP increase in other debt-creating flows in 2008	2	2	3	4	4	4	3	4

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.