INTERNATONAL MONETARY FUND

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BENIN

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

Prepared by the Staffs of the International Monetary Fund and

the International Development Association

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This debt sustainability analysis (DSA) confirms the result from previous DSAs that Benin's risk of debt distress remains moderate. Under baseline projections, all external debt indicators remain below their indicative thresholds over the long run. However, this assumes that the fiscal stance is put back onto a sustainable path over the medium term, following the slippages in 2009. Furthermore, debt ratios move rapidly toward the thresholds or breach them under a less favorable no reform scenario, assuming slower growth of GDP and exports, as well as foreign direct investments in line with historical averages. This underlines the importance of fiscal adjustment and implementation of structural reforms aimed at enhancing competitiveness and growth, and to finance the fiscal deficit primarily through external grants and highly concessional loans.

[1] Prepared by IMF and IDA staff in collaboration with the Beninese authorities and staff of the African Development Bank. The fiscal year for Benin is January 1–December 31. The previous DSA update was performed in June 2009 (IMF Country Report No. 09/87, IDA Report No. 51780).

I. Background

1. **Using the debt sustainability framework for low-income countries, this DSA assumes financing needs to be covered primarily with concessional external financing.** Debt sustainability is assessed in relation to country-specific policy-dependent thresholds for debt stock and debt service burden.[2] This DSA is conducted on a gross basis.[3]

2. **Benin's risk of debt distress was classified as moderate in the previous DSA in June 2009.**[4] Under the baseline scenario, all external debt indicators were projected to remain below their indicative thresholds over the long run. However, it was noted that debt ratios move rapidly toward the thresholds or breach them under less favorable scenarios.

3. **Following debt relief under the HIPC and MDRI initiative, Benin's external debt remains at comfortable levels.** Benin reached the completion point under the Enhanced HIPC initiative in 2003, and benefited from further debt relief under the MDRI initiative in 2006. As a result, Benin's external debt stock declined from 43.0 percent of GDP at end-2002 to 15.1 percent of GDP at end-2009.[5] In line with this reduction, external debt service was reduced from 2.2 percent of GDP to 0.6 percent of GDP over the same period. At end-2009, 88.5 percent of the external public debt was to multilateral creditors and 11.5 percent to bilateral creditors.

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[2] Debt sustainability is assessed in relation to policy-dependent thresholds for the present value of external debt and the external debt service burden. Benin's CPIA rating for 2006–08 was 3.57. A rating between 3.25 and 3.75 reflects medium performance; a rating below 3.25 corresponds to weak performance, and a rating above 3.75 corresponds to strong performance. Medium performance implies the following external debt sustainability thresholds: a net present value (PV) of debt-to-GDP ratio of 40 percent, and PV of debt-to-exports ratio of 150 percent, and PV of debt-to-revenue ratio of 250 percent; a debt service-to-exports ratio of 20 percent and a debt service-to-revenue ratio of 30 percent.

[3] The quality of data underlying the DSA remains uneven. The DSA is based primarily on data provided by the public debt management department of the Ministry of Finance of Benin (la Caisse Autonome d'Amortissement). Data on private external debt is not available. In 2010, West AFRITAC is providing technical assistance to improve debt data management.

[4] IMF Country Report No. 09/87, IDA Report No. 51780

[5] Since no data on private external debt is available, overall external debt stock is here equal to the public or publicly guaranteed external debt.

4. **Government borrowing from the regional market increased significantly since 2006.** Outstanding regional government debt amounted to 11.1 percent of GDP at end-2009, compared to 1.5 percent at end-2006. This increase partly reflects the authorities' interest in promoting the expansion of the regional debt market and, in 2009, the need to cover the financing gap. Borrowing conditions on this market are, however, nonconcessional and the authorities are committed to a prudent borrowing strategy. Domestic borrowing is therefore expected to decrease as share of GDP. Just over 40 percent of the regional public debt is accounted for by central bank secured bonds, while the remainder comprises treasury bills and securitized wage arrears.

II. UNDERLYING DSA ASSUMPTIONS

5. **This updated DSA is affected by the weaker fiscal position in 2009**. The higher deficit was financed both by external resources and increased borrowing on the regional market. In addition, the authorities have revised upward their estimation of non-cotton exports in 2008 and 2009, and recategorized financial inflows, which results in higher foreign direct investments from 2000 to 2005 compared to the previous DSA.[6]

6. **Except for an update in the medium-term macroeconomic framework following the developments in 2009, this DSA maintains the main macroeconomic and policy assumptions used in the previous DSA (Box 1).** In particular, the baseline projections are anchored on the assumptions that: 1) key structural reforms aimed at enhancing competitiveness and growth would be adopted over the medium term,[7] 2) the authorities would proceed with their plans to improve public infrastructure, and 3) fiscal policy would aim at maintaining macroeconomic stability. Under these conditions, real GDP growth is expected to recover after the crisis period 2009–10 to a sustainable annual rate of 6 percent over the medium- to long-term, and average annual inflation would not exceed

[6] This particular revision gives a more favorable historic scenario in the DSA.

[7] Key structural reforms likely to enhance growth already under way are the restructuring of public utilities (especially electricity and telecommunications), major investments in the Port of Cotonou and the introduction of a one stop window in the Port of Cotonou. These reforms are supported by a new IMF Extended Credit Facility (ECF) arrangement, which envisages the restructuring of main public utilities and the modernization of customs administration over the next three years.

3 percent in the long run, consistent with the assumptions of the World Bank Global Economic Prospects 2009 and the Benin Country Economic Memorandum.[8]

7. **The fiscal deterioration in 2009 is expected to be partly reversed in 2010.** Large expenditure overruns amid a weak revenue performance led to a widening of the overall fiscal deficit (on a payment-order basis) from 3.5 percent of GDP in 2008 to 7.3 percent in 2009. A strong fiscal adjustment effort, supported by measures aimed at strengthening revenue collection[9] and controlling expenditure execution, are projected to reduce the overall deficit to 5.9 percent of GDP, and the basic primary deficit to 0.3 percent of GDP in 2010.

Box 1. Macroeconomic assumptions

Medium term (2011–15): The projections are consistent with the macroeconomic framework of the IMF Article IV Consultation and reflect (i) the **impact of the crisis**, and (ii) **fiscal policies** aimed at maintaining macroeconomic stability, protecting vulnerable groups, and enhancing investment in public infrastructure. A key assumption is that concessional financing from external donors would continue to be available throughout the projection period. In particular, sufficient concessional funds would be available to fill the financing gap in 2010, creating a fiscal cushion to contain the impact of the crisis without compromising debt sustainability. The analysis also assumes the implementation of **structural reforms** aimed at increasing efficiency and competitiveness and improving the business climate. As a result, after slowing down to 2 ½-3 ½ percent in 2009–10, real GDP growth is projected to recover to its long-term sustainable level of 6 percent, while fiscal prudence and the anchor of the fixed exchange rate peg are expected to keep inflation to below 3 percent. After the fiscal deterioration in 2009, the primary fiscal deficit would be reduced to 0.2 percent of GDP by 2015, reflecting improvements in public fiscal

[8] Benin; *Constraints to Growth and Potential for Diversification and Innovation*, Country Economic Memorandum, World Bank, June 18, 2009, available at http://web.worldbank.org/external/default/main?pagePK=51187349&piPK=51189435&theSitePK=322639&menuPK=64187510&searchMenuPK=322668&theSitePK=322639&entityID=000333037_20090721001130&searchMenuPK=322668&theSitePK=322639

[9] The authorities will implement a number of measures aimed at improving efficiency in tax and customs administration and at broadening the tax base. During the next three years, this will include measures to improve the information systems of the tax and customs administration, the introduction of a one-stop window in the Port of Cotonou and generalization of the TIN to all tax payers and services of the tax and customs offices. A personal income tax will also be introduced.

management and efforts to contain recurrent expenditures. The current account deficit is expected to narrow in the medium term as exports recover and the fiscal adjustment reduces the demand for imports.

Long term (2015–30): long-term projections reflect the impact of the structural reforms implemented in previous periods and the continuation of policies aimed at maintaining macroeconomic stability. Under these assumptions:

- **Real GDP growth** would average 6 percent following its growth potential;
- **Inflation** would remain at or below 3 percent;
- **The primary fiscal deficit** would stabilize at about 1 percent of GDP, following improvements in revenue collection and continued efforts to contain nonpriority recurrent expenditures, in particular the wage bill;
- **The current account deficit** would remain at about 5 percent of GDP, reflecting growing imports associated with economic expansion and foreign direct investment (FDI), as well as continuing inflows of remittances;
- Improved infrastructure and a more favorable business climate would attract net **foreign direct investment** equivalent to about 2 percent of GDP per year.
- Reflecting continued support from donors for Benin's infrastructural development and reform efforts, about 60 percent of total gross financing needs are assumed to be covered by external grants.
- Over the medium- and long-term, the DSA assumes that the authorities will continue to benefit from concessional borrowing mainly from multilateral donors, with a grant element equivalent to the average of the last 5 years.[10]
- Reflecting the authorities' commitment to a prudent borrowing strategy, government borrowing on the regional market is expected to decrease somewhat from 11.1 percent of GDP at end-2009 to 4.5 percent of GDP at the end of the period.
- The real interest rate on domestic currency debt is expected to average just over 4 percent.

[10] Of the current external financing for Benin, the African Development Bank and the World Bank provide the highest level of concessionality. Since the exact composition of new multilateral borrowing is unknown, a larger share of multilateral borrowing is assumed to come from other multilaterals in the long run. This explains the slight decrease in the grant element in the long term compared with the medium term (figure 1).

III. External DSA

8. **Under baseline assumptions, all external debt and debt service ratio remain well below the policy-dependent thresholds throughout the projection period (Figure 1).** The PV of external debt is projected to decline to just over 9 percent of GDP in the long run, and debt service payment ratios would remain below 3 percent. The PV of debt-to-exports ratio would remain well below the 150 percent threshold.

9. **External vulnerability indicators worsen only slightly under standard stress test conditions.** In particular, a shock to exports would lead to a marginal breach over three years of the threshold for the debt-to-exports ratio. However, all other indicators would stay under their respective thresholds with a large margin under the different alternative scenarios.

10. **The risk of debt distress would increase markedly in the absence of structural reforms.** The baseline scenario assumes GDP growth to average 6 percent in the long run, which is motivated by the continued implementation of structural reforms. Should these reforms not materialize, a "no reform scenario" characterized by slower real GDP and exports growth; as well as foreign direct investment and primary fiscal deficits close to historical averages, would lead to a breach of the debt-to-exports criteria by 2022.[11] Also the debt-to-GDP and the debt-to-revenue ratio would increase markedly over the long term.

11. **This DSA also tests the debt trajectory implication of a limited amount of nonconcessional borrowing.** In August 2009, the IMF Executive Board approved new guidelines on external debt limits in Fund supported programs.[12] The new framework moves away from a single design for concessionality requirements towards a more flexible approach, taking into account members' debt vulnerabilities and their macroeconomic and public financial management capacity.[13]

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[11] In the no reform scenario annual real GDP growth is assumed to average 4.0 percent. FDI are assumed to be in line with their historical average (1.8 percent of GDP) and exports have been reduced by 2.0 percent of GDP compared to the baseline scenario (to 15.5 percent of GDP).

[12] Available at http://www.imf.org/external/pp/longres.aspx?id=4359.

[13] This DSA follows the IMF and World Bank Staff Guidance Note on the Application of the Joint Fund-Bank Debt Sustainability Framework for Low-Income Countries, January 22, 2010 (available at http://www.imf.org/external/pp/longres.aspx?id=4419)

12. **In the classification of low-income countries for the purpose of debt limits conducted in December 2009, Benin was classified as a low capacity country.** According to the new guidelines concessionality requirements for lower capacity countries will continue to apply on a debt by debt basis with a minimum concessionality requirement of 35 percent. However, a certain amount of nonconcessional borrowing could be exempted from this requirement provided that it does not push the country into a higher debt vulnerability category. Any such borrowing should only be undertaken to finance projects whose financial viability and profitability have been evaluated and approved by a reputable institution and be accompanied by continued strengthening of project selection systems and institutions.

13. **Allowing for a limited amount of nonconcessional borrowing does not significantly alter the debt risk profile.** Given the substantial margins from breaching any of the thresholds, and in line with the new guidelines on external debt limits, this analysis tests for a limited amount of non-concessional borrowing.[14] The addition of CFAF 150 billion of nonconcessional borrowing during the period 2010–12 does not lead to any breach of the thresholds and, therefore, does not cause a change of debt vulnerability category.

IV. PUBLIC DSA

14. **Public debt indicators are projected to decline somewhat over time (Figure 2).** Under the baseline scenario, the debt-to-GDP ratio is set to fall to around 14 percent and the debt-to-revenue ratio to under 60 percent. The debt service-to-revenue ratio is expected to stabilize close to 3 percent in the long term.

15. **Stress tests show a somewhat less favorable development.** Under the most extreme shock scenario[15] the debt-to-GDP would increase to 22 percent and the debt-to-revenue ratio to 89 percent, while the debt service-to-revenue would decrease somewhat to 4.6 percent by 2030. The stress test therefore shows the largest sensitivity to lower growth of GDP, which again underlines the importance of continued structural reforms.

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[14] In this alternative scenario, an amount of non-concessional financing limited to the value of CFAF 150 billion in present value terms (4.5 percent of GDP) for the period 2010–12 has been added to the baseline.

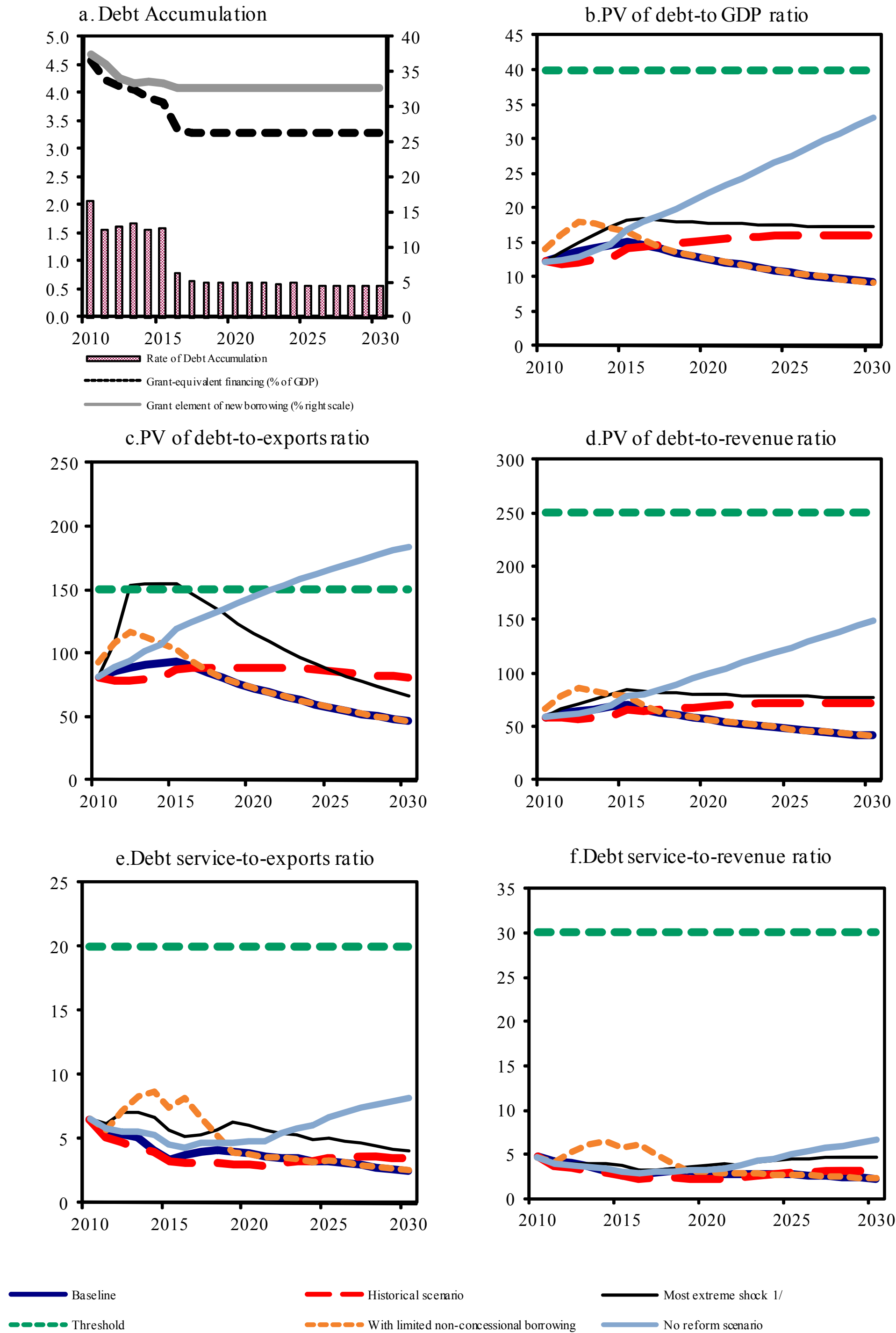
[15] For the debt-to-GDP ratio and the debt-to-revenue ratio the most extreme shock is represented by a temporary slowdown in real growth to 3.1 percent in 2011–12, while for the debt service-to-revenue ratio it is represented by a one-time 30 percent real depreciation in 2011.

V. Debt Distress Classification and Conclusions

16. **Altogether, this DSA confirms that Benin faces a moderate risk of debt distress, which underlines the importance of proceeding with fiscal adjustment and structural reforms**. The analysis highlights the need to address the fiscal slippages in 2009, and put the fiscal situation back onto a sustainable path over the medium term. The prompt implementation of structural reforms will also be critical to enhance growth, expand exports, attract foreign direct investments and contain the fiscal deficit, thus improving the long-term debt dynamics. The authorities should also continue to cover their financing needs primarily with external concessional assistance. However, given a large margin to the debt sustainability thresholds, a limited amount of nonconcessional borrowing could be accommodated without risking a marked change in the overall debt risk profile.

17. **The authorities concur with the overall conclusions of the DSA, which is in line with their own debt sustainability analysis.** As in the past, the authorities continue to be committed to a prudent borrowing strategy according to which financing needs will be covered primarily through the mobilization of grants and highly concessional borrowing, with only limited use of regional borrowing as a last source of financing. The authorities also share the view that a prudent fiscal policy will be necessary to preserve fiscal and debt sustainability over the medium- to long- term.

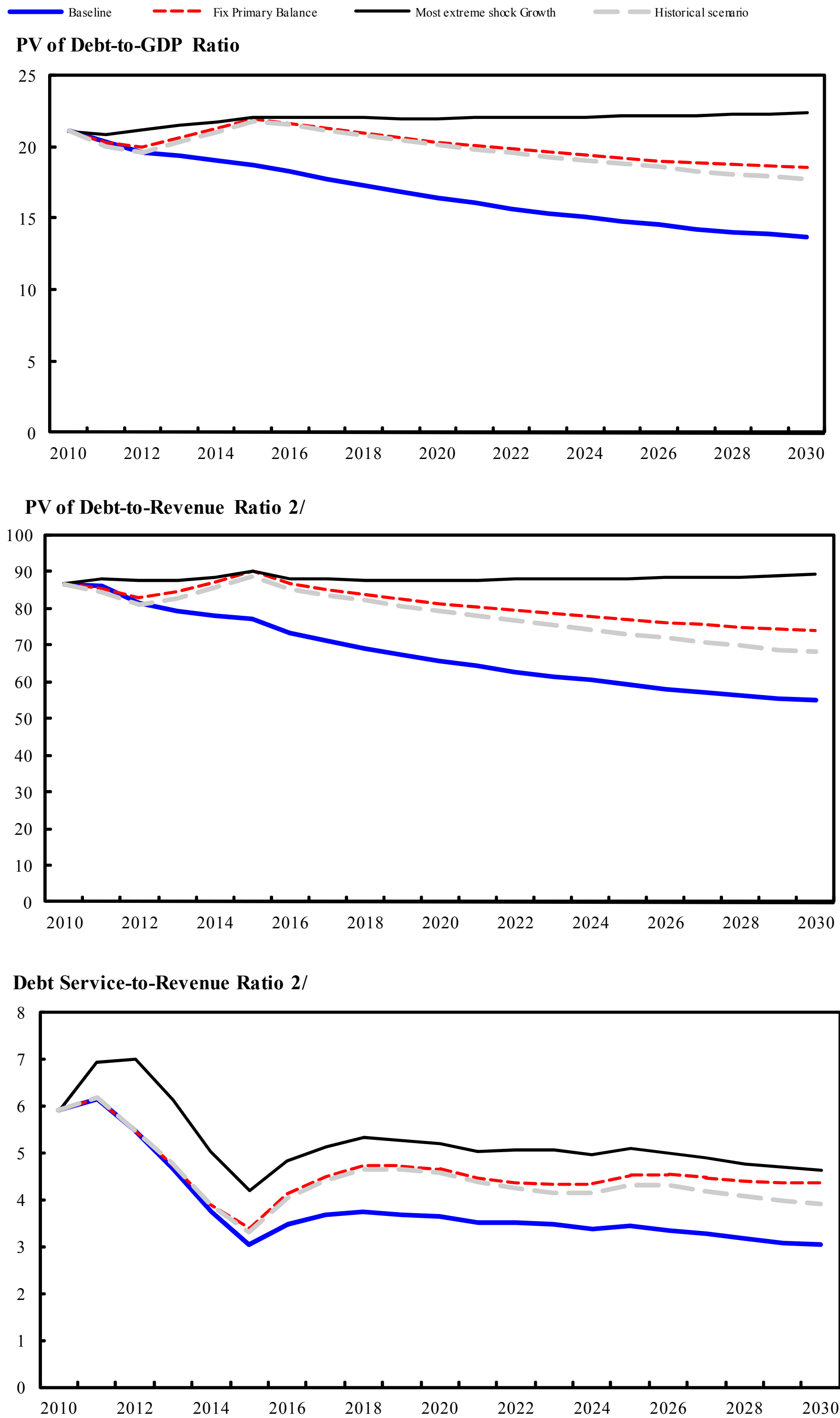
Figure 1. Benin: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2010-2030 1/



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 Exports shock; in d. to a One-time depreciation shock; in e. to a Exports shock and in figure f. to a One-time depreciation shock

Figure 2. Benin: 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/	**11.7**	**16.7**	**15.1**			**16.0**	**17.4**	**18.5**	**19.5**	**20.3**	**21.1**		**17.5**	**13.3**	
o/w public and publicly guaranteed (PPG)	11.7	16.7	15.1			16.0	17.4	18.5	19.5	20.3	21.1		17.5	13.3	
Change in external debt	0.7	5.0	-1.7			0.9	1.4	1.1	1.0	0.8	0.8		-0.6	-0.3	
Identified net debt-creating flows	3.8	3.4	7.3			5.2	5.3	4.4	4.0	3.7	2.4		2.5	2.6	
Non-interest current account deficit	**9.6**	**7.9**	**8.3**	**6.6**	**2.1**	**7.6**	**7.4**	**7.0**	**6.7**	**6.5**	**5.2**		**5.3**	**5.4**	5.3
Deficit in balance of goods and services	15.5	13.3	14.5			13.6	12.3	12.0	11.6	11.2	11.7		12.6	14.9	
Exports	16.8	17.6	15.3			15.0	15.1	15.3	15.6	15.9	16.2		17.3	20.0	
Imports	32.4	30.9	29.8			28.6	27.4	27.3	27.2	27.1	27.9		30.0	34.9	
Net current transfers (negative = inflow)	-5.6	-5.4	-6.1	-5.8	0.8	-5.6	-4.5	-4.6	-4.5	-4.4	-6.0		-6.0	-6.0	-6.0
o/w official	-2.8	-3.0	-4.0			-3.6	-2.4	-2.3	-2.2	-2.1	-3.0		-5.3	0.5	
Other current account flows (negative = net inflow)	-0.3	0.0	-0.1			-0.4	-0.4	-0.4	-0.3	-0.3	-0.5		-1.3	-3.5	
Net FDI (negative = inflow)	**-4.7**	**-2.6**	**-1.4**	**-1.8**	**1.2**	**-2.2**	**-1.7**	**-2.0**	**-2.0**	**-2.0**	**-2.0**		**-2.0**	**-2.1**	-2.1
Endogenous debt dynamics 2/	**-1.2**	**-1.9**	**0.4**			**-0.2**	**-0.4**	**-0.6**	**-0.7**	**-0.8**	**-0.8**		**-0.8**	**-0.6**	
Contribution from nominal interest rate	0.5	0.1	0.3			0.3	0.3	0.3	0.3	0.3	0.3		0.2	0.1	
Contribution from real GDP growth	-0.4	-0.5	-0.5			-0.4	-0.7	-0.9	-1.0	-1.1	-1.1		-1.0	-0.7	
Contribution from price and exchange rate changes	-1.2	-1.6	0.6			…	…	…	…	…	…		…	…	
Residual (3-4) 3/	**-3.0**	**1.7**	**-8.9**			**-4.3**	**-3.9**	**-3.3**	**-3.0**	**-2.9**	**-1.6**		**-3.1**	**-2.9**	
o/w exceptional financing	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
PV of external debt 4/	...	...	10.8			12.2	12.9	13.6	14.2	14.7	15.2		12.6	9.2	
In percent of exports	...	...	70.4			81.3	85.7	88.9	91.2	92.6	93.8		72.5	46.2	
PV of PPG external debt	**...**	**...**	**10.8**			**12.2**	**12.9**	**13.6**	**14.2**	**14.7**	**15.2**		**12.6**	**9.2**	
In percent of exports	**...**	**...**	**70.4**			**81.3**	**85.7**	**88.9**	**91.2**	**92.6**	**93.8**		**72.5**	**46.2**	
In percent of government revenues	**...**	**...**	**58.6**			**59.1**	**63.2**	**64.9**	**66.7**	**68.9**	**71.2**		**56.6**	**41.6**	
Debt service-to-exports ratio (in percent)	**2.8**	**-0.7**	**-0.2**			**6.5**	**5.7**	**5.4**	**5.1**	**4.1**	**3.3**		**3.8**	**2.6**	
PPG debt service-to-exports ratio (in percent)	**2.8**	**-0.7**	**-0.2**			**6.5**	**5.7**	**5.4**	**5.1**	**4.1**	**3.3**		**3.8**	**2.6**	
PPG debt service-to-revenue ratio (in percent)	**2.3**	**-0.6**	**-0.2**			**4.7**	**4.2**	**4.0**	**3.7**	**3.1**	**2.5**		**3.0**	**2.3**	
Total gross financing need (Billions of U.S. dollars)	0.3	0.3	0.5			0.5	0.5	0.5	0.5	0.5	0.4		0.6	1.4	
Non-interest current account deficit that stabilizes debt ratio	8.9	2.8	9.9			7.3	6.0	5.9	5.7	5.6	4.4		5.9	5.6	
Key macroeconomic assumptions															
Real GDP growth (in percent)	4.6	5.0	2.7	4.2	1.1	3.2	4.4	5.5	6.0	6.0	6.0	5.2	6.0	6.0	6.0
GDP deflator in US dollar terms (change in percent)	11.9	15.3	-3.3	6.3	9.3	7.8	1.7	1.6	1.5	1.3	1.3	2.5	2.5	2.4	2.5
Effective interest rate (percent) 5/	4.8	1.5	1.7	1.7	1.2	2.0	1.9	1.8	1.7	1.6	1.6	1.8	1.2	1.1	1.2
Growth of exports of G&S (US dollar terms, in percent)	49.1	26.9	-13.8	11.6	19.0	9.1	7.0	8.6	9.6	9.4	9.4	8.8	10.2	10.2	10.2
Growth of imports of G&S (US dollar terms, in percent)	56.9	15.7	-4.2	12.5	18.8	6.7	1.6	6.7	7.1	7.1	10.3	6.6	10.3	10.3	10.3
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	37.5	36.1	34.0	33.4	33.6	33.4	34.6	32.7	32.7	32.7
Government revenues (excluding grants, in percent of GDP)	20.6	19.4	18.4			20.6	20.5	21.0	21.3	21.3	21.3		22.2	22.2	22.2
Aid flows (in Billions of US dollars) 7/	0.2	0.1	0.2			0.4	0.4	0.4	0.4	0.4	0.4		0.6	1.3	
o/w Grants	0.2	0.1	0.2			0.3	0.3	0.3	0.3	0.3	0.3		0.4	1.0	
o/w Concessional loans	0.0	0.0	0.0			0.1	0.1	0.1	0.1	0.1	0.1		0.1	0.3	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			5.3	4.2	4.1	4.0	3.9	3.8		3.3	3.3	3.3
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			88.2	69.9	69.0	68.7	70.0	70.6		76.7	76.7	76.6
Memorandum items:															
Nominal GDP (Billions of US dollars)	5.5	6.7	6.7			7.4	7.9	8.4	9.1	9.7	10.5		15.9	36.4	
Nominal dollar GDP growth	17.1	21.1	-0.7			11.3	6.2	7.1	7.5	7.3	7.3	7.8	8.7	8.6	8.7
PV of PPG external debt (in Billions of US dollars)			0.8			0.9	1.0	1.1	1.3	1.4	1.6		2.0	3.3	
(PVt-PVt-1)/GDPt-1 (in percent)						2.1	1.5	1.6	1.7	1.6	1.6	1.7	0.6	0.6	0.6
Gross remittances (Billions of US dollars)	0.2	0.2	0.2			0.2	0.2	0.2	0.2	0.2	0.3		0.4	0.9	
PV of PPG external debt (in percent of GDP + remittances)	...	...	10.5			11.9	12.6	13.3	13.9	14.4	14.8		12.3	9.0	
PV of PPG external debt (in percent of exports + remittances)	...	...	59.9			70.6	74.2	76.6	78.8	80.3	81.4		63.4	41.0	
Debt service of PPG external debt (in percent of exports + remittances)	...	...	-0.2			5.7	4.9	4.7	4.4	3.6	2.9		3.3	2.3	

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. It does not include external project grants that are assumed to cover about 60 percent of total gross financing needs.

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 1b.Benin: 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	12	13	14	14	15	15	**13**	9
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2010-2030 1/	12	12	12	12	13	14	**15**	16
A2. New public sector loans on less favorable terms in 2010-2030 2	12	14	15	16	17	18	**18**	17
A.3 No reform scenario	12	12	13	14	15	17	**22**	33
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	12	13	14	15	15	16	**13**	10
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	12	14	17	18	18	19	**15**	10
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	12	14	15	16	16	17	**14**	10
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/	12	13	15	15	16	16	**13**	9
B5. Combination of B1-B4 using one-half standard deviation shocks	12	13	15	16	16	17	**14**	10
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	12	18	19	20	21	21	**18**	13
PV of debt-to-exports ratio								
Baseline	81	86	89	91	93	94	**73**	46
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2010-2030 1/	81	79	79	80	81	87	**89**	80
A2. New public sector loans on less favorable terms in 2010-2030 2	81	90	97	103	108	112	**103**	86
A.3 No reform scenario	81	89	94	102	107	119	**144**	184
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	81	85	89	91	92	93	**72**	46
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	81	109	154	155	155	155	**116**	66
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	81	85	89	91	92	93	**72**	46
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/	81	88	95	97	98	99	**76**	47
B5. Combination of B1-B4 using one-half standard deviation shocks	81	91	108	110	111	112	**85**	52
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	81	85	89	91	92	93	**72**	46
PV of debt-to-revenue ratio								
Baseline	59	63	65	67	69	71	**57**	42
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2010-2030 1/	59	58	57	58	60	66	**69**	72
A2. New public sector loans on less favorable terms in 2010-2030 2	59	66	71	76	80	85	**80**	77
A.3 No reform scenario	59	60	62	65	69	79	**99**	149
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	59	64	67	69	71	74	**58**	43
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	59	69	83	84	85	87	**67**	44
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	59	66	71	73	75	78	**62**	45
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/	59	65	70	71	73	75	**59**	42
B5. Combination of B1-B4 using one-half standard deviation shocks	59	65	73	74	76	78	**61**	43
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	59	89	92	94	97	101	**80**	59

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

Debt service-to-exports ratio

Baseline	7	6	5	5	4	3	**4**	3
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2010-2030 1/	7	5	5	4	4	3	**3**	4
A2. New public sector loans on less favorable terms in 2010-2030 2	7	5	5	5	5	5	**5**	5
A.3 No reform scenario	7	6	6	6	5	5	**5**	8
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	7	5	5	5	5	4	**3**	3
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	7	6	7	7	7	6	**6**	4
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	7	5	5	5	5	4	**3**	3
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/	7	5	5	5	5	4	**4**	3
B5. Combination of B1-B4 using one-half standard deviation shocks	7	6	6	6	5	4	**4**	3
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	7	5	5	5	5	4	**3**	3

Debt service-to-revenue ratio

Baseline	5	4	4	4	3	3	**3**	2
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2010-2030 1/	5	4	3	3	3	3	**2**	3
A2. New public sector loans on less favorable terms in 2010-2030 2	5	4	4	4	4	4	**4**	5
A.3 No reform scenario	5	4	4	4	3	3	**3**	7
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2011-2012	5	4	4	4	4	3	**3**	2
B2. Export value growth at historical average minus one standard deviation in 2011-2012 3/	5	4	4	4	4	3	**3**	3
B3. US dollar GDP deflator at historical average minus one standard deviation in 2011-2012	5	4	4	4	4	3	**3**	3
B4. Net non-debt creating flows at historical average minus one standard deviation in 2011-2012 4/	5	4	4	4	3	3	**3**	2
B5. Combination of B1-B4 using one-half standard deviation shocks	5	4	4	4	4	3	**3**	2
B6. One-time 30 percent nominal depreciation relative to the baseline in 2011 5/	5	6	5	5	5	4	**4**	3
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	35	35	35	35	35	35	**35**	35

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

	Actual			Average	Standard Deviation	Estimate	Projections								
	2007	2008	2009			2010	2011	2012	2013	2014	2015	2010-15 Average	2020	2030	2016-30 Average
Public sector debt 1/	15.4	24.5	26.2			24.9	24.8	24.5	24.6	24.6	24.7		21.3	17.8	
o/w foreign-currency denominated	11.7	16.7	15.1			16.0	17.4	18.5	19.5	20.3	21.1		17.5	13.3	
Change in public sector debt	2.9	9.1	1.7			-1.3	-0.1	-0.3	0.1	0.0	0.1		-0.6	-0.2	
Identified debt-creating flows	-2.3	0.7	1.1			0.3	0.6	-0.3	-1.0	-1.1	-1.1		-0.3	-0.1	
Primary deficit	-0.6	1.4	3.6	1.0	1.2	1.4	1.5	0.9	0.1	0.1	0.2	0.7	1.0	1.0	1.0
Revenue and grants	23.6	21.2	21.5			25.0	23.7	24.1	24.5	24.4	24.4		25.0	25.0	
of which: grants	3.0	1.7	3.2			4.3	3.2	3.2	3.1	3.1	3.0		2.8	2.8	
Primary (noninterest) expenditure	22.9	22.5	25.2			25.8	25.2	25.0	24.6	24.5	24.5		26.0	26.0	
Automatic debt dynamics	-1.5	-0.5	-2.0			-0.4	-0.6	-0.9	-1.1	-1.2	-1.2		-1.3	-1.1	
Contribution from interest rate/growth differential	-0.4	-1.4	-0.6			-0.6	-0.7	-1.0	-1.2	-1.3	-1.4		-1.2	-1.0	
of which: contribution from average real interest rate	0.2	-0.6	0.0			0.2	0.4	0.3	0.2	0.1	0.0		0.0	0.0	
of which: contribution from real GDP growth	-0.6	-0.7	-0.6			-0.8	-1.1	-1.3	-1.4	-1.4	-1.4		-1.2	-1.0	
Contribution from real exchange rate depreciation	-1.1	0.8	-1.3			0.2	0.1	0.1	0.1	0.2	0.2		...	...	
Other identified debt-creating flows	-0.2	-0.2	-0.6			-0.6	-0.3	-0.3	0.0	0.0	0.0		0.0	0.0	
Privatization receipts (negative)	-0.2	-0.2	-0.6			-0.6	-0.3	-0.3	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)	0.0	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	5.2	8.4	0.6			-1.6	-0.8	0.0	1.0	1.1	1.1		-0.3	-0.1	
Other Sustainability Indicators															
PV of public sector debt	3.7	7.8	21.9			21.1	20.4	19.6	19.3	19.0	18.8		16.4	13.7	
o/w foreign-currency denominated	0.0	0.0	10.8			12.2	12.9	13.6	14.2	14.7	15.2		12.6	9.2	
o/w external	...	...	10.8			12.2	12.9	13.6	14.2	14.7	15.2		12.6	9.2	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	-0.2	1.4	3.8			2.8	3.0	2.2	1.3	1.0	0.9		1.9	1.8	
PV of public sector debt-to-revenue and grants ratio (in percent)	15.6	36.7	101.6			84.6	86.1	81.4	79.1	77.8	77.0		65.7	54.9	
PV of public sector debt-to-revenue ratio (in percent)	17.8	40.0	119.3			102.4	99.6	93.7	90.6	89.0	88.0		74.0	61.8	
o/w external 3/	…	…	58.6			59.1	63.2	64.9	66.7	68.9	71.2		56.6	41.6	
Debt service-to-revenue and grants ratio (in percent) 4/	2.0	0.3	0.9			5.9	6.1	5.5	4.7	3.7	3.0		3.6	3.0	
Debt service-to-revenue ratio (in percent) 4/	2.3	0.3	1.1			7.0	7.1	6.3	5.4	4.3	3.5		4.1	3.4	
Primary deficit that stabilizes the debt-to-GDP ratio	-3.6	-7.8	1.9			2.7	1.7	1.2	0.1	0.1	0.1		1.6	1.2	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	4.6	5.0	2.7	4.2	1.1	3.2	4.4	5.5	6.0	6.0	6.0	5.2	6.0	6.0	6.0
Average nominal interest rate on forex debt (in percent)	4.8	1.5	1.7	1.7	1.2	2.0	1.9	1.8	1.7	1.6	1.6	1.8	1.2	1.1	1.2
Average real interest rate on domestic debt (in percent)	-2.5	-1.4	1.1	0.8	2.4	2.2	4.8	4.8	4.1	3.2	2.7	3.6	3.9	3.0	3.6
Real exchange rate depreciation (in percent, + indicates depreciation)	-10.5	8.0	-8.2	-5.7	11.5	1.1	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	2.6	7.2	2.0	3.2	2.0	2.1	2.2	2.2	2.2	2.2	2.2	2.2	3.0	3.0	3.0
Growth of real primary spending (deflated by GDP deflator, in percent)	0.3	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1
Grant element of new external borrowing (in percent)	...	...	...	…	…	37.5	36.1	34.0	33.4	33.6	33.4	34.6	32.7	32.7	...

Sources: Country authorities; and staff estimates and projections.

1/ Public sector includes the central administration of Benin and does not include any political subdivisions such as local governments or any other public or government-owned entities. This DSA is conducted on a gross basis.

2/ Gross financing need is defined as the primary deficit plus debt service plus the stock of short-term debt at the end of the last period.

3/ Revenues excluding grants.

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

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

Table 2b.Benin: 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	21	20	20	19	19	19	16	14
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	21	20	20	20	21	22	20	18
A2. Primary balance is unchanged from 2010	21	20	20	21	21	22	20	19
A3. Permanently lower GDP growth 1/	21	20	20	20	20	20	19	21
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2011-2012	21	21	21	22	22	22	22	22
B2. Primary balance is at historical average minus one standard deviations in 2011-2012	21	21	21	21	20	20	17	14
B3. Combination of B1-B2 using one half standard deviation shocks	21	21	21	21	21	21	20	20
B4. One-time 30 percent real depreciation in 2011	21	25	24	23	22	22	18	15
B5. 10 percent of GDP increase in other debt-creating flows in 2011	21	28	27	27	26	26	22	17
PV of Debt-to-Revenue Ratio 2/								
Baseline	87	86	81	79	78	77	66	55
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	87	84	81	83	86	89	79	68
A2. Primary balance is unchanged from 2010	87	86	83	84	87	90	81	74
A3. Permanently lower GDP growth 1/	87	86	82	80	80	80	75	83
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2011-2012	87	88	87	88	89	90	88	89
B2. Primary balance is at historical average minus one standard deviations in 2011-2012	87	88	88	85	84	83	70	57
B3. Combination of B1-B2 using one half standard deviation shocks	87	87	86	85	85	86	81	79
B4. One-time 30 percent real depreciation in 2011	87	106	99	94	91	89	73	58
B5. 10 percent of GDP increase in other debt-creating flows in 2011	87	120	114	110	107	105	87	66
Debt Service-to-Revenue Ratio 2/								
Baseline	6	6	5	5	4	3	4	3
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	6	6	5	5	4	3	5	4
A2. Primary balance is unchanged from 2010	6	6	5	5	4	3	5	4
A3. Permanently lower GDP growth 1/	6	6	6	5	4	3	4	5
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2011-2012	6	6	6	5	4	4	5	5
B2. Primary balance is at historical average minus one standard deviations in 2011-2012	6	6	6	5	4	3	4	3
B3. Combination of B1-B2 using one half standard deviation shocks	6	6	6	5	4	3	4	5
B4. One-time 30 percent real depreciation in 2011	6	7	7	6	5	4	5	5
B5. 10 percent of GDP increase in other debt-creating flows in 2011	6	6	7	6	6	5	4	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.