INTERNATIONAL MONETARY FUND AND
INTERNATIONAL DEVELOPMENT ASSOCIATION

UGANDA

Joint IMF/World Bank Debt Sustainability Analysis[1]

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

Approved by Robert Corker and Dominique Desruelle (IMF)
and Sudhir Shetty and Carlos Alberto Braga (IDA)

December 19, 2008

Based on the joint Low-Income Country Debt Sustainability Framework of the World Bank and the IMF, Uganda is assessed to be at low risk of debt distress. Its debt ratios have improved substantially over the past few years on account of HIPC and MDRI debt relief. To accelerate and sustain high economic growth, the authorities plan to continue to address infrastructure constraints. Under the baseline scenario, external debt is expected to remain well below the thresholds over the medium and long term, while public debt exhibits stable debt dynamics. However, a permanent shock to real GDP growth under which growth is on average smaller by roughly 1 percent of GDP compared to the baseline scenario and where the path of nominal fiscal expenditure is not adjusted, results in a marked deterioration in public debt. This highlights the risk should the growth dividend from investments undertaken be lower than expected.

I. Background

1. **Uganda has achieved debt sustainability by implementing sound macroeconomic policies and receiving debt relief.** The HIPC and MDRI debt relief improved Uganda's debt sustainability outlook substantially by leading to a drastic reduction in Uganda's debt burden.[2] Over this period, all debt burden indicators declined to levels well below their policy-dependent thresholds.[3]

External Debt Indicators Before and After MDRI

[1] Prepared by the IMF and World Bank staff in consultation with the authorities. This DSA updates the DSA that the authorities had prepared in September 2008 to reflect the impact of the current financial crisis and the projected global slowdown. DSA assumptions and results have been discussed thoroughly with the authorities. All debt indicators refer to Uganda's fiscal year (July-June).

[2] Total MDRI relief (including future interest) delivered in 2005/06 and 2006/07 was about US$3.6 billion.

[3] The World Bank's Country Policy and Institutional Assessment (CPIA) ranks Uganda as a "strong performer." Debt burden thresholds for strong performers are NPV of debt to GDP ratio of 50 percent, NPV of debt-to-exports ratio of 200 percent, NPV of debt-to-revenue ratio of 300 percent, debt-service-to-exports ratio of 25 percent, and debt-service-to-revenue ratio of 35 percent.

	2004/05	2005/06	2006/07
External public debt (US $ bn)	4.4	4.5	1.5
External public debt (percent of GDP)	47.9	45.7	11.4
PPG debt service/Exports [4]	14.2	8.9	4.1

2. **Addressing the infrastructure gap has remained a key element of Uganda's fiscal strategy in the near and medium term.** Financing for the Bujagali hydroelectric plant, aimed to help ease power constraints, was secured in December 2007. The US$800 million project was financed by a private consortium with participation from multilateral lenders**,** with a public sector guarantee of only US$115 million (compared to US$400 million non-concessional borrowing envisaged in the 2007 DSA). Starting in 2008/09, the budget allocations to the road sector to finance reconstruction and maintenance of existing infrastructure almost doubled to 4.5 percent of GDP over three years, to be financed mainly domestically. The government of Uganda seems set to maintain infrastructure development (in transportation, electricity, and water) as a priority in the medium term. The construction of one more hydroelectric plant at Karuma (with about 0.7 percent of GDP per annum to be provided in the budget) will start in 2009/10. The infrastructure necessary for the development of the oil sector (such as a small refinery and pipelines) is still at the planning stage.

II. Assumptions

3. **On the back of Uganda's protracted prudent macroeconomic policies and strong growth, the slowdown in the global economy finds this economy on strong policy footing. Nonetheless, this small and open economy is not completely shielded from the effects of the crisis.** Whereas growth is not expected to decline dramatically, the balance of payments will probably come under pressure, with export growth likely to slow down, and private capital inflows—remittances, foreign direct investment, and portfolio flows—likely to revert back to the pre-2006 levels. The full magnitude of the shocks on these variables is still uncertain and with the international environment becoming more challenging, the sensitivity analysis becomes even more important.

4. **The fiscal DSA is based on Uganda's prudent fiscal stance, on improving public infrastructure over the medium term, and on a gradual tapering off of grant inflows.** It is assumed that grants will continue to decline from 4.5 percent of GDP in FY 2006/07, before stabilizing at around 3 percent of GDP in the medium term, while domestic revenues are projected to increase gradually to 15 percent of GDP in 2012/13, in line with the authorities' policy objective. Non-interest expenditures will increase smoothly on account of the energy crisis and infrastructure improvements and will stabilize at 20 percent of GDP, consistent with zero primary balance in the long run. However, the baseline DSA excludes a number of factors that are difficult to assess and quantify at this stage, specifically: (i) the investment in infrastructure in the oil sector; (ii) oil production (expected to commence in 2010), as the commercial viability and the scale of production is yet to be determined, and (iii) the impact of global economic slowdown on the availability of external financing for the PPPs. Box 1 summarizes the key assumptions of the baseline DSA.

[4] Updated export data contributed to the lower ratios compared with the 2007 DSA.

Box 1. Key Assumptions Underlying the Baseline DSA

Under the baseline scenario, construction of the Bujagali hydroelectric plant which began in 2007/08, will be completed by 2009/10, reflecting the higher investment in infrastructure and the subsequent increase in production.

Real GDP growth is expected to remain strong despite the impact of the global crisis. After a decline to 7 percent over the next three years (compared to 9½ percent in 2008/09), growth will increase to 8 percent in 2011/12. Activity will be boosted by construction activity and revitalization of production in post conflict North and elsewhere due to improvements in infrastructure.

The growth rate of the GDP deflator is expected to decline from 16.3% in 2008/09 to about 5-6%, as international prices fall and domestic liquidity growth is contained within appropriate levels.

Exports of goods and services are projected to grow 13 percent on average between 2007/08 and 2027/28, driven largely by an increase in the export volume of non-traditional exports. This recognizes the fact that exports will slow down effective 2008/09 on account of an expected decline in demand for Ugandan exports and lower export unit values.

The **current account** deficit would be above its historical norm by 1½ percentage points on average between 2007/08 and 2012/13 (peaking at 5½ percent of GDP in 2007/08) on account of higher imports related to the construction of the Bujagali plant, lower global demand for exports, as well as lower private transfer receipts. Ongoing adjustment of the economy (reflected in a growing share of non-traditional exports) would help the current account deficit stabilize at about 3 percent of GDP in the outer years. Excluding grants, the current account will average 3.2 percent of GDP over the twenty year period.

Fiscal revenues are assumed to increase gradually from 12½ percent of GDP in 2006/07 to 15 percent of GDP in 2012/13 and 18 percent beyond 2020, as tax administration improves and the share of manufacturing and service sectors in GDP increases, thereby expanding the tax base. Grants are assumed to decline to 2½ percent of GDP in 2018 and below 2 percentage points of GDP in outer years.

Non-interest expenditures —including 0.6 percent of GDP over four years for the construction of Karuma hydroelectric plant and stepped up road investment— are assumed to taper off at 20 percent of GDP, consistent with zero primary balance in the long term.

Official external loans are projected to increase tri-fold over 20 years from about US$500 million in 2008/09. The DSA assumes that multilateral creditors will scale up their support, and that IDA will support Uganda with lending operations throughout the projection period. Under the baseline, multilateral and bilateral official debt would, on average, be contracted on concessional terms. The US$115 million guarantee for Bujagali is assumed to be called in 2008/09 and paid for in five annual installments starting in 2009/10.

Compared with the 2007 Joint IMF-World Bank DSA, the current baseline scenario assumes a resilient economy in the near term and higher real GDP growth in the medium term, in spite of the global economic downturn. In part, this is on account of the better historical outcomes documented by improved statistics, compared to what was used in the 2007 DSA. At an average growth of 10 percent between 2008 and 2013, export performance is expected to be much lower than about 17 percent envisaged within the 2007 DSA. Import and export projections in particular are driven by lower demand and declining commodity prices. This DSA also uses improved statistics on transfers and services, with a better service balance contributing to slightly improved current account balances for historical years. Overall, the new assumptions result in a somewhat better current account. The current baseline scenario also includes an upward revision to expected external loans in line with the authorities' projections. The fiscal assumptions remain broadly unchanged. The coverage of the current DSA is more comprehensive, as it incorporates best estimates on the private external debt.

III. External Debt Sustainability Analysis

(a) Baseline scenario

5. **External debt is expected to remain sustainable over the next 20 years.** (Tables 1a, and 1b, and Figures 1 and 2).[5] All five debt-burden indicators remain well below their policy-dependent thresholds throughout the period. PV of debt-to-GDP ratio is expected to rise from 14.9 percent in 2006/07 to 17.2 percent in 2009/10, reflecting mainly Bujagali financing as well as higher IDA loans; by 2027/28, however, this ratio is expected to decline to 12.4 percent. The PV of debt-to-exports is expected to increase from 89.6 percent in 2006/07 and peak at 141 percent in 2012/13, as borrowing increases while export growth decelerates on account of the slowdown in global demand. The debt service-to-exports ratio is expected to gradually increase between 2007/08 and 2012/13 to a peak of 14.1 percent (by 2 percentage point higher than in 2006/07), before declining, reflecting the repayments for Bujagali and the delivery of HIPC and MDRI assistance.

(b) Standardized sensitivity analysis

6. **The stress tests point to low risk of debt distress even after taking into account the global downturn.** The standardized sensitivity analysis has been used to inform about the risks to debt sustainability that may arise, in particular, on account of a deeper global downturn and its impact on key macroeconomic variables in Uganda such as weaker medium-term export growth, a sharp depreciation of the Shilling, and lower concessionality of new external borrowing.[6] Under all standardized stress tests, the debt-to-GDP, debt-to-exports, and debt service-to-exports indicators of public and publicly guaranteed external debt remain below their threshold values throughout the next 20 years.

7. **However, a large macroeconomic shock could worsen Uganda's PV of debt-to exports ratio significantly, a risk heightened by the sharp revisions in the global outlook.** Lower export growth (export value growth at historical average minus one standard deviation in 2008/09-2009/10) would raise Uganda's PV of debt-to-exports ratio to a peak of 130 percent of GDP in 2012/13. A combined shock (by one-half standard deviation) to real GDP growth, exports, GDP deflator, and non-debt creating flows over the period 2008/09-2009/10 would increase Uganda's PV-to-GDP ratio to a peak of 22 percent in 2011/12 and its PV-to-revenue ratio to 156 percent in 2009/10. The global slowdown has only increased the downside risk of such shocks, which would have a significant impact on debt sustainability by putting the Ugandan economy at a high

[5] Improved national statistics have resulted in an upward revision of the GDP and the current account balance that contributed to better debt sustainability indicators.

[6] While the baseline already incorporates lower forecasts, the downside risks are significant, as the impact of the financial crisis on global demand is still unfolding. Uganda's export opportunities could be reduced to the extent contagion across countries and sectors is worse than under the baseline. In the event that foreign investors unwind their position in Uganda, more costly access to private capital and downward pressure on the exchange rate would have an adverse effect on debt ratios.

indebtedness level for a prolonged period. Uganda's debt service ratios would nonetheless remain well below the policy-dependent thresholds. Historical scenarios also point to the risks associated with Uganda's uneven performances over the last ten years, with respect to GDP and export growth, inflation, transfers, and FDI inflows. Yet, stronger and more steady outcomes since 2001 would indicate an increased resilience that could help mitigate these risks. Moreover, Uganda's large foreign reserves accumulated in recent years would provide a significant cushion in the event of higher foreign-financing needs.

8. **Overall, Uganda's public and publicly guaranteed external debt will remain sustainable in case of shocks** (Figure 1)**.** Even under the extreme stress test, the PV of public external debt will not exceed 30 percent of GDP over the projection period. Similarly, the stress tests do not indicate any debt-servicing problem. However, the historical scenario points to the risks associated with lower performances, as indicators would continue to deteriorate during the entire projection period.

IV. Fiscal Debt Sustainability Analysis

9. **Indicators of total public debt, which include external debt and domestic public debt, are favorable** (Tables 2a, 2b, and Figure 2)**.** Under the baseline, the PV of public debt will worsen, but stabilize at 21 percent of GDP. The debt-service-to revenue ratio will also stabilize in the medium term. However, indicators would deteriorate markedly if growth were to be reduced for a long time, without any adjustment in the nominal primary expenditure path. As suggested by the sensitivity analysis, if growth were to turn out lower than the baseline by roughly1 percentage point, the debt to GDP, debt-to-revenue and debt-service to revenue ratios would all display an increasing trend even in the long run. The lack of adjustment in the nominal expenditure path in this context, leads to a primary deficit that is, on average, higher than in the baseline by 2.2 percentage points of GDP over the period 2009-2028. This demonstrates the importance of investment selection to ensure value for money and the adjustment in expenditure growth rates in the event of a permanent shock to GDP growth. Structural policies to ensure a favorable investment climate for the private sector will also be crucial.

V. Conclusion

10. **The DSA analysis shows that Uganda's public debt remains sustainable under the baseline scenario.** Uganda's public debt has been reduced significantly as a result of the MDRI, and with a prudent borrowing strategy and the continuation of the stability-oriented fiscal policy, debt should remain comfortably low during the projection period. While Uganda still disposes of additional fiscal space to finance a higher investment program, cautious borrowing and reliance on concessional financing remain a critical element of the debt management strategy. Furthermore, to minimize the risk of lower growth dividend from public investment, careful investment selection to ensure value for money and appropriate structural policies to sustain private investment will be essential.

Table 1a.: External Debt Sustainability Framework, Baseline Scenario, 2005-2028 1/
(In percent of GDP, unless otherwise indicated)

	Actual			Historical Average	Standard Deviation	Projections									
	2005	2006	2007			2008	2009	2010	2011	2012	2013	2008-2013 Average	2018	2028	2014-2028 Average
External debt (nominal) 1/	**56.5**	**53.9**	**18.5**			**20.0**	**22.1**	**23.8**	**24.4**	**24.7**	**24.6**		**23.5**	**19.3**	
o/w public and publicly guaranteed (PPG)	47.9	45.7	11.4			12.3	13.9	15.6	17.1	18.3	19.0		20.1	16.9	
Change in external debt	-11.9	-2.5	-35.4			1.5	2.1	1.7	0.6	0.3	-0.1		-0.1	-0.6	
Identified net debt-creating flows	-15.6	-4.4	-11.9			-1.8	-0.9	-0.1	-0.2	0.0	-0.1		-0.3	-0.7	
Non-interest current account deficit	**1.9**	**2.5**	**2.0**	**3.4**	**1.9**	**5.5**	**4.7**	**5.2**	**4.7**	**5.1**	**4.8**	5.0	**3.6**	**1.9**	3.0
Deficit in balance of goods and services	10.7	12.7	11.2			12.5	12.2	11.7	11.2	11.4	10.7		8.3	5.1	
Exports	14.2	15.3	16.6			19.8	17.0	14.2	13.2	12.2	11.2		13.8	16.6	
Imports	24.8	28.0	27.8			32.3	29.2	25.9	24.4	23.6	22.0		22.1	21.7	
Net current transfers (negative = inflow)	-10.6	-11.6	-10.4	-9.6	2.1	-8.5	-9.2	-7.8	-7.5	-7.2	-6.8	-7.8	-5.2	-3.2	-4.6
o/w official	-8.5	-4.6	-4.5			-2.9	-4.4	-3.6	-3.5	-3.5	-3.4		-2.2	-1.0	
Other current account flows (negative = net inflow)	1.9	1.4	1.1			1.5	1.8	1.3	1.0	0.9	0.9		0.6	-0.1	
Net FDI (negative = inflow)	**-3.7**	**-3.8**	**-5.8**	**-2.7**	**1.4**	**-6.5**	**-5.0**	**-4.6**	**-4.2**	**-4.0**	**-3.8**	-4.7	**-3.3**	**-2.6**	-3.1
Endogenous debt dynamics 2/	**-13.8**	**-3.1**	**-8.0**			**-0.9**	**-0.7**	**-0.7**	**-0.8**	**-1.0**	**-1.1**		**-0.7**	**0.0**	
Contribution from nominal interest rate	1.0	1.0	0.8			0.6	0.5	0.7	0.7	0.7	0.6		0.9	1.3	
Contribution from real GDP growth	-3.4	-5.6	-3.9			-1.4	-1.2	-1.4	-1.5	-1.7	-1.7		-1.6	-1.2	
Contribution from price and exchange rate changes	-11.4	1.5	-5.0			…	…	…	…	…	…		…	…	
Residual (3-4) 3/	**3.7**	**1.9**	**-23.5**			**3.3**	**3.0**	**1.8**	**0.9**	**0.3**	**0.0**		**0.3**	**0.1**	
o/w exceptional financing	0.0	-0.9	-28.6			0.1	0.1	0.1	0.0	0.0	0.0		0.0	0.0	
PV of external debt 4/	...	...	14.9			15.7	17.0	17.2	16.9	16.4	15.9		14.7	12.4	
In percent of exports	...	...	89.6			79.5	99.9	121.1	127.7	134.3	141.0		106.0	75.1	
PV of PPG external debt	**...**	**...**	**7.8**			**8.1**	**8.8**	**9.0**	**9.5**	**9.9**	**10.2**		**11.3**	**10.0**	
In percent of exports	**...**	**...**	**46.7**			**40.7**	**51.7**	**63.3**	**72.0**	**81.3**	**90.8**		**81.7**	**60.5**	
In percent of government revenues	**...**	**...**	**61.7**			**62.2**	**68.0**	**67.0**	**68.2**	**69.2**	**68.7**		**67.5**	**54.9**	
Debt service-to-exports ratio (in percent)	**25.4**	**18.7**	**12.0**			**7.7**	**8.3**	**10.2**	**12.2**	**12.7**	**14.1**		**12.0**	**12.8**	
PPG debt service-to-exports ratio (in percent)	**14.2**	**8.9**	**4.1**			**2.1**	**2.3**	**2.8**	**3.3**	**3.4**	**3.7**		**2.6**	**3.5**	
PPG debt service-to-revenue ratio (in percent)	**16.8**	**10.7**	**5.4**			**3.2**	**3.1**	**2.9**	**3.2**	**2.9**	**2.8**		**2.1**	**3.2**	
Total gross financing need (Billions of U.S. dollars)	0.2	0.2	-0.2			0.1	0.2	0.4	0.5	0.7	0.8		1.0	1.6	
Non-interest current account deficit that stabilizes debt ratio	13.8	5.0	37.4			4.0	2.7	3.6	4.1	4.8	4.9		3.7	2.5	
Key macroeconomic assumptions															
Real GDP growth (in percent)	6.3	10.8	8.6	8.8	5.3	9.5	7.4	7.3	7.1	8.0	8.0	7.9	7.4	6.7	7.6
GDP deflator in US dollar terms (change in percent)	20.1	-2.5	10.1	-1.0	11.0	11.4	12.5	10.8	3.9	3.9	4.9	7.9	2.1	2.1	2.0
Effective interest rate (percent) 5/	1.9	2.0	1.7	1.8	0.3	3.8	3.2	3.5	3.5	3.2	2.9	3.4	4.3	6.9	5.0
Growth of exports of G&S (US dollar terms, in percent)	29.4	16.4	29.9	10.6	18.7	45.4	3.7	-1.0	3.8	3.9	4.2	10.0	13.5	10.3	12.7
Growth of imports of G&S (US dollar terms, in percent)	26.6	21.8	18.8	10.9	9.6	41.6	9.2	5.2	5.2	8.6	5.4	12.5	9.2	9.1	9.7
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	53.5	44.7	51.8	53.4	53.7	52.8	51.7	49.6	47.0	48.6
Government revenues (excluding grants, in percent of GDP)	11.9	12.7	12.6			13.0	12.9	13.4	13.9	14.4	14.9		16.7	18.3	17.1
Aid flows (in Billions of US dollars) 7/	0.7	0.5	0.5			0.7	1.2	1.2	1.3	1.5	1.6		1.9	2.7	
o/w Grants	0.7	0.5	0.5			0.4	0.7	0.6	0.7	0.8	0.9		1.1	1.6	
o/w Concessional loans	0.0	0.0	0.0			0.3	0.5	0.6	0.6	0.7	0.7		0.8	1.1	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			4.0	5.9	4.8	4.7	4.7	4.6		3.3	2.0	2.9
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			77.4	72.9	74.8	75.9	76.2	76.2		75.8	73.8	75.3
Memorandum items:															
Nominal GDP (Billions of US dollars)	9.2	10.0	11.9			14.5	17.6	20.9	23.2	26.1	29.5		49.1	119.3	
Nominal dollar GDP growth	27.7	8.0	19.6			22.0	20.9	18.8	11.3	12.2	13.3	**16.4**	9.7	9.0	9.8
PV of PPG external debt (in Billions of US dollars)			0.9			1.2	1.5	1.9	2.2	2.6	3.0		5.6	12.0	
(PVt-PVt-1)/GDPt-1 (in percent)						2.1	2.6	1.9	1.6	1.6	1.6	1.9	1.3	0.6	1.1

Source: Staff simulations.

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 1b.Uganda: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2008-2028
(In percent)

	Projections							
	2008	2009	2010	2011	2012	2013	**2018**	2028
PV of debt-to GDP ratio								
Baseline	8	9	9	10	10	10	**11**	10
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2008-2028 1/	8	10	11	12	12	13	**15**	23
A2. New public sector loans on less favorable terms in 2008-2028 2	8	9	10	11	12	12	**13**	12
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2009-2010	8	9	10	10	11	11	**12**	11
B2. Export value growth at historical average minus one standard deviation in 2009-2010 3/	8	10	11	12	12	12	**13**	10
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-2010	8	11	14	15	16	16	**18**	16
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-2010 4/	8	12	13	14	14	14	**14**	11
B5. Combination of B1-B4 using one-half standard deviation shocks	8	15	21	22	22	21	**21**	16
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	8	12	12	13	14	14	**15**	14
PV of debt-to-exports ratio								
Baseline	41	52	63	72	81	91	**82**	61
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2008-2028 1/	41	59	76	88	100	113	**110**	138
A2. New public sector loans on less favorable terms in 2008-2028 2	41	52	70	82	94	106	**95**	73
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2009-2010	41	52	63	72	81	91	**81**	60
B2. Export value growth at historical average minus one standard deviation in 2009-2010 3/	41	65	97	107	119	130	**111**	76
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-2010	41	52	63	72	81	91	**81**	60
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-2010 4/	41	69	95	104	113	122	**100**	65
B5. Combination of B1-B4 using one-half standard deviation shocks	41	72	103	112	121	131	**105**	67
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	41	52	63	72	81	91	**81**	60
PV of debt-to-revenue ratio								
Baseline	62	68	67	68	69	69	**68**	55
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2008-2028 1/	62	78	81	84	85	85	**91**	125
A2. New public sector loans on less favorable terms in 2008-2028 2	62	69	74	78	80	80	**78**	66
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2009-2010	62	71	72	73	75	74	**73**	59
B2. Export value growth at historical average minus one standard deviation in 2009-2010 3/	62	76	84	84	83	81	**75**	57
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-2010	62	87	108	110	112	111	**109**	88
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-2010 4/	62	90	101	98	96	93	**83**	59
B5. Combination of B1-B4 using one-half standard deviation shocks	62	113	159	155	150	144	**126**	88
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	62	93	92	93	94	94	**92**	74

Source: Staff projections and simulations.

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

Table 1b.Uganda: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2008-2028 (continued)
(In percent)

	Projections							
	2008	2009	2010	2011	2012	2013	**2018**	2028
Debt service-to-exports ratio								
Baseline	2	2	3	3	3	4	**3**	4
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2008-2028 1/	2	3	3	4	4	5	**4**	6
A2. New public sector loans on less favorable terms in 2008-2028 2	2	2	3	3	4	5	**5**	4
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2009-2010	2	2	3	3	3	4	**3**	3
B2. Export value growth at historical average minus one standard deviation in 2009-2010 3/	2	3	4	5	5	5	**4**	5
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-2010	2	2	3	3	3	4	**3**	3
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-2010 4/	2	2	3	4	4	4	**3**	4
B5. Combination of B1-B4 using one-half standard deviation shocks	2	2	3	4	4	5	**4**	4
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	2	2	3	3	3	4	**3**	3
Debt service-to-revenue ratio								
Baseline	3	3	3	3	3	3	**2**	3
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2008-2028 1/	3	3	4	4	4	4	**3**	6
A2. New public sector loans on less favorable terms in 2008-2028 2	3	3	3	3	3	4	**4**	4
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2009-2010	3	3	3	3	3	3	**2**	3
B2. Export value growth at historical average minus one standard deviation in 2009-2010 3/	3	3	3	4	3	3	**2**	3
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-2010	3	4	5	5	5	4	**3**	5
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-2010 4/	3	3	3	4	4	3	**3**	4
B5. Combination of B1-B4 using one-half standard deviation shocks	3	4	5	6	5	5	**4**	5
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	3	4	4	4	4	4	**3**	4
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	46	46	46	46	46	46	**46**	46

Source: Staff projections and simulations.

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

Table 2a.Uganda: Public Sector Debt Sustainability Framework, Baseline Scenario, 2005-2028
(In percent of GDP, unless otherwise indicated)

	Actual					Estimate			Projections						
	2005	2006	2007	Average	Standard Deviation	2008	2009	2010	2011	2012	2013	2008-13 Average	2018	2028	2014-28 Average
Public sector debt 1/	57.4	55.3	23.6			23.1	21.6	22.8	23.0	23.4	23.5		28.8	28.0	
o/w foreign-currency denominated	47.9	45.7	11.4			12.3	13.9	15.6	17.1	18.3	19.0		20.1	16.9	
Change in public sector debt	-10.3	-2.1	-31.7			-0.5	-1.4	1.1	0.2	0.4	0.1		0.8	-0.4	
Identified debt-creating flows	-7.8	-1.8	-37.2			-1.2	-0.1	2.0	1.8	1.7	1.2		0.5	-0.5	
Primary deficit	-0.2	0.5	-0.2	1.3	1.6	0.6	2.6	2.9	2.9	3.1	3.0	2.5	1.8	0.3	1.2
Revenue and grants	19.3	17.7	17.1			15.7	17.1	16.5	16.9	17.4	17.8		19.0	19.6	
of which: grants	7.3	4.9	4.5			2.7	4.1	3.1	3.0	3.0	3.0		2.3	1.3	
Primary (noninterest) expenditure	19.0	18.2	16.9			16.3	19.7	19.4	19.8	20.4	20.8		20.8	19.9	
Automatic debt dynamics	-9.6	-2.4	-11.2			-2.0	-3.2	-1.4	-1.4	-1.6	-2.0		-1.6	-1.2	
Contribution from interest rate/growth differential	-5.0	-5.8	-4.8			-1.4	-2.2	-1.1	-1.1	-1.4	-1.6		-1.6	-1.2	
of which: contribution from average real interest rate	-1.0	-0.2	-0.4			0.6	-0.6	0.4	0.4	0.3	0.2		0.3	0.6	
of which: contribution from real GDP growth	-4.0	-5.6	-4.4			-2.1	-1.6	-1.5	-1.5	-1.7	-1.7		-1.9	-1.8	
Contribution from real exchange rate depreciation	-4.6	3.4	-6.4			-0.6	-1.0	-0.3	-0.2	-0.2	-0.4		...	...	
Other identified debt-creating flows	2.0	0.1	-25.8			0.1	0.6	0.4	0.3	0.2	0.2		0.2	0.3	
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)	0.0	0.0	-25.8			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Other (specify, e.g. bank recapitalization)	2.0	0.1	0.0			0.1	0.6	0.4	0.3	0.2	0.2		0.2	0.3	
Residual, including asset changes	-2.4	-0.3	5.5			0.7	-1.3	-0.8	-1.6	-1.2	-1.1		0.4	0.2	
Other Sustainability Indicators															
PV of public sector debt	9.5	9.6	19.4			18.4	16.2	16.4	15.7	15.4	15.0		20.2	21.2	
o/w foreign-currency denominated	0.0	0.0	7.2			7.7	8.5	9.2	9.7	10.2	10.5		11.5	10.2	
o/w external	...	...	7.2			7.7	8.5	9.2	9.7	10.2	10.5		11.5	10.2	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	15.9	13.4	11.1			8.0	9.8	8.7	8.6	8.1	7.7		9.0	9.0	
PV of public sector debt-to-revenue and grants ratio (in percent)	49.3	54.3	113.3			117.6	94.9	99.4	92.5	88.4	84.2		106.2	108.3	
PV of public sector debt-to-revenue ratio (in percent)	79.6	75.4	153.9			141.9	125.3	122.1	112.4	106.9	101.0		120.6	116.2	
o/w external 3/	…	…	57.0			59.4	65.6	68.5	69.8	71.0	70.5		68.5	55.6	
Debt service-to-revenue and grants ratio (in percent) 4/	52.2	46.1	42.6			12.8	16.3	13.8	14.4	13.4	13.2		18.0	18.9	
Debt service-to-revenue ratio (in percent) 4/	84.2	63.9	57.9			15.5	21.6	17.0	17.5	16.3	15.8		6.4	7.6	
Primary deficit that stabilizes the debt-to-GDP ratio	10.0	2.6	31.5			1.1	4.0	1.8	2.7	2.6	2.9		1.0	0.7	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	6.3	10.8	8.6	8.8	5.3	9.5	7.4	7.3	7.1	8.0	8.0	7.9	7.4	6.7	7.6
Average nominal interest rate on forex debt (in percent)	0.8	0.8	0.5	0.9	0.3	1.0	1.0	1.4	1.3	1.2	1.2	1.2	1.2	1.2	1.2
Average real interest rate on domestic debt (in percent)	3.5	9.3	5.4	7.4	2.8	6.6	-6.0	6.6	7.2	8.8	6.8	5.0	6.5	7.0	7.5
Real exchange rate depreciation (in percent, + indicates depreciation)	-8.6	8.0	-15.5	1.8	11.6	-5.4	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	8.0	2.3	7.4	3.8	5.0	6.2	16.3	5.8	5.2	5.1	6.3	7.5	5.0	5.0	5.0
Growth of real primary spending (deflated by GDP deflator, in percent)	0.0	0.1	0.0	0.1	0.1	0.1	0.30	0.06	0.10	0.11	0.10	0.12	0.07	0.07	0.1
Grant element of new external borrowing (in percent)	...	...	...	…	…	53.5	44.7	51.8	53.4	53.7	52.8	51.7	49.6	47.0	...

Sources: Country authorities; Bank and Fund staff estimates and projections.

1/ [Indicate coverage of public sector, e.g., general government or nonfinancial public sector. Also whether net or 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.

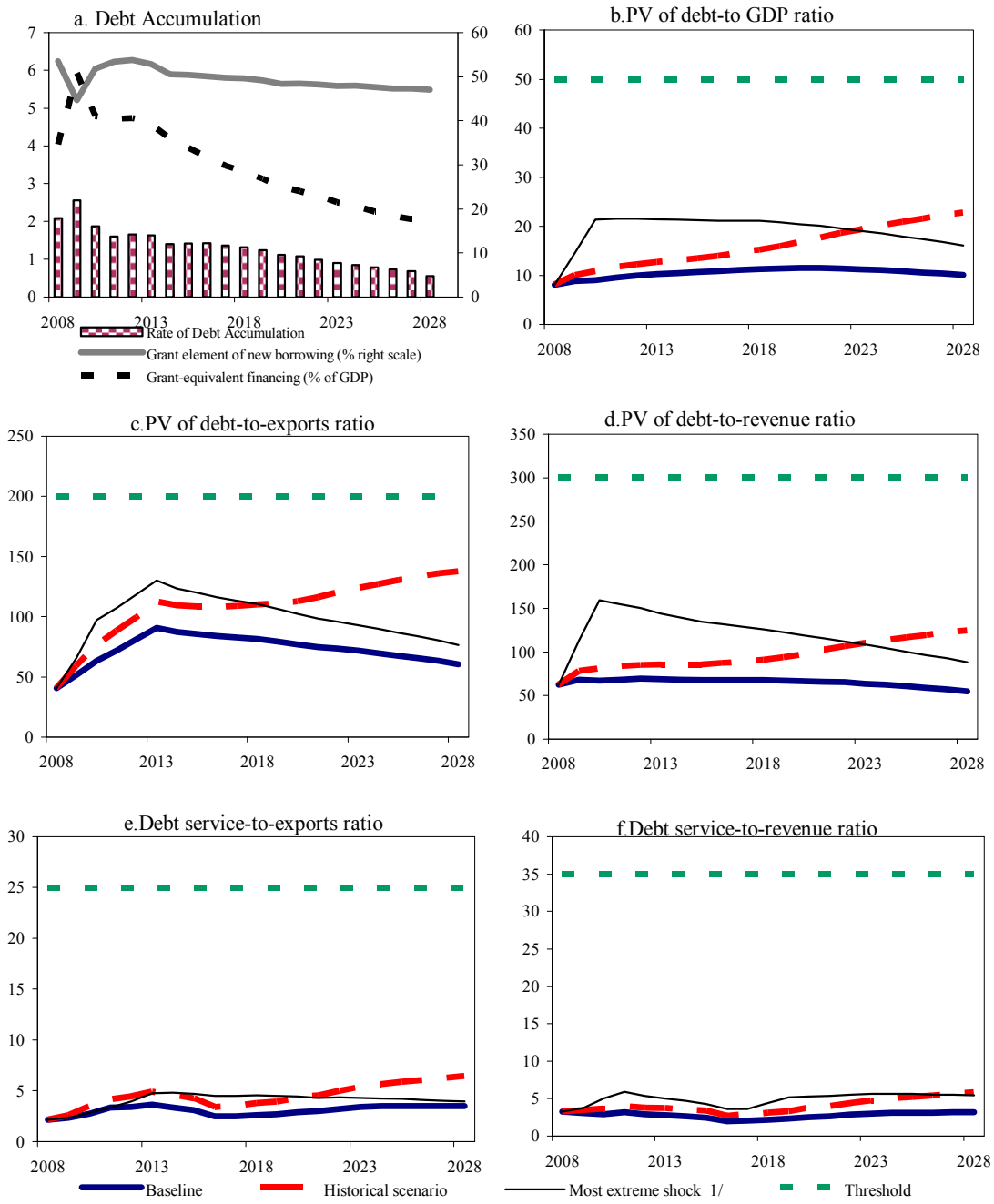
5/ Historical averages and standard deviations are generally derived over the past 10 years, subject to data availability.

Table 2b.Uganda: Sensitivity Analysis for Key Indicators of Public Debt 2008-2028

	Projections							
	2008	2009	2010	2011	2012	2013	2018	2028
PV of Debt-to-GDP Ratio								
Baseline	18	16	16	16	15	15	20	21
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	18	15	13	11	10	8	11	18
A2. Primary balance is unchanged from 2008	18	14	12	10	7	5	6	11
A3. Permanently lower GDP growth 1/	18	17	17	17	17	18	31	60
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	18	17	19	19	20	20	30	39
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	18	16	17	16	16	15	20	21
B3. Combination of B1-B2 using one half standard deviation shocks	18	16	15	15	15	15	22	26
B4. One-time 30 percent nominal depreciation in 2009	18	19	18	16	15	15	20	22
B5. 10 percent of GDP increase in other debt-creating flows in 2009	18	26	26	24	24	23	26	26
PV of Debt-to-Revenue Ratio 2/								
Baseline	118	95	99	92	88	84	106	108
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	118	87	82	67	55	45	59	93
A2. Primary balance is unchanged from 2008	118	84	75	57	42	29	32	58
A3. Permanently lower GDP growth 1/	118	97	104	100	100	100	159	301
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	118	100	114	112	113	113	157	199
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	118	97	101	94	90	85	107	109
B3. Combination of B1-B2 using one half standard deviation shocks	118	93	93	89	87	85	116	133
B4. One-time 30 percent nominal depreciation in 2009	118	109	108	97	89	82	103	112
B5. 10 percent of GDP increase in other debt-creating flows in 2009	118	151	155	144	136	128	139	134
Debt Service-to-Revenue Ratio 2/								
Baseline	13	16	14	14	13	13	18	19
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	13	16	13	9	7	5	9	17
A2. Primary balance is unchanged from 2008	13	16	13	7	4	1	3	10
A3. Permanently lower GDP growth 1/	13	16	14	15	15	16	28	55
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	13	17	15	17	18	19	28	35
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	13	16	14	15	13	14	18	19
B3. Combination of B1-B2 using one half standard deviation shocks	13	16	14	13	11	13	20	23
B4. One-time 30 percent nominal depreciation in 2009	13	17	15	16	15	15	20	23
B5. 10 percent of GDP increase in other debt-creating flows in 2009	13	16	18	48	20	32	23	26

Sources: Country authorities; Bank and Fund staff estimates and projections.
1/ Assumes that real GDP growth is at baseline minus one standard deviation divided by the length of the projection period.
2/ Revenues are defined inclusive of grants.

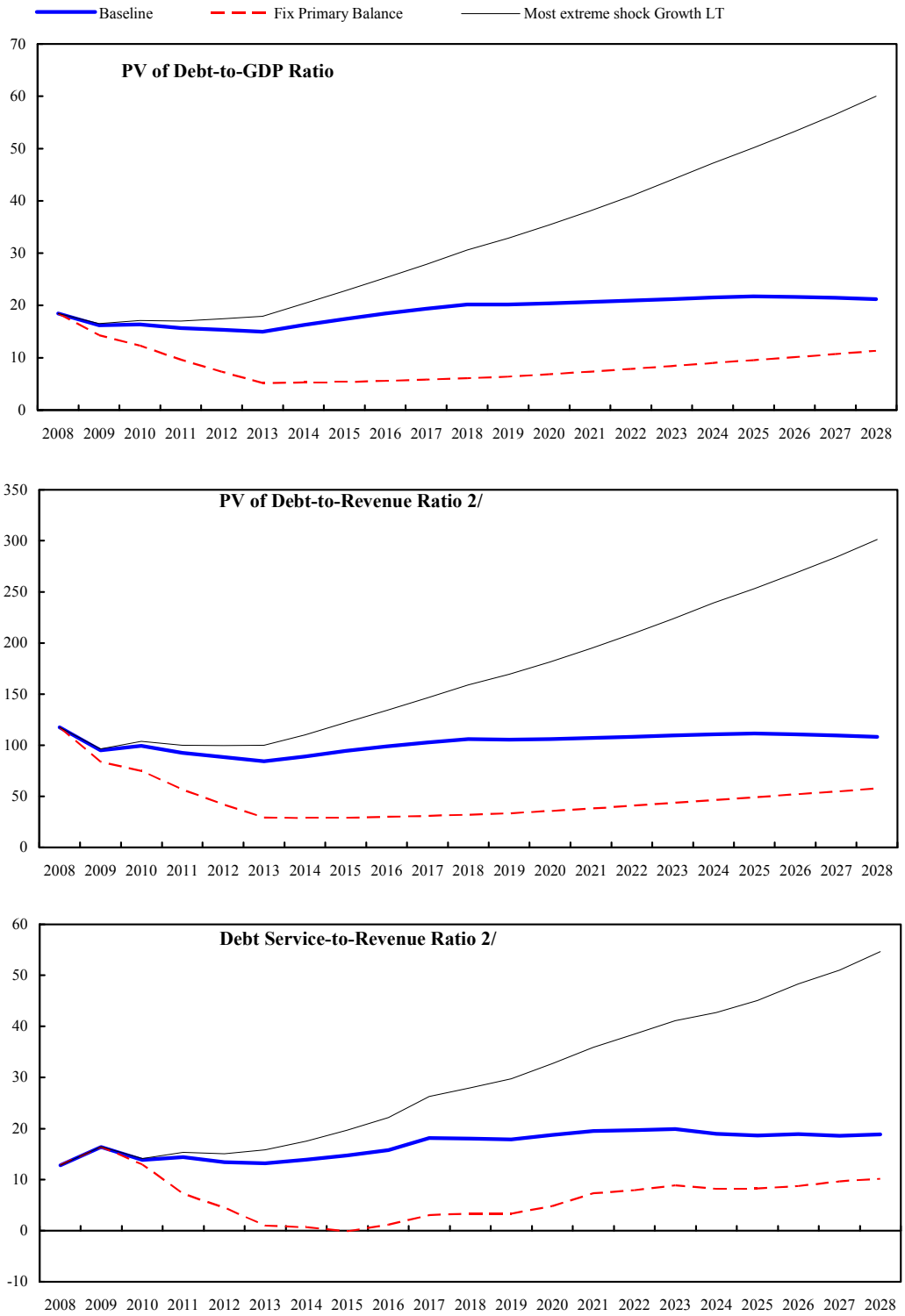
Figure 1. Uganda: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2008-2028 1/



Source: Staff projections and simulations.

1/ The most extreme stress test is the test that yields the highest ratio in 2018. In figure b. it corresponds to a Combination shock; in c. to a Exports shock; in d. to a Combination shock; in e. to a Terms shock and in picture f. to a Combination shock

Figure 2.Uganda: Indicators of Public Debt Under Alternative Scenarios, 2008-2028 1/



Sources: Country authorities; Bank and Fund staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2018.

2/ Revenues are defined inclusive of grants.