INTERNATIONAL MONETARY FUND

MALAWI

Debt Sustainability Analysis 2007 Update Under the Framework for Low Income Countries

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December 3, 2007

This report updates the debt sustainability analysis undertaken in August 2006 when Malawi reached the completion point under the HIPC Initiative.[1] Based on the joint World Bank/IMF Low-Income Country Debt Sustainability Framework, Malawi is assessed at **moderate risk** of debt distress. Its debt ratios have improved dramatically in recent years (because of fiscal consolidation and debt relief under HIPC Initiative and the MDRI) and are projected to improve further over the medium term. The assessment of debt sustainability does not change even after the inclusion of domestic debt. However, stress tests suggest potential vulnerabilities, particularly if the projected growth in output and exports does not materialize or if the government borrows on less concessional rates. Reducing the risk of debt distress will depend on maintaining sound macroeconomic policies and some further fiscal consolidation as well as on sustaining growth.

I. Background

1. **This report updates the DSA undertaken in August 2006 when Malawi reached the completion point under the HIPC Initiative**. It incorporates revisions to the medium-term macroeconomic framework under the government's PRGF-supported program. It does not incorporate a loan-by-loan review of Malawi's stock of external debt obligations.

2. **Malawi has made significant progress in reducing its external debt burden in the context of the HIPC Initiative and the MDRI**. After reaching the completion point under the HIPC Initiative in August 2006, Malawi received assistance from the IMF, the World Bank, the AfDB, and other multilaterals, as well as from all its Paris Club creditors and a number of non-Paris Club creditors. Due to the unanticipated deterioration in Malawi's NPV

[1] 'Malawi—Debt Relief at the Heavily Indebted Poor Countries Initiative Completion Point and Under the Multilateral Debt Relief Initiative', August 16 2006, Country Report No. 06/420.

of debt-to-exports ratio between the decision and completion points resulting from exogenous shocks, Malawi was also eligible for topping-up of HIPC assistance. On reaching the completion point, Malawi also became eligible for debt relief under the MDRI from the IMF, the World Bank, and the AfDB, reducing total debt service obligations by US$1.47 billion. After assistance under the HIPC Initiative, including topping–up, and debt relief under the MDRI, Malawi's stock of external debt fell from 104 percent of GDP at end-2005 to 14.2 percent at end-2006.[2] The NPV of debt declined from 38 percent of GDP at end-2005 to about 8 percent at end-2006, and from 190 percent of exports to 40.9 percent.

3. **Central government domestic debt has fallen in recent years as a result of fiscal consolidation**. Gross domestic debt fell from 20 percent of GDP at end-2005 to about 15 percent at end-2006. Currently, domestic debt consists mainly of short-term treasury bills (including securities issued to cover losses of the Reserve Bank of Malawi).

4. **Malawi's overall risk of debt distress has improved from high under the previous assessment on the basis of end-2005 data to moderate.** At the same time, in the absence of reliable data on private external debt, the external DSA is limited to public and publicly-guaranteed external debt. While the stock of private external debt is not believed to be large, its exclusion qualifies conclusions about the overall stance of the debt sustainability.

II. Underlying DSA Assumptions

5. **The medium-term framework underlying the DSA is consistent with the government's economic program supported by a PRGF arrangement with the IMF.** It envisages maintenance of robust real growth rates, a gradual reduction in the external current account deficit through export diversification, prudent fiscal policies, and the government's g use of concessional financing. The assumptions have been modified from those underlying the 2006 DSA to reflect positive developments in 2006/07 and the benefits of implementing structural measures in the near future.[3] The outlook is also boosted by the impending launch of the Kayelekera uranium mine in 2009. The key macroeconomic assumptions are summarized in Box 1. As a result, the current DSA assumes higher economic growth, exports and government revenues in the medium term. In the longer term, growth rates converge to those assumed in the previous DSA analysis.

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[2] The Malawi authorities recently revised the historical GDP estimates to better reflect the informal sector. As a result, nominal GDP in 2006 was increased by over 40 percent. Due to these revisions, the GDP ratios in this DSA update do not match those in the previous 2006 DSA exercise.

[3] In particular, reforms in the areas of public financial management, governance, and financial intermediation.

Box 1. Macroeconomic Assumptions in the Baseline Scenario

Real GDP growth is projected to average 7.2 percent over 2007–12, subsequently declining to 3.9 percent. Growth in the medium term is higher than previously projected through to 2012 because of the acceleration in growth during 2006-08 and the opening of a new uranium mine in 2009. Growth is substantially higher than the 2.9 percent average over the past decade, that reflected poor macroeconomic management and a sequence of negative shocks, including a food crisis in 2005.

The Kayelekera uranium mine is expected to last ten years starting in 2009. The mine will add to overall economic growth while production is being ramped up during the first four years, but will then detract from overall growth as production is wound down at the end of the mine's life. Malawi's overall economic growth will subsequently converge to the regional average. At its peak, the mine could add 10 percent to Malawi's overall GDP and 25 percent to exports.

I**nflation**, is expected to remain in single digits, declining moderately from current rates of around 7 percent to around 5 percent over the long run. The real exchange rate is assumed to remain stable.

The external current account, including aid transfers but excluding interest payments, is assumed to improve gradually as exports benefit from further diversification, output from the uranium mine, and investment in key sectors. The current account balance will also benefit from a significant increase in domestic private savings, reflecting a further strengthening in financial intermediation.

Imports are expected to rise at a more moderate pace than in the past—rising 4.9 percent each year compared to 11 percent over the past decade(largely because of substantial maize imports during the food crises in 2001/02 and 2005/06). The moderation in imports growth is underpinned by stronger domestic production, especially for food, and hence stronger food security. However, there may be scope for higher imports in other sectors, including imports related to FDI in the mining sector.

Exports growth is expected to accelerate, averaging around 14 percent during 2007–12 compared to 1.8 percent over the past decade. This strong performance reflects: (i) the new uranium exports; (ii) increased market access due to the improved business environment and more business-friendly legislative framework, (iii) enhanced competitiveness because of export diversification and structural reforms under different donor programs (including the WB PRSC); (iv) continued investment in the competitive sectors of economy, and (v) more favorable prices for Malawi's commodity exports. The strong export performance is assumed to be partially reversed once production from the uranium mine peaks, declines and then ceases in 2020, at which time exports growth averages about 5.5 percent for the rest of the projection period.

Revenues (excluding grants) are projected to increase relative to GDP due to the expansion of the tax base and reforms aimed at improving tax administration. Domestic revenues could reach 16.6 percent of GDP in the medium term and 17.7 percent in the long term, exceeding the 15 percent average over the past decade.

Aid, is projected to average 17.2 percent of GDP over 2007-12, and remain around 17 percent over the remainder of the projection period. Aid flow projections are based on the data provided by donors for the 2006 DSA, updated for actual disbursements in 2006/07 and adjustments to donor commitments in the medium-term .New external borrowing after 2010 is projected to increase 6.5 percent each year. Grant equivalent financing (loans and grants) is expected to decline from about 84 percent of total external financing in 2007 to about 82 percent by 2027. This is consistent with the long run assumption that non-concessional domestic debt will be partly replaced by concessional external debt.

III. External Sector DSA

6. **In the baseline scenario, all external debt indicators remain below the policy dependent debt burden thresholds.** The baseline scenario incorporates the same lending terms assumed for the 2006 DSA. The debt-burden thresholds utilized are those applicable for medium-level performers in policy implementation and institutional quality, as measured by a three-year moving average of the World Bank's Country Policy and Institutional Assessment Index (CPIA). In this context, the DSA projects all the external debt indicators remaining below their thresholds for debt distress (Table 1 and Figures 1-6). For instance, the ratio of the NPV of debt to exports increases from 61 during 2007-2012 to about 107.3 in the long run. It peaks at 116.5 percent in 2024, and declines slightly at the end of the projection period. The ratio of debt service to exports rises from about 3.2 percent in 2007 to about 10.4 percent in 2022, but nevertheless remains below the threshold.

7. **Debt service obligations are projected to remain manageable, reflecting moderate new borrowing levels and the concessionality of existing debt and new borrowings.** Debt service payments are projected to average 2.8 percent of exports (3.5 percent of revenues) during the medium term, rising to about 8.7 percent of exports (10.2 percent of revenues) during the later years of the projection period. The increase arises because of the slower growth in aid, and slower export growth due to depletion of the uranium mine.

Table 1. Malawi External Debt Burden Indicators under the baseline scenario

	Threshold	Malawi's Ratios					
		2007	2009	2012	2015	2018	2027
NPV of debt, in percent of:							
Exports	150	41.9	58.7	75.1	95.8	107.4	115.3
Revenues	250	51.7	73.9	102.2	122.5	132.0	120.0
GDP	40	8.2	11.9	17.1	22.5	23.2	22.0
Debt service in percent of:							
Exports	20	3.2	3.0	2.6	6.5	7.7	11.2
Revenues	30	4.0	3.8	3.5	8.3	9.5	11.6

8. **External debt accumulation in the baseline scenario is broadly manageable.** The annual increase in the NPV of external debt is 2.9 percentage points of GDP during 2007–2012, subsequently decelerating to average 1.8 percentage points over the last decade of projections. Malawi, is expected to continue using IMF resources and to borrow from IDA. Overtime, Malawi is also expected to accept loans on less-concessional terms This is reflected in the small reduction in the grant element indicators (see Figure 1).

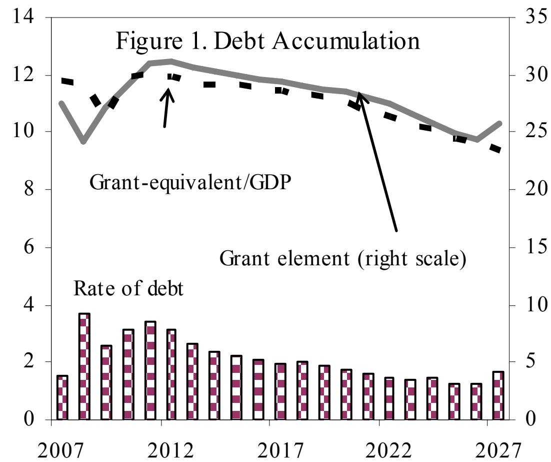

Figure 1. Debt Accumulation

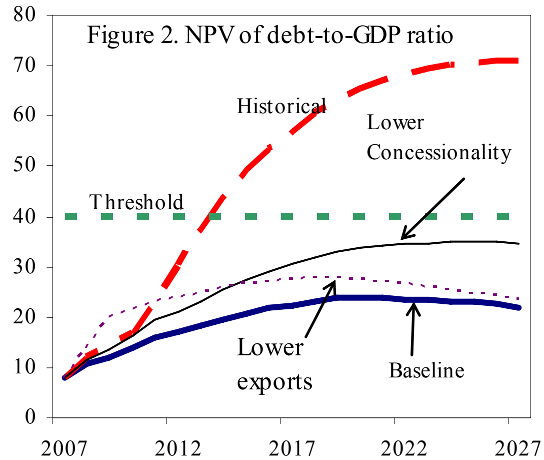

Figure 2. NPV of debt-to-GDP ratio

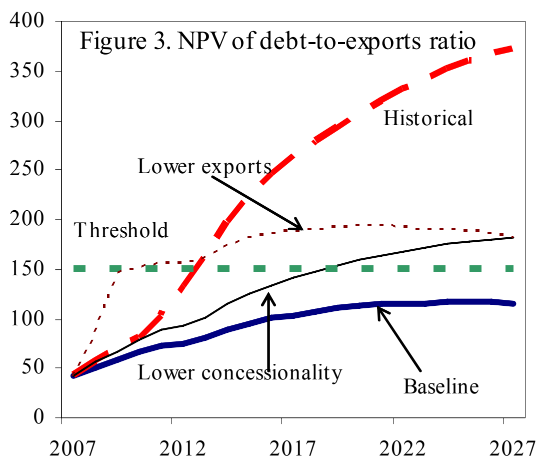

Figure 3. NPV of debt-to-exports ratio

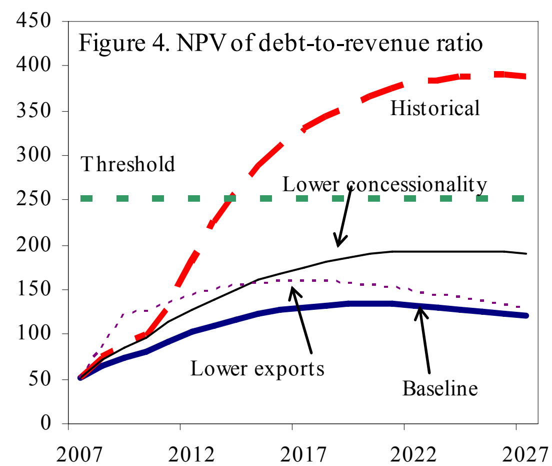

Figure 4. NPV of debt-to-revenue ratio

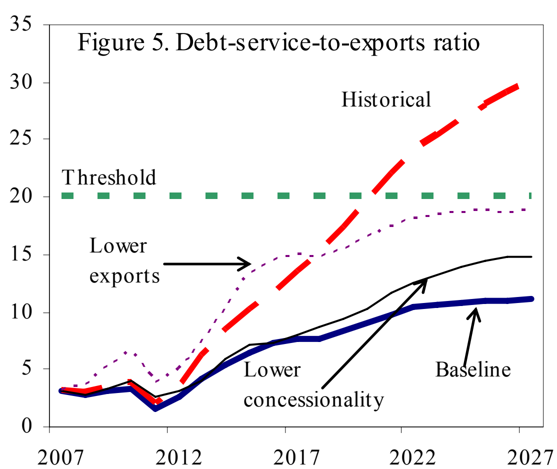

Figure 5. Debt-service-to-exports ratio

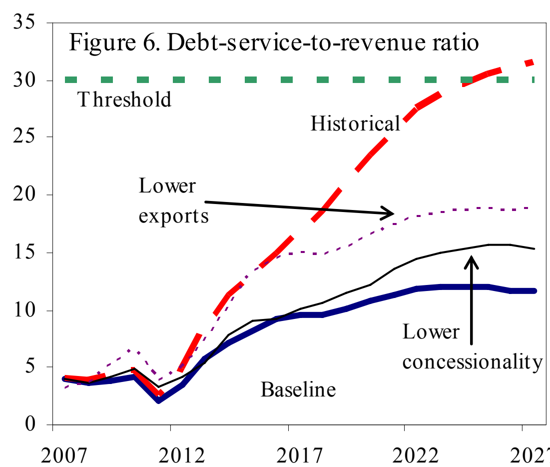

Figure 6. Debt-service-to-revenue ratio

9. **Stress tests reveal potential vulnerabilities in Malawi's external debt situation**. Lower concessionality of new loans has adverse implications for Malawi's debt sustainability. This scenario assumes that new borrowing is charged interest at 2 percentage points higher than in the baseline. Under this scenario, the NPV of external debt breaches the export threshold in 2018 onwards. While debt service remains below the export threshold, it rises significantly from 3.2 percent in 2007 to 13.9 percent in 2024. Similarly, debt service rises from 4 percent to 15 percent of revenues over the same period. The NPV of external debt rises from 51.7 percent of revenues in 2007 to 191 percent in 2021.

10. **Malawi's external debt sustainability could be severely affected by lower exports**, including a cancellation of the uranium mine or a downturn in Malawi's commodity prices. This scenario assumes that export growth will be one standard deviation below its historical average. Under this assumption, the NPV of debt will breach the export threshold by 2010. Debt service will peak at 18.5 percent of exports in 2023 and remain steady in subsequent years. The NPV of debt will peak at 158.2 percent of revenues in 2016 and debt service will peak at 14.0 percent of revenues in 2023.

11. **The historical scenario** assumes no external sector adjustment and that key macroeconomic variables evolve at their historic averages over 1997-2007. Under these circumstances, the debt sustainability indicators cross their respective thresholds as early as 2012 and continue to deteriorate thereafter. The period from which these historical averages are drawn include years of particularly poor macroeconomic performance, including the emergence of a domestic debt spiral and a severe food crisis. However, they do indicate the range of shocks to which Malawi may be subject.

IV. Public Sector DSA

12. **Total public debt—the sum of external and domestic public debt—is projected to decline over the projection period** (Table 3 and Figures 7-9). Under the baseline scenario, public debt increases slightly throughout the projection period in both nominal and NPV terms. In NPV terms, it is projected to increase from 23.1 percent of GDP in 2007 to 24.0 percent by 2027. This reflects the decline in domestic debt and the country's reliance on more concessional foreign debt. Given the fiscal effort and the external financing assumptions under the baseline scenario, domestic debt is projected to decline as a share of total public debt over the medium-term. The substitution of costly non-concessional domestic debt with concessional external debt can also help reduce public debt vulnerabilities.

13. **The speed of debt reduction is reasonable** as Malawi faces considerable social and infrastructure needs. Domestic debt (including securities issued for RBM recapitalization) as a share of GDP declines by about 1.4 percentage points of GDP each year over the medium term to 2012. Once domestic debt declines to about 5 percent of GDP around this time, the pace of reduction slows down. The primary deficit will remain high: it declines from historic

average of 10 percent to a small surplus of 1.4 percent of GDP in the medium term, but reverses to a deficit averaging about 2.4 percent in GDP in the long run.

14. **The stress tests reveal that Malawi's public debt continues to remain vulnerable to a number of shocks.** A combination of shocks, including real GDP growth below and a primary balance at their historical averages, may cause a quick departure from debt sustainability. Given these vulnerabilities, the authorities should continue their efforts to maintain a prudent fiscal stance, improve revenue performance, and strengthen public expenditure and financial management.[4] A number of measures under the PRGF-supported program could support this effort.

V. Conclusions

15. **Malawi's is subject to a moderate risk of external debt distress.** Under the baseline scenario, which assumes higher growth than the historic average, all external debt indicators remain below their thresholds. However, external debt sustainability is threatened by borrowing on less concessional terms or weaker growth in GDP and exports. This may indicate that Malawi will continue to require considerable grant resources to maintain debt sustainability. Malawi's debt sustainability stands to improve substantially once uranium exports commence, but could be adversely affected by the downturn in Malawi's commodity prices. On balance, the mix of positive baseline scenario and the downside risks indicates a moderate risk of debt distress.

16. **The risk of debt distress remains moderate even when domestic debt is included in the assessment.** Nevertheless, Malawi's fiscal sustainability remains vulnerable to a number of shocks, including lower GDP growth, higher primary deficits and lower concessionality of external debt. The baseline scenario reflects a positive outlook for macroeconomic developments in Malawi, with strong GDP growth and improvements in current account. Given this, it is essential that the Malawian authorities remain committed to sound macroeconomic policies and their reform agenda.

[4] 'Malawi—Public Expenditure Review, 2006', World Bank Group, 2007.

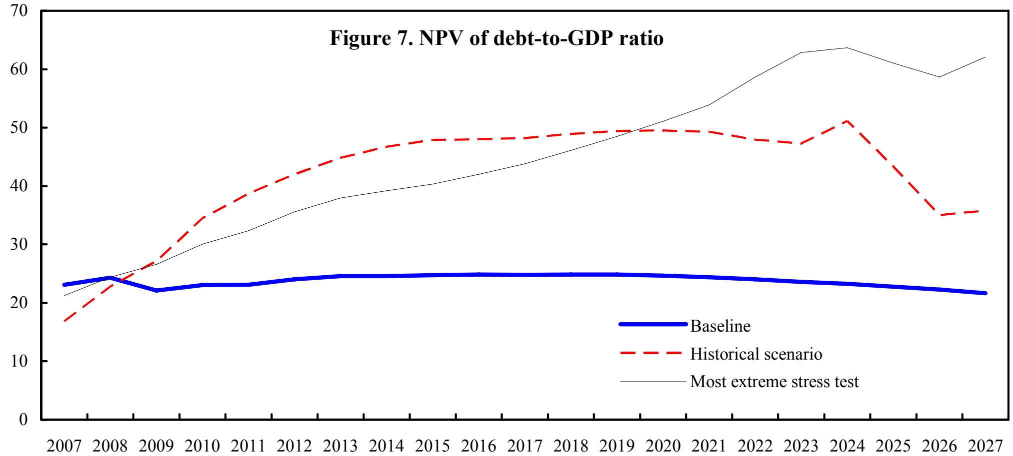

Figure 7. NPV of debt-to-GDP ratio

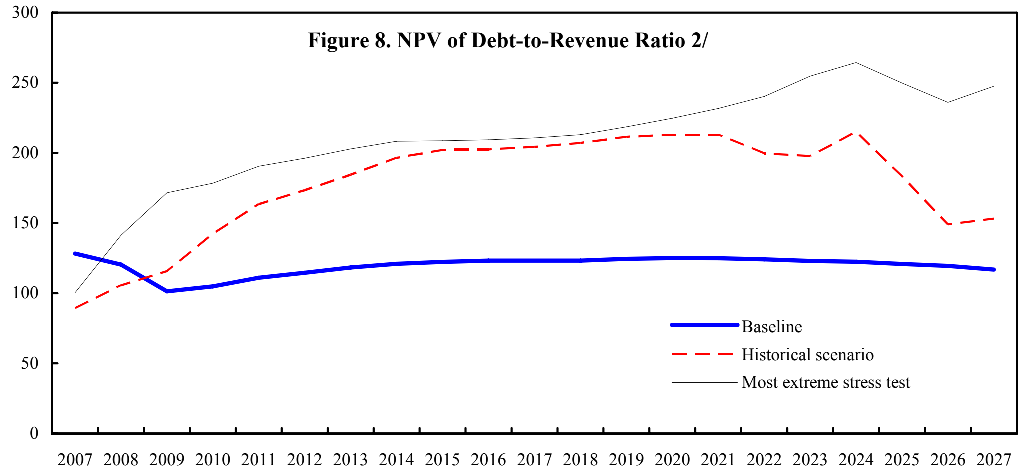

Figure 8. NPV of Debt-to-Revenue Ratio 2/

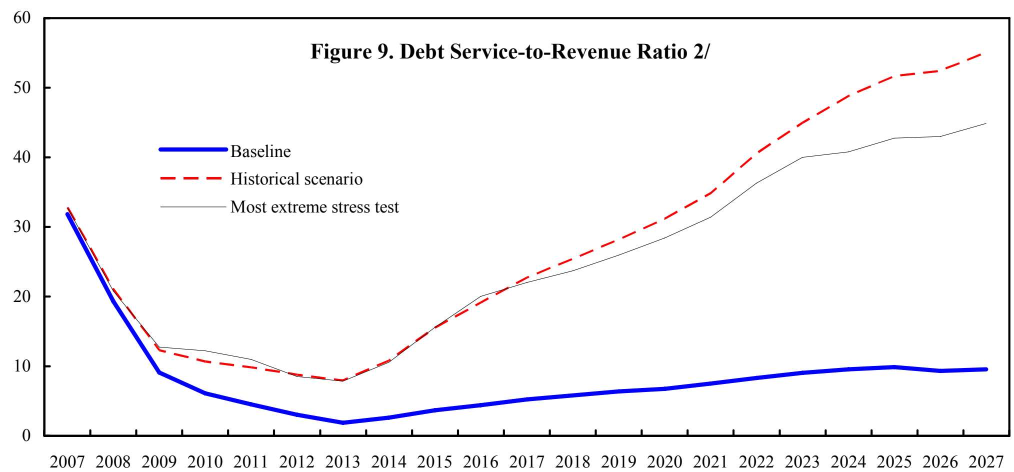

Figure 9. Debt Service-to-Revenue Ratio 2/

Source: Staff projections and simulations.
1/ Most extreme stress test is test that yields highest ratio in 2017.
2/ Revenue including grants.

Table 1. Malawi: External Debt Sustainability Framework, 2002-27 1/
(Percent of GDP, unless otherwise indicated)

			Projections								
	2002	2005	2007	2008	2009	2012	2015	2018	2022	2025	2027
I. Baseline Medium-Term Projections											
External debt (nominal)	106.9	103.7	14.8	17.8	19.4	25.6	30.7	33.5	33.1	31.2	29.3
Identified net debt-creating flows	-46.9	2.0	0.5	0.8	1.2	-6.9	-4.8	-3.5	-3.8	-3.6	-3.6
Current account deficit, excluding interest payments	11.8	11.5	2.6	4.6	6.0	-1.7	-1.1	0.1	-0.2	-0.4	-0.6
Deficit in balance of goods and services	16.8	26.7	20.4	22.7	22.0	12.2	12.4	11.2	9.5	8.3	7.6
Exports	17.3	19.5	19.5	20.5	20.2	22.7	21.8	21.6	20.6	19.7	19.1
Imports	34.1	46.2	39.9	43.2	42.2	34.9	34.2	32.8	30.1	28.0	26.7
Net current transfers (negative = inflow)	-8.7	-15.8	-18.1	-18.1	-15.9	-13.5	-13.3	-10.9	-9.5	-8.5	-7.9
Of which: official	...	-9.2	-12.8	-13.3	-11.5	-10.7	-10.5	-8.3	-7.2	-6.4	-6.0
Other noninterest current account flows (negative = net inflow)	3.7	0.7	0.3	0.1	-0.1	-0.4	-0.2	-0.2	-0.2	-0.2	-0.4
Net FDI (negative = inflow)	-1.4	-0.9	-0.9	-2.5	-3.4	-3.0	-2.9	-2.5	-1.9	-1.6	-1.4
Endogenous debt dynamics 2/	-57.3	-8.6	-1.1	-1.3	-1.4	-2.2	-0.7	-1.1	-1.6	-1.6	-1.6
Denominator: 1+g+r+gr	1.6	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Contribution from nominal interest rate	1.0	0.8	0.4	0.3	0.3	0.4	0.7	0.6	0.5	0.5	0.4
Contribution from real GDP growth	11.5	-2.4	-0.9	-0.9	-1.0	-1.6	-0.7	-1.0	-1.4	-1.3	-1.3
Contribution from price and exchange rate changes	-69.8	-7.0	-0.6	-0.6	-0.7	-1.0	-0.7	-0.7	-0.8	-0.7	-0.7
Residual 3/	-9.2	-10.9	0.1	2.1	0.5	8.1	6.4	4.2	3.3	2.8	2.6
Of which: exceptional financing	...	-2.0	-0.2	0.0	-0.1	0.0	0.0	0.1	0.0	0.0	0.0
NPV of external debt 4/	...	...	8.2	10.6	11.9	17.1	20.9	23.2	23.7	22.9	22.0
In percent of exports	...		41.9	51.5	58.7	75.1	95.8	107.4	115.1	116.5	115.3
In percent of government revenues	...	...	51.7	65.8	73.9	102.2	122.5	132.0	131.8	126.2	120.0
Debt service-to-exports ratio (in percent)	18.8	21.1	3.2	2.9	3.0	2.6	6.5	7.7	10.4	11.0	11.2
PPG debt service-to-exports ratio (in percent)	18.8	21.1	3.2	2.9	3.0	2.6	6.5	7.7	10.4	11.0	11.2
PPG debt service-to-revenue ratio (in percent)	29.2	24.6	4.0	3.6	3.8	3.5	8.3	9.5	11.9	11.9	11.6
Total gross financing need (billions of U.S. dollars)	0.4	0.4	0.2	0.2	0.2	-0.2	-0.2	-0.1	0.0	0.0	0.0
Noninterest current account deficit that stabilizes debt ratio 5/	67.9	20.4	1.9	1.7	4.3	-2.9	-2.7	-0.6	0.3	0.4	0.4

Sources: Country authorities and staff estimates, projections and simulations.

1/ Includes public and publicly guaranteed 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 (including debt relief and changes in arrears) changes in gross foreign assets, and valuation adjustments.

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

5/ Long-run, constant balance that stabilizes the debt ratio assuming that key variables (real GDP growth, nominal interest rate, dollar deflator growth, and nondebt inflows in percent of GDP)

Table 2. Malawi: Sensitivity Analyses for Key Indicators of Public and Publicly Guaranteed External Debt, 2007-27
(Percent of GDP, unless otherwise indicated)

	2007	2009	2012	2015	2017	2018	2022	2023	2024	2025	2027
NPV of debt-to-GDP ratio											
Baseline	8.2	11.9	17.1	20.9	22.5	23.2	23.7	23.4	23.3	22.9	22.0
A1. Key variables at their historical averages in 2008-27 1/	8.2	13.8	30.2	49.3	57.1	60.3	68.2	69.2	70.1	70.6	71.0
A2. New public sector loans on less favorable terms in 2008-27 2/	8.2	13.7	21.2	27.4	30.5	31.9	34.6	34.8	35.0	35.0	34.8
B1. Real GDP growth at historical average minus one standard deviation in 2008-09	8.2	14.2	20.5	25.0	27.0	27.8	28.4	28.1	27.9	27.5	26.4
B2. Export value growth at historical average minus one standard deviation in 2008-09 3/	8.2	19.7	23.9	26.8	27.5	27.8	26.6	26.0	25.5	24.8	23.4
B3. US dollar GDP deflator at historical average minus one standard deviation in 2008-09	8.2	15.2	21.8	26.6	28.7	29.6	30.2	29.9	29.7	29.3	28.1
B4. Net non-debt creating flows at historical average minus one standard deviation in 2008-09 4/	8.2	31.3	33.8	35.4	34.7	34.4	30.8	29.7	28.7	27.6	25.3
B5. Combination of B1-B4 using one-half standard deviation shocks	8.2	43.1	45.9	47.6	46.4	45.8	40.7	39.1	37.7	36.1	32.9
B6. One-time 30 percent nominal depreciation relative to the baseline in 2008 5/	8.2	16.7	24.0	29.3	31.5	32.5	33.2	32.9	32.7	32.2	30.9
NPV of debt-to-exports ratio											
Baseline	41.9	58.7	75.1	95.8	103.8	107.4	115.1	115.6	116.5	116.5	115.3
A1. Key variables at their historical averages in 2007-26 1/	41.9	68.3	132.9	226.5	263.8	279.4	331.4	341.4	351.0	358.9	371.6
A2. New public sector loans on less favorable terms in 2007-26 2/	41.9	67.6	93.3	125.6	140.8	147.7	168.3	171.7	175.4	178.1	182.0
B1. Real GDP growth at historical average minus one standard deviation in 2008-09	41.9	58.7	75.1	95.8	103.8	107.4	115.1	115.6	116.5	116.5	115.3
B2. Export value growth at historical average minus one standard deviation in 2008-09 3/	41.9	144.9	155.6	182.3	188.3	190.8	191.9	190.3	189.4	187.2	181.4
B3. US dollar GDP deflator at historical average minus one standard deviation in 2008-09	41.9	58.7	75.1	95.8	103.8	107.4	115.1	115.6	116.5	116.5	115.3
B4. Net non-debt creating flows at historical average minus one standard deviation in 2008-09 4/	41.9	155.0	148.8	162.3	160.5	159.4	149.9	146.5	143.7	140.1	132.2
B5. Combination of B1-B4 using one-half standard deviation shocks	41.9	224.6	212.8	230.2	226.2	224.0	208.6	203.4	199.0	193.5	181.8
B6. One-time 30 percent nominal depreciation relative to the baseline in 2008 5/	41.9	58.7	75.1	95.8	103.8	107.4	115.1	115.6	116.5	116.5	115.3
NPV of debt-to-revenue ratio											
Baseline	51.7	73.9	102.2	122.5	129.4	132.0	131.8	130.0	128.6	126.2	120.0
A1. Key variables at their historical averages in 2007-26 1/	51.7	86.0	181.0	289.6	328.8	343.3	379.5	383.8	387.4	388.7	386.5
A2. New public sector loans on less favorable terms in 2007-26 2/	51.7	85.0	127.0	160.6	175.4	181.5	192.8	193.1	193.6	192.9	189.3
B1. Real GDP growth at historical average minus one standard deviation in 2008-09	51.7	88.6	122.7	147.0	155.3	158.3	158.1	155.9	154.2	151.4	143.9
B2. Export value growth at historical average minus one standard deviation in 2008-09 3/	51.7	122.9	142.9	157.2	158.3	158.1	148.2	144.2	140.9	136.7	127.2
B3. US dollar GDP deflator at historical average minus one standard deviation in 2008-09	51.7	94.3	130.5	156.4	165.2	168.5	168.3	165.9	164.1	161.1	153.1
B4. Net non-debt creating flows at historical average minus one standard deviation in 2008-09 4/	51.7	194.9	202.6	207.5	200.0	195.8	171.7	164.7	158.6	151.7	137.5
B5. Combination of B1-B4 using one-half standard deviation shocks	51.7	267.9	274.8	279.2	267.4	261.0	226.6	216.8	208.3	198.8	179.4
B6. One-time 30 percent nominal depreciation relative to the baseline in 2008 5/	51.7	103.7	143.5	172.0	181.7	185.3	185.1	182.4	180.5	177.1	168.4
Debt service-to-exports ratio											
Baseline	3.2	3.0	2.6	6.5	7.7	7.7	10.4	10.7	10.9	11.0	11.2
A1. Key variables at their historical averages in 2008-27 1/	3.2	3.4	3.6	10.3	13.5	15.2	24.0	25.5	26.8	28.1	30.3
A2. New public sector loans on less favorable terms in 2008-27 2/	3.2	3.3	3.1	7.1	8.1	8.6	12.6	13.2	13.9	14.4	14.8
B1. Real GDP growth at historical average minus one standard deviation in 2008-09	3.2	3.0	2.6	6.5	7.7	7.7	10.4	10.7	10.9	11.0	11.2
B2. Export value growth at historical average minus one standard deviation in 2008-09 3/	3.2	5.2	5.1	13.5	14.9	14.9	18.2	18.5	18.6	18.8	18.8
B3. US dollar GDP deflator at historical average minus one standard deviation in 2008-09	3.2	3.0	2.6	6.5	7.7	7.7	10.4	10.7	10.9	11.0	11.2
B4. Net non-debt creating flows at historical average minus one standard deviation in 2008-09 4/	3.2	4.5	4.7	12.9	13.5	13.3	15.0	15.1	15.1	15.0	14.8
B5. Combination of B1-B4 using one-half standard deviation shocks	3.2	6.2	6.6	18.4	19.2	18.9	21.1	21.1	21.0	21.0	20.6
B6. One-time 30 percent nominal depreciation relative to the baseline in 2008 5/	3.2	3.0	2.6	6.5	7.7	7.7	10.4	10.7	10.9	11.0	11.2
Debt service-to-revenue ratio											
Baseline	4.0	3.8	3.5	8.3	9.6	9.5	11.9	12.0	12.0	11.9	11.6
A1. Key variables at their historical averages in 2008-27 1/	4.0	4.3	5.0	13.2	16.8	18.7	27.5	28.7	29.6	30.4	31.5
A2. New public sector loans on less favorable terms in 2008-27 2/	4.0	4.1	4.2	9.1	10.1	10.6	14.4	14.9	15.3	15.6	15.4
B1. Real GDP growth at historical average minus one standard deviation in 2008-09	4.0	4.6	4.2	9.9	11.5	11.4	14.2	14.4	14.4	14.3	14.0
B2. Export value growth at historical average minus one standard deviation in 2008-09 3/	4.0	4.4	4.7	11.6	12.5	12.3	14.0	14.0	13.9	13.7	13.2
B3. US dollar GDP deflator at historical average minus one standard deviation in 2008-09	4.0	4.9	4.5	10.6	12.2	12.1	15.2	15.3	15.3	15.2	14.9
B4. Net non-debt creating flows at historical average minus one standard deviation in 2008-09 4/	4.0	5.7	6.3	16.5	16.9	16.4	17.2	17.0	16.6	16.3	15.4
B5. Combination of B1-B4 using one-half standard deviation shocks	4.0	7.4	8.6	22.4	22.7	22.1	22.9	22.5	22.0	21.5	20.3
B6. One-time 30 percent nominal depreciation relative to the baseline in 2008 5/	4.0	5.4	4.9	11.6	13.4	13.3	16.7	16.8	16.8	16.8	16.3

Table 3. Malawi: Public Debt Sustainability Framework, 2002-27 1/
(Percent of GDP, unless otherwise indicated)

	Actual			Baseline Medium-Term Projections									
	2002	2005	2006	2007	2008	2009	2010	2012	2015	2016	2018	2025	2027
Public sector debt 1/	121.7	123.4	28.9	29.8	31.1	29.2	31.0	31.5	34.6	35.3	36.2	33.2	31.3
Of which: foreign-currency denominated	106.9	103.7	14.4	15.0	17.8	19.5	21.9	25.6	30.7	31.8	33.5	31.2	29.3
Change in public sector debt	-50.8	-8.2	-94.4	0.8	1.4	-1.9	1.7	0.1	1.0	0.6	0.5	-0.8	-1.0
Identified debt-creating flows	-73.0	-9.7	-12.0	-3.0	-5.0	-3.7	-2.4	-3.4	-1.5	-0.3	0.6	0.7	0.6
Primary deficit	4.8	-3.4	-0.5	-1.7	-2.6	-1.0	-1.7	0.1	1.0	1.4	2.1	3.8	2.3
Revenue and grants	12.6	26.4	25.7	26.7	26.5	25.4	27.6	27.4	27.6	27.6	27.9	27.2	27.0
Of which: grants	1.5	9.6	9.8	11.0	10.4	9.3	10.6	10.7	10.5	10.4	10.3	9.0	8.7
Primary (noninterest) expenditure	17.4	23.0	25.2	25.0	23.9	24.4	25.9	27.5	28.6	28.9	30.0	31.0	29.3
Automatic debt dynamics	-76.9	-4.8	-8.3	0.8	-1.0	-1.8	-0.3	-3.1	-2.1	-1.4	-1.3	-3.0	-1.7
Contribution from interest rate/growth differential	-74.3	-8.7	-6.7	1.1	-1.0	-1.8	-1.2	-3.2	-2.2	-1.5	-1.5	-1.7	-1.8
Of which: contribution from average real interest rate	-69.0	-3.4	-0.8	1.8	1.1	0.4	0.8	-1.1	-0.5	-0.6	-0.4	-0.2	-0.4
Of which: contribution from real GDP growth	-5.3	-5.3	-5.9	-0.6	-2.2	-2.1	-2.0	-2.1	-1.8	-0.8	-1.0	-1.5	-1.4
Contribution from real exchange rate depreciation	-2.5	4.0	-1.6	-0.3	0.0	0.0	0.8	0.1	0.1	0.1	0.1	-1.3	0.1
Denominator = 1+g	1.0	1.0	1.1	1.0	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0
Other identified debt-creating flows	-0.9	-1.5	-3.2	-2.2	-1.4	-1.0	-0.4	-0.5	-0.3	-0.3	-0.1	0.0	0.0
Privatization receipts (negative)	-0.1	0.0	-0.9	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	0.0	0.0
Debt relief (HIPC and other)	-0.8	-1.5	-2.3	-2.2	-1.4	-1.0	-0.4	-0.5	-0.3	-0.3	-0.1	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	0.0	0.0
Residual, including asset changes	22.2	1.5	-82.5	3.9	6.3	1.8	4.2	3.5	2.5	0.9	-0.2	-1.5	-1.7
NPV of public sector debt	66.9	53.9	22.3	23.1	23.9	21.7	22.9	23.0	24.8	25.2	25.9	24.9	24.0

1/Includes public and publicly guaranteed debt.

Table 4. Malawi: Sensitivity Analyses for Key Indicators of Public and Publicly Guaranteed Debt, 2002-27
(Percent of GDP, unless otherwise indicated)

	2007	2009	2010	2011	2012	2015	2017	2018	2025	2027
NPV of debt-to-GDP ratio										
Baseline	23.1	21.7	22.9	22.9	23.0	24.8	25.5	25.9	24.9	24.0
A1. Real GDP growth and primary balance are at historical averages	16.8	26.8	34.6	38.8	42.1	57.6	62.8	65.1	65.4	62.0
A2. Primary balance is unchanged from 2006	16.8	18.7	21.8	22.4	22.3	26.7	28.3	28.9	23.4	21.0
A3. Permanently lower GDP growth	18.9	18.8	21.8	23.6	25.8	33.8	39.2	42.4	65.5	71.1
B1. Real GDP growth is at historical average minus one standard deviations in 2008-2009	21.2	26.0	29.7	31.8	33.8	41.2	45.8	48.4	61.4	62.7
B2. Primary balance is at historical average minus one standard deviations in 2008-2009	18.9	38.0	40.4	41.1	41.3	43.3	44.6	45.6	47.9	46.8
B3. Combination of B1-B2 using one half standard deviation shocks	18.9	35.4	36.1	34.9	33.4	31.6	29.3	28.5	21.8	19.8
B4. One-time 30 percent real depreciation in 2008	18.9	22.4	24.7	25.6	26.7	30.9	33.3	34.9	41.9	42.1
B5. 10 percent of GDP increase in other debt-creating flows in 2008	18.1	22.9	24.5	24.7	24.9	28.6	30.8	32.1	36.6	36.4
NPV of Debt-to-Revenues-and-Grants Ratio										
Baseline	128.2	101.4	104.9	110.6	110.2	110.3	112.7	114.3	113.3	110.2
A1. Real GDP growth and primary balance are at historical averages	89.3	117.0	142.7	162.7	170.5	214.7	232.2	239.6	235.9	222.3
A2. Primary balance is unchanged from 2006	89.3	85.2	97.3	103.7	102.6	119.5	125.7	127.7	105.6	95.9
A3. Permanently lower GDP growth	100.3	84.8	95.1	106.7	114.7	144.5	163.9	176.0	267.0	289.9
B1. Real GDP growth is at historical average minus one standard deviations in 2008-2009	118.0	111.1	122.7	136.0	143.6	172.5	190.1	200.4	260.6	269.1
B2. Primary balance is at historical average minus one standard deviations in 2008-2009	100.3	173.7	180.0	190.8	189.8	194.3	198.3	201.6	216.2	213.4
B3. Combination of B1-B2 using one half standard deviation shocks	100.3	150.1	148.1	148.1	140.7	131.0	120.8	117.1	91.8	84.4
B4. One-time 30 percent real depreciation in 2008	100.3	102.5	109.9	118.7	122.7	138.5	147.9	154.3	189.3	191.9
B5. 10 percent of GDP increase in other debt-creating flows in 2008	96.0	104.5	109.2	114.6	114.4	128.1	136.7	142.2	165.2	165.7
Debt Service-to-Revenue-and-Grants Ratio										
Baseline	31.9	9.1	6.1	4.5	2.9	3.3	4.8	5.4	9.0	8.6
A1. Real GDP growth and primary balance are at historical averages	32.8	12.3	10.6	9.8	8.3	13.9	20.6	23.2	42.8	44.8
A2. Primary balance is unchanged from 2006	32.8	11.3	8.8	7.6	6.0	9.3	13.5	15.0	27.2	27.9
A3. Permanently lower GDP growth	32.8	11.6	8.8	7.4	6.1	10.5	14.9	17.1	37.2	40.7
B1. Real GDP growth is at historical average minus one standard deviations in 2008-2009	31.9	12.3	9.4	8.1	6.7	11.2	15.9	18.2	36.6	39.0
B2. Primary balance is at historical average minus one standard deviations in 2008-2009	32.8	12.8	12.2	11.0	8.2	13.6	19.3	20.9	34.5	35.9
B3. Combination of B1-B2 using one half standard deviation shocks	32.8	13.4	11.7	9.9	7.1	11.6	16.1	17.2	27.9	29.0
B4. One-time 30 percent real depreciation in 2008	32.8	12.5	9.6	8.3	7.0	11.8	15.5	17.3	31.6	33.3
B5. 10 percent of GDP increase in other debt-creating flows in 2008	32.8	12.2	9.9	7.6	6.1	10.8	14.2	15.7	29.7	31.3