INTERNATIONAL MONETARY FUND

ZIMBABWE

STAFF REPORT FOR THE 2016 ARTICLE IV CONSULTATION AND THE THIRD REVIEW OF THE STAFF-MONITORED PROGRAM—DEBT SUSTAINABILITYANALYSIS

April 15, 2016

Approved By
Anne-Marie Gulde-Wolf and Catherine Pattillo (IMF) and John Panzer (IDA)

Prepared by the staffs of the International Monetary Fund (IMF)and the International Development Association (IDA)

This debt sustainability analysis (DSA) confirms that Zimbabwe continues to be in debt distress, consistent with the results of past DSAs.[1] *Both public and external debt ratios remained high, and most of the external debt is in arrears. All external debt indicators breach their indicative thresholds under the baseline scenario, and many of them stay above the thresholds until end of the the time horizon of the analysis. Even with clearing of arrears to the IFIs, which is expected to unlock concessional financing, Zimbabwe's debt burden would only marginally improve, underscoring the need for the country to follow sound economic policies, including a prudent borrowing strategy, and to continue garnering support for debt treatment under the Paris club.*

[1] This DSA was prepared jointly by IMF and World Bank staff under the joint Fund-Bank Low-Income Country (LIC) Debt Sustainability Framework (DSF). Zimbabwe's Country Policy and Institutional Assessment (CPIA) Rating averaged 2.38 for 2012-14 and falls under the weak performer category. Zimbabwe's fiscal year runs from January 1 to December 31.

BACKGROUND AND RECENT DEVELOPMENTS

1. **A heavy debt burden, international sanctions, and uncertain domestic political environments continue to weigh on economic performance.** Although economic stabilization efforts helped improve the situation, macroeconomic imbalances persist because of lack of financing, insufficient fiscal consolidation exacerbated by looming drought and appreciating U.S. dollar.[2]

2. **Zimbabwe's external public debt burden indicators remain elevated and external debt overhang is large.** External debt is estimated at 76 percent of GDP. Both public and external debt ratios remain at high levels with most of the external debt is in arrears. Following a debt reconciliation exercise by the authorities for end-2014 and 2015, Zimbabwe's total public and publicly guaranteed (PPG) external debt has been estimated at about 49 percent of GDP (US$6.96 billion), 79 percent of which is in arrears (Table 1). Moreover, the country continues to accumulate arrears. The recent fall in mineral prices has exacerbated Zimbabwe's external position. In 2015, in line with the SMP, the authorities borrowed abroad for development projects on non-concessional terms with an average grant element of 26 percent and external (public and publicly guaranteed) debt increased by US$239 million.

Table 1. Zimbabwe: 2015 External Debt Stock by Servicing Status (in million U.S. dollars) 1/

	Remaining Principal Due	Total Arrears	Principal Arrears	Total Debt	Percent of GDP
Total	**4593**	**5466**	**3181**	**10770**	**76.0**
Public and Publicly Guaranteed Debt	1463	5510	3074	**6974**	**49.2**
Bilateral Creditors	1104	2932	1327	**4036**	**28.5**
Paris Club	220	2854	1266	**3074**	**21.7**
Non-Paris Club	883	78	61	**961**	**6.8**
Multilateral institutions	359	1991	1161	**2351**	**16.6**
IMF	0	109	87	**109**	**0.8**
AfDB	36	550	291	**586**	**4.1**
WB	293	1062	603	**1355**	**9.6**
EIB	26	198	132	**224**	**1.6**
Others	5	72	47	**77**	**0.5**
Short-term debt RBZ	0	587	587	**587**	**4.1**
Private Creditors	3797	0	0	**3797**	**26.8**

Sources: WB, AfDB, Zimbabwean authorities, and staff estimates.
1/ For the multilateral institutions, short-term debt, and suppliers credits, estimates reflect compound factor; late interest is included under interest arrears.

[2] See recent developments section in staff report for the 2016 Article IV consultation.

3. The Zimbabwean authorities have taken steps to exit debt distress by pressing ahead with their reengagement efforts with the international community, with the immediate objective of resolving arrears with the IMF, the WBG, and the AfDB. The plan involves clearing the country's external arrears to the three IFIs through a combination of the country's own resources, bridge financing from a regional financial institution, and a long-term loan from a bilateral creditor. The strategy received support from creditors and development partners during a meeting in Lima, Peru in October 2015. As part of their arrear clearance strategy, the authorities have started formulating an ambitious medium-term economic transformation program to turn around the economy.

4. The stock of public domestic debt is not high, at an estimated 13.8 percent of GDP at end-2015. However, it is evolving. While the domestic debt of the Reserve Bank of Zimbabwe has been gradually shrinking, the stock of the outstanding government securities has expanded, following the end of hyperinflation. While short-term domestic public debt has declined, the government has managed to place securities with maturities of one year or more in the market. Arrears on domestic debt are declining but remain substantial, representing an additional concern for overall risk of public debt distress.

Table 2. Zimbabwe: Total Domestic Debt

(in millions of U.S. dollars)

	2012	2013	2014	2015
Total Public Domestic	1,110	1,124	1,660	1,960
Medium and Long	888	846	1,326	1,578
Of which: RBZ Domestic	709	645	433	384
Short Term	223	278	334	382
Of which: Arrears	213	158	178	125
Total Public Domestic Debt (in percent of GDP)	8.9	8.3	11.7	13.8

Sources: Zimbabwean authorities and IMF staff estimates

DEBT SUSTAINABILITY ANALYSIS

A. Underlying Assumptions

5. The macroeconomic framework underpinning the medium-term to long-term debt sustainability takes into account recent economic developments and progress in structural reforms identified in the Staff Monitored Program. The framework takes into account impact of recent slowdown in South Africa, main trading partner, and appreciation of the U.S. dollar. The baseline assumes no debt relief and limited external borrowing from non-traditional creditors, particularly China (See Box 1). Any financing gap in the balance of payment is assumed to be closed through short-term private sector external borrowing.

Box 1. Zimbabwe: Key Macroeconomic Assumptions 2016–36 (Baseline)[1]

The baseline scenario assumptions are informed by discussion with the authorities' reform plans.

Real Sector: The real GDP growth rate is expected to gradually increase to 4 percent until 2021 lower growth at the beginning of the period (1.4 percent in 2016) and then to average 4 percent over 2022–36. Medium term real GDP growth mainly reflects strengthening of the agriculture, financial services and mining sectors. Inflation, as measured by GDP deflator, is projected to be close to zero in the near term, but will rise moderately over the medium term; it averages 2 percent in 2018–35.

Fiscal sector: The fiscal deficit is projected to improve over the medium term, reflecting a combination of improvements in tax revenue collection, and containment of current spending, including a gradual reduction in wage bill. Over the long run, the fiscal accounts are expected to be broadly balanced. Beyond 2025, increases in capital spending will generate a return to small primary deficits.

External sector: The current account deficit is expected to improve slightly over the medium term, reaching 9.7 percent of GDP by end of projection period, reflecting moderate growth in mineral and exports and improvement in commodity prices. The current account deficit will be financed by external loans to the private sector, foreign direct investment, limited non-concessional borrowing from non-traditional creditors, and continued accumulation of external debt arrears, in line with recent trend. External grants are assumed to remain confined to humanitarian assistance, estimated around 1 percent of GDP per year.

External debt: Reflecting continued limited access to international finance and a deteriorating debt service capacity, disbursements of new loans from non-traditional creditors are expected to be limited, at about 1 percent of GDP during 2017–36, in exchange they will continue making regular payments to the same creditors. It is also assumed that they will continue to make token payments to the WBG, IMF, AfDB and EIB. Under the baseline scenario there is no debt relief. External arrears are assumed to continue to be rolled over and that Zimbabwe will continue not to service obligations arising from the stock of arrears.

[1] Tables 1–4.

B. Debt Burden Thresholds under the Debt Sustainability Framework

6. **Zimbabwe's external debt stock remains unsustainable under the baseline scenario (Figure 1 and Table 1).** The public external debt outlook is expected to improve slightly but remains very high**.** All PPG external debt level ratios continue to breach their respective indicative thresholds and many of those

remain above the thresholds for most of the 20-year projection period.[3] The present value (PV) of PPG external debt is at 59 percent of GDP at end-2015—twice the 30 percent threshold for weak policy performers—and is projected to stay above 30 percent of GDP for the large part of the projection period. Similarly, both the PV of debt-to-exports and the PV of debt-to-revenue ratios are above 200 and 300 percent respectively in 2015, well above their respective thresholds. Although these ratios are projected to improve based on the assumptions of robust growth and limited external borrowing over the medium to long run, such improvements are insufficient to bring debt to sustainable levels in the medium-term. The authorities report that the private sector is by and large current on its external obligations.

7. In addition, Zimbabwe's debt outlook can get worse in the face of a range of shocks (Figure 1 and Table 2). Stress tests highlight the possibility of an even worse debt outlook. The results indicate that all debt burden indicators worsen across all simulations, with debt path increasing steeply, leading to an even larger debt and debt-service burden.

8. The consideration of domestic debt does not alter fundamentally the assessment of Zimbabwe's debt sustainability. Public DSA results mirrors those of the external DSA (Figure 2 and Table 3). Given the moderate size of Zimbabwe's domestic debt, the public debt indicators are driven mainly by the external debt component. As a result PV of public debt-to-GDP ratio is projected to stay well above the indicative benchmark until 2035.

C. Alternative Scenario (Clearance of arrears with the IFIs)

9. The alternative scenario presents the current authorities plan to clear the country's external arrears as a first step towards normalizing relations with creditors. The strategy entails simultaneously clearing arrears to the IMF, WNG and AfDB through a combination of the country's own resources, bridge financing from a regional financial institution, and a long-term loan from a bilateral creditor. The strategy also envisages accelerating an ambitious structural reform that would see the economy catching up for the lost decades. The macroeconomic framework underpinning the medium-term to long-term debt sustainability in the alternative scenario is presented in Box 2.

10. The results from the alternative scenario do not alter fundamentally the assessment of Zimbabwe's debt sustainability. Even with clearing of arrears to the IFIs, which is expected to unlock concessional financing, Zimbabwe's debt burden would only marginally improve (Figures 3 and 4). This underscores the need for Zimbabwe to follow sound economic policies, continue garnering support for treatment under the Paris Club, avoid selective debt servicing, and minimize non-concessional borrowing.

[3] For the purpose of defining debt burden thresholds under the Debt Sustainability Framework (DSF), Zimbabwe is classified a weak policy performer. Zimbabwe's rating on the World Bank's Country Policy and Institutional Assessment (CPIA) is 2.38.

Box 2. Zimbabwe: Key Macroeconomic Assumptions 2016–36 (Alternative) [1]

The Alternative scenario assumes clearing of arrears to the three IFI's at end-2016 as envisaged in the authorities' stated reengagement strategy.

Real Sector: The real GDP growth rate is expected to initially increase to 9.5 in 2017 and 8.9 in 2018 and converges to 6 percent over 2022–36. Medium-term real GDP growth mainly reflects strengthening of the construction, financial and mining sectors as a result of capital inflows from foreign and domestic investments and further boosting of activities in manufacturing. These would expect to raise potential growth from 4 percent in the baseline to 6 percent. Inflation, as measured by GDP deflator, is projected to be the same as in the baseline.

Fiscal sector: It is assumed that the wage bill in the medium term is assumed to be kept at the 2016 level and rationalization of public employment cost would significantly increase fiscal space for a larger capital expenditure. Higher economic growth and revenue mobilization efforts are projected to more than compensate for the decline in income tax, improving revenue collection over the long run.

External sector: The current account deficit is expected to widen over the medium term financed by increased foreign direct investment as well as domestic investment. The deficit is projected to average 9.2 percent of GDP over the 2022–36 projection periods. In 2016, it is assumed disbursement of $219 million and 536 million from IDA and AfDB respectively in 2016 as part of clearing arrears operation and further disbursement of one percent of GDP concessional financing from IFIs' would replace the non-concessional borrowing assumed in the baseline. New non-concessional borrowing from a bilateral creditor in 2016 for clearing part of the arrears to the WB in the amount of US$ 831 million with 5 percent interest rate and 10 years to maturity, all amounts to be paid at the end of the period. Use of SDR allocation to clear arrears to the IMF is also assumed. External grants are assumed to remain at around 1 percent of GDP per year. This scenario assumes there is no debt relief, hence External arrears to bilateral creditors are assumed to continue to be rolled over.

[1] Tables 5–8.

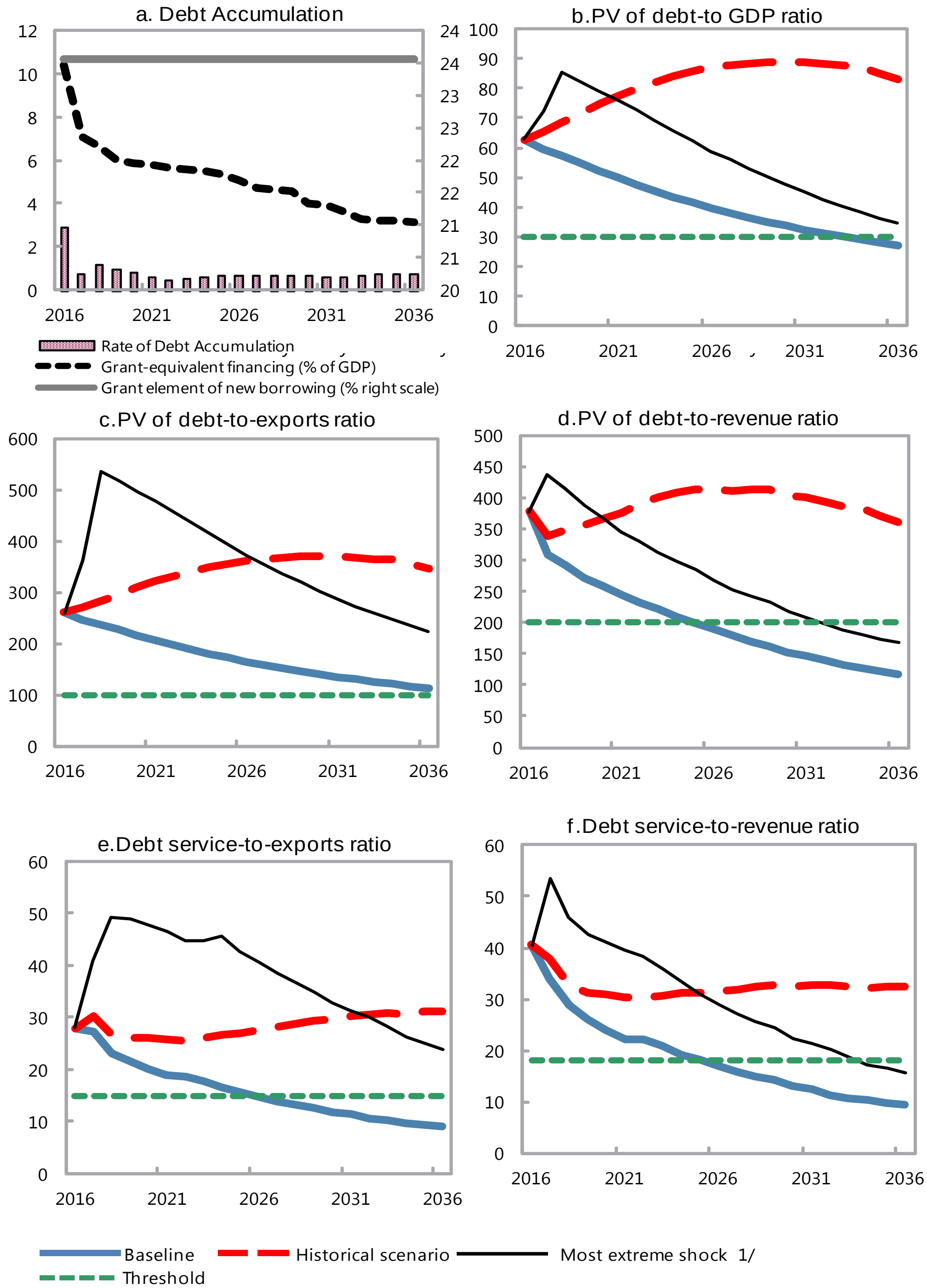
CONCLUSIONS

11. Zimbabwe continues to be in debt distress and continues to accumulate external arrears. The results of this DSA are broadly unchanged from those in previous DSAs with both public and external debt ratios remaining high, and most of the external debt is in arrears. Public debt is also distressed, driven mostly by external debt.

12. Under the alternative scenario with clearing of arrears to the IFIs, which is expected to eventually unlock concessional financing, Zimbabwe's debt burden would only marginally improve. With the exception of PV of debt-to-revenue ratios, all public and public-guaranteed external debt burden ratios remain well above their respective indicative thresholds in the medium term. This underscores the need for the Zimbabwe to follow sound economic policies, including a prudent borrowing strategy, and to continue garnering support for debt treatment under the Paris club.

13. The authorities generally concur with the results and assessments of the DSA. They agree that external debt is at unsustainable levels, debt service burdens are beyond Zimbabwe's debt servicing capacity, and as a result Zimbabwe continues to accumulate external debt arrears. They agree that they would need to put all efforts to secure debt treatment under the Paris Club in order to sustain the momentum for economic development, and remain hopeful that resolving all arrears, including to the bilateral creditors in the near future. In this regard, the authorities intend to continue their efforts to reach out to creditors.

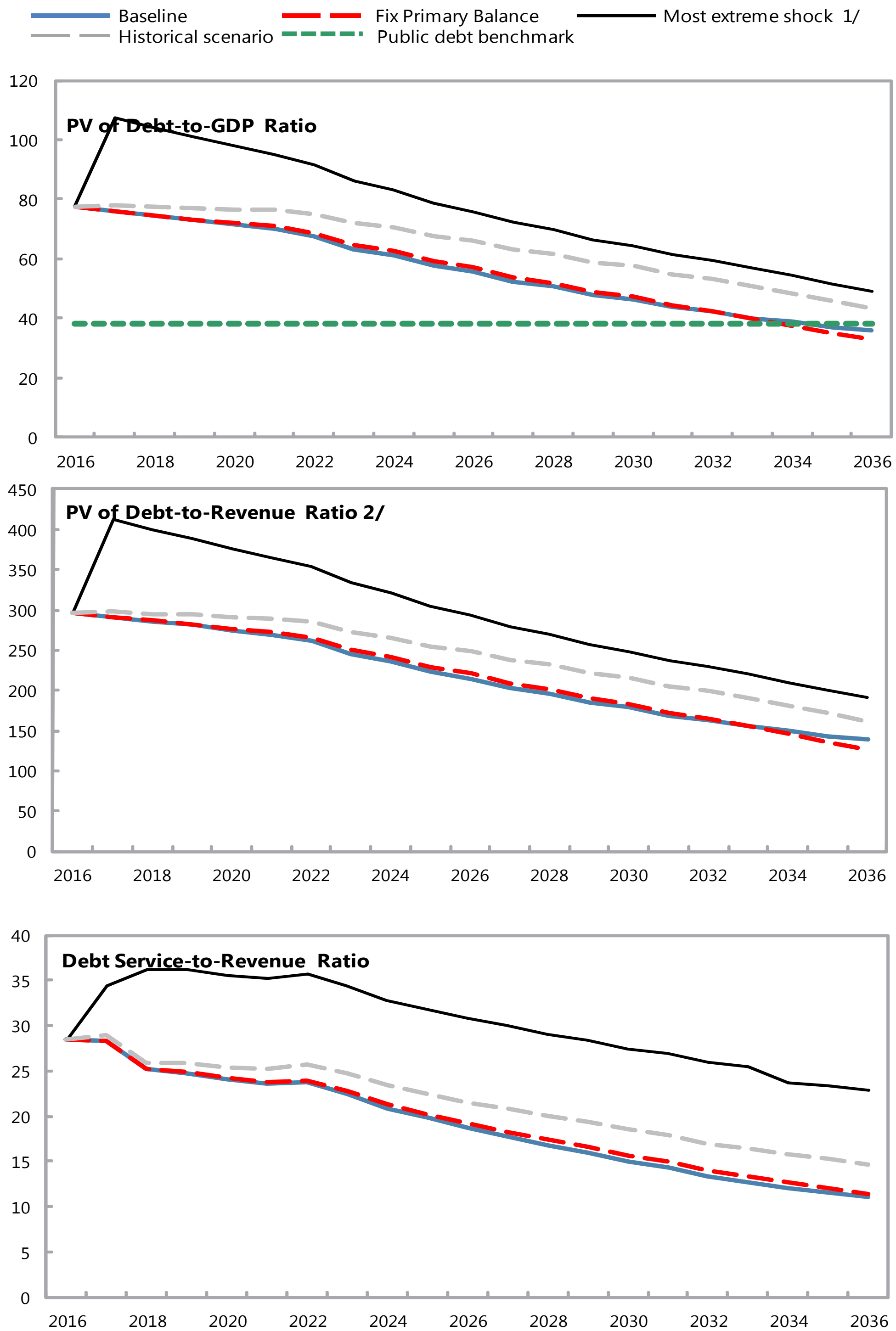
Figure 1. Zimbabwe: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2016–2036 1/



Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio on or before 2026. In figure b. it corresponds to a Combination 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. Zimbabwe: Indicators of Public Debt Under Alternative Scenarios, 2016–2036 1/



Sources: Country authorities; and staff estimates and projections.
1/ The most extreme stress test is the test that yields the highest ratio on or before 2026.
2/ Revenues are defined inclusive of grants.

Table 1 .Zimbabwe: External Debt Sustainability Framework, Baseline Scenario, 2013–2036 1/

(In percent of GDP, unless otherwise indicated)

	Actual			Historical 7/ Average	Standard 7/ Deviation	Projections									
	2013	2014	2015			2016	2017	2018	2019	2020	2021	2016-2021 Average	2026	2036	2022-2036 Average
External debt (nominal) 1/	**74.0**	**77.0**	**83.7**			**89.6**	**89.2**	**89.7**	**89.5**	**90.0**	**90.6**		**93.1**	**97.3**	
of which: public and publicly guaranteed (PPG) 2/	57.6	54.4	56.9			59.5	56.1	54.2	52.0	50.0	48.1		39.6	28.6	
Change in external debt	2.0	3.0	6.7			5.9	-0.4	0.5	-0.2	0.5	0.6		0.5	0.3	
Identified net debt-creating flows	7.3	4.7	4.3			3.7	-0.8	0.9	0.5	0.3	0.5		1.1	3.8	
Non-interest current account deficit	**18.1**	**15.1**	**10.6**	**16.5**	**10.7**	**11.2**	**10.3**	**10.2**	**10.1**	**9.8**	**9.8**		**9.8**	**9.8**	9.8
Deficit in balance of goods and services	-89.8	-81.3	-76.1			-71.9	-68.1	-67.4	-66.4	-65.5	-64.7		-62.0	-57.8	
Exports	30.5	28.1	27.5			24.1	24.1	24.2	24.2	24.2	24.2		24.1	24.1	
Imports	-59.3	-53.2	-48.7			-47.7	-44.0	-43.2	-42.1	-41.4	-40.5		-37.8	-33.7	
Net current transfers (negative = inflow)	-14.6	-14.0	-15.1	-13.3	4.2	-16.0	-13.0	-12.1	-11.1	-10.4	-9.6		-7.2	-3.8	-6.1
of which: official	-1.9	-2.6	-2.8			-2.8	-2.9	-2.9	-2.8	-2.6	-2.5		-2.1	0.0	
Other current account flows (negative = net inflow)	122.6	110.4	101.8			99.0	91.4	89.7	87.6	85.7	84.0		78.9	71.3	
Net FDI (negative = inflow)	**-5.5**	**-6.9**	**-6.5**	**-5.0**	**2.9**	**-6.5**	**-6.6**	**-6.5**	**-6.3**	**-6.1**	**-6.0**		**-5.3**	**-2.3**	-4.7
Endogenous debt dynamics 3/	**-5.3**	**-3.6**	**0.2**			**-1.0**	**-4.5**	**-2.8**	**-3.2**	**-3.4**	**-3.3**		**-3.5**	**-3.7**	
Contribution from nominal interest rate	0.1	0.1	0.1			0.1	0.2	0.2	0.2	0.2	0.1		0.0	0.0	
Contribution from real GDP growth	-3.0	-2.7	-0.8			-1.2	-4.7	-3.0	-3.4	-3.5	-3.4		-3.5	-3.7	
Contribution from price and exchange rate changes	-2.4	-1.0	1.0			...	...	...	...	...	...		...	...	
Residual (3-4) 4/	**-5.3**	**-1.6**	**2.4**			**2.2**	**0.4**	**-0.4**	**-0.7**	**0.3**	**0.1**		**-0.6**	**-3.5**	
of which: exceptional financing	-1.3	-1.2	-1.0			-1.0	-0.9	-0.9	-0.8	-0.7	-0.7		-0.5	-0.4	
PV of external debt 5/	...	...	87.5			92.9	92.4	92.8	92.4	92.4	92.4		93.2	95.9	
In percent of exports	...	...	318.5			385.0	383.1	382.6	381.2	382.2	382.2		386.3	398.6	
PV of PPG external debt	**...**	**...**	**60.7**			**62.7**	**59.3**	**57.3**	**54.8**	**52.4**	**49.9**		**39.7**	**27.2**	
In percent of exports	**...**	**...**	**220.9**			**260.1**	**245.9**	**236.2**	**226.2**	**216.5**	**206.3**		**164.7**	**112.9**	
In percent of government revenues	**...**	**...**	**317.1**			**376.9**	**307.8**	**291.4**	**272.3**	**257.5**	**242.6**		**189.0**	**118.1**	
Debt service-to-exports ratio (in percent)	**4.0**	**3.6**	**3.5**			**33.3**	**32.7**	**26.2**	**24.6**	**24.3**	**22.7**		**16.5**	**9.4**	
PPG debt service-to-exports ratio (in percent)	**0.4**	**0.4**	**0.3**			**28.0**	**27.1**	**23.2**	**21.6**	**20.1**	**18.9**		**14.7**	**8.9**	
PPG debt service-to-revenue ratio (in percent)	**0.6**	**0.6**	**0.4**			**40.6**	**34.0**	**28.6**	**26.0**	**23.9**	**22.2**		**16.9**	**9.4**	
Total gross financing need (Billions of U.S. dollars)	3.4	2.8	3.1			4.4	4.5	4.7	5.0	5.4	5.9		9.2	22.9	
Non-interest current account deficit that stabilizes debt ratio	16.1	12.1	3.8			5.3	10.7	9.7	10.2	9.3	9.2		9.3	9.4	
Key macroeconomic assumptions															
Real GDP growth (in percent)	4.5	3.8	1.1	2.7	8.8	1.4	5.6	3.5	4.1	4.2	4.1	3.8	4.0	4.0	4.0
GDP deflator in US dollar terms (change in percent)	3.5	1.3	-1.3	4.1	8.6	0.0	1.3	2.0	2.0	2.0	2.0	1.6	1.9	1.9	1.9
Effective interest rate (percent) 6/	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0
Growth of exports of G&S (US dollar terms, in percent)	-3.4	-3.1	-2.4	10.4	31.8	-11.0	7.0	6.2	6.1	6.0	6.1	3.4	6.0	6.0	6.0
Growth of imports of G&S (US dollar terms, in percent)	2.2	-5.6	-8.7	14.9	36.5	-0.5	-1.4	3.6	3.7	4.3	4.0	2.3	4.9	4.8	4.7
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6
Government revenues (excluding grants, in percent of GDP)	20.1	18.8	19.1			16.6	19.3	19.7	20.1	20.3	20.6		21.0	23.0	21.8
Aid flows (in Billions of US dollars) 8/	1.0	1.1	1.2			1.4	1.0	1.0	1.0	1.0	1.1		1.3	1.3	
of which: Grants	1.0	1.1	1.2			1.4	1.0	1.0	1.0	1.0	1.1		1.3	1.3	
of which: Concessional loans	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Grant-equivalent financing (in percent of GDP) 9/	...	...	...			10.4	7.1	6.6	6.0	5.9	5.8		5.1	3.1	4.4
Grant-equivalent financing (in percent of external financing) 9/	...	...	...			77.7	88.8	89.7	88.7	88.5	88.3		87.0	80.3	84.6
Memorandum items:															
Nominal GDP (Billions of US dollars)	13.5	14.2	14.2			14.4	15.4	16.2	17.2	18.3	19.4		26.0	46.7	
Nominal dollar GDP growth	8.2	5.2	-0.2			1.4	7.0	5.6	6.2	6.3	6.2	5.4	6.0	6.0	6.0
PV of PPG external debt (in Billions of US dollars)			8.6			9.0	9.1	9.3	9.4	9.6	9.7		10.3	12.7	
(PVt-PVt-1)/GDPt-1 (in percent)						2.9	0.7	1.2	0.9	0.8	0.6	1.2	0.7	0.7	0.6
Gross workers' remittances (Billions of US dollars)	1.1	1.2	1.3			1.2	1.3	1.3	1.3	1.2	1.2		1.0	0.9	
PV of PPG external debt (in percent of GDP + remittances)	...	...	55.8			57.8	54.7	53.0	51.0	49.0	47.0		38.2	26.6	
PV of PPG external debt (in percent of exports + remittances)	...	...	167.1			191.6	182.0	177.6	172.4	169.0	165.0		141.5	104.2	
Debt service of PPG external debt (in percent of exports + remittances)	...	...	0.2			20.6	20.1	17.5	16.5	15.7	15.1		12.7	8.3	

Sources: Country authorities; and staff estimates and projections.

1/ Includes both public and private sector external debt.

2/ Includes provisions for implicit contingent liabilities which are not included in the PPG debt stock reported in Tables 1 and 2 of the Staff Report.

3/ 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.

4/ 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.

5/ Assumes that PV of private sector debt is equivalent to its face value.

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

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

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

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

Table 2. Zimbabwe: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2016–2036

(In percent of GDP, unless otherwise indicated)

	Projections							
	2016	2017	2018	2019	2020	2021	**2026**	2036
PV of debt-to GDP ratio								
Baseline	63	59	57	55	52	50	**40**	27
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2016-2036 1/	63	65	69	72	75	77	**87**	83
A2. New public sector loans on less favorable terms in 2016-2036 2	63	60	58	55	53	51	**42**	31
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2017-2018	63	67	71	68	65	62	**49**	34
B2. Export value growth at historical average minus one standard deviation in 2017-2018 3/	63	64	71	68	65	63	**49**	29
B3. US dollar GDP deflator at historical average minus one standard deviation in 2017-2018	63	63	65	62	59	57	**45**	31
B4. Net non-debt creating flows at historical average minus one standard deviation in 2017-2018 4/	63	66	69	67	64	61	**48**	29
B5. Combination of B1-B4 using one-half standard deviation shocks	63	72	85	82	79	76	**59**	35
B6. One-time 30 percent nominal depreciation relative to the baseline in 2017 5/	63	84	81	78	74	71	**56**	39
PV of debt-to-exports ratio								
Baseline	260	246	236	226	216	206	**165**	113
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2016-2036 1/	260	271	283	295	308	320	**360**	344
A2. New public sector loans on less favorable terms in 2016-2036 2	260	247	238	229	220	210	**173**	128
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2017-2018	260	246	236	226	216	206	**165**	113
B2. Export value growth at historical average minus one standard deviation in 2017-2018 3/	260	363	536	516	496	476	**372**	223
B3. US dollar GDP deflator at historical average minus one standard deviation in 2017-2018	260	246	236	226	216	206	**165**	113
B4. Net non-debt creating flows at historical average minus one standard deviation in 2017-2018 4/	260	273	286	275	264	253	**198**	120
B5. Combination of B1-B4 using one-half standard deviation shocks	260	310	381	367	353	339	**264**	155
B6. One-time 30 percent nominal depreciation relative to the baseline in 2017 5/	260	246	236	226	216	206	**165**	113
PV of debt-to-revenue ratio								
Baseline	377	308	291	272	257	243	**189**	118
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2016-2036 1/	377	339	349	355	367	376	**414**	360
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2017-2018	377	346	361	338	319	301	**234**	146
B2. Export value growth at historical average minus one standard deviation in 2017-2018 3/	377	333	360	338	321	304	**232**	127
B3. US dollar GDP deflator at historical average minus one standard deviation in 2017-2018	377	327	331	309	292	275	**215**	134
B4. Net non-debt creating flows at historical average minus one standard deviation in 2017-2018 4/	377	341	353	331	314	298	**227**	125
B5. Combination of B1-B4 using one-half standard deviation shocks	377	375	434	408	388	368	**280**	150
B6. One-time 30 percent nominal depreciation relative to the baseline in 2017 5/	377	437	414	387	366	345	**269**	168

Table 2. Zimbabwe: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2016–2036 (concluded)

(In percent of GDP, unless otherwise indicated)

Baseline	28	27	23	22	20	19	**15**	9
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2016-2036 1/	28	30	27	26	26	26	**28**	31
A2. New public sector loans on less favorable terms in 2016-2036 2	28	30	26	25	24	24	**18**	11
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2017-2018	28	30	26	25	24	24	**18**	11
B2. Export value growth at historical average minus one standard deviation in 2017-2018 3/	28	41	49	49	48	46	**41**	24
B3. US dollar GDP deflator at historical average minus one standard deviation in 2017-2018	28	30	26	25	24	24	**18**	11
B4. Net non-debt creating flows at historical average minus one standard deviation in 2017-2018 4/	28	30	27	26	26	25	**22**	13
B5. Combination of B1-B4 using one-half standard deviation shocks	28	34	34	34	33	32	**29**	17
B6. One-time 30 percent nominal depreciation relative to the baseline in 2017 5/	28	30	26	25	24	24	**18**	11
Debt service-to-revenue ratio								
Baseline	41	34	29	26	24	22	**17**	9
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2016-2036 1/	41	38	33	31	31	30	**32**	33
A2. New public sector loans on less favorable terms in 2016-2036 2	41	38	32	30	29	28	**20**	12
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2017-2018	41	42	40	37	36	35	**25**	14
B2. Export value growth at historical average minus one standard deviation in 2017-2018 3/	41	38	33	32	31	30	**25**	14
B3. US dollar GDP deflator at historical average minus one standard deviation in 2017-2018	41	40	37	34	33	32	**23**	13
B4. Net non-debt creating flows at historical average minus one standard deviation in 2017-2018 4/	41	38	33	32	31	30	**25**	13
B5. Combination of B1-B4 using one-half standard deviation shocks	41	41	39	38	37	35	**31**	16
B6. One-time 30 percent nominal depreciation relative to the baseline in 2017 5/	41	54	46	43	41	40	**29**	16
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	23	23	23	23	23	23	**23**	23

Sources: Country authorities; and staff estimates and projections.

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

Table 3. Zimbabwe: Public Sector Debt Sustainability Framework, Baseline Scenario, 2013–2036

(In percent of GDP, unless otherwise indicated)

	Actual					Estimate	Projections								
	2013	2014	2015	Average 5/	Standard Deviation 5/	2016	2017	2018	2019	2020	2021	2016-21 Average	2026	2036	2022-36 Average
Public sector debt 1/	65.9	66.1	70.8			74.4	72.8	71.4	70.0	69.1	68.4		55.5	37.4	
of which: foreign-currency denominated	65.9	66.1	70.8			74.4	72.8	71.4	70.0	69.1	68.4		55.5	37.4	
Change in public sector debt	-2.4	0.2	4.6			3.6	-1.5	-1.4	-1.3	-1.0	-0.7		-1.7	-1.0	
Identified debt-creating flows	-10.4	-9.3	-7.1			-6.8	-10.2	-8.8	-8.5	-8.1	-7.6		-5.6	-8.3	
Primary deficit	1.9	0.7	0.3	0.4	0.8	0.2	0.1	0.0	0.0	-0.1	-0.3	0.0	0.1	0.8	0.3
Revenue and grants	27.7	26.6	27.5			26.1	26.1	26.1	25.9	26.0	26.1		25.9	25.9	
of which: grants	7.7	7.8	8.4			9.5	6.8	6.4	5.8	5.6	5.5		4.9	2.9	
Primary (noninterest) expenditure	29.7	27.2	26.7			26.4	26.2	26.1	25.9	25.8	25.8		26.0	26.7	
Automatic debt dynamics	-5.0	-2.9	0.8			-0.1	-3.8	-2.7	-2.7	-2.5	-2.2		-1.9	-0.6	
Contribution from interest rate/growth differential	-3.8	-3.1	-0.7			-1.0	-4.1	-2.7	-2.8	-2.6	-2.3		-2.0	-0.6	
of which: contribution from average real interest rate	-0.9	-0.7	0.0			0.0	-0.2	-0.2	0.0	0.2	0.4		0.2	0.9	
of which: contribution from real GDP growth	-2.9	-2.4	-0.7			-1.0	-4.0	-2.5	-2.8	-2.8	-2.7		-2.2	-1.5	
Contribution from real exchange rate depreciation	-1.2	0.2	1.5			1.0	0.4	0.1	0.1	0.1	0.1		...	...	
Other identified debt-creating flows	-7.4	-7.0	-7.1			-7.0	-6.5	-6.2	-5.8	-5.5	-5.1		-3.8	-8.6	
Privatization receipts (negative)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	-6.4	
Recognition of implicit or contingent liabilities	-7.4	-7.0	-7.1			-7.0	-6.5	-6.2	-5.8	-5.5	-5.1		-3.8	-2.1	
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	8.0	9.5	11.8			10.4	8.6	7.4	7.2	7.1	6.9		3.9	7.3	
Other Sustainability Indicators															
PV of public sector debt	...	...	74.5			77.6	76.0	74.5	72.9	71.5	70.2		55.6	36.0	
of which: foreign-currency denominated	...	...	74.5			77.6	76.0	74.5	72.9	71.5	70.2		55.6	36.0	
of which: external	...	...	60.7			62.7	59.3	57.3	54.8	52.4	49.9		39.7	27.2	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	9.3	8.2	7.4			15.6	15.1	14.3	13.9	13.5	13.3		10.8	7.0	
PV of public sector debt-to-revenue and grants ratio (in percent)	...	...	270.7			297.0	291.3	286.0	281.7	275.2	269.1		214.8	139.1	
PV of public sector debt-to-revenue ratio (in percent)	...	...	389.4			466.5	394.4	379.0	362.1	351.4	341.4		264.4	156.5	
of which: external 3/	...	...	317.1			376.9	307.8	291.4	272.3	257.5	242.6		189.0	118.1	
Debt service-to-revenue and grants ratio (in percent) 4/	0.6	1.2	2.2			28.5	28.3	25.2	24.8	24.1	23.6		18.7	11.1	
Debt service-to-revenue ratio (in percent) 4/	0.9	1.6	3.1			44.7	38.3	33.4	31.9	30.8	29.9		23.0	12.5	
Primary deficit that stabilizes the debt-to-GDP ratio	4.3	0.4	-4.3			-3.4	1.7	1.5	1.3	0.8	0.4		1.8	1.8	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	4.5	3.8	1.1	2.7	8.8	1.4	5.6	3.5	4.1	4.2	4.1	3.8	4.0	4.0	4.0
Average nominal interest rate on forex debt (in percent)	0.3	0.5	1.0	0.3	0.3	1.3	1.6	1.7	2.2	2.5	2.8	2.0	2.6	0.0	2.0
Real exchange rate depreciation (in percent, + indicates depreciation)	-1.8	0.3	2.3	-1.6	7.4	1.4	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	3.5	1.3	-1.3	4.1	8.6	0.0	1.3	2.0	2.0	2.0	2.0	1.6	1.9	1.9	1.9
Growth of real primary spending (deflated by GDP deflator, in percent)	9.0	-4.7	-1.1	0.8	3.7	0.3	4.9	3.1	3.1	4.1	4.1	3.3	4.4	4.2	4.2
Grant element of new external borrowing (in percent)	...	...	...	...	...	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	...

Sources: Country authorities; and 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 4. Zimbabwe: Sensitivity Analysis for Key Indicators of Public Debt 2016–2036

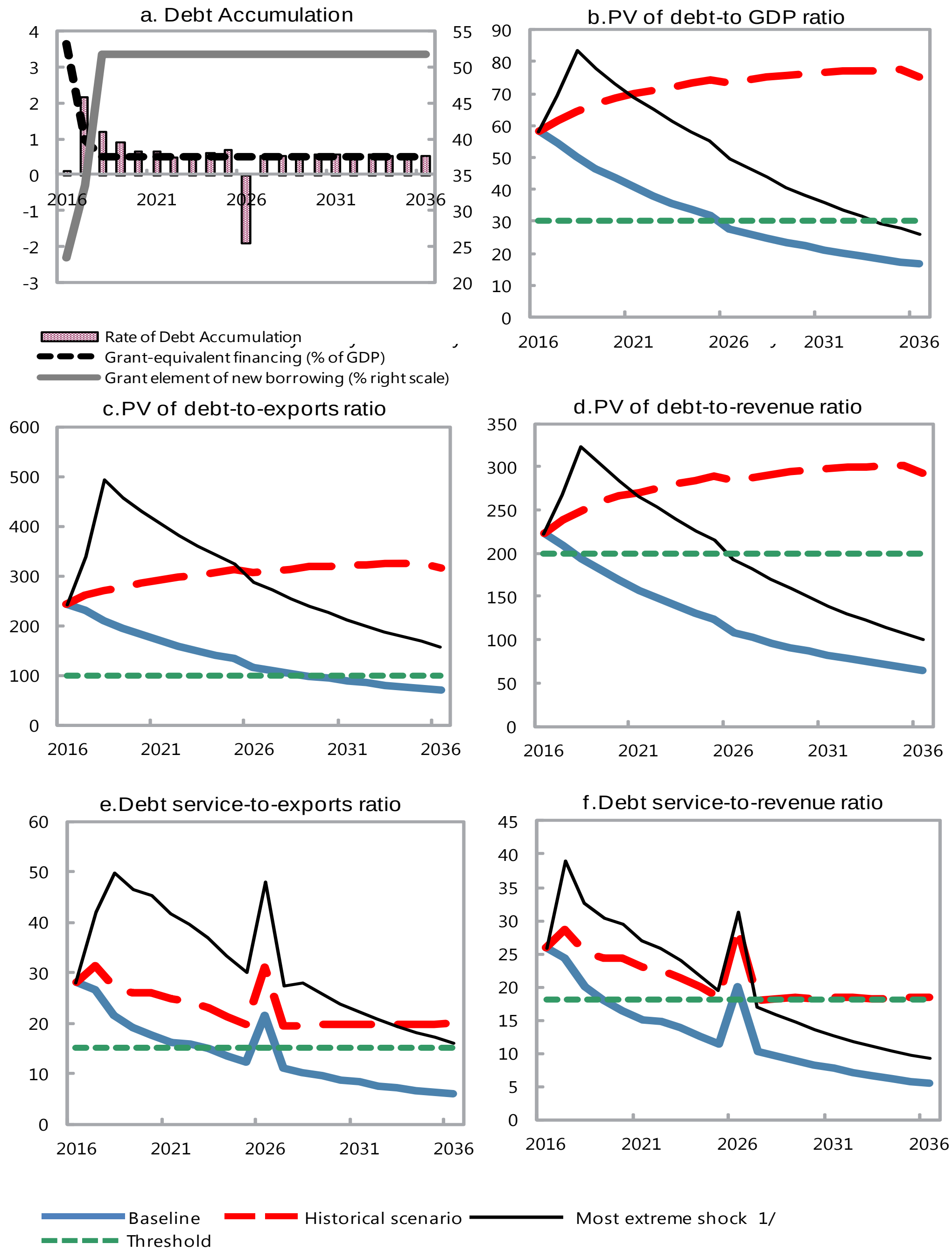
		Projections						
	2016	2017	2018	2019	2020	2021	2026	2036
PV of Debt-to-GDP Ratio								
Baseline	78	76	74	73	71	70	56	36
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	78	78	77	77	77	77	66	43
A2. Primary balance is unchanged from 2016	78	76	75	73	72	71	57	33
A3. Permanently lower GDP growth 1/	78	78	78	79	80	81	84	123
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2017-20	78	87	98	100	101	103	102	105
B2. Primary balance is at historical average minus one standard deviations in 2017-201	78	77	76	74	73	71	56	35
B3. Combination of B1-B2 using one half standard deviation shocks	78	82	85	85	86	86	79	71
B4. One-time 30 percent real depreciation in 2017	78	107	104	101	98	95	76	49
B5. 10 percent of GDP increase in other debt-creating flows in 2017	78	84	82	80	78	77	61	38
PV of Debt-to-Revenue Ratio 2/								
Baseline	297	291	286	282	275	269	215	139
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	297	298	295	294	292	289	248	162
A2. Primary balance is unchanged from 2016	297	291	286	283	277	272	221	127
A3. Permanently lower GDP growth 1/	297	296	297	300	302	305	311	453
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2017-20	297	324	355	365	370	376	376	394
B2. Primary balance is at historical average minus one standard deviations in 2017-201	297	294	292	288	280	274	218	133
B3. Combination of B1-B2 using one half standard deviation shocks	297	309	317	320	321	321	297	271
B4. One-time 30 percent real depreciation in 2017	297	412	400	390	377	365	294	190
B5. 10 percent of GDP increase in other debt-creating flows in 2017	297	321	315	310	302	295	236	147
Debt Service-to-Revenue Ratio 2/								
Baseline	28	28	25	25	24	24	19	11
ple 2. Zimbabwe: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2016-2036 (continued)								
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	28	29	26	26	25	25	22	15
A2. Primary balance is unchanged from 2016	28	28	25	25	24	24	19	11
A3. Permanently lower GDP growth 1/	28	29	26	26	26	26	25	33
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2017-20	28	31	30	30	30	30	29	32
B2. Primary balance is at historical average minus one standard deviations in 2017-201	28	28	25	25	25	24	19	12
B3. Combination of B1-B2 using one half standard deviation shocks	28	30	28	27	27	27	24	22
B4. One-time 30 percent real depreciation in 2017	28	34	36	36	36	35	31	23
B5. 10 percent of GDP increase in other debt-creating flows in 2017	28	28	26	27	25	25	21	13

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.

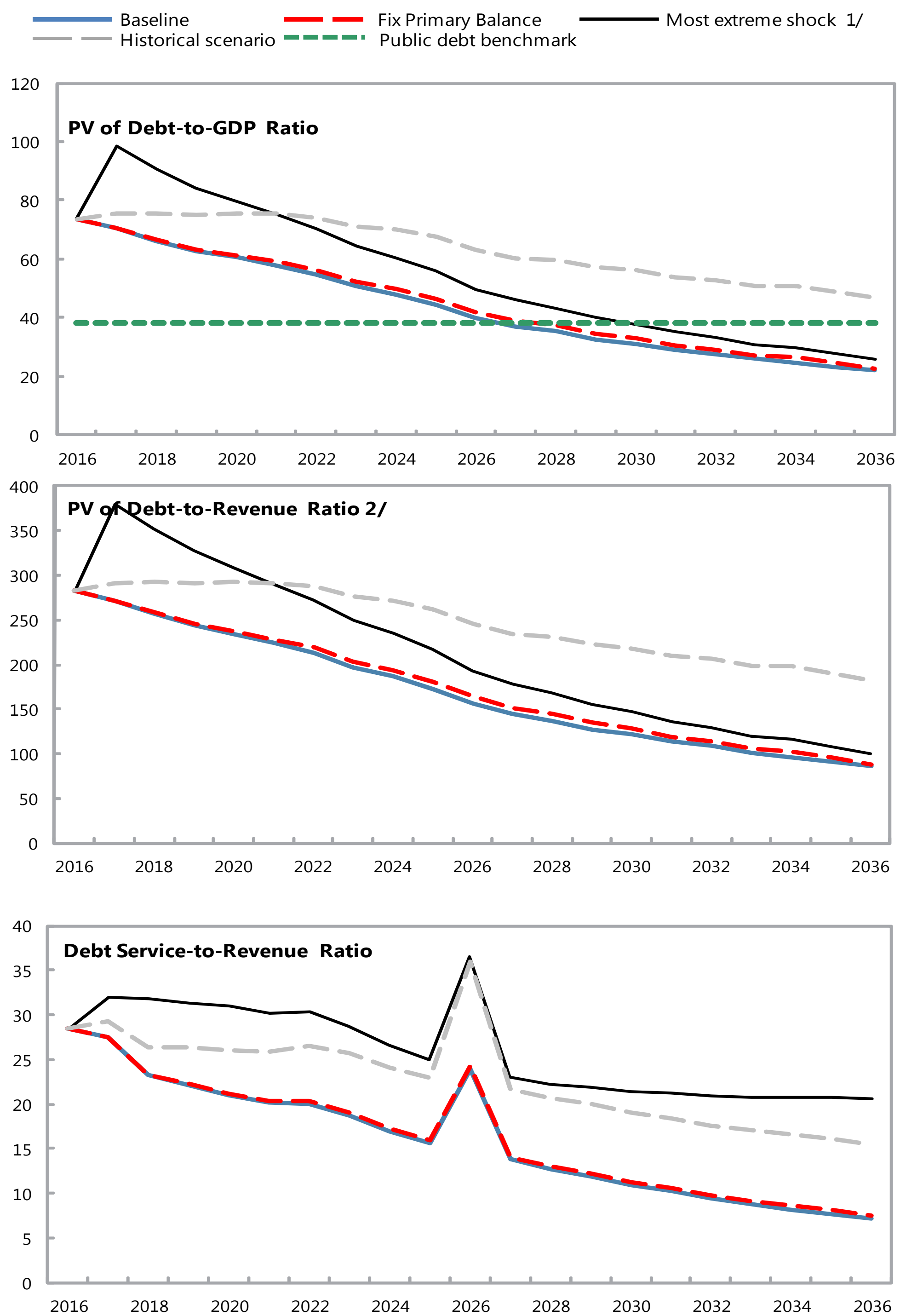
Figure 3. Zimbabwe: Indicators of Public and Publicly Guaranteed External Debt After IFIs' Arrears Clearance under Alternatives Scenarios, 2016–2036 1/



Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio on or before 2026. 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 Exports shock and in figure f. to a One-time depreciation shock.

Figure 4. Zimbabwe: Indicators of Public Debt After IFIs' Arrears Clearance Under Alternative Scenarios, 2016–2036 1/



Sources: Country authorities; and staff estimates and projections.
1/ The most extreme stress test is the test that yields the highest ratio on or before 2026.
2/ Revenues are defined inclusive of grants.

Table 5. Zimbabwe: External Debt Sustainability Framework After IFIs' Arrear Clearance, Alternative Scenario, 2013–2036 1/

(In percent of GDP, unless otherwise indicated)

	Actual			Historical 7/ Average	Standard 7/ Deviation	Projections									
	2013	2014	2015			2016	2017	2018	2019	2020	2021	2016-2021 Average	2026	2036	2022-2036 Average
External debt (nominal) 1/	**74.0**	**77.0**	**83.7**			**89.5**	**87.8**	**84.3**	**81.9**	**80.9**	**80.2**		**75.8**	**75.3**	
of which: public and publicly guaranteed (PPG) 2/	57.6	54.4	56.9			59.3	55.7	51.3	47.9	45.2	42.8		30.6	20.5	
Change in external debt	2.0	3.0	6.7			5.8	-1.7	-3.5	-2.4	-0.9	-0.7		-2.7	0.0	
Identified net debt-creating flows	5.6	5.0	4.3			1.9	-5.9	-5.7	-4.1	-3.2	-1.8		-1.1	2.6	
Non-interest current account deficit	**18.1**	**15.1**	**10.6**	**16.5**	**10.7**	**11.2**	**11.1**	**10.8**	**10.9**	**11.1**	**11.3**		**10.1**	**6.8**	9.2
Deficit in balance of goods and services	-89.8	-81.3	-76.1			-71.9	-67.5	-66.7	-66.0	-65.5	-64.8		-60.7	-53.2	
Exports	30.5	28.1	27.5			24.1	23.6	23.9	24.2	24.1	24.0		23.9	23.8	
Imports	-59.3	-53.2	-48.7			-47.7	-43.9	-42.7	-41.9	-41.5	-40.7		-36.8	-29.4	
Net current transfers (negative = inflow)	-14.6	-14.0	-15.1	-13.3	4.2	-16.0	-12.7	-11.4	-10.2	-9.4	-8.6		-6.2	-3.0	-5.1
of which: official	-1.9	-2.6	-2.8			-2.8	-2.8	-2.7	-2.4	-2.3	-2.2		-1.6	0.0	
Other current account flows (negative = net inflow)	122.6	110.4	101.8			99.0	91.3	88.9	87.2	86.0	84.6		77.0	62.9	
Net FDI (negative = inflow)	**-7.2**	**-6.5**	**-6.5**	**-4.8**	**3.6**	**-8.2**	**-9.5**	**-9.6**	**-9.5**	**-9.6**	**-8.5**		**-7.0**	**0.0**	-5.9
Endogenous debt dynamics 3/	**-5.3**	**-3.6**	**0.2**			**-1.0**	**-7.5**	**-6.9**	**-5.5**	**-4.7**	**-4.5**		**-4.3**	**-4.2**	
Contribution from nominal interest rate	0.1	0.1	0.1			0.1	0.2	0.2	0.2	0.1	0.1		0.0	0.0	
Contribution from real GDP growth	-3.0	-2.7	-0.8			-1.2	-7.7	-7.1	-5.6	-4.9	-4.6		-4.4	-4.2	
Contribution from price and exchange rate changes	-2.4	-1.0	1.0			...	...	...	...	...	...		...	...	
Residual (3-4) 4/	**-3.6**	**-2.0**	**2.5**			**3.8**	**4.2**	**2.2**	**1.7**	**2.2**	**1.1**		**-1.5**	**-2.6**	
of which: exceptional financing	-1.3	-1.2	-1.0			10.5	-0.8	-0.8	-0.7	-0.6	-0.6		-0.4	-0.2	
PV of external debt 5/	...	...	85.7			88.4	86.4	83.0	80.5	79.2	78.2		73.0	71.4	
In percent of exports	...	...	312.0			366.3	365.8	346.8	333.3	329.1	325.1		304.8	299.7	
PV of PPG external debt	**...**	**...**	**58.9**			**58.2**	**54.3**	**50.1**	**46.5**	**43.5**	**40.7**		**27.8**	**16.6**	
In percent of exports	**...**	**...**	**214.4**			**241.3**	**230.1**	**209.1**	**192.6**	**180.6**	**169.3**		**116.0**	**69.6**	
In percent of government revenues	**...**	**...**	**223.3**			**222.7**	**209.6**	**193.8**	**180.8**	**168.2**	**157.0**		**107.9**	**64.5**	
Debt service-to-exports ratio (in percent)	**4.0**	**3.6**	**3.5**			**33.2**	**32.2**	**24.3**	**21.9**	**21.2**	**19.4**		**23.0**	**6.1**	
PPG debt service-to-exports ratio (in percent)	**0.4**	**0.4**	**0.3**			**28.0**	**26.7**	**21.6**	**19.2**	**17.6**	**16.2**		**21.6**	**5.9**	
PPG debt service-to-revenue ratio (in percent)	**0.5**	**0.5**	**0.3**			**25.8**	**24.3**	**20.0**	**18.0**	**16.4**	**15.0**		**20.1**	**5.4**	
Total gross financing need (Billions of U.S. dollars)	3.2	2.9	3.1			4.2	4.2	4.3	4.7	5.1	5.9		10.8	30.6	
Non-interest current account deficit that stabilizes debt ratio	16.1	12.1	3.8			5.4	12.8	14.3	13.3	12.1	12.0		12.8	6.8	
Key macroeconomic assumptions															
Real GDP growth (in percent)	4.5	3.8	1.1	2.7	8.8	1.4	9.5	8.9	7.3	6.5	6.2	6.6	6.0	6.0	6.0
GDP deflator in US dollar terms (change in percent)	3.5	1.3	-1.3	4.1	8.6	0.0	1.4	1.9	2.0	2.1	2.0	1.6	1.9	1.9	1.9
Effective interest rate (percent) 6/	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.2	0.0	0.0	0.0
Growth of exports of G&S (US dollar terms, in percent)	-3.4	-3.1	-2.4	10.4	31.8	-11.0	8.8	12.5	10.6	8.2	8.3	6.2	7.9	8.0	8.0
Growth of imports of G&S (US dollar terms, in percent)	2.2	-5.6	-8.7	14.9	36.5	-0.5	2.2	8.0	7.3	7.6	6.4	5.2	5.8	5.6	5.7
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	23.5	33.6	51.7	51.7	51.7	51.7	44.0	51.7	51.7	51.7
Government revenues (excluding grants, in percent of GDP)	27.7	26.6	26.4			26.1	25.9	25.8	25.7	25.8	25.9		25.7	25.7	25.7
Aid flows (in Billions of US dollars) 8/	0.0	0.0	0.0			0.8	0.2	0.2	0.2	0.2	0.2		0.3	0.7	
of which: Grants	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
of which: Concessional loans	0.0	0.0	0.0			0.8	0.2	0.2	0.2	0.2	0.2		0.3	0.7	
Grant-equivalent financing (in percent of GDP) 9/	...	...	...			3.7	0.9	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Grant-equivalent financing (in percent of external financing) 9/	...	...	...			23.5	33.6	51.7	51.7	51.7	51.7		51.7	51.7	51.7
Memorandum items:															
Nominal GDP (Billions of US dollars)	13.5	14.2	14.2			14.4	16.0	17.7	19.4	21.1	22.8		33.6	72.7	
Nominal dollar GDP growth	8.2	5.2	-0.2			1.4	11.1	11.0	9.5	8.7	8.4	8.3	8.0	8.0	8.0
PV of PPG external debt (in Billions of US dollars)			8.3			8.4	8.7	8.9	9.0	9.2	9.3		9.3	12.0	
(PVt-PVt-1)/GDPt-1 (in percent)						0.1	2.2	1.2	0.9	0.7	0.7	1.0	-1.9	0.5	0.4
Gross workers' remittances (Billions of US dollars)	1.1	1.2	1.3			1.2	1.3	1.3	1.3	1.2	1.2		1.0	0.9	
PV of PPG external debt (in percent of GDP + remittances)	...	...	54.1			53.6	50.2	46.6	43.6	41.0	38.7		26.9	16.4	
PV of PPG external debt (in percent of exports + remittances)	...	...	162.2			177.8	171.1	160.0	150.7	145.0	139.4		102.8	66.0	
Debt service of PPG external debt (in percent of exports + remittances)	...	...	0.2			20.6	19.8	16.5	15.0	14.1	13.3		19.1	5.6	

Sources: Country authorities; and staff estimates and projections.

1/ Includes both public and private sector external debt.

2/ Includes provisions for implicit contingent liabilities which are not included in the PPG debt stock reported in Tables 1 and 2 of the Staff Report.

3/ 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.

4/ 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.

5/ Assumes that PV of private sector debt is equivalent to its face value.

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

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

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

9/ 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 6. Zimbabwe: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt After IFIs' Arrear Clearance, 2016–2036

(In percent)

	Projections							
	2016	2017	2018	2019	2020	2021	**2026**	2036
PV of debt-to GDP ratio								
Baseline	58	54	50	47	43	41	**28**	17
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2016-2036 1/	58	62	64	67	69	70	**73**	75
A2. New public sector loans on less favorable terms in 2016-2036 2	58	55	51	48	45	43	**32**	22
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2017-2018	58	63	68	63	59	55	**38**	22
B2. Export value growth at historical average minus one standard deviation in 2017-2018 3/	58	58	59	56	52	49	**35**	19
B3. US dollar GDP deflator at historical average minus one standard deviation in 2017-2018	58	58	57	53	49	46	**32**	19
B4. Net non-debt creating flows at historical average minus one standard deviation in 2017-2018 4/	58	61	62	57	54	51	**36**	19
B5. Combination of B1-B4 using one-half standard deviation shocks	58	69	83	78	73	69	**50**	26
B6. One-time 30 percent nominal depreciation relative to the baseline in 2017 5/	58	77	71	66	62	58	**39**	24
PV of debt-to-exports ratio								
Baseline	241	230	209	193	181	169	**116**	70
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2016-2036 1/	241	261	269	276	285	291	**305**	316
A2. New public sector loans on less favorable terms in 2016-2036 2	241	233	213	198	187	177	**132**	93
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2017-2018	241	230	209	193	181	169	**116**	70
B2. Export value growth at historical average minus one standard deviation in 2017-2018 3/	241	339	492	455	428	403	**287**	157
B3. US dollar GDP deflator at historical average minus one standard deviation in 2017-2018	241	230	209	193	181	169	**116**	70
B4. Net non-debt creating flows at historical average minus one standard deviation in 2017-2018 4/	241	257	257	238	224	211	**151**	81
B5. Combination of B1-B4 using one-half standard deviation shocks	241	297	372	344	325	306	**221**	117
B6. One-time 30 percent nominal depreciation relative to the baseline in 2017 5/	241	230	209	193	181	169	**116**	70
PV of debt-to-revenue ratio								
Baseline	223	210	194	181	168	157	**108**	64
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2016-2036 1/	223	238	249	259	266	270	**284**	293
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2017-2018	223	244	262	245	228	212	**146**	87
B2. Export value growth at historical average minus one standard deviation in 2017-2018 3/	223	223	230	216	201	189	**135**	74
B3. US dollar GDP deflator at historical average minus one standard deviation in 2017-2018	223	223	220	205	191	178	**123**	73
B4. Net non-debt creating flows at historical average minus one standard deviation in 2017-2018 4/	223	234	238	223	209	196	**141**	75
B5. Combination of B1-B4 using one-half standard deviation shocks	223	267	322	302	283	266	**193**	101
B6. One-time 30 percent nominal depreciation relative to the baseline in 2017 5/	223	298	275	257	239	223	**153**	92

Table 6. Zimbabwe: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt After IFIs' Arrear Clearance, 2016–2036 (concluded)

(In percent)

	Debt service-to-exports ratio							
Baseline	28	27	22	19	18	16	**22**	6
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2016-2036 1/	28	31	27	26	26	25	**31**	20
A2. New public sector loans on less favorable terms in 2016-2036 2	28	30	24	22	21	19	**13**	6
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2017-2018	28	30	25	23	22	20	**24**	7
B2. Export value growth at historical average minus one standard deviation in 2017-2018 3/	28	42	50	47	45	42	**48**	16
B3. US dollar GDP deflator at historical average minus one standard deviation in 2017-2018	28	30	25	23	22	20	**24**	7
B4. Net non-debt creating flows at historical average minus one standard deviation in 2017-2018 4/	28	30	25	24	23	21	**24**	8
B5. Combination of B1-B4 using one-half standard deviation shocks	28	35	35	33	32	29	**33**	12
B6. One-time 30 percent nominal depreciation relative to the baseline in 2017 5/	28	30	25	23	22	20	**24**	7
	Debt service-to-revenue ratio							
Baseline	26	24	20	18	16	15	**20**	5
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2016-2036 1/	26	29	25	24	24	23	**29**	18
A2. New public sector loans on less favorable terms in 2016-2036 2	26	28	22	20	20	18	**12**	6
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2017-2018	26	32	31	29	28	26	**30**	9
B2. Export value growth at historical average minus one standard deviation in 2017-2018 3/	26	28	23	22	21	19	**22**	7
B3. US dollar GDP deflator at historical average minus one standard deviation in 2017-2018	26	29	26	24	23	21	**25**	7
B4. Net non-debt creating flows at historical average minus one standard deviation in 2017-2018 4/	26	28	23	22	21	20	**23**	8
B5. Combination of B1-B4 using one-half standard deviation shocks	26	31	30	29	28	25	**29**	10
B6. One-time 30 percent nominal depreciation relative to the baseline in 2017 5/	26	39	33	30	29	27	**31**	9
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	48	48	48	48	48	48	**48**	48

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 7. Zimbabwe: Public Sector Debt Sustainability Framework Debt After IFIs' Arrear Clearance, Baseline Scenario, 2013–2036

(In percent of GDP, unless otherwise indicated)

	Actual					Estimate	Projections								
	2013	2014	2015	Average 5/	Standard Deviation 5/	2016	2017	2018	2019	2020	2021	2016-21 Average	2026	2036	2022-36 Average
Public sector debt 1/	65.9	66.1	70.8			74.9	71.8	67.6	63.9	62.2	60.0		42.9	26.2	
of which: foreign-currency denominated	65.9	66.1	70.8			74.9	71.8	67.6	63.9	62.2	60.0		42.9	26.2	
Change in public sector debt	-2.4	0.2	4.6			4.1	-3.1	-4.2	-3.7	-1.7	-2.2		-4.4	-0.9	
Identified debt-creating flows	-10.4	-9.3	-6.0			-6.8	-12.9	-12.0	-10.1	-8.9	-8.2		-5.5	-5.9	
Primary deficit	1.9	0.7	0.3	0.4	0.8	0.2	-0.2	-0.3	-0.4	-0.5	-0.6	-0.3	-0.1	0.6	0.1
Revenue and grants	27.7	26.6	26.4			26.1	25.9	25.8	25.7	25.8	25.9		25.7	25.7	
of which: grants	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Primary (noninterest) expenditure	29.7	27.2	26.7			26.4	25.7	25.5	25.3	25.3	25.3		25.7	26.4	
Automatic debt dynamics	-5.0	-2.9	0.8			-0.1	-6.4	-6.0	-4.6	-3.7	-3.3		-2.4	-1.0	
Contribution from interest rate/growth differential	-3.8	-3.1	-0.7			-1.0	-6.7	-6.1	-4.7	-3.7	-3.3		-2.5	-1.1	
of which: contribution from average real interest rate	-0.9	-0.7	0.0			0.0	-0.2	-0.3	0.0	0.2	0.3		0.1	0.5	
of which: contribution from real GDP growth	-2.9	-2.4	-0.7			-1.0	-6.5	-5.9	-4.6	-3.9	-3.6		-2.7	-1.5	
Contribution from real exchange rate depreciation	-1.2	0.2	1.5			1.0	0.3	0.1	0.1	0.1	0.1		...	...	
Other identified debt-creating flows	-7.4	-7.0	-7.1			-7.0	-6.3	-5.6	-5.2	-4.7	-4.4		-3.0	-5.5	
Privatization receipts (negative)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	-4.1	
Recognition of implicit or contingent liabilities	-7.4	-7.0	-7.1			-7.0	-6.3	-5.6	-5.2	-4.7	-4.4		-3.0	-1.4	
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	8.0	9.5	10.6			10.9	9.8	7.8	6.5	7.2	6.1		1.0	5.0	
Other Sustainability Indicators															
PV of public sector debt	...	...	72.7			73.8	70.4	66.3	62.6	60.5	58.0		40.1	22.3	
of which: foreign-currency denominated	...	...	72.7			73.8	70.4	66.3	62.6	60.5	58.0		40.1	22.3	
of which: external	...	...	58.9			58.2	54.3	50.1	46.5	43.5	40.7		27.8	16.6	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	9.3	8.2	8.5			15.6	14.3	12.8	12.1	11.4	11.0		10.6	4.6	
PV of public sector debt-to-revenue and grants ratio (in percent)	...	...	275.7			282.2	271.6	256.9	243.2	234.1	223.6		155.7	86.6	
PV of public sector debt-to-revenue ratio (in percent)	...	...	275.7			282.2	271.6	256.9	243.2	234.1	223.6		155.7	86.6	
of which: external 3/	...	...	223.3			222.7	209.6	193.8	180.8	168.2	157.0		107.9	64.5	
Debt service-to-revenue and grants ratio (in percent) 4/	0.6	1.2	2.3			28.5	27.4	23.3	22.1	21.0	20.2		23.9	7.2	
Debt service-to-revenue ratio (in percent) 4/	0.6	1.2	2.3			28.5	27.4	23.3	22.1	21.0	20.2		23.9	7.2	
Primary deficit that stabilizes the debt-to-GDP ratio	4.3	0.4	-4.3			-3.9	2.9	3.9	3.3	1.2	1.6		4.4	1.5	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	4.5	3.8	1.1	2.7	8.8	1.4	9.5	8.9	7.3	6.5	6.2	6.6	6.0	6.0	6.0
Average nominal interest rate on forex debt (in percent)	0.3	0.5	1.0	0.3	0.3	1.3	1.6	1.7	2.1	2.5	2.7	2.0	2.5	0.0	1.9
Real exchange rate depreciation (in percent, + indicates depreciation)	-1.8	0.3	2.3	-1.6	7.4	1.4	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	3.5	1.3	-1.3	4.1	8.6	0.0	1.4	1.9	2.0	2.1	2.0	1.6	1.9	1.9	1.9
Growth of real primary spending (deflated by GDP deflator, in percent)	9.0	-4.7	-1.1	0.8	3.7	0.3	6.9	8.1	6.5	6.4	6.3	5.7	6.4	6.2	6.3
Grant element of new external borrowing (in percent)	...	...	...	...	...	23.5	33.6	51.7	51.7	51.7	51.7	44.0	51.7	51.7	...

Sources: Country authorities; and 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 8. Zimbabwe: Sensitivity Analysis for Key Indicators of Public Debt Debt After IFIs' Arrear Clearance 2016–2036

		Projections						
	2016	2017	2018	2019	2020	2021	2026	2036
PV of Debt-to-GDP Ratio								
Baseline	74	70	66	63	60	58	40	22
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	74	75	76	75	75	75	63	47
A2. Primary balance is unchanged from 2016	74	71	67	63	61	59	42	23
A3. Permanently lower GDP growth 1/	74	72	69	67	67	67	61	82
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2017-20	74	84	97	96	97	98	92	93
B2. Primary balance is at historical average minus one standard deviations in 2017-201	74	71	68	64	62	59	41	22
B3. Combination of B1-B2 using one half standard deviation shocks	74	79	83	81	82	81	72	68
B4. One-time 30 percent real depreciation in 2017	74	98	91	84	80	75	50	26
B5. 10 percent of GDP increase in other debt-creating flows in 2017	74	76	71	67	65	62	43	24
PV of Debt-to-Revenue Ratio 2/								
Baseline	282	272	257	243	234	224	156	87
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	282	291	293	291	292	290	245	182
A2. Primary balance is unchanged from 2016	282	272	258	246	237	228	163	89
A3. Permanently lower GDP growth 1/	282	277	268	261	260	257	236	320
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2017-20	282	325	375	374	377	378	357	362
B2. Primary balance is at historical average minus one standard deviations in 2017-201	282	274	262	248	238	227	158	87
B3. Combination of B1-B2 using one half standard deviation shocks	282	304	321	316	316	314	278	263
B4. One-time 30 percent real depreciation in 2017	282	380	352	327	308	290	193	100
B5. 10 percent of GDP increase in other debt-creating flows in 2017	282	292	276	260	250	238	167	92
Debt Service-to-Revenue Ratio 2/								
Baseline	28	27	23	22	21	20	24	7
ble 2. Zimbabwe: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2016-2036 (continued)								
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	28	29	26	26	26	26	36	16
A2. Primary balance is unchanged from 2016	28	27	23	22	21	20	24	8
A3. Permanently lower GDP growth 1/	28	28	24	23	23	23	30	17
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2017-20	28	32	32	31	31	30	37	21
B2. Primary balance is at historical average minus one standard deviations in 2017-201	28	27	23	22	21	20	24	7
B3. Combination of B1-B2 using one half standard deviation shocks	28	31	29	28	27	27	32	16
B4. One-time 30 percent real depreciation in 2017	28	33	33	32	31	30	35	12
B5. 10 percent of GDP increase in other debt-creating flows in 2017	28	27	24	24	21	21	24	8

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.