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RWANDA

FOURTH REVIEW UNDER THE POLICY SUPPORT INSTRUMENT—DEBT SUSTAINABILITY ANALYSIS

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The Debt Sustainability Analysis (DSA) was prepared jointly by IMF and World Bank staff, in consultation with the authorities.

The results of the debt sustainability analysis indicate that Rwanda continues to face a low risk of external debt distress, similar to the analysis prepared last year. [1, 2]*Under the baseline scenario all external debt burden indicators are projected to remain below the policy-dependent thresholds. Standard stress tests show marginal temporary breaches of the debt service-to-exports and debt service-to-revenue ratios in 2023 when the Eurobond issued in 2013 matures. As these breaches are temporary, and it is assumed that Rwanda will be able to refinance the maturing Eurobond, the final assessment of a low risk of external debt distress is maintained. The ratio of the present value of public sector debt-to-GDP ratio remains below the policy dependent benchmark both under the baseline and standard stress tests. Until efforts to broaden the export base pay off, Rwanda should remain prudent about the terms and amount of external debt it contracts/guarantees.*

[1] This debt sustainability analysis updates the DSA analysis contained in IMF Country Report No. 14/343 (December 2014). The fiscal year for Rwanda is from July–June; however, this DSA is prepared on a calendar year basis. The results of this DSA were discussed with the authorities and they are in broad agreement with its conclusions.

[2] The Country Policy and Institutional Assessment (CPIA) which assesses the quality of a country's present policy and institutional framework has classified Rwanda as a strong performer, with an average CPIA score of 3.92 over the last three years.

BACKGROUND

1. **The Rwandan economy grew strongly in 2014 and 2015, but recent weak mineral exports have highlighted external vulnerabilities.** Real GDP grew by 7 percent in 2014 and is projected to record a similar growth rate in 2015. But while output has remained strong, export performance has suffered as a consequence of weak commodity prices, with mineral exports faring the worst. In 2015, the decline in mineral prices and production (by 18 percent and 34 percent, respectively) has resulted in a near halving of mining exports compared to the previous year. Weak mineral prices are projected to lower mineral exports further in 2016 and this will dampen the expansion in overall export receipts. Inflation stood at 2.1 percent at end-2014 and is expected to remain well contained in 2015, below the authorities' medium-term target of 5 percent.

2. **Rwanda's public sector debt remains low, but it is increasing.** At end-2014, total public sector debt was 29.9 percent of GDP—with the external debt of the public sector at 23.7 percent of GDP and mainly comprised of multilateral and bilateral debt, and domestic debt at 6 percent of GDP. These debt ratios compare favorably with those of other countries in the region. The public debt-to-GDP ratio has increased steadily over the last three years, reflecting new borrowing, in particular large disbursements under multilateral concessional loans as Rwanda's low-risk rating of debt distress has shifted donor support towards more concessional lending rather than grants. Public external guaranteed debt has been rising mainly due to the expansion of RwandAir's fleet of aircraft.

Table 1. Rwanda: External Public Debt

	2012		2013		2014	
	Billions US$	Share	Billions US$	Share	Billions US$	Share
Multilateral creditors	0.9	76.4	0.9	58.6	1.1	60.6
Bilateral creditors	0.2	14.7	0.2	13.5	0.3	13.8
Commercial creditors			0.4	25.0	0.4	21.9
Total (excluding guarantees)	1.1	91.2	1.6	97.1	1.8	96.3
Publicly guaranteed debt	0.1	8.8	0.0	2.9	0.1	3.7
Total (including guarantees)	1.2	100.0	1.6	100.0	1.8	100.0

Source: Rwandan authorities

UNDERLYING ASSUMPTIONS

3. The medium and long-term macroeconomic framework underlying the DSA is consistent with the baseline scenario presented in the Staff Report for 4th review of the PSI program. The main assumptions and projections for key macroeconomic variables are summarized in Box 1 and Table 2. The main differences between the current assumptions and those underlying the last DSA update are: (i) the current account deficit (as a share of GDP) is worse, largely due to weaker mineral exports; (ii) medium-term GDP growth is lower; (iii) external grants decline faster beyond 2020; and (iv) from 2020 onward, the central government is more reliant on external commercial borrowing to meet its external financing need, including bonds issued in the international capital market. Table 3 shows the near-term differences in the underlying baseline assumptions between the current and previous DSAs.

Table 2. Key Assumptions

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2026	2025	2030	2035
	(Percent of GDP, unless otherwise indicated)													
Nominal GDP (RF billions)	3,846	4,437	4,864	5,389	5,955	6,589	7,389	8,287	9,309	10,509	24,532	19,255	35,279	64,641
Real GDP (percentage change)	7.5	8.8	4.7	6.9	7.0	6.3	6.7	6.8	7.0	7.5	7.5	7.5	7.5	7.5
GDP deflator (percentage change)	7.7	6.1	4.7	3.6	3.3	4.1	5.1	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Fiscal (central government)														
External grants (incl. HIPC relief)	10.8	9.3	8.6	7.4	6.8	5.4	3.7	4.3	4.1	3.9	1.9	2.1	1.2	0.6
Revenue (excl. external grants)	14.0	15.0	16.5	16.7	17.6	18.6	18.2	18.7	18.9	19.1	21.1	20.5	22.0	23.2
Revenue (incl. external grants)	24.8	24.2	25.1	24.1	24.3	24.1	22.0	23.0	23.0	23.0	23.0	22.6	23.1	23.8
Primary expenditures	25.1	26.9	28.8	28.2	28.4	28.1	25.6	26.0	25.8	25.6	26.1	26.5	25.7	25.0
Primary current expenditures	13.9	13.5	13.8	14.3	13.4	13.7	13.4	13.4	13.3	13.3	13.8	13.9	13.6	13.3
Capital expenditure and net lending	11.3	13.4	15.0	13.9	15.0	14.5	12.2	12.6	12.4	12.3	12.3	12.5	12.1	11.7
Primary balance, incl. external grants	-0.4	-2.7	-3.7	-4.2	-4.0	-3.9	-3.6	-2.9	-2.7	-2.6	-3.3	-3.9	-2.6	-0.9
Primary balance, excl. external grants	-11.2	-11.9	-12.4	-11.5	-10.8	-9.5	-7.4	-7.2	-6.8	-6.5	-5.2	-6.1	-3.8	-1.5
Net domestic financing	0.3	-1.8	0.0	3.2	1.9	1.5	0.7	0.4	0.4	0.4	2.5	2.5	2.5	2.0
Interest rate (percent)		8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
New external borrowing[1]		2.6	1.9	2.2	4.2	5.5	5.1	4.4	3.9	3.7	3.2	3.4	2.7	0.8
Grant element of new external borrowing (percent)					38.7	34.2	54.6	47.2	47.5	51.9	33.3	38.7	24.7	18.2
Balance of payments														
Exports of goods and services	14.0	14.0	15.6	16.9	15.8	16.8	17.1	17.6	17.4	17.1	18.5	18.1	18.8	18.8
Imports of goods and services	34.1	34.3	32.5	33.7	34.3	36.2	33.6	32.1	31.5	30.9	30.5	30.5	30.5	30.5
Current account, incl. official transfers	-7.2	-11.3	-7.4	-11.5	-14.5	-15.4	-14.0	-11.5	-10.9	-10.7	-9.8	-9.7	-9.6	-9.4
Foreign Direct Investment	1.7	2.2	3.4	3.4	4.0	4.1	4.1	4.3	3.9	3.9	4.6	4.4	4.8	4.9
Gross official reserves (months of imports of G&S)	5.1	4.1	5.1	4.2	3.4	3.2	3.0	3.0	3.0	3.1	4.5	4.5	4.5	4.5

Source: Rwandan authorities, IMF and World Bank staff.

[1] Includes publicly guaranteed external borrowing.

Table 3. Baseline External DSA Compared to the Previous DSA Update, 2015-17

	Previous DSA[1]			Current DSA		
	2015 Proj.	2016 Proj.	2017 Proj.	2015 Proj.	2016 Proj.	2017 Proj.
Stock of public and publicly-guaranteed (PPG) external debt						
Millions of U.S. dollars	2,259	2,628	3,132	2,281	2,956	3,363
Percent of GDP	27.0	28.6	31.1	28.6	36.0	37.6
Present value (PV) of PPG external debt						
Millions of U.S. dollars	1,573	1,769	2,065	1,494	1,936	2,114
Percent of GDP	18.8	19.3	20.5	18.7	23.6	23.7
PV of PPG external debt to revenues (percent)3	95.5	95.6	102.0	91.5	109.0	120.6
PV of PPG external debt to exports (percent)	124.2	130.6	131.5	118.7	140.1	138.7
PPG external debt service to revenues (percent)	6.5	6.1	5.8	6.2	6.1	8.0
PPG external debt service to exports (percent)	8.5	8.4	7.5	8.1	7.9	9.2
Discount rate (percent)	5.0	5.0	5.0	5.0	5.0	5.0
	(Percent of GDP, unless indicated otherwise)					
Nominal GDP (RF billions)	5,940	6,722	7,590	5,955	6,589	7,389
Real GDP (percentage change)	6.0	7.0	7.5	7.0	6.3	6.7
GDP Deflator (percentage change)	5.2	5.8	5.0	3.3	4.1	5.1
Fiscal						
External grants (incl. HIPC relief)	5.8	4.1	3.5	6.8	5.4	3.7
Revenue (excl. external grants)	18.4	19.0	19.3	17.6	18.6	18.2
Primary expenditures	27.7	25.8	25.6	28.4	28.1	25.6
Primary balance, incl. external grants	-3.5	-2.7	-2.8	-4.0	-3.9	-3.6
Primary balance, excl. external grants	-9.3	-6.8	-6.3	-10.8	-9.5	-7.4
Grant element of new external borrowing (percent)[2]	46.1	47.6	43.0	38.7	34.2	54.6
Balance of payments						
Exports of goods and services	15.2	14.8	15.6	15.8	16.8	17.1
Millions of U.S. dollars	1,285	1,374	1,593	1,305	1,431	1,547
Imports of goods and services	32.2	28.9	29.0	34.3	36.2	33.6
Millions of U.S. dollars	2,730	2,695	2,963	2,835	3,081	3,045
Current account, incl. official transfers	-11.0	-9.1	-8.9	-14.5	-15.4	-14.0

Sources: Rwandan authorities, IMF, and World Bank staff.

[1] See IMF Country Report No. 14/343, December 2014.

[2] Includes publicly-guaranteed external borrowing.

[3] Larger non-concessional borrowing in 2015 and 2016 in current DSA makes this ratio higher in 2017 relative to the previous DSA.

Box 1. Macroeconomic Framework for the DSA

Despite near-term weakness in the mining sector, the medium-term and long-term framework underpinning the DSA assumes that Rwanda continues to enjoy rapid growth, and low and stable inflation.

Key highlights:

- **Growth:** Long-run growth is projected at 7.5 percent. The composition of growth is expected to shift toward the private sector and exports as policies designed to expand and diversify the export base bear fruit.

- **External sector:** Near-term weakness in mineral exports will be partially offset by buoyancy in exports of coffee and tea, non-traditional exports and tourism. Exports of goods and services (as a percent of GDP) are expected to gradually rise over the projection horizon. Despite the anticipated completion of some current projects in the near-term, import needs are expected to remain high, reflecting continued high investment needs in the economy. Consequently, Rwanda's external current account is projected to remain in deficit throughout the period under consideration, though the gap is expected to narrow.

  Inflation: Inflation is expected to remain contained. After falling at the end of 2014 to 2.1 percent, the rate is expected to be anchored to the authorities' medium-term target of 5 percent. Improvements in agricultural productivity are expected to lower food prices over the long run, containing a key driver of inflation in Rwanda.

- **Reserves:** Reserve buffers are expected to attain coverage of 4.5 months of prospective imports by 2023, consistent with the monetary integration process among East African Community members.

- **Fiscal outlook.** The key fiscal assumption is that there would be a gradual and consistent rise in domestic revenues (excluding grants) from 2015 to 2035. This reflects the authorities' commitment to raise Rwanda's revenue collection efforts to comparable level observed in other countries in the region. Primary expenditures are forecast to remain high, reflecting the need for ongoing significant capital and current spending.

- **Grants.** The DSA assumes a tapering of external donor assistance, reflecting reduced access to grants, given Rwandan's improved debt distress risk rating, and greater capacity to mobilize and use domestic revenue

- **External borrowing.** The assumptions for new external borrowing vary over the assessment period. From 2015-2020, the framework assumes central government external borrowing needs are met mainly by disbursements of already-contracted external multilateral and bilateral debt; while public guaranteed external borrowing associated with RwandAir's expansion and the completion of the Kigali Convention Center is done via commercial debt. From 2021 onward, the framework assumes that the external financing need of the central government will be financed by new external debt, with a progressively increasing share from commercial debt, including bonds issued in the international capital market.

- **Domestic borrowing.** The framework assumes that domestic borrowing will continue to decline until 2019 as the authorities anchor fiscal policy on a goal of limiting net domestic financing. From 2020, domestic borrowing of 2.5 percent of GDP is assumed, which sees share of domestic debt rise. Over time, the composition of domestic borrowing is also expected to shift towards medium- and long-term debt as the authorities intensify efforts to develop the local government bond market.

- **Domestic interest rates.** New domestic borrowing is expected to be contracted at a nominal interest rate of 8 percent—a weighted average of the cost of short-and long-term domestic debt.

DEBT SUSTAINABILITY ANALYSIS

A. External DSA

4. Based on the assumptions outlined above, Rwanda's debt is assessed to be sustainable with low risk of debt distress (Appendix Figures 1a and Tables 1a and 1b). Similar to the last DSA update, the joint Bank-Fund debt sustainability framework (DSF) for low-income countries classifies Rwanda as a "strong" performer, based on the quality of the country's policies and institutions as measured by the 3-year average of the ratings under the World Bank's Country Policy and Institutional Assessment (CPIA). This is reflected in higher debt sustainability thresholds compared to countries operating in a weak policy environment.[3] Under the baseline scenario all debt burden indicators are projected to remain comfortably below the policy-dependent thresholds. Standard stress tests show in 2023 (when the Eurobond issued in 2013 is set to mature) marginal temporary breaches of the debt service-to-revenue ratio, and the debt service-to-exports ratio thresholds. These findings highlight the vulnerability of the Rwandan economy to external shocks and liquidity pressures at the time the Eurobond matures. However, as the breaches of these debt service ratios are temporary, and taking into account the low level of external debt and strengthening indicators of repayment capacity (the expansion of Rwanda's export base and tax revenues), and that Rwanda is assumed to refinance the maturing Eurobond, the final assessment for Rwanda's external public and public guaranteed debt is a low risk of debt distress.

B. Public DSA

5. Adding domestic public debt to external debt does not change the results of the analysis (see Appendix Figure 1b and Tables 2a and 2b). The evolution of the total public debt indicators broadly follows that of external debt under the baseline. The DSA suggests that public debt remains stable under the baseline. Based on the 3 indicators examined—PV of public debt-to-GDP, PV of public debt-to-revenue and debt service of public debt-to-revenue—the long-term path of total public debt is projected to be broadly stable in the baseline (Appendix Figure 1b). PV of public debt-to-GDP remains comfortably below the indicative benchmark throughout the assessment period. The sharp increase in the PV of debt-to-revenue indicator when the primary balance is assumed fixed at 2015 level highlights the importance of securing the revenue gains assumed under the baseline.

[3] The thresholds for strong performers are 200, 50 and 300 percent for the PV of debt to exports, GDP and government revenue, respectively. Debt service thresholds are 25 and 22 percent of exports and revenue, respectively.

AUTHORITIES' VIEW

6. **The Rwandan authorities broadly agree with the results of this DSA and the overall assessment of low risk of debt distress.** They agree with the assessment that the main risk to debt vulnerability remains the narrow export base. However, at the same time, they also anticipate that the on-going investments and the implementation of measures to boost the traditional and non-traditional exports and tourism sectors will make the expansion in the export base sufficiently durable to mitigate this risk (see Box. 2 in Staff Report). Further, the authorities agree that maintaining a prudent medium-term debt management strategy and carefully and prudently assessing future projects and their financing remain important to prevent public debt from becoming unsustainable.

CONCLUSION

7. **Rwanda continues to face a low risk of debt distress but remains subject to external vulnerabilities**. Under the current set of baseline assumptions, Rwanda's debt burden indicators remain below the policy-related thresholds under baseline scenario, with temporary breaches of the respective thresholds of the debt service-to-revenue and the debt service-to-exports ratios in 2023 under standard stress tests. These breaches of the two liquidity ratios underscore Rwanda's susceptibility to external shocks and the potential risk of liquidity pressures in the future. However it is judged that the risk arising from these breaches can be mitigated by the ability of the authorities to refinance non-concessional debt falling due in 2023, provided that sound macroeconomic and fiscal policies are maintained. Public debt is low and Rwanda's external debt burden profile is also expected to improve further, given the anticipated strong growth and expansion in exports.

8. **The main risk to Rwanda's debt sustainability remains the narrow export base.** While it is assumed that this risk will be mitigated by export expansion and diversification over the assessment period, the near-term weakness in mineral exports underscores the vulnerability associated with a narrow export base heavily dependent on fluctuating commodity prices. Moreover, should the anticipated medium-to long-term export gains fail to materialize, resulting significantly in lower than expected export revenues, the risks to debt sustainability over the longer term would increase.

Table 1a: External Debt Sustainability Framework, Baseline Scenario, 2012-2035[1]
(In percent of GDP, unless otherwise indicated)

	Actual			Historical Average 6/	Standard Deviation 6/	Projections									
	2012	2013	2014			2015	2016	2017	2018	2019	2020	2015-2020 Average	2025	2035	2021-2035 Average
External debt (nominal) 1/	**21.4**	**26.6**	**28.0**			**32.5**	**39.6**	**40.7**	**40.9**	**40.6**	**40.0**		**37.3**	**27.1**	
of which: public and publicly guaranteed (PPG)	16.8	22.1	23.7			28.6	36.0	37.6	38.2	38.2	37.9		35.2	23.5	
Change in external debt	-1.2	5.2	1.4			4.5	7.1	1.2	0.1	-0.3	-0.5		-0.3	-2.0	
Identified net debt-creating flows	7.2	3.2	6.9			8.7	9.3	7.5	4.6	3.7	3.0		2.8	2.5	
Non-interest current account deficit	**10.8**	**6.7**	**10.5**	**5.4**	**4.2**	**13.5**	**14.3**	**12.9**	**10.4**	**9.7**	**9.8**		**9.3**	**8.6**	9.0
Deficit in balance of goods and services	20.2	16.9	16.8			18.5	19.4	16.5	14.5	14.1	13.8		12.4	11.6	
Exports	14.0	15.6	16.9			15.8	16.8	17.1	17.6	17.4	17.1		18.1	18.8	
Imports	34.3	32.5	33.7			34.3	36.2	33.6	32.1	31.5	30.9		30.5	30.5	
Net current transfers (negative = inflow)	-10.0	-11.3	-7.3	-11.4	2.0	-6.3	-6.6	-4.6	-5.1	-4.8	-4.6		-3.2	-2.5	-3.0
of which: official	-7.5	-8.9	-4.2			-4.5	-4.4	-2.4	-2.1	-1.9	-1.8		-1.2	-0.5	
Other current account flows (negative = net inflow)	0.6	1.1	0.9			1.3	1.5	1.0	0.9	0.5	0.6		0.1	-0.5	
Net FDI (negative = inflow)	**-1.5**	**-3.4**	**-3.4**	**-1.6**	**1.1**	**-4.0**	**-4.1**	**-4.1**	**-4.3**	**-4.6**	**-4.9**		**-4.4**	**-4.9**	-4.6
Endogenous debt dynamics 2/	**-2.1**	**-0.1**	**-0.2**			**-0.8**	**-0.9**	**-1.3**	**-1.4**	**-1.5**	**-1.8**		**-2.1**	**-1.2**	
Contribution from nominal interest rate	0.4	0.7	1.1			1.0	1.1	1.2	1.1	1.2	0.9		0.5	0.8	
Contribution from real GDP growth	-1.8	-1.0	-1.8			-1.9	-2.0	-2.5	-2.5	-2.6	-2.8		-2.6	-2.0	
Contribution from price and exchange rate changes	-0.8	0.1	0.5			...	...	...	...	...	...		...	...	
Residual (3-4) 3/	**-8.4**	**2.0**	**-5.5**			**-4.2**	**-2.3**	**-6.3**	**-4.5**	**-4.0**	**-3.6**		**-3.1**	**-4.6**	
of which: exceptional financing	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
PV of external debt 4/	...	...	20.0			22.6	27.1	26.8	26.3	25.6	24.8		24.0	20.4	
In percent of exports	...	...	118.3			143.5	161.3	157.0	149.4	147.3	144.9		132.1	108.2	
PV of PPG external debt	**...**	**...**	**15.7**			**18.7**	**23.6**	**23.7**	**23.6**	**23.3**	**22.7**		**21.9**	**16.8**	
In percent of exports	**...**	**...**	**92.7**			**118.7**	**140.1**	**138.7**	**134.1**	**133.8**	**132.6**		**120.6**	**89.2**	
In percent of government revenues	**...**	**...**	**81.8**			**91.5**	**109.0**	**120.6**	**113.7**	**111.8**	**108.5**		**101.8**	**71.6**	
Debt service-to-exports ratio (in percent)	**6.1**	**8.4**	**10.2**			**11.8**	**11.7**	**13.2**	**14.2**	**14.5**	**13.5**		**12.0**	**20.4**	
PPG debt service-to-exports ratio (in percent)	**3.6**	**5.3**	**7.0**			**8.1**	**7.9**	**9.2**	**10.2**	**10.1**	**8.8**		**5.5**	**7.8**	
PPG debt service-to-revenue ratio (in percent)	**2.6**	**4.1**	**6.2**			**6.2**	**6.1**	**8.0**	**8.6**	**8.5**	**7.2**		**4.7**	**6.3**	
Total gross financing need (Billions of U.S. dollars)	0.8	0.4	0.7			1.0	1.1	1.0	0.9	0.9	0.9		1.5	4.8	
Non-interest current account deficit that stabilizes debt ratio	12.1	1.5	9.1			9.0	7.2	11.7	10.2	10.1	10.3		9.5	10.6	
Key macroeconomic assumptions															
Real GDP growth (in percent)	8.8	4.7	6.9	7.4	1.9	7.0	6.3	6.7	6.8	7.0	7.5	6.9	7.5	7.5	7.5
GDP deflator in US dollar terms (change in percent)	3.6	-0.5	-1.8	4.8	5.9	-2.1	-3.2	-0.1	1.9	1.9	1.9	0.1	2.0	2.0	2.0
Effective interest rate (percent) 5/	2.1	3.5	4.3	2.5	1.1	3.8	3.5	3.2	3.0	3.1	2.5	3.2	1.4	3.1	2.1
Growth of exports of G&S (US dollar terms, in percent)	13.2	15.5	14.0	18.8	21.5	-2.2	9.7	8.1	12.1	8.0	8.0	7.3	10.9	9.6	10.3
Growth of imports of G&S (US dollar terms, in percent)	13.3	-1.4	9.2	18.6	14.4	6.4	8.7	-1.2	4.0	7.1	7.6	5.4	9.6	9.4	9.5
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	38.7	34.2	54.6	47.2	47.5	51.9	45.7	38.7	18.2	29.6
Government revenues (excluding grants, in percent of GDP)	19.7	19.8	19.2			20.5	21.6	19.6	20.7	20.8	20.9		21.5	23.5	22.2
Aid flows (in Billions of US dollars) 7/	0.7	0.8	0.6			0.7	0.7	0.7	0.5	0.5	0.6		0.6	0.3	
of which: Grants	0.3	0.4	0.4			0.3	0.2	0.2	0.2	0.2	0.2		0.2	0.2	
of which: Concessional loans	0.4	0.4	0.2			0.3	0.5	0.5	0.3	0.3	0.3		0.4	0.1	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			6.1	5.3	5.1	4.4	4.0	4.0		2.4	0.5	1.8
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			63.1	49.2	69.0	65.5	66.4	69.1		54.1	42.1	45.6
Memorandum items:															
Nominal GDP (Billions of US dollars)	7.2	7.5	7.9			8.3	8.5	9.1	9.9	10.8	11.8		18.7	47.0	
Nominal dollar GDP growth	12.7	4.1	5.0			4.8	2.9	6.6	8.9	9.1	9.6	7.0	9.6	9.6	9.6
PV of PPG external debt (in Billions of US dollars)			1.2			1.5	1.9	2.1	2.3	2.5	2.6		4.0	7.8	
(PVt-PVt-1)/GDPt-1 (in percent)						3.5	**5.3**	2.1	2.0	1.8	1.6	2.7	2.1	0.2	1.6
Gross workers' remittances (Billions of US dollars)	0.2	0.2	0.2			0.2	0.2	0.2	0.2	0.2	0.2		0.4	0.0	
PV of PPG external debt (in percent of GDP + remittances)	...	...	15.3			18.4	23.1	23.2	23.1	22.8	22.3		21.5	16.8	
PV of PPG external debt (in percent of exports + remittances)	...	...	81.9			105.6	125.1	124.6	120.8	120.3	118.9		108.7	89.2	
Debt service of PPG external debt (in percent of exports + remittances)	...	...	6.2			7.2	7.1	8.2	9.2	9.1	7.9		5.0	7.8	

Sources: Country authorities; and staff estimates and projections.

1/ Includes both public and private sector external debt.

2/ Derived as [r - g - ρ(1+g)]/(1+g+ρ+gρ) times previous period debt ratio, with r = nominal interest rate; g = real GDP growth rate, and ρ = growth rate of GDP deflator in U.S. dollar terms.

3/ Includes exceptional financing (i.e., changes in arrears and debt relief); changes in gross foreign assets; and valuation adjustments. For projections also includes contribution from price and exchange rate changes.

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

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

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

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

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

Table 1b. Rwanda: Sensitivity Analysis of Key Indicators of Public and Publicly Guaranteed External Debt, 2015-2035[1/]
(In percent)

	Projections							
	2015	2016	2017	2018	2019	2020	**2025**	2035
PV of debt-to GDP ratio								
Baseline	19	24	24	24	23	23	**22**	17
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2015-2035 1/	19	17	13	11	10	10	**8**	8
A2. New public sector loans on less favorable terms in 2015-2035 2/	19	25	27	28	29	29	**32**	28
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2016-2017	19	23	24	24	23	23	**22**	17
B2. Export value growth at historical average minus one standard deviation in 2016-2017 3/	19	24	27	27	26	26	**24**	17
B3. US dollar GDP deflator at historical average minus one standard deviation in 2016-2017	19	22	23	23	23	22	**21**	16
B4. Net non-debt creating flows at historical average minus one standard deviation in 2016-2017 4/	19	23	23	23	23	22	**21**	16
B5. Combination of B1-B4 using one-half standard deviation shocks	19	21	19	19	19	18	**18**	15
B6. One-time 30 percent nominal depreciation relative to the baseline in 2016 5/	19	33	34	34	33	32	**31**	24
PV of debt-to-exports ratio								
Baseline	119	140	139	134	134	133	**121**	89
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2015-2035 1/	119	102	76	65	60	56	**43**	42
A2. New public sector loans on less favorable terms in 2015-2035 2/	119	151	161	161	167	171	**174**	150
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2016-2017	119	135	136	132	131	130	**118**	88
B2. Export value growth at historical average minus one standard deviation in 2016-2017 3/	119	161	198	191	189	187	**164**	114
B3. US dollar GDP deflator at historical average minus one standard deviation in 2016-2017	119	135	136	132	131	130	**118**	88
B4. Net non-debt creating flows at historical average minus one standard deviation in 2016-2017 4/	119	138	134	130	130	129	**117**	87
B5. Combination of B1-B4 using one-half standard deviation shocks	119	132	119	116	116	116	**109**	86
B6. One-time 30 percent nominal depreciation relative to the baseline in 2016 5/	119	135	136	132	131	130	**118**	88
PV of debt-to-revenue ratio								
Baseline	91	109	121	114	112	109	**102**	72
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2015-2035 1/	91	79	66	55	50	46	**36**	33
A2. New public sector loans on less favorable terms in 2015-2035 2/	91	118	140	137	139	140	**147**	120
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2016-2017	91	106	121	114	112	109	**102**	72
B2. Export value growth at historical average minus one standard deviation in 2016-2017 3/	91	111	138	129	126	122	**111**	73
B3. US dollar GDP deflator at historical average minus one standard deviation in 2016-2017	91	103	117	111	109	105	**99**	69
B4. Net non-debt creating flows at historical average minus one standard deviation in 2016-2017 4/	91	108	117	110	108	105	**99**	70
B5. Combination of B1-B4 using one-half standard deviation shocks	91	96	95	90	89	87	**85**	63
B6. One-time 30 percent nominal depreciation relative to the baseline in 2016 5/	91	152	172	162	159	154	**145**	102

Table 1b. Rwanda: Sensitivity Analysis of Key Indicators of Public and Publicly Guaranteed External Debt, 2015-2035 [1/] (Concluded)

(In percent)

Debt service-to-exports ratio								
Baseline	8	8	9	10	10	9	**6**	8
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2015-2035 1/	8	6	6	6	5	5	**2**	3
A2. New public sector loans on less favorable terms in 2015-2035 2/	8	7	7	7	7	7	**8**	12
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2016-2017	8	7	8	9	8	8	**6**	7
B2. Export value growth at historical average minus one standard deviation in 2016-2017 3/	8	8	11	12	11	11	**9**	9
B3. US dollar GDP deflator at historical average minus one standard deviation in 2016-2017	8	7	8	9	8	8	**6**	7
B4. Net non-debt creating flows at historical average minus one standard deviation in 2016-2017 4/	8	7	8	9	8	8	**6**	7
B5. Combination of B1-B4 using one-half standard deviation shocks	8	7	8	8	8	8	**5**	7
B6. One-time 30 percent nominal depreciation relative to the baseline in 2016 5/	8	7	8	9	8	8	**6**	7
Debt service-to-revenue ratio								
Baseline	6	6	8	9	8	7	**5**	6
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2015-2035 1/	6	5	6	5	4	4	**2**	2
A2. New public sector loans on less favorable terms in 2015-2035 2/	6	5	6	6	6	6	**7**	10
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2016-2017	6	6	7	8	7	7	**5**	6
B2. Export value growth at historical average minus one standard deviation in 2016-2017 3/	6	5	7	8	7	7	**6**	6
B3. US dollar GDP deflator at historical average minus one standard deviation in 2016-2017	6	5	7	7	7	6	**5**	6
B4. Net non-debt creating flows at historical average minus one standard deviation in 2016-2017 4/	6	5	7	7	7	6	**5**	6
B5. Combination of B1-B4 using one-half standard deviation shocks	6	5	7	7	6	6	**4**	5
B6. One-time 30 percent nominal depreciation relative to the baseline in 2016 5/	6	8	10	11	10	9	**8**	8
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	28	28	28	28	28	28	**28**	28

Sources: Country authorities; and staff estimates and projections.

1/ Variables include real GDP growth, growth of GDP deflator (in U.S. dollar terms), non-interest current account in percent of GDP, and non-debt creating flows.

2/ Assumes that the interest rate on new borrowing is by 2 percentage points higher than in the baseline., while grace and maturity periods are the same as in the baseline.

3/ Exports values are assumed to remain permanently at the lower level, but the current account as a share of GDP is assumed to return to its baseline level after the shock (implicitly assuming an offsetting adjustment in import levels).

4/ Includes official and private transfers and FDI.

5/ Depreciation is defined as percentage decline in dollar/local currency rate, such that it never exceeds 100 percent.

6/ Applies to all stress scenarios except for A2 (less favorable financing) in which the terms on all new financing are as specified in footnote 2.

Table 2a: Rwanda: Public Sector Debt Sustainability Framework, Baseline Scenario, 2012-2035[1/]
(In percent of GDP, unless otherwise indicated)

	Actual					Estimate						Projections			
	2012	2013	2014	Average 5/	Standard Deviation 5/	2015	2016	2017	2018	2019	2020	2015-20 Average	2025	2035	2021-35 Average
Public sector debt 1/	17.0	27.1	29.9			35.1	41.9	43.6	43.9	43.7	43.3		48.1	42.2	
of which: foreign-currency denominated	16.8	22.1	23.7			28.6	36.0	37.6	38.2	38.2	37.9		35.2	23.5	
Change in public sector debt	-5.6	10.2	2.8			5.2	6.8	1.7	0.3	-0.2	-0.5		0.8	-2.4	
Identified debt-creating flows	-4.5	0.3	0.1			0.8	1.3	-0.1	-1.6	-2.1	-2.3		-0.4	-2.0	
Primary deficit	2.6	3.8	4.3	0.9	2.1	4.2	4.1	3.6	2.9	2.3	2.4	3.2	4.0	0.7	2.9
Revenue and grants	24.2	25.0	24.1			24.3	24.1	22.0	23.0	23.0	23.0		22.6	23.8	
of which: grants	4.5	5.3	4.9			3.9	2.5	2.3	2.3	2.2	2.1		1.1	0.3	
Primary (noninterest) expenditure	26.7	28.8	28.4			28.5	28.2	25.5	25.9	25.4	25.4		26.7	24.5	
Automatic debt dynamics	-1.7	0.3	-0.7			-0.1	-0.1	-2.2	-2.3	-2.3	-2.7		-3.4	-2.4	
Contribution from interest rate/growth differential	-1.7	-0.2	-1.0			-1.3	-1.5	-2.1	-2.3	-2.3	-2.7		-3.4	-2.4	
of which: contribution from average real interest rate	0.1	0.6	0.7			0.7	0.6	0.5	0.5	0.5	0.3		-0.1	0.7	
of which: contribution from real GDP growth	-1.8	-0.8	-1.8			-1.9	-2.1	-2.6	-2.8	-2.9	-3.1		-3.3	-3.1	
Contribution from real exchange rate depreciation	0.1	0.5	0.3			1.2	1.3	0.0	0.0	0.0	0.0		...	...	
Other identified debt-creating flows	-5.3	-3.8	-3.5			-3.3	-2.6	-1.5	-2.2	-2.1	-2.0		-1.1	-0.3	
Privatization receipts (negative)	-5.6	-4.1	-3.0			-3.5	-3.5	-1.8	-2.4	-2.2	-2.1		-1.2	-0.3	
Recognition of implicit or contingent liabilities	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Debt relief (HIPC and other)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Other (specify, e.g. bank recapitalization)	0.3	0.3	-0.5			0.2	0.9	0.2	0.2	0.2	0.2		0.1	0.0	
Residual, including asset changes 6/	-1.2	9.9	2.7			4.4	5.5	1.8	2.0	1.9	1.8		1.2	-0.4	
Other Sustainability Indicators															
PV of public sector debt	...	...	21.9			25.2	29.4	29.6	29.3	28.8	28.1		34.8	35.5	
of which: foreign-currency denominated	...	...	15.7			18.7	23.6	23.7	23.6	23.3	22.7		21.9	16.8	
of which: external	...	...	15.7			18.7	23.6	23.7	23.6	23.3	22.7		21.9	16.8	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	5.2	3.1	7.8			8.5	8.7	8.3	8.3	7.5	7.0		14.7	19.8	
PV of public sector debt-to-revenue and grants ratio (in percent)	...	...	91.1			103.6	122.2	134.8	127.2	125.2	122.0		153.6	149.2	
PV of public sector debt-to-revenue ratio (in percent)	...	...	114.5			123.2	136.1	151.0	141.4	138.4	134.1		161.7	151.3	
of which: external 3/	...	...	81.8			91.5	109.0	120.6	113.7	111.8	108.5		101.8	71.6	
Debt service-to-revenue and grants ratio (in percent) 4/	3.4	4.5	6.2			6.4	7.0	8.9	9.6	9.5	8.4		7.6	11.9	
Debt service-to-revenue ratio (in percent) 4/	4.2	5.7	7.8			7.6	7.8	10.0	10.7	10.5	9.2		8.0	12.1	
Primary deficit that stabilizes the debt-to-GDP ratio	8.2	-6.4	1.5			-1.0	-2.7	1.9	2.5	2.5	2.8		3.2	3.1	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	8.8	4.7	6.9	7.4	1.9	7.0	6.3	6.7	6.8	7.0	7.5	6.9	7.5	7.5	7.5
Average nominal interest rate on forex debt (in percent)	4.8	5.7	7.0	5.3	1.9	3.7	3.4	3.1	2.9	3.0	2.4	3.1	1.2	2.9	1.8
Average real interest rate on domestic debt (in percent)	-9.0	-39.5	-8.7	-13.5	11.9	1.8	2.0	2.2	2.9	3.3	3.5	2.6	1.8	2.9	1.9
Real exchange rate depreciation (in percent, + indicates depreciation)	0.3	2.9	1.5	-2.4	4.7		...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	6.1	4.7	3.6	7.5	3.9	3.3	4.1	5.1	5.0	5.0	5.0	4.6	5.0	5.0	5.0
Growth of real primary spending (deflated by GDP deflator, in percent)	16.3	12.8	5.4	4.4	6.6	7.4	5.1	-3.3	8.4	4.7	7.6	5.0	7.0	6.6	7.3
Grant element of new external borrowing (in percent)	...	...	...	...	...	38.7	34.2	54.6	47.2	47.5	51.9	45.7	38.7	18.2	...

Sources: Country authorities; and staff estimates and projections.
1/ Indicate coverage of public sector.
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.
6/ Residuals in 2015 and 2016 arise mainly because guaranteed non-concessional loans are excluded from the fiscal accounts.

Table 2b. Rwanda: Sensitivity Analysis for Key Indicators of Public Debt 2015–2035

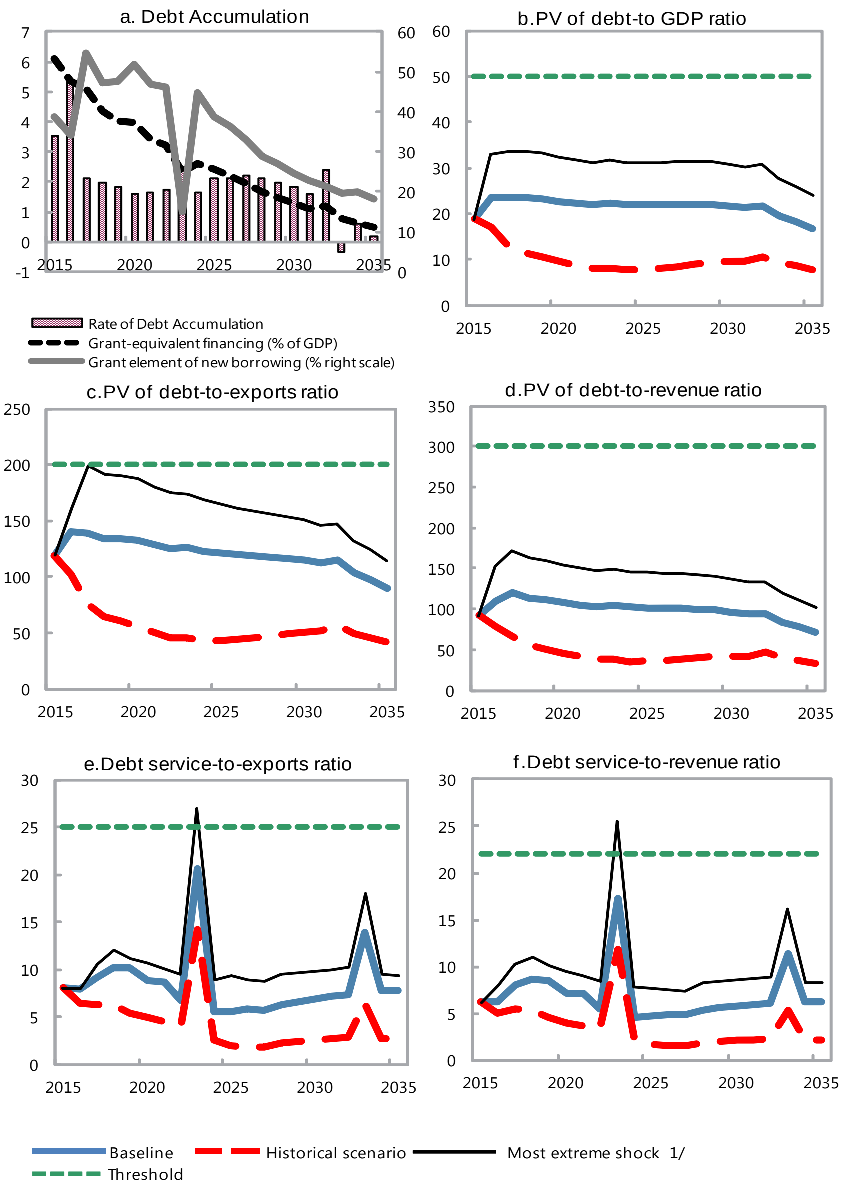
	Projections							
	2015	2016	2017	2018	2019	2020	2025	2035
PV of Debt-to-GDP Ratio								
Baseline	25	29	30	29	29	28	35	36
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	25	27	25	23	22	21	18	19
A2. Primary balance is unchanged from 2015	25	30	30	31	31	32	38	49
A3. Permanently lower GDP growth 1/	25	30	30	30	30	29	39	49
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2016-2017	25	30	31	31	30	30	38	40
B2. Primary balance is at historical average minus one standard deviations in 2016-2017	25	29	28	28	28	27	34	35
B3. Combination of B1-B2 using one half standard deviation shocks	25	28	27	27	27	26	33	35
B4. One-time 30 percent real depreciation in 2016	25	37	36	35	34	32	37	40
B5. 10 percent of GDP increase in other debt-creating flows in 2016	25	36	36	36	35	34	39	38
PV of Debt-to-Revenue Ratio 2/								
Baseline	104	122	135	127	125	122	154	149
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	104	112	114	102	96	90	81	81
A2. Primary balance is unchanged from 2015	104	122	137	133	137	139	166	204
A3. Permanently lower GDP growth 1/	104	123	137	130	130	128	173	205
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2016-2017	104	124	139	132	132	129	167	168
B2. Primary balance is at historical average minus one standard deviations in 2016-2017	104	119	130	123	121	118	150	148
B3. Combination of B1-B2 using one half standard deviation shocks	104	116	123	117	115	113	147	147
B4. One-time 30 percent real depreciation in 2016	104	155	164	151	146	140	165	167
B5. 10 percent of GDP increase in other debt-creating flows in 2016	104	151	165	155	152	147	174	160
Debt Service-to-Revenue Ratio 2/								
Baseline	6	7	9	10	10	8	8	12
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	6	7	8	9	8	7	5	7
A2. Primary balance is unchanged from 2015	6	7	9	10	10	9	8	14
A3. Permanently lower GDP growth 1/	6	7	9	10	10	9	8	15
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2016-2017	6	7	9	10	10	9	8	13
B2. Primary balance is at historical average minus one standard deviations in 2016-2017	6	7	9	9	9	8	7	12
B3. Combination of B1-B2 using one half standard deviation shocks	6	7	9	9	9	8	7	12
B4. One-time 30 percent real depreciation in 2016	6	8	12	13	13	12	11	16
B5. 10 percent of GDP increase in other debt-creating flows in 2016	6	7	10	11	11	10	10	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.

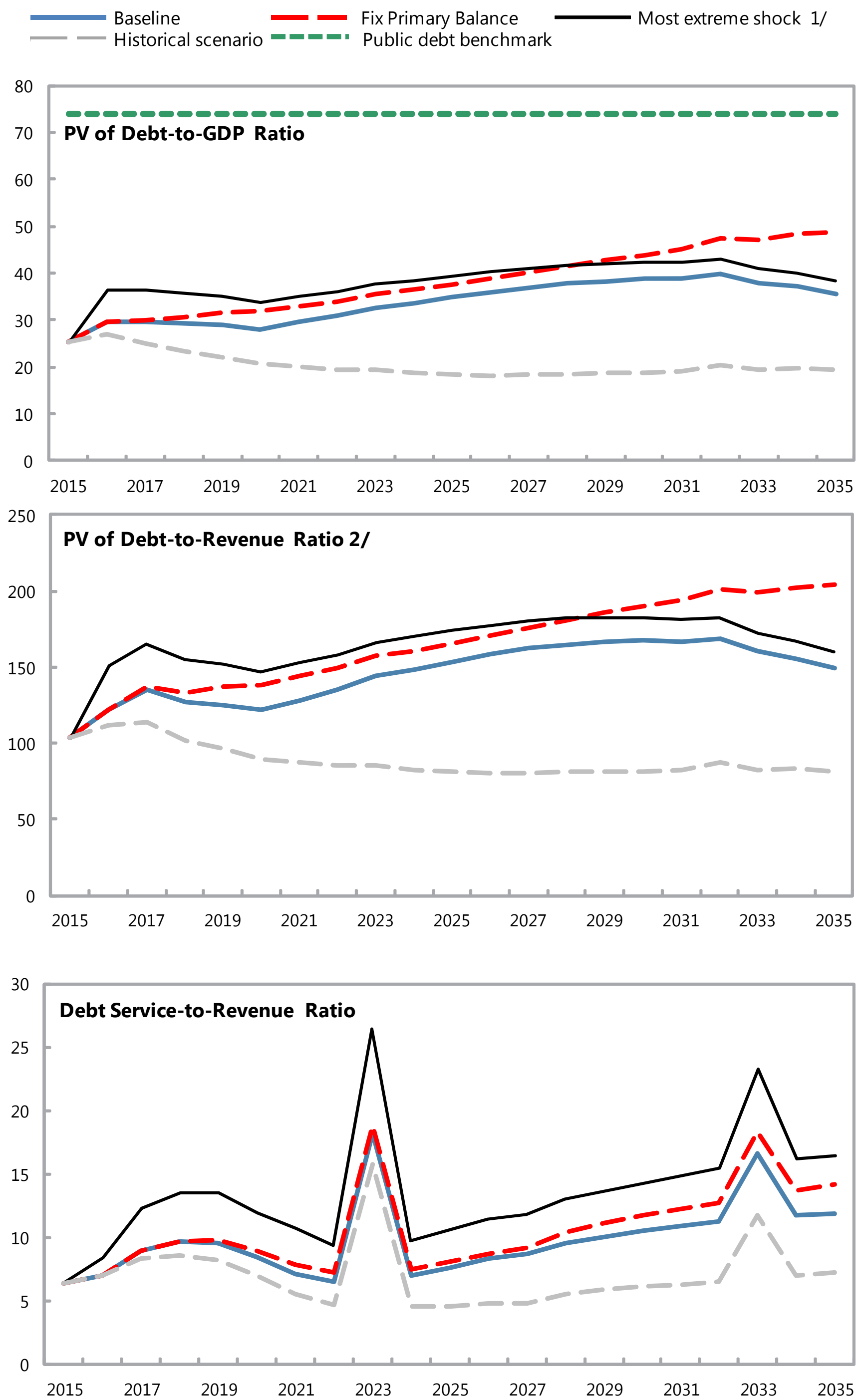
Figure 1a. Rwanda: Indicators of Public and Public Guaranteed External Debt under Alternative Scenarios, 2015-2035 1/



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 2025. In figure b. it corresponds to a One-time depreciation shock; in c. to a Exports shock; in d. to a One-time depreciation shock; in e. to a Exports shock and in figure f. to a One-time depreciation shock

Figure 1b. Rwanda: Indicators of Public Debt under Alternative Scenarios, 2015-2035[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 2025.

2/ Revenues are defined inclusive of grants.