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NINTH 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.

A Bank/Fund assessment of Rwanda's debt sustainability analysis indicates continuation of low risk of debt distress.[1] *External debt burden indicators remain below risk thresholds, except for temporary breaches of one debt service indicator in 2023, when the Eurobond issued in 2013 matures. Recognizing Rwanda's investment needs on the one hand and its still narrow export base and import-dependent growth on the other, the authorities are focused on carefully choosing the highest return projects, financed under the most favorable terms. In the context of the Compact with Africa, the authorities aim to encourage more private investment, leveraging guarantee schemes from multilateral and bilateral development partners and minimizing the government's exposure to additional liabilities.*[2] *In this context, prudent monitoring and management of fiscal risks will be important for safeguarding debt sustainability.*

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[1] This debt sustainability analysis (DSA) updates the DSA analysis contained in IMF Country Report No. 17/217 (July 2017). 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] Rwanda's policies and institutions are classified as "strong" under the World Bank's Country Policy and Institutional Assessment (CPIA) Index (average score in 2014–16: 4.03). The relevant indicative thresholds for this category are: 50 percent for the NPV of debt-to-GDP ratio, 200 percent for the NPV of debt-to-exports ratio, 300 percent for the NPV of debt-to-revenue ratio, 25 percent for the debt service-to-exports ratio, and 22 percent for the debt service-to-revenue ratio. These thresholds are applicable to public and publicly guaranteed external debt.

BACKGROUND

1. Rwanda's public-sector debt has increased in recent years, mainly due to large planned investment projects. The increase reflects a long-planned comprehensive public investment strategy, including three large projects to support increased tourism and trade (Figures 1 and 2). The large projects include: the construction of the Kigali Convention Center (KCC), completed in 2016; the expansion of the national airlines Rwandair, which is underway (Box 1); and construction of a new airport to handle cargo and increased passenger loads, which has commenced. These projects, which are being completed through a series of PPPs and external guarantees, have contributed to an increase in external public debt to 37.5 percent of GDP in 2017 from 16.4 percent in 2012.[3]

Figure 1. Public Debt
(Percent of GDP)

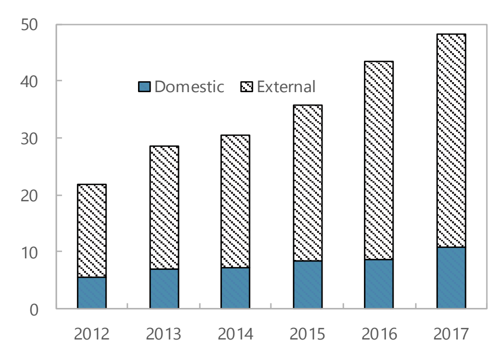
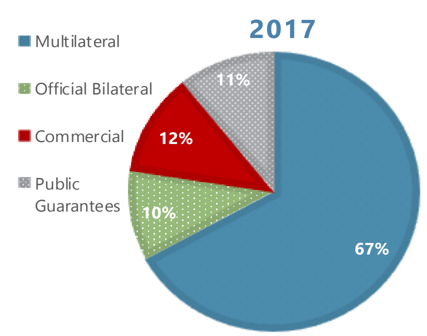


Figure 2. Composition of PPG External Debt
(Percent of Total)



Sources: Rwandan authorities and IMF Staff calculations. Public Debt in Figure 1 includes publicly guaranteed debt.

2. Growth in the Rwandan economy was stronger than expected in 2017. A strong pick-up in services helped quarterly growth to reach 10.5 percent y/y in Q4. This helped offset some of the growth disappointment in Q1, with real GDP increasing by 6.1 percent in 2017 overall. The external sector continued to improve markedly, with broad-based strength in traditional (mining and tea) and new (horticulture, and gemstones) exports. By contrast, import growth was more muted, in part due to adjustment policies and the sizeable exchange rate depreciation observed since 2015, but also due to government interventions to reinvigorate domestic manufacturing and reduce structural trade deficits. As a result, the current account deficit declined to 6.8 percent of GDP in 2017. Higher oil prices and robust real GDP growth are expected to contribute to a slight increase in the current account deficit in 2018, while activity associated with the construction of a new international airport (Bugesera) is expected to bolster growth further, while also increasing demand for imports in 2019/20.

3. In 2017, the external debt stock stabilized, with a modest increase in domestic debt. Construction of Bugesera airport has been carefully financed to minimize the burden on the public balance sheet: the government is taking a minority stake in the project, which will add around 0.3 percent of GDP to external debt over 2019–20. Domestic bridge financing by the government in the equivalent of

[3] Public and Publicly Guaranteed (PPG) Debt includes formal guarantees and external debt of SOEs.

US$75 million has been included in the 2017 numbers. In 2017, Rwanda's domestic public debt increased slightly due to modest debt guarantees (1.1 percent of GDP) to provide temporary assistance in the insurance and hotel sectors.

Box 1. RwandAir Expansion[1/]

RwandAir's fleet increased from 5 to 12 planes in recent years to service new intra-African routes, as well as long-haul routes to Europe (London and Brussels) and Asia (Mumbai). Outstanding external loans contribute around 2.5 percent of GDP to PPG external debt stocks and, despite operating revenues covering an increasing proportion of costs, operational budgetary transfers have averaged 0.7 percent of GDP over the past 5 years.[2/] Rwandair recently signed leases for two new aircraft, to be delivered in 2019 to service new planned intercontinental routes.

While adding to the fiscal burden, Rwandair's expansion has also facilitated trade and tourism. Rwandair's cargo revenues more than quadrupled between 2013 and 2017, supporting many of the new export products to Europe and regionally. Similarly, its passenger count is estimated to have tripled between FY13/14 and FY 17/18, currently reaching 1.1 million in 2017/18 and accounting for around 65 percent of incoming passenger traffic through Kigali International Airport. Increased capacity has also contributed to a doubling of Rwandair's cargo revenues between 2013 and 2017—with further increases expected in 2018.

1/ Rwandair is 99 percent state owned.
2/ Leases for aircraft also add to the debt servicing burden.

UNDERLYING ASSUMPTIONS

Table 1. Selected Macroeconomic Indicators, Current versus Previous DSA

		2017	2018	2019	2020	2021
Real GDP growth (percent)	**Current DSA**	6.1	7.2	7.8	8.0	7.5
	Previous DSA	6.2	6.8	7.3	7.5	7.5
Inflation (average)	**Current DSA**	7.3	3.0	4.9	5.8	5.0
	Previous DSA	7.4	5.5	4.6	5.0	5.0
Primary balance (% of GDP)	**Current DSA**	-3.5	-3.0	-3.1	-2.4	-1.8
	Previous DSA	-2.8	-2.7	-2.7	-1.8	-1.0
Current account (% of GDP)	**Current DSA**	-8.8	-9.0	-8.3	-7.4	-6.9
	Previous DSA	-10.2	-11.2	-9.9	-8.7	-8.3
FDI (% of GDP)	**Current DSA**	2.7	3.2	3.1	3.1	3.1
	Previous DSA	3.3	4.2	4.4	4.4	4.4

Source: Rwandan authorities, IMF and World Bank staff.

4. **The medium and long-term macroeconomic framework underlying the DSA assumes a resumption of growth to historical levels.** The main assumptions and projections for key macroeconomic variables are summarized in Box 2 and Table 1. The main differences between the current assumptions and those underlying the last DSA in 2017 are: i) GDP growth projections have been revised up somewhat in the near-term; ii) a slightly higher fiscal deficit is assumed, reflecting more spending on health and education for Sustainable Development Goal achievement; and iii) an accelerated improvement

in the current account balance, due to more rapid adjustment observed to date than had previously been projected. By contrast, with lower observed FDI outturns than previously projected, the DSA now projects a more gradual increase in FDI over the projection horizon. Table 1 shows the near-term differences in the underlying baseline assumptions between the current and previous DSAs.

Box 2. Macroeconomic Framework for the DSA

While the medium-term and long-term framework underpinning the DSA assumes that Rwanda continues to enjoy robust growth, with low and stable inflation, there is limited growth dividend implied from broad public investment in infrastructure to support greater export diversification, and to improve agricultural productivity and resilience. Key highlights include:

Growth: The near-term growth outlook is continuing to strengthen, while projected long-term growth, at 7.5 percent, is unchanged from previous analysis and slightly below historical growth rates.

External Sector: Exports of goods and services are expected to grow strongly (13 percent on average), albeit by less than historical rates and recent very rapid growth. Continued strong growth reflects, in part, strategic public investments and export promotion, and development plans. Import needs are expected to remain high, although import growth rates are anticipated to be slightly below historical averages (at least in the near-term) as increased domestic production of certain items displaces imports. Consequently, while Rwanda's current account is projected to remain in deficit, it is expected to narrow.

Inflation: Inflation is expected to remain contained. Although inflation had declined to 0.7 percent by end-2017, it is expected to increase as growth picks-up, and be maintained at the authorities' medium-term target of 5 percent.

Reserves: Reserve buffers are expected to continue to gradually increase, reaching 4.8 months of prospective imports, consistent with estimates of optimal reserves and EAC convergence criteria.

Domestic Revenue Mobilization. There is assumed to be a gradual and consistent rise in domestic revenues reflecting the authorities' commitment to raise Rwanda's revenue collection efforts.

Grants. The DSA assumes a tapering of external assistance from development partners in real terms over the projection period, reflecting reduced access to grants and greater capacity to mobilize and use domestic revenue.

Public Spending and Deficit: The government will continue to pursue partnerships with the private sector and look for new opportunities to use official development assistance for de-risking private sector participation. But, despite primary expenditure restraint supporting near-term fiscal consolidation, public expenditures are likely to remain high over the DSA horizon, reflecting the ongoing need for significant capital and current spending, including to finance the National Transformation Strategy and achieve SDG goals.

External borrowing. The assumptions for new external borrowing vary over the assessment period. With the development of local bond markets and improvement in the current account position, reliance on external borrowing is expected to decline. Compositionally, from 2018-2022, the framework assumes central government external borrowing needs are met mainly by disbursements of already contracted external multilateral and bilateral debt. From 2022 onward, the framework assumes that such needs will be financed with a progressively increasing share of commercial debt, including bonds issued in the international capital markets.

Domestic borrowing. The framework assumes that, over the long-term, net domestic borrowing will increase gradually with a gradual lengthening of maturities, as the authorities intensify efforts to develop the sovereign bond market. New domestic borrowing is expected to be contracted at an average nominal interest rate of 8 percent.

Foreign Direct Investment. The framework assumes a gradual increase in FDI. However, via the NST, the Compact with Africa and other efforts to provide incentives to attract foreign direct investment, the risks are again on the upside.

EXTERNAL AND PUBLIC DSA

5. Rwanda's debt is assessed to be sustainable, with a continued low risk of debt distress. Debt burden indicators remain under their respective thresholds in baseline scenarios. The servicing spike in debt service in 2023 causes breaches of the debt-service-to-revenue indicator, but is temporary in nature (lasting one year), relating to the maturation of the 2013 Eurobond.[4] Other indicators remain below their thresholds even under the most extreme stress scenarios. Risks to the forecast remain low: the low-risk rating is robust even with somewhat lower growth assumptions. While future external financing conditions might change, given indicators of capacity to repay and its debt management strategy capacity, Rwanda is expected to roll over the maturing Eurobond[5]. A continued gradual tapering of budget support, and shift away from grants, together with ambitious development plans, will require a focus on sources of financing that do not burden the public balance sheet, including domestic revenue mobilization.

6. Debt remains significantly below the LIC DSA public debt benchmark of 74 percent (in PV terms) for countries with strong policies and institutions. Under the medium-term macroeconomic framework, the results of the analysis are not altered by adding domestic public debt to external debt. The evolution of total public debt indicators broadly follows that of external debt under the baseline—peaking in 2019 before receding as the primary deficit declines. In PV terms, Nevertheless, the upward drift of the PV of debt-to-revenue ratio when the primary balance is fixed highlights the need to secure assumed revenue gains.

AUTHORITIES VIEWS

7. The Rwandan authorities broadly agree with the results of this DSA and the overall conclusion of a low risk of external debt distress. The authorities regularly carry out their own debt sustainability analyses, and pay very close attention to maintaining a low risk of debt distress. They remain committed to a debt management strategy that seeks to maximize external concessional funding to avoid unsustainable debt levels, while developing the domestic capital markets. The authorities agree on the importance of a prudent medium-term debt management strategy, and that carefully prioritizing future projects is necessary to contain public debt vulnerabilities, including potential liquidity pressures when the 2013 Eurobond is set to mature. To complement this analysis, they have agreed to a Fiscal Transparency Evaluation in Fall 2018 to help better identify areas of potential fiscal risks.

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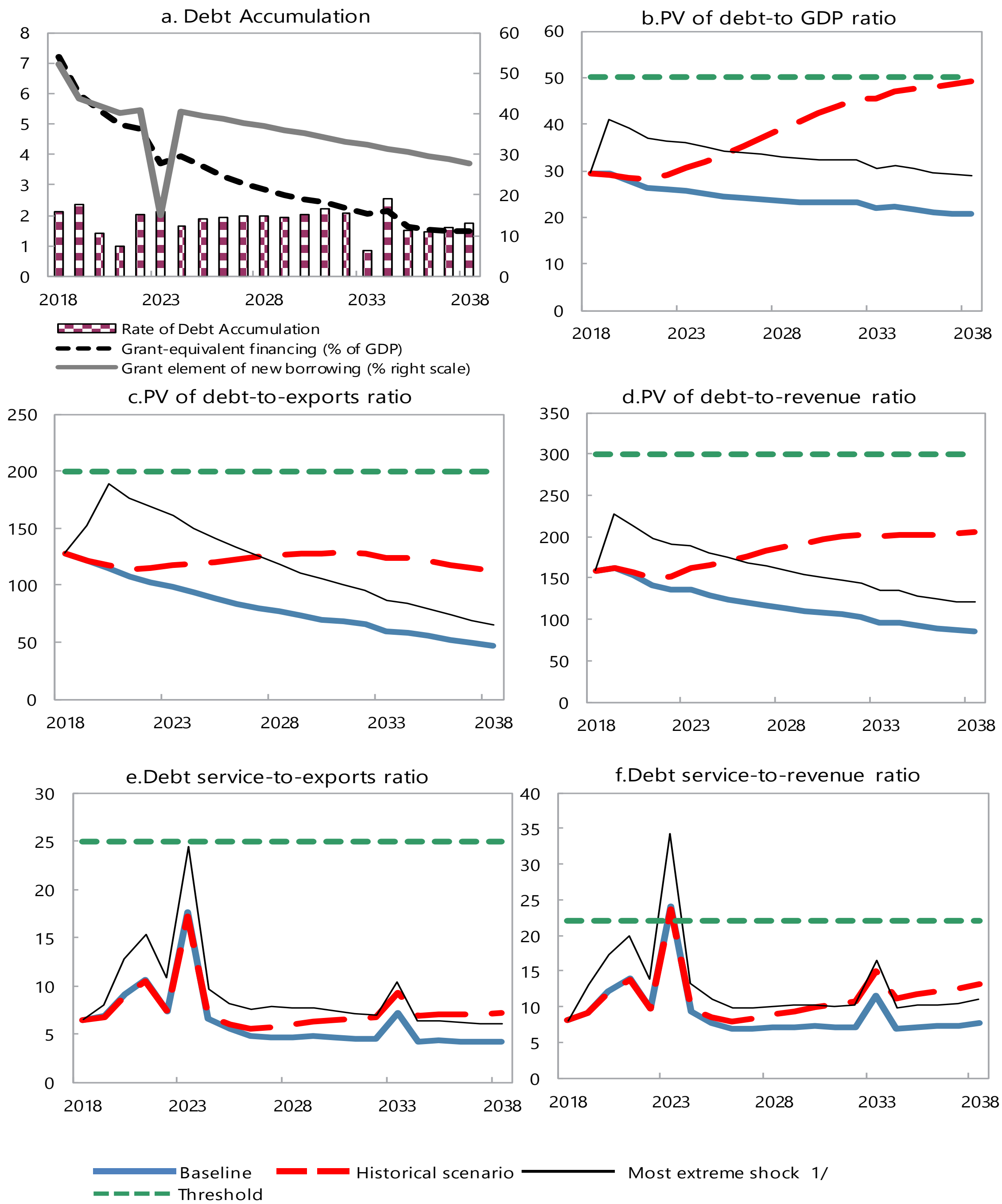
[4] The DSA focuses on gross debt flows. With expectations that the Eurobond will be rolled over, there is a spike down in the grant element of new borrowing in 2023, and no anticipated net effect on the debt stock.

[5] The authorities effective fiscal anchor is maintaining a low risk of debt distress under the DSA, since this encompasses both the central government deficit and liabilities for the wider public sector. As such, the authorities regularly run their own DSA and produce periodic medium-term debt strategy documents monitoring market conditions and debt strategy options.

CONCLUSION

8. **Continued implementation of prudent policy is needed to maintain Rwanda's low risk of debt distress.** External debt burden indicators remain below "risk" thresholds, except for a temporary breach in the debt service-to-revenue ratio under the baseline scenario. That breach highlights risks around the refinancing of the Eurobond coming due in 2023 and the need for the authorities to maintain sound macro and fiscal policies of the last two decades. Public debt, though increasing, remains comparatively low. The profile of Rwanda's external debt burden is expected to improve over time, given expected strong growth, measures to expand and diversify traditional and non-traditional exports and tourism, and domestic revenue mobilization efforts. Main risks to this outlook are external shocks to growth and/or exports, realization of potential contingent liabilities from PPPs, and the evolution of official development assistance. Prudent monitoring and management of fiscal risks will be important for safeguarding debt sustainability.

Figure 3. Rwanda: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2018–38 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 2028. 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

Table 2. Rwanda: External Debt Sustainability Framework: Baseline Scenario, 2015–38 1/

(in percent of GDP, unless otherwise indicated)

	Actual			Historical 6/ Average	Standard 6/ Deviation	Projections									
	2015	2016	2017			2018	2019	2020	2021	2022	2023	2018-2023 Average	2028	2038	2024-2038 Average
External debt (nominal) 1/	**30.3**	**38.1**	**40.6**			**42.2**	**42.6**	**41.5**	**40.1**	**40.0**	**39.2**		**37.4**	**34.4**	
of which: public and publicly guaranteed (PPG)	27.2	34.9	37.5			39.2	39.7	38.5	37.0	36.8	35.9		33.3	28.5	
Change in external debt	3.1	7.8	2.5			1.6	0.4	-1.1	-1.4	-0.1	-0.8		-0.2	-0.2	
Identified net debt-creating flows	10.9	12.6	1.4			3.0	2.8	2.1	1.3	1.0	0.3		-0.7	-0.7	
Non-interest current account deficit	**13.8**	**15.0**	**5.9**	**7.9**	**3.9**	**7.5**	**8.1**	**7.4**	**6.5**	**6.1**	**5.4**		**4.4**	**4.4**	4.5
Deficit in balance of goods and services	18.2	18.5	9.9			11.1	10.8	10.0	8.9	8.3	7.6		5.7	4.4	
Exports	18.1	18.4	22.4			22.5	24.1	24.2	24.7	25.3	25.9		30.9	43.7	
Imports	36.3	36.9	32.3			33.5	34.9	34.2	33.6	33.5	33.5		36.6	48.1	
Net current transfers (negative = inflow)	-6.5	-6.2	-6.5	-9.4	2.7	-6.2	-5.4	-5.4	-5.0	-4.7	-4.5		-3.5	-2.2	-3.1
of which: official	-8.3	-6.6	-6.6			-6.5	-5.6	-5.5	-5.1	-4.6	-4.2		-2.6	-1.0	
Other current account flows (negative = net inflow)	2.1	2.8	2.5			2.7	2.7	2.8	2.6	2.6	2.4		2.2	2.2	
Net FDI (negative = inflow)	**-2.7**	**-2.6**	**-2.7**	**-2.6**	**0.9**	**-2.6**	**-3.2**	**-3.1**	**-3.1**	**-3.1**	**-3.1**		**-3.2**	**-3.5**	-3.4
Endogenous debt dynamics 2/	**-0.3**	**0.1**	**-1.8**			**-1.9**	**-2.2**	**-2.2**	**-2.0**	**-2.0**	**-2.0**		**-1.8**	**-1.6**	
Contribution from nominal interest rate	0.7	0.7	1.0			0.8	0.9	0.9	0.8	0.8	0.8		0.7	0.8	
Contribution from real GDP growth	-2.3	-1.8	-2.2			-2.7	-3.1	-3.1	-2.9	-2.7	-2.7		-2.6	-2.4	
Contribution from price and exchange rate changes	1.4	1.1	-0.6			...	...	...	...	...	...		...	...	
Residual (3-4) 3/	**-7.8**	**-4.8**	**1.1**			**-1.4**	**-2.4**	**-3.2**	**-2.7**	**-1.1**	**-1.1**		**0.5**	**0.5**	0.3
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/	...	...	32.0			32.4	32.1	30.9	29.5	29.1	28.9		27.4	26.0	
In percent of exports	...	...	142.9			144.1	133.2	127.7	119.3	115.4	111.4		88.7	59.4	
PV of PPG external debt	**...**	**...**	**28.9**			**29.4**	**29.3**	**27.9**	**26.4**	**25.9**	**25.6**		**23.4**	**20.1**	
In percent of exports	**...**	**...**	**129.0**			**130.9**	**121.3**	**115.4**	**106.7**	**102.6**	**98.5**		**75.7**	**45.9**	
In percent of government revenues	**...**	**...**	**159.5**			**159.0**	**162.6**	**153.1**	**140.9**	**135.7**	**134.8**		**112.4**	**84.0**	
Debt service-to-exports ratio (in percent)	**9.7**	**11.0**	**10.7**			**9.9**	**10.1**	**12.4**	**13.9**	**10.6**	**20.9**		**7.9**	**7.2**	
PPG debt service-to-exports ratio (in percent)	**4.1**	**6.4**	**7.1**			**6.4**	**6.8**	**9.2**	**10.6**	**7.4**	**17.6**		**4.7**	**4.1**	
PPG debt service-to-revenue ratio (in percent)	**4.0**	**6.4**	**8.7**			**7.8**	**9.2**	**12.2**	**14.0**	**9.8**	**24.1**		**6.9**	**7.5**	
Total gross financing need (Billions of U.S. dollars)	1.1	1.3	0.5			0.7	0.8	0.9	0.9	0.8	1.2		1.0	2.8	
Non-interest current account deficit that stabilizes debt ratio	10.7	7.2	3.4			5.9	7.7	8.5	7.9	6.2	6.2		4.6	4.6	
Key macroeconomic assumptions															
Real GDP growth (in percent)	8.9	6.0	6.1	7.5	1.9	7.2	7.8	8.0	7.5	7.5	7.5	7.6	7.5	7.5	7.5
GDP deflator in US dollar terms (change in percent)	-4.9	-3.6	1.6	1.7	5.5	1.5	-1.8	1.7	1.5	2.0	2.0	1.2	2.0	2.0	2.0
Effective interest rate (percent) 5/	2.5	2.5	2.7	2.0	0.7	2.2	2.4	2.3	2.2	2.1	2.1	2.2	2.2	2.5	2.3
Growth of exports of G&S (US dollar terms, in percent)	5.8	4.1	31.2	19.1	22.4	9.0	13.7	10.3	11.4	12.0	12.6	11.5	13.5	13.5	13.5
Growth of imports of G&S (US dollar terms, in percent)	13.7	3.8	-5.6	13.0	16.2	13.1	10.4	7.6	7.2	9.3	9.6	9.5	12.2	13.0	12.3
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	52.3	43.7	41.8	40.2	40.9	14.8	38.9	36.9	27.9	34.2
Government revenues (excluding grants, in percent of GDP)	18.4	18.4	18.1			18.5	18.0	18.2	18.7	19.1	19.0		20.8	23.9	21.9
Aid flows (in Billions of US dollars) 7/	0.9	0.8	0.8			0.9	0.7	0.7	0.6	0.7	0.6		0.7	1.0	
of which: Grants	0.5	0.4	0.4			0.5	0.4	0.4	0.4	0.4	0.4		0.4	0.3	
of which: Concessional loans	0.4	0.3	0.4			0.4	0.3	0.2	0.2	0.3	0.2		0.4	0.7	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			7.1	6.0	5.4	5.0	4.8	3.7		2.8	1.4	2.4
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			77.6	70.5	71.3	68.9	65.9	41.0		57.0	37.6	51.0
Memorandum items:															
Nominal GDP (Billions of US dollars)	8.3	8.5	9.1			9.9	10.5	11.6	12.6	13.8	15.2		24.0	60.1	
Nominal dollar GDP growth	3.5	2.2	7.8			8.8	5.9	9.9	9.1	9.6	9.6	8.8	9.6	9.6	9.6
PV of PPG external debt (in Billions of US dollars)			2.6			2.8	3.0	3.2	3.3	3.5	3.8		5.5	11.9	
(PVt-PVt-1)/GDPt-1 (in percent)						2.1	2.3	1.4	1.0	2.0	2.1	1.8	1.9	1.7	1.8
Gross workers' remittances (Billions of US dollars)	0.2	0.2	0.2			0.2	0.2	0.3	0.3	0.3	0.3		0.5	1.1	
PV of PPG external debt (in percent of GDP + remittances)	...	...	28.3			28.8	28.6	27.3	25.8	25.4	25.0		22.9	19.7	
PV of PPG external debt (in percent of exports + remittances)	...	...	117.1			119.3	111.0	105.7	98.0	94.4	90.9		70.8	44.2	
Debt service of PPG external debt (in percent of exports + remittanc	...	...	6.4			5.9	6.3	8.4	9.8	6.8	16.2		4.4	4.0	

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 3. Rwanda: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2018–38

(in percent)

(in percent)

	Projections											
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	**2028**	2038
PV of debt-to GDP ratio												
Baseline	29	29	28	26	26	26	25	24	24	24	**24**	21
A. Alternative Scenarios												
A1. Key variables at their historical averages in 2018-2038 1/	29	29	29	28	29	31	32	34	35	37	**39**	49
A2. New public sector loans on less favorable terms in 2018-2038 2	29	30	30	29	30	31	31	31	31	31	**32**	34
B. Bound Tests												
B1. Real GDP growth at historical average minus one standard deviation in 2019-2020	29	29	29	27	27	26	26	25	25	24	**24**	21
B2. Export value growth at historical average minus one standard deviation in 2019-2020 3/	29	31	34	32	32	31	30	29	29	28	**27**	21
B3. US dollar GDP deflator at historical average minus one standard deviation in 2019-2020	29	30	30	29	28	28	27	26	26	26	**26**	22
B4. Net non-debt creating flows at historical average minus one standard deviation in 2019-2020 4/	29	29	28	26	26	26	25	24	24	24	**23**	20
B5. Combination of B1-B4 using one-half standard deviation shocks	29	29	29	28	27	27	26	26	25	25	**25**	21
B6. One-time 30 percent nominal depreciation relative to the baseline in 2019 5/	29	41	39	37	36	36	35	34	34	33	**33**	29
PV of debt-to-exports ratio												
Baseline	128	121	115	107	103	99	93	88	84	80	**76**	47
A. Alternative Scenarios												
A1. Key variables at their historical averages in 2018-2038 1/	128	121	118	114	115	118	119	121	123	125	**126**	112
A2. New public sector loans on less favorable terms in 2018-2038 2	128	124	122	118	117	118	114	111	108	105	**103**	77
B. Bound Tests												
B1. Real GDP growth at historical average minus one standard deviation in 2019-2020	128	119	113	105	101	97	91	87	82	79	**75**	46
B2. Export value growth at historical average minus one standard deviation in 2019-2020 3/	128	152	189	176	168	160	150	141	133	125	**118**	65
B3. US dollar GDP deflator at historical average minus one standard deviation in 2019-2020	128	119	113	105	101	97	91	87	82	79	**75**	46
B4. Net non-debt creating flows at historical average minus one standard deviation in 2019-2020 4/	128	120	114	106	102	98	92	87	83	79	**76**	46
B5. Combination of B1-B4 using one-half standard deviation shocks	128	125	124	115	111	106	100	94	90	86	**82**	50
B6. One-time 30 percent nominal depreciation relative to the baseline in 2019 5/	128	119	113	105	101	97	91	87	82	79	**75**	46
PV of debt-to-revenue ratio												
Baseline	159	163	153	141	136	135	129	124	120	117	**114**	86
A. Alternative Scenarios												
A1. Key variables at their historical averages in 2018-2038 1/	159	162	156	150	152	161	165	170	176	182	**187**	206
A2. New public sector loans on less favorable terms in 2018-2038 2	159	167	162	156	155	162	159	157	155	154	**152**	140
B. Bound Tests												
B1. Real GDP growth at historical average minus one standard deviation in 2019-2020	159	163	157	145	140	139	133	128	124	120	**116**	88
B2. Export value growth at historical average minus one standard deviation in 2019-2020 3/	159	173	187	173	166	164	155	149	143	136	**130**	89
B3. US dollar GDP deflator at historical average minus one standard deviation in 2019-2020	159	166	165	153	147	146	140	135	130	126	**123**	93
B4. Net non-debt creating flows at historical average minus one standard deviation in 2019-2020 4/	159	160	152	140	135	134	128	123	119	116	**112**	85
B5. Combination of B1-B4 using one-half standard deviation shocks	159	163	161	149	144	143	136	131	127	123	**119**	90
B6. One-time 30 percent nominal depreciation relative to the baseline in 2019 5/	159	227	214	198	191	190	181	174	169	164	**159**	120

Table 3. Rwanda: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2018–38 (concluded)

(in percent)

(in percent)

Debt service-to-exports ratio												
Baseline	6	7	9	11	7	18	7	5	5	5	**5**	4
A. Alternative Scenarios												
A1. Key variables at their historical averages in 2018-2038 1/	6	7	9	10	7	17	7	6	6	6	**6**	7
A2. New public sector loans on less favorable terms in 2018-2038 2	6	7	9	11	8	17	7	7	6	6	**6**	6
B. Bound Tests												
B1. Real GDP growth at historical average minus one standard deviation in 2019-2020	6	7	9	11	7	18	7	5	5	5	**5**	4
B2. Export value growth at historical average minus one standard deviation in 2019-2020 3/	6	8	13	15	11	24	10	8	8	8	**8**	6
B3. US dollar GDP deflator at historical average minus one standard deviation in 2019-2020	6	7	9	11	7	18	7	5	5	5	**5**	4
B4. Net non-debt creating flows at historical average minus one standard deviation in 2019-2020 4/	6	7	9	11	7	18	7	6	5	5	**5**	4
B5. Combination of B1-B4 using one-half standard deviation shocks	6	7	10	12	8	19	7	6	5	5	**5**	5
B6. One-time 30 percent nominal depreciation relative to the baseline in 2019 5/	6	7	9	11	7	18	7	5	5	5	**5**	4
Debt service-to-revenue ratio												
Baseline	8	9	12	14	10	24	9	8	7	7	**7**	8
A. Alternative Scenarios												
A1. Key variables at their historical averages in 2018-2038 1/	8	9	12	14	10	24	10	8	8	8	**9**	13
A2. New public sector loans on less favorable terms in 2018-2038 2	8	9	12	14	10	24	10	10	9	9	**9**	10
B. Bound Tests												
B1. Real GDP growth at historical average minus one standard deviation in 2019-2020	8	9	13	15	10	25	10	8	7	7	**7**	8
B2. Export value growth at historical average minus one standard deviation in 2019-2020 3/	8	9	13	15	11	25	10	8	8	9	**9**	8
B3. US dollar GDP deflator at historical average minus one standard deviation in 2019-2020	8	10	13	15	11	26	10	9	8	7	**8**	8
B4. Net non-debt creating flows at historical average minus one standard deviation in 2019-2020 4/	8	9	12	14	10	24	9	8	7	7	**7**	8
B5. Combination of B1-B4 using one-half standard deviation shocks	8	9	13	15	10	26	10	8	7	7	**7**	8
B6. One-time 30 percent nominal depreciation relative to the baseline in 2019 5/	8	13	17	20	14	34	13	11	10	10	**10**	11
Memorandum item:												
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	30	30	30	30	30	30	30	30	30	30	**30**	30

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.

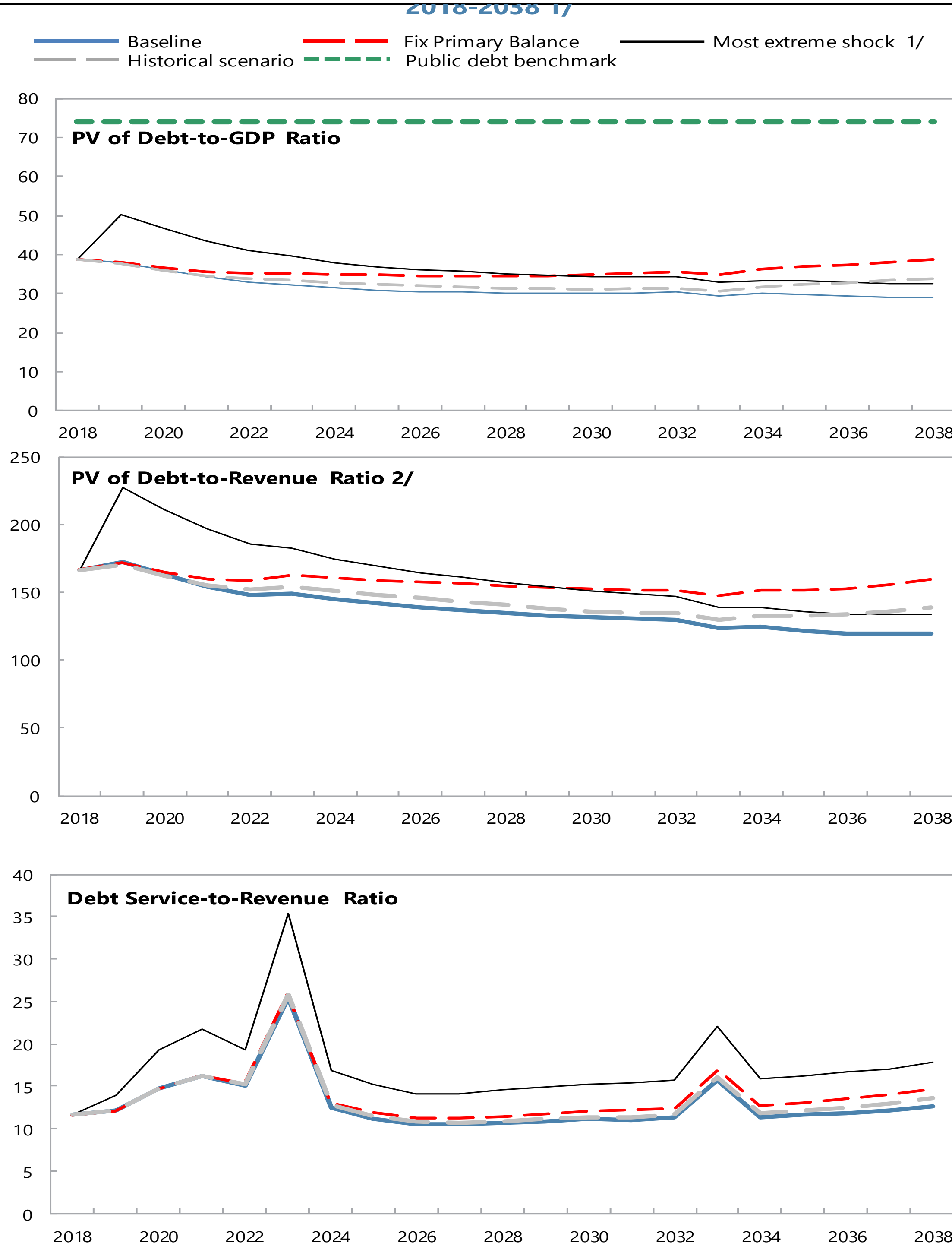
3/ Exports values are assumed to remain permanently at the lower level, but the current account as a share of GDP is assumed to return to its baseline level after the shock (implicitly assuming an offsetting adjustment in import levels).

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.

Figure 4. Rwanda: Indicators of Public Debt under Alternative Scenarios, 2018–38 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 2028.
2/ Revenues are defined inclusive of grants.

Table 4. Rwanda: Public Sector Debt Sustainability Framework, Baseline Scenario, 2015–38

(In percent of GDP, unless otherwise indicated)

	Actual					Estimate	Projections								
	2015	2016	2017	Average 5/	Standard Deviation 5/	2018	2019	2020	2021	2022	2023	2018-23 Average	2028	2038	2024-38 Average
Public sector debt 1/	35.6	43.5	48.3			48.7	48.4	46.6	44.8	43.8	42.8		40.3	37.7	
of which: foreign-currency denominated	27.2	34.9	37.5			39.2	39.7	38.5	37.1	36.9	36.1		33.7	29.2	
Change in public sector debt	5.2	7.9	4.8			0.4	-0.3	-1.7	-1.8	-1.0	-1.1		-0.3	-0.2	
Identified debt-creating flows	3.3	1.5	0.7			0.3	-0.4	-1.5	-1.6	-1.6	-1.3		-0.4	-1.4	
Primary deficit	3.7	2.7	3.3	2.1	1.9	2.7	2.8	2.1	1.5	1.4	1.5	2.0	2.2	0.9	1.6
Revenue and grants	24.6	23.5	22.9			23.4	22.0	22.1	22.2	22.2	21.7		22.4	24.4	
of which: grants	6.3	5.1	4.7			4.9	4.0	3.9	3.5	3.1	2.8		1.6	0.5	
Primary (noninterest) expenditure	28.3	26.1	26.2			26.1	24.8	24.2	23.6	23.6	23.3		24.5	25.3	
Automatic debt dynamics	-0.1	-0.3	-2.9			-1.6	-2.9	-3.3	-3.0	-3.0	-2.8		-2.6	-2.3	
Contribution from interest rate/growth differential	-1.9	-1.7	-2.2			-3.0	-3.4	-3.4	-3.0	-2.9	-2.8		-2.6	-2.3	
of which: contribution from average real interest rate	0.6	0.3	0.3			0.3	0.1	0.2	0.2	0.2	0.3		0.3	0.4	
of which: contribution from real GDP growth	-2.5	-2.0	-2.5			-3.2	-3.5	-3.6	-3.3	-3.1	-3.1		-2.8	-2.6	
Contribution from real exchange rate depreciation	1.8	1.4	-0.7			1.4	0.6	0.1	0.0	-0.1	0.0		...	...	
Other identified debt-creating flows	-0.4	-0.8	0.4			-0.9	-0.3	-0.3	0.0	0.0	0.0		0.0	0.0	
Privatization receipts (negative)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recognition of implicit or contingent liabilities	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Debt relief (HIPC and other)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Other (specify, e.g. bank recapitalization)	-0.4	-0.8	0.4			-0.9	-0.3	-0.3	0.0	0.0	0.0		0.0	0.0	
Residual, including asset changes	1.9	6.3	4.1			0.1	0.1	-0.2	-0.3	0.6	0.2		0.2	1.2	0.6
Other Sustainability Indicators															
PV of public sector debt	...	...	39.7			38.9	37.9	36.1	34.2	32.9	32.4		30.2	29.1	
of which: foreign-currency denominated	...	...	28.9			29.4	29.3	28.0	26.4	26.0	25.7		23.6	20.6	
of which: external	...	...	28.9			29.4	29.3	28.0	26.4	26.0	25.7		23.6	20.6	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	8.8	9.6	10.1			10.1	9.9	9.4	8.9	8.4	10.4		7.6	7.5	
PV of public sector debt-to-revenue and grants ratio (in percent)	...	...	173.6			166.4	172.3	163.0	154.1	148.3	148.9		135.0	119.0	
PV of public sector debt-to-revenue ratio (in percent)	...	...	219.0			210.3	210.9	197.6	182.6	172.3	170.7		145.3	121.6	
of which: external 3/	...	...	159.5			159.0	162.6	153.2	141.2	136.2	135.4		113.5	86.0	
Debt service-to-revenue and grants ratio (in percent) 4/	6.3	8.7	11.8			11.6	12.1	14.7	16.2	15.1	25.4		10.7	12.7	
Debt service-to-revenue ratio (in percent) 4/	8.5	11.2	14.9			14.7	14.9	17.8	19.2	17.6	29.1		11.5	13.0	
Primary deficit that stabilizes the debt-to-GDP ratio	-1.5	-5.2	-1.5			2.3	3.1	3.8	3.3	2.4	2.6		2.4	1.1	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	8.9	6.0	6.1	7.5	1.9	7.2	7.8	8.0	7.5	7.5	7.5	7.6	7.5	7.5	7.5
Average nominal interest rate on forex debt (in percent)	2.2	2.3	2.6	2.7	3.0	2.0	2.2	2.2	2.0	1.9	1.9	2.0	1.9	2.1	2.0
Average real interest rate on domestic debt (in percent)	5.4	0.7	0.6	1.7	2.2	4.7	2.0	1.7	2.7	2.4	3.6	2.8	3.9	4.0	4.0
Real exchange rate depreciation (in percent, + indicates depreciation	8.5	5.3	-2.2	0.3	5.1	4.1	1.6	0.3	0.0	-0.1	-0.1	...	...	...	...
Inflation rate (GDP deflator, in percent)	0.3	5.5	7.3	5.9	3.8	3.0	4.9	5.8	5.0	5.0	5.0	4.8	5.0	5.0	5.0
Growth of real primary spending (deflated by GDP deflator, in percer	5.8	-2.3	6.2	1.0	2.7	6.9	2.4	5.3	5.2	7.1	6.3	5.5	8.6	7.5	8.1
Grant element of new external borrowing (in percent)	...	...	...	...	...	52.3	43.7	41.8	40.2	40.9	15.0	39.0	36.9	27.9	...

Sources: Country authorities; and staff estimates and projections.

1/ Refers to gross debt of the central government.

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 5. Rwanda: Sensitivity Analysis for Key Indicators of Public Debt, 2018–38

	Projections							
	2018	2019	2020	2021	2022	2023	2028	2038
PV of Debt-to-GDP Ratio								
Baseline	39	38	36	34	33	32	30	29
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	39	38	36	35	34	34	31	34
A2. Primary balance is unchanged from 2018	39	38	37	35	35	35	35	39
A3. Permanently lower GDP growth 1/	39	38	36	35	34	34	34	41
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2019-20:	39	39	38	37	36	36	36	38
B2. Primary balance is at historical average minus one standard deviations in 2019-202	39	39	38	36	35	34	32	30
B3. Combination of B1-B2 using one half standard deviation shocks	39	39	38	36	35	35	34	35
B4. One-time 30 percent real depreciation in 2019	39	50	47	44	41	40	35	33
B5. 10 percent of GDP increase in other debt-creating flows in 2019	39	45	43	41	39	38	34	31
PV of Debt-to-Revenue Ratio 2/								
Baseline	166	172	163	154	148	149	135	119
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	166	171	162	155	152	154	140	139
A2. Primary balance is unchanged from 2018	166	172	165	160	158	162	155	159
A3. Permanently lower GDP growth 1/	166	173	165	157	152	155	151	167
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2019-20:	166	176	173	166	162	165	161	157
B2. Primary balance is at historical average minus one standard deviations in 2019-202	166	176	173	163	157	157	141	122
B3. Combination of B1-B2 using one half standard deviation shocks	166	175	170	162	158	160	151	142
B4. One-time 30 percent real depreciation in 2019	166	227	211	196	185	182	157	133
B5. 10 percent of GDP increase in other debt-creating flows in 2019	166	205	194	183	175	175	154	128
Debt Service-to-Revenue Ratio 2/								
Baseline	12	12	15	16	15	25	11	13
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	12	12	15	16	15	26	11	14
A2. Primary balance is unchanged from 2018	12	12	15	16	15	26	11	15
A3. Permanently lower GDP growth 1/	12	12	15	16	15	26	11	15
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2019-20:	12	12	15	17	16	27	12	15
B2. Primary balance is at historical average minus one standard deviations in 2019-202	12	12	15	17	16	26	11	13
B3. Combination of B1-B2 using one half standard deviation shocks	12	12	15	17	16	26	12	14
B4. One-time 30 percent real depreciation in 2019	12	14	19	22	19	35	15	18
B5. 10 percent of GDP increase in other debt-creating flows in 2019	12	12	16	18	16	27	12	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.