INTERNATIONAL MONETARY FUND

MYANMAR

STAFF REPORT FOR THE 2017 ARTICLE IV CONSULTATION—DEBT SUSTAINABILITY ANALYSIS

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Myanmar is assessed to remain at low risk of external debt distress.[1/ 2] *Under the baseline scenario, public and publicly guaranteed (PPG) external debt burden indicators are projected to remain below their indicative thresholds. Similarly, total public debt is also projected to remain below benchmark in the baseline, though stress tests lead to breaches in the event of an extreme shock and fiscal slippage. Keeping Myanmar at low risk of debt distress will require prudent fiscal policy and sound public financial and debt management. Use of nonconcessional borrowing should be limited to projects with high economic and social returns.*

[1] External public and publicly guaranteed (PPG) debt and public domestic debt dynamics are assessed using the LIC DSA framework, which recognizes that better policies and institutions allow countries to manage higher levels of debt, and thus the threshold levels are policy dependent. Myanmar is classified as having weak policy performance with a Country Policy and Institutional Assessment (CPIA) average of 3.07 for the period 2014–16, and the DSA uses the indicative threshold indicators on the external public debt for countries in this category: 30 percent for the present value (PV) of debt-to-GDP ratio; 100 percent for the PV of the debt to-export ratio; 200 percent for the PV of the debt-to-revenue ratio; 15 percent for the debt-service-to-exports ratio; and 18 percent for the debt-service-to-revenue ratio.

[2] This risk rating is unchanged from the previous DSA, published in February 2017, as a part of the staff report for the 2016 Article IV consultation with Myanmar (CR/17/30) https://www.imf.org/~/media/Files/Publications/CR/2017/cr1730.ashx.

BACKGROUND

1. **External public and publicly guaranteed debt decreased to 15.0 percent of GDP as of June-2017 from 16.0 percent a year earlier.** The composition of external debt has also slightly changed. As of mid-2017, the share of multilateral creditors in external debt increased to 16.3 percent from 14.4 percent in 2015/16. During the same period, the share of official bilateral creditors increased to nearly 43 percent from 42 percent. By contrast, the share of commercial creditors has declined from 42.6 percent of the total to 40.7 percent in 2016, mostly due to large amortization payments to the Exim Bank of China in accordance with the original schedule.

Table 1. Myanmar: External Public Debt as of June-2017

	In million US$	In percent of GDP	Composition (in percent)	2015/16 Composition (in percent)
Total external debt	**9,487.9**	**15.0**	**100.0**	**100.0**
Multilateral	**1,544.3**	**2.4**	**16.3**	**14.4**
Asian Development Bank	*516.9*	*0.8*	*5.4*	*5.5*
World Bank/IDA	*1,012.9*	*1.6*	*10.7*	*8.8*
Other	*14.5*	*0.0*	*0.2*	*0.2*
Official Bilateral	**4,067.9**	**6.4**	**42.9**	**42.0**
Paris Club	***2,308.4***	***3.6***	**24.3**	**22.4**
of which, Japan	*2171.3*	*3.4*	22.9	20.8
Non Paris Club	***1,759.5***	***2.8***	***18.5***	***19.7***
of which, China	*1,405.3*	*2.2*	*14.8*	*16.0*
Financial Institutions	**3,859.3**	**6.1**	**40.7**	**42.6**
Paris Club	**1,267.9**	**2.0**	**13.4**	**13.4**
Non Paris Club	**2,591.4**	**4.1**	**27.3**	**29.3**
of which, China	*2,591.4*	*4.1*	*27.3*	*29.3*
Other	**16.4**	**0.0**	**0.2**	**0.9**

Sources: Myanmar authorities; and IMF staff estimates.

2. **External concessional financing is expected to rise over the medium term.** Multilateral lenders (the Asian Development Bank and the World Bank) are gradually stepping up concessional financing to Myanmar according to their country assistance strategies. The World Bank is expected to commit about US$1.2 billion over three fiscal years. The Asian Development Bank is expected to allocate concessional lending of about US$350 million per year in the near and medium term. External debt commitments of other concessional lenders are expected to be even higher. JICA has continued to commit a concessional lending package of US$1.0 billion to 1.2 billion per year to help with infrastructure development during the next three years.

3. **Domestic public debt has recorded a small increase.** It increased slightly to 22.6 percent of GDP in 2016/17 from 21.6 percent of GDP in the previous year. T-bills accounted for 81 percent of

domestic debt (76 percent were 3-month T-bills sold to the central bank[3], and 5 percent were sold in auction), and T-Bonds accounted for the rest 19 percent (around 6.5 percent were sold in auction)[4]. In 2016/17, the lower fiscal deficit reduced the government's financing need, causing central bank financing of the deficit to fall in nominal kyat terms, although the target ceiling of 40 percent of domestic financing for 2016/17 was not met.

4. The government is committed to maintaining debt sustainability. The Public Debt Management Law (PDML) enacted in 2016 has helped strengthen public debt management. It requires the Ministry of Finance to prepare annually the Medium-term Debt Management Strategy for the next three years. Having started using a comprehensive Medium-Term Fiscal Framework, the government remains committed to reducing Central Bank of Myanmar (CBM) financing, and retains the target to limit CBM financing at 30 percent of domestic financing for 2017/18. It has continued to shift from short-term towards medium-term financing through issuance of Treasury Bonds.

UNDERLYING ASSUMPTIONS

5. The macroeconomic assumptions take into account developments through end-2017. The key assumptions are:

- Growth weakened in 2016/17 to 5.9 percent, but is expected to recover to 6.7 percent in 2017/18, mainly supported by a recovering agricultural sector, exports, and higher public spending. In the medium term, growth is expected to pick up towards its estimated potential of 7 percent to 7.5 percent, reflecting continued FDI inflows and higher public investment spending and efficiency.

- Inflation is projected to fall slowly to an average of around 6 percent over the medium term, consistent with the authorities' commitment to gradually phasing out monetary financing. Long-term inflation is expected to settle at around 5 percent, in line with staff's recommended inflation objective.

- The fiscal deficit narrowed from 4.4 percent to 2.5 percent of GDP in 2016/2017 due to higher revenues and lower-than budgeted spending. The deficit is expected to widen to 3.5 percent in 2017/2018 reflecting the supplementary budget and to remain between 4 percent to 4.5 percent of GDP in the medium term, a level consistent with the phasing out of CBM financing, if supported by domestic financial reforms and the development of the government securities market. Staff advises the authorities to not exceed this fiscal deficit in the medium term and gradually reduce the deficit over the longer term.

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[3] T-Bills sold to the CBM were settled at the interest rate 4 percent per annum for borrowings through FY 2015/16 and at average market auction rate for borrowings starting from FY 2016/17.

[4] T-bills were started to sell in the auction since January 2015. T-bonds (2-year and 3-year) were started to sell in the auction since September 2016, at coupon interest rate ranging from 9-9.5 percent. Foreign bank branches, securities companies and insurance companies were permitted to participate in the auction starting from late 2016.

- The current account deficit is expected to remain relatively high over the medium term at around 5.5 percent to 6 percent, reflecting Myanmar's strong investment and development needs, but is expected to fall over time as export capacity strengthens and diversifies. Exports growth are projected to be robust over the medium and longer-term (on the back of a pickup in manufacturing and services, a recovery of global oil prices, and further opening up of the economy to trade and investment[5]), but the risks are tilted to the downside.

Table 2. Myanmar: Key Macroeconomic Assumptions Underlying the DSA

	Baseline		Baseline in 2016 Article IV	
	2017/18-2022/23	2023/24-2037/38	2016/17-2021/22	2022/23-2036/37
Real GDP growth (in percent)	7.2	6.4	7.3	6.6
Inflation (percent change, y/y)	5.8	4.8	6.9	5.2
Overall fiscal balance (in percent of GDP)	-4.0	-3.8	-4.5	-4.1
Current account (in percent of GDP)	-5.7	-4.8	-6.6	-5.7
Net external financing (in percent of GDP)	1.3	1.4	1.3	1.7

Source: IMF staff calculations.

6. Alternative scenarios. This DSA presents two additional scenarios, illustrating higher external financing, and lower external financing, consistent with the Staff Report. The low financing scenario assumes external financing of 0.5 percent of GDP per year during the medium term, compared with the 1.3 percent of GDP in the baseline. In the longer term, this scenario assumes a lower fiscal deficit of 3.3 percent of GDP (compared with the baseline of 3.8 percent of GDP) that is financed by lower external borrowing. The high financing scenario assumes external financing of 1.5 percent of GDP during the medium term. In the longer term, this scenario assumes a higher fiscal deficit of 4.1 percent of GDP with higher external borrowing.

Table 3. Myanmar: Key Macroeconomic Assumptions for Alternative Scenarios

	Low External Financing		High External Financing	
	2017/18-2022/23	2023/24-2037/38	2017/18-2022/23	2023/24-2037/38
Real GDP growth (in percent)	7.0	6.2	7.3	6.5
Inflation (percent change, y/y)	6.2	5.3	5.9	5.0
Overall fiscal balance (in percent of GDP)	-3.5	-3.3	-4.3	-4.1
Current account (in percent of GDP)	-6.0	-5.2	-5.8	-5.0
Net external financing (in percent of GDP)	0.6	0.8	1.5	1.6

Source: IMF staff calculations.

[5] See the Selected Issues Paper on the role of FDI and global value chains for Myanmar's further integration into the global economy.

EXTERNAL AND PUBLIC DEBT SUSTAINABILITY ANALYSIS

7. **External Debt Sustainability Analysis.** Under the baseline scenario and stress tests, all external PPG debt indicators remain below the policy relevant thresholds. However, some indicators, such as the PV of debt-to-GDP and PV of debt-to-export ratios, are relatively sensitive to stress tests (Table 1). For example, a combination stress test (that combines perturbations to GDP growth, inflation, exports and non-debt creating flows) leads to a significant increase in ratios of PV of PPG external debt to exports (panel c) and the debt-to-revenue ratio (panel d)[6]. Myanmar is vulnerable to external shocks, such as commodity price volatility, and is prone to large scale climate-related natural disasters. The authorities need to pursue prudent macroeconomic policies and build up policy buffers, particularly foreign reserves. Over the long run, it needs to continue with structural reforms to improve growth potential and resilience, and promote economic diversification.

8. **Total Public Debt Sustainability Analysis.** Public debt (external plus domestic) remains below benchmark under the baseline scenario, and is expected to remain stable throughout the forecast period. However, sensitivity analyses reveal that public debt sustainability remains vulnerable to shocks[7], particularly to GDP growth and the fixed primary deficit scenario (which "fixes" the deficit at its 2017 level relative to the baseline). In both scenarios, the PV of debt to GDP ratio breaches the 38 percent of GDP benchmark by 2029. In the extreme shock scenario, the PV of debt to revenue ratio rises to above 200 percent of GDP in the medium term.

STAFF ASSESSMENT

9. **Myanmar is assessed to remain at low risk of external debt distress.** Public and publicly guaranteed (PPG) external debt is generally resilient to shocks under standard and alternative stress tests. Total public debt is projected to stay below benchmark, but is vulnerable to extreme shocks and fiscal slippage. Overall, the analysis demonstrates the vulnerability of public debt sustainability to a number of shocks. These findings highlight the need for Myanmar to strengthen its economic resilience and maintain a prudent fiscal policy. Government should remain cautious about borrowing that leads to a buildup in debt, and should target projects that broaden the export base and have a significant impact on potential growth (e.g., infrastructure investment) and increase resilience of debt sustainability.

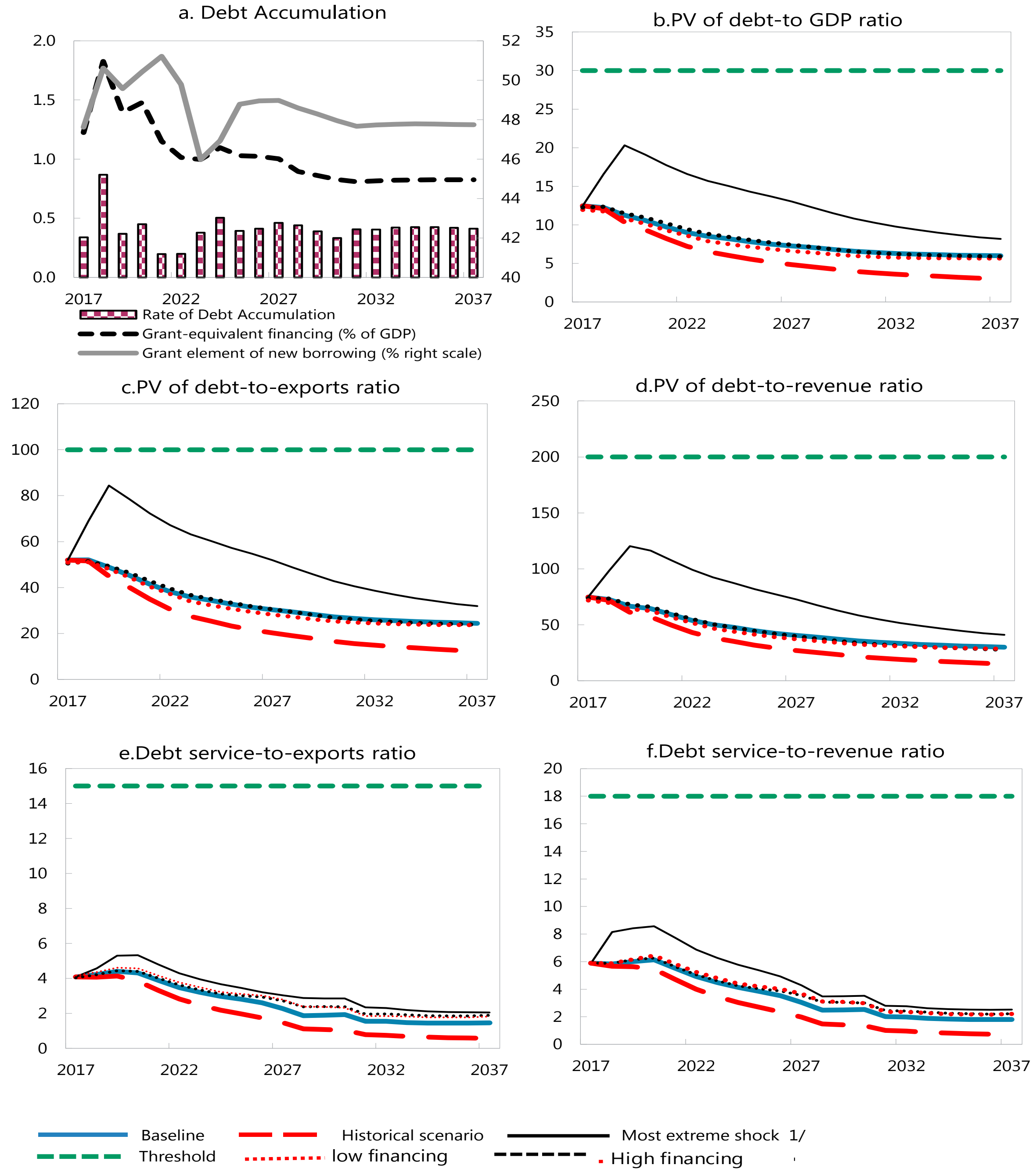
[6] An alternative probability approach confirms the conclusion of "low risk".

[7] There are risks from the banking sector stress on the public-sector balance sheet. Nevertheless, owing to data limitations, it is difficult to quantify contingent liabilities related to recapitalization of state-owned banks.

Authorities' Views

10. The authorities broadly agreed with these conclusions and the analysis. They agreed that fiscal policy should be anchored in debt sustainability and lowering central bank financing of the deficit. The authorities were committed to improving the medium-term fiscal framework, including by updating their medium-term debt management strategy. They concurred with staff on the need to be cautious on nonconcessional borrowing and reconfirmed their intention to use nonconcessional external borrowing only to finance economically viable and growth-enhancing projects in priority sectors, at levels consistent with low risk of debt distress.

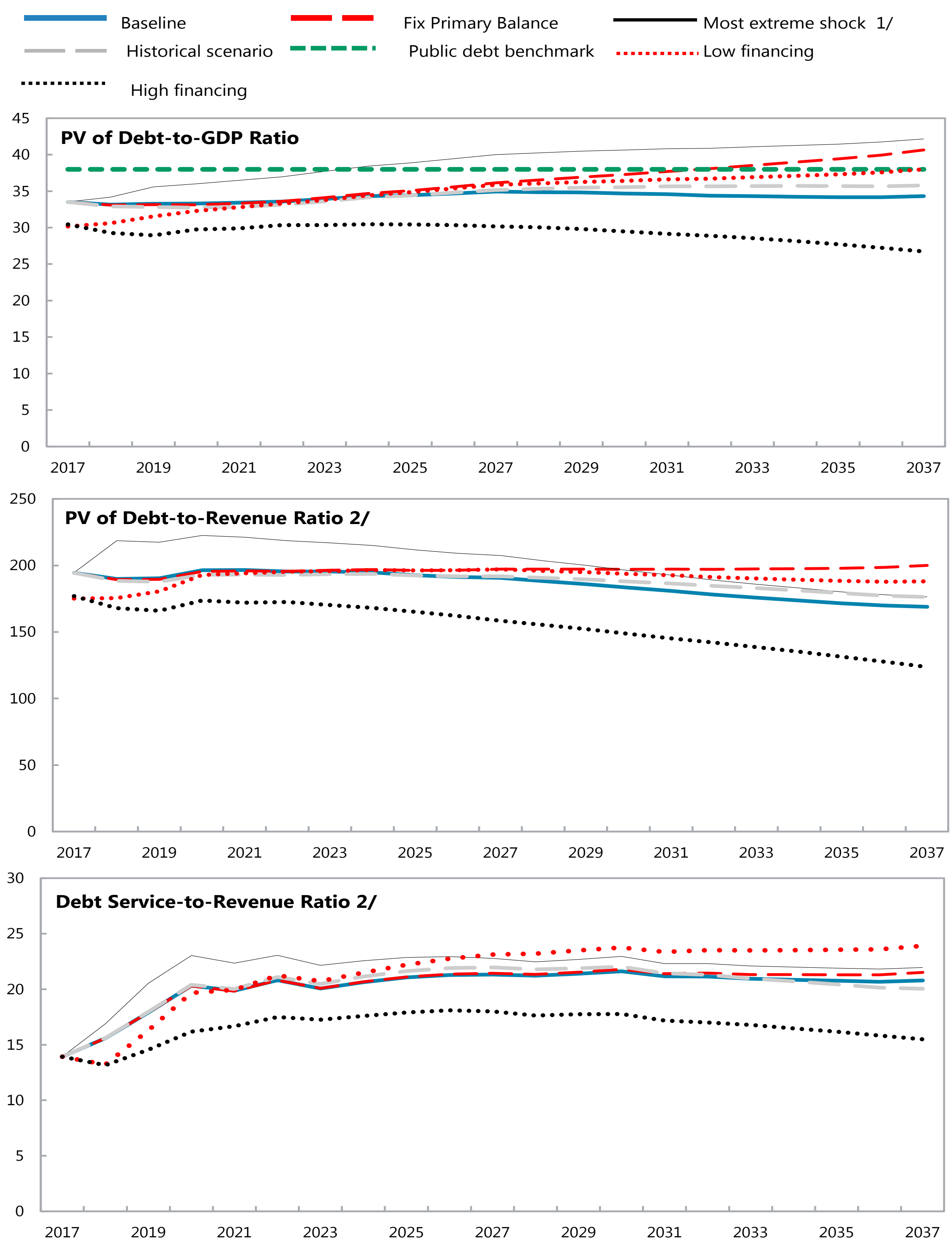
Figure 1a. Myanmar: Indicators of Public and Publicly Guaranteed External Debt Under Alternatives Scenarios, 2017–2037 /1



Sources: Country authorities; and IMF staff estimates and projections.

1/ In Panel bcd, the most extreme shock is the combination shock; in panel e, the most extreme shock is the export shock; and, in panel f, the most extreme shock is one-time depreciation shock. The combination shock assumes real GDP, exports, US dollar deflator of GDP, and non-debt creating flows all at their historical averages over 2006-2016 minus one standard deviation in 2018-19.

Figure 1b. Myanmar: Indicators of Public Debt Under Alternative Scenarios, 2017–20137 1/



Sources: Country authorities; and IMF staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio on or before 2027.

Table 4a. Myanmar: External Debt Sustainability Framework, Baseline Scenario, 2014–2037 1/

(In percent of GDP, unless otherwise stated)

	Actual			Historical 6/	Standard 6/	Projections									
				Average	Deviation							2017-2022			2023-2037
	2014	2015	2016			2017	2018	2019	2020	2021	2022	Average	2027	2037	Average
External debt (nominal) 1/	**13.9**	**15.9**	**15.6**			**14.4**	**14.8**	**14.4**	**14.1**	**13.4**	**12.7**		**11.5**	**9.6**	
of which: public and publicly guaranteed (PPG)	13.9	15.9	15.6			14.4	14.8	14.4	14.1	13.4	12.7		11.5	9.6	
Change in external debt	-3.1	2.0	-0.3			-1.3	0.5	-0.5	-0.2	-0.7	-0.7		-0.2	-0.1	
Identified net debt-creating flows	-3.7	0.7	-2.3			-2.0	-1.5	-0.5	-1.2	-1.2	-1.1		-1.2	-0.9	
Non-interest current account deficit	**2.8**	**5.7**	**4.4**	**3.5**	**1.6**	**5.0**	**5.3**	**5.5**	**5.7**	**5.6**	**5.6**	5.4	**5.0**	**4.0**	4.7
Deficit in balance of goods and services	0.9	5.0	4.9			5.1	5.2	5.2	5.3	5.1	5.0		4.1	2.8	
Exports	21.3	22.2	20.9			24.0	23.5	23.0	23.3	23.5	23.6		24.0	24.5	
Imports	22.2	27.1	25.8			29.0	28.7	28.2	28.6	28.6	28.6		28.1	27.3	
Net current transfers (negative = inflow)	-3.5	-4.2	-4.4	-1.9	1.6	-4.2	-4.0	-3.8	-3.8	-3.7	-3.6		-3.3	-2.9	-3.2
of which: official	-0.3	-0.6	-0.6			-0.6	-0.6	-0.6	-0.5	-0.5	-0.5		-0.4	-0.4	
Other current account flows (negative = net inflow)	5.4	4.9	4.0			4.2	4.1	4.1	4.1	4.1	4.2		4.2	4.0	
Net FDI (negative = inflow)	**-4.4**	**-5.8**	**-5.3**	**-4.1**	**1.1**	**-6.3**	**-6.3**	**-5.4**	**-6.2**	**-6.1**	**-6.0**		**-5.5**	**-4.5**	-5.2
Endogenous debt dynamics 2/	**-2.0**	**0.8**	**-1.5**			**-0.6**	**-0.5**	**-0.6**	**-0.6**	**-0.7**	**-0.7**		**-0.6**	**-0.4**	
Contribution from nominal interest rate	-0.6	-0.6	-0.5			0.4	0.4	0.3	0.3	0.3	0.2		0.1	0.1	
Contribution from real GDP growth	-1.2	-1.1	-0.9			-1.0	-0.9	-1.0	-0.9	-0.9	-0.9		-0.7	-0.5	
Contribution from price and exchange rate changes	-0.2	2.5	-0.1			...	...	...	...	...	...		...	...	
Residual (3-4) 3/	**0.6**	**1.4**	**2.0**			**0.7**	**2.0**	**0.0**	**1.0**	**0.5**	**0.4**		**1.0**	**0.9**	
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/	...	...	13.8			12.5	12.2	11.2	10.6	9.7	9.0		7.3	6.0	
In percent of exports	...	...	66.2			51.9	52.0	48.8	45.4	41.5	38.1		30.3	24.4	
PV of PPG external debt	**...**	**...**	**13.8**			**12.5**	**12.2**	**11.2**	**10.6**	**9.7**	**9.0**		**7.3**	**6.0**	
In percent of exports	**...**	**...**	**66.2**			**51.9**	**52.0**	**48.8**	**45.4**	**41.5**	**38.1**		**30.3**	**24.4**	
In percent of government revenues	**...**	**...**	**75.1**			**74.9**	**72.5**	**66.6**	**64.4**	**59.0**	**53.9**		**40.6**	**30.1**	
Debt service-to-exports ratio (in percent)	**-1.2**	**-0.2**	**0.5**			**4.1**	**4.2**	**4.4**	**4.3**	**3.9**	**3.5**		**2.3**	**1.5**	
PPG debt service-to-exports ratio (in percent)	**-1.2**	**-0.2**	**0.5**			**4.1**	**4.2**	**4.4**	**4.3**	**3.9**	**3.5**		**2.3**	**1.5**	
PPG debt service-to-revenue ratio (in percent)	**-1.2**	**-0.2**	**0.6**			**5.9**	**5.8**	**6.0**	**6.1**	**5.5**	**4.9**		**3.0**	**1.8**	
Total gross financing need (Billions of U.S. dollars)	-1.2	0.0	-0.5			-0.3	0.0	0.3	0.4	0.4	0.4		-0.1	-0.7	
Non-interest current account deficit that stabilizes debt ratio	5.8	3.6	4.7			6.2	4.8	6.0	5.9	6.3	6.3		5.1	4.0	
Key macroeconomic assumptions															
Real GDP growth (in percent)	8.0	7.0	5.9	6.8	2.3	6.7	7.0	7.2	7.3	7.4	7.5	7.2	6.9	5.3	6.4
GDP deflator in US dollar terms (change in percent)	1.0	-15.2	0.4	8.2	18.0	-1.4	5.3	3.3	3.2	3.0	2.5	2.6	2.5	1.7	2.3
Effective interest rate (percent) 5/	-3.8	-4.1	-3.5	-2.6	1.2	2.4	2.8	2.6	2.4	2.2	2.0	2.4	1.4	0.9	1.3
Growth of exports of G&S (US dollar terms, in percent)	6.6	-5.8	0.4	9.5	8.9	20.6	9.0	9.9	12.0	11.5	10.9	12.3	9.8	7.5	9.2
Growth of imports of G&S (US dollar terms, in percent)	-9.0	11.0	1.0	18.1	22.2	18.5	9.8	10.5	12.0	10.8	10.2	11.9	9.2	6.9	8.6
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	47.6	50.6	49.6	50.4	51.2	49.8	49.9	49.0	47.7	47.9
Government revenues (excluding grants, in percent of GDP)	21.7	18.3	18.4			16.6	16.9	16.9	16.4	16.5	16.7		17.9	19.9	18.5
Aid flows (in Billions of US dollars) 7/	0.7	1.0	0.6			1.3	2.3	1.8	2.2	1.8	1.8		2.9	5.2	
of which: Grants	0.2	0.2	0.2			0.4	0.4	0.5	0.5	0.5	0.5		0.7	1.6	
of which: Concessional loans	0.5	0.8	0.4			0.9	1.8	1.3	1.7	1.3	1.3		2.2	3.6	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			1.2	1.8	1.4	1.5	1.2	1.0		1.0	0.8	0.9
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			64.1	60.4	63.3	61.8	65.0	64.1		61.5	63.9	62.6
Memorandum items:															
Nominal GDP (Billions of US dollars)	65.6	59.5	63.3			66.5	74.0	83.0	91.9	101.6	112.0		179.1	401.7	
Nominal dollar GDP growth	9.0	-9.3	6.3			5.2	11.2	12.2	10.7	10.6	10.2	10.0	9.5	7.2	8.9
PV of PPG external debt (in Billions of US dollars)			8.1			8.3	8.9	9.2	9.5	9.7	9.9		12.9	23.9	
(PVt-PVt-1)/GDPt-1 (in percent)						0.3	0.9	0.4	0.4	0.2	0.2	0.4	0.5	0.4	0.4
Gross workers' remittances (Billions of US dollars)	2.1	2.1	2.4			2.4	2.5	2.7	2.9	3.2	3.5		5.2	9.9	
PV of PPG external debt (in percent of GDP + remittances)	...	...	13.3			12.0	11.8	10.9	10.2	9.4	8.7		7.1	5.8	
PV of PPG external debt (in percent of exports + remittances)	...	...	55.9			45.1	45.4	42.8	39.9	36.6	33.7		27.1	22.2	
Debt service of PPG external debt (in percent of exports + remittances)	...	...	0.4			3.5	3.7	3.9	3.8	3.4	3.1		2.0	1.3	

Sources: Country authorities; and IMF 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 4b. Myanmar: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2017–2037

(In percent)

		Projections															
	2017	2018	2019	2020	2021	2022	**2027**	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
							PV of debt-to GDP ratio										
Baseline	12	12	11	11	10	9	**7**	7	7	7	6	6	6	6	6	6	6
A. Alternative Scenarios																	
A1. Key variables at their historical averages in 2017-2037 1/	12	12	10	9	8	7	**5**	5	4	4	4	4	3	3	3	3	3
A2. New public sector loans on less favorable terms in 2017-2037 2	12	12	13	12	12	11	**10**	10	10	10	10	10	10	10	10	10	10
B. Bound Tests																	
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	12	12	12	11	10	9	**8**	7	7	7	7	7	6	6	6	6	6
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	12	13	14	13	12	11	**9**	9	8	8	7	7	7	7	7	7	6
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	12	14	15	14	13	12	**10**	9	9	9	8	8	8	8	8	8	8
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	12	16	17	16	15	14	**11**	11	10	9	9	8	8	8	8	7	7
B5. Combination of B1-B4 using one-half standard deviation shocks	12	17	20	19	18	17	**13**	12	12	11	10	10	9	9	9	8	8
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	12	17	15	15	13	12	**10**	10	9	9	9	9	9	8	8	8	8
							PV of debt-to-exports ratio										
Baseline	52	52	49	45	41	38	**30**	29	28	27	27	26	26	25	25	25	24
A. Alternative Scenarios																	
A1. Key variables at their historical averages in 2017-2037 1/	52	52	45	40	35	31	**20**	19	18	17	16	15	14	14	13	13	12
A2. New public sector loans on less favorable terms in 2017-2037 2	52	53	55	53	50	47	**43**	42	42	41	40	40	40	39	39	39	40
B. Bound Tests																	
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	52	52	48	45	41	37	**30**	29	28	27	26	26	25	25	25	24	24
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	52	61	72	67	61	56	**44**	42	40	38	37	35	34	33	32	32	31
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	52	52	48	45	41	37	**30**	29	28	27	26	26	25	25	25	24	24
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	52	67	76	70	65	60	**47**	44	41	39	37	35	33	32	31	30	29
B5. Combination of B1-B4 using one-half standard deviation shocks	52	69	84	78	72	67	**52**	49	46	43	41	39	37	35	34	33	32
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	52	52	48	45	41	37	**30**	29	28	27	26	26	25	25	25	24	24
							PV of debt-to-revenue ratio										
Baseline	75	73	67	64	59	54	**41**	39	37	36	34	33	32	32	31	31	30
A. Alternative Scenarios																	
A1. Key variables at their historical averages in 2017-2037 1/	75	72	61	57	50	43	**27**	25	23	22	20	19	18	17	16	16	15
A2. New public sector loans on less favorable terms in 2017-2037 2	75	74	75	75	71	67	**58**	56	55	53	52	51	50	50	49	49	49
B. Bound Tests																	
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	75	73	69	66	61	56	**42**	40	39	37	36	34	34	33	32	32	31
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	75	77	83	80	73	67	**50**	47	45	42	40	38	37	35	34	33	33
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	75	83	87	84	77	71	**53**	51	49	47	45	44	43	42	41	40	40
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	75	92	103	100	92	85	**62**	58	54	50	47	45	42	40	39	37	36
B5. Combination of B1-B4 using one-half standard deviation shocks	75	98	120	116	108	99	**73**	68	63	58	55	52	49	47	44	43	41
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	75	99	91	88	81	74	**56**	54	51	49	47	46	45	44	43	42	42

Table 4b. Myanmar: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2017–2037 (concluded)

(In percent)

Debt service-to-exports ratio																	
Baseline	4	4	4	4	4	3	**2**	2	2	2	2	2	1	1	1	1	1
A. Alternative Scenarios																	
A1. Key variables at their historical averages in 2017-2037 1/	4	4	4	4	3	3	**1**	1	1	1	1	1	1	1	1	1	1
A2. New public sector loans on less favorable terms in 2017-2037 2	4	4	5	5	4	4	**3**	3	3	3	3	3	2	3	2	2	3
B. Bound Tests																	
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	4	4	4	4	4	3	**2**	2	2	2	2	2	1	1	1	1	1
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	4	5	5	5	5	4	**3**	3	3	3	2	2	2	2	2	2	2
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	4	4	4	4	4	3	**2**	2	2	2	2	2	1	1	1	1	1
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	4	4	5	5	4	4	**3**	3	3	3	3	2	2	2	2	2	2
B5. Combination of B1-B4 using one-half standard deviation shocks	4	4	5	5	5	4	**3**	3	3	3	3	3	3	2	2	2	2
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	4	4	4	4	4	3	**2**	2	2	2	2	2	1	1	1	1	1
Debt service-to-revenue ratio																	
Baseline	6	6	6	6	6	5	**3**	2	2	3	2	2	2	2	2	2	2
A. Alternative Scenarios																	
A1. Key variables at their historical averages in 2017-2037 1/	6	6	6	5	5	4	**2**	1	1	1	1	1	1	1	1	1	1
A2. New public sector loans on less favorable terms in 2017-2037 2	6	6	6	7	6	6	**4**	4	4	4	3	3	3	3	3	3	3
B. Bound Tests																	
B1. Real GDP growth at historical average minus one standard deviation in 2018-2019	6	6	6	6	6	5	**3**	3	3	3	2	2	2	2	2	2	2
B2. Export value growth at historical average minus one standard deviation in 2018-2019 3/	6	6	6	6	6	5	**3**	3	3	3	3	3	2	2	2	2	2
B3. US dollar GDP deflator at historical average minus one standard deviation in 2018-2019	6	7	8	8	7	7	**4**	3	3	3	3	3	3	2	2	2	2
B4. Net non-debt creating flows at historical average minus one standard deviation in 2018-2019 4/	6	6	6	7	6	5	**4**	4	4	4	3	3	3	3	3	3	3
B5. Combination of B1-B4 using one-half standard deviation shocks	6	6	7	8	7	6	**5**	5	5	5	4	4	3	3	3	3	3
B6. One-time 30 percent nominal depreciation relative to the baseline in 2018 5/	6	8	8	9	8	7	**4**	3	3	4	3	3	3	3	3	3	3
Memorandum item:																	
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	48	48	48	48	48	48	**48**	48	48	48	48	48	48	48	48	48	48

Sources: Country authorities; and IMF 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 4c. Myanmar: Public Sector Debt Sustainability Framework, Baseline Scenario, 2014–2037
(In percent of GDP, unless otherwise indicated)

	Actual					Estimate	Projections								
	2014	2015	2016	Average 5/	Standard Deviation 5/	2017	2018	2019	2020	2021	2022	2017-22 Average	2027	2037	2023-37 Average
Public sector debt 1/	29.9	34.5	35.7			35.4	35.9	36.4	36.9	37.1	37.3		39.1	37.9	
of which: foreign-currency denominated	13.9	15.9	15.6			14.4	14.8	14.4	14.1	13.4	12.7		11.5	9.6	
Change in public sector debt	-3.3	4.6	1.2			-0.3	0.5	0.5	0.5	0.2	0.2		0.3	0.1	
Identified debt-creating flows	-1.9	3.3	1.1			0.0	0.6	0.5	0.5	0.3	0.3		0.2	0.4	
Primary deficit	0.5	4.1	2.0	2.4	2.1	2.9	3.0	3.0	3.0	2.8	2.7	2.9	2.2	1.4	1.9
Revenue and grants	22.0	18.7	18.8			17.2	17.5	17.5	17.0	17.0	17.2		18.3	20.3	
of which: grants	0.3	0.4	0.4			0.6	0.6	0.6	0.6	0.5	0.5		0.4	0.4	
Primary (noninterest) expenditure	22.4	22.8	20.8			20.1	20.5	20.5	19.9	19.8	19.8		20.6	21.7	
Automatic debt dynamics	-2.3	-0.5	-0.8			-2.9	-2.5	-2.5	-2.4	-2.5	-2.4		-2.1	-1.0	
Contribution from interest rate/growth differential	-1.8	-0.4	0.8			-3.8	-2.7	-2.3	-2.2	-2.3	-2.3		-1.6	-0.5	
of which: contribution from average real interest rate	0.7	1.6	2.7			-1.6	-0.4	0.1	0.3	0.3	0.3		0.9	1.4	
of which: contribution from real GDP growth	-2.5	-2.0	-1.9			-2.3	-2.3	-2.4	-2.5	-2.5	-2.6		-2.5	-1.9	
Contribution from real exchange rate depreciation	-0.5	-0.1	-1.6			0.9	0.2	-0.2	-0.2	-0.2	-0.1		...	...	
Other identified debt-creating flows	-0.1	-0.3	-0.1			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Privatization receipts (negative)	-0.1	-0.3	-0.1			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)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Residual, including asset changes	-1.4	1.3	0.1			-0.3	-0.1	-0.1	-0.1	-0.1	-0.1		0.2	-0.3	
Other Sustainability Indicators															
PV of public sector debt	...	...	34.0			33.5	33.2	33.3	33.3	33.4	33.6		34.9	34.3	
of which: foreign-currency denominated	...	...	13.8			12.5	12.1	11.2	10.6	9.7	9.0		7.3	6.0	
of which: external	...	...	13.8			12.5	12.1	11.2	10.6	9.7	9.0		7.3	6.0	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	1.6	5.6	3.4			5.3	5.8	6.2	6.4	6.2	6.2		6.1	5.6	
PV of public sector debt-to-revenue and grants ratio (in percent)	...	...	180.5			194.5	189.9	190.4	196.4	196.5	195.5		190.7	168.9	
PV of public sector debt-to-revenue ratio (in percent)	...	...	184.1			201.5	196.6	197.2	203.0	202.5	200.8		195.0	172.3	
of which: external 3/	...	...	75.1			74.9	71.6	66.6	64.4	59.0	53.9		40.6	30.1	
Debt service-to-revenue and grants ratio (in percent) 4/	4.7	7.2	7.6			13.9	15.6	17.9	20.3	19.9	20.8		21.3	20.8	
Debt service-to-revenue ratio (in percent) 4/	4.8	7.4	7.8			14.4	16.1	18.5	21.0	20.5	21.4		21.8	21.2	
Primary deficit that stabilizes the debt-to-GDP ratio	3.8	-0.5	0.7			3.2	2.5	2.6	2.5	2.5	2.5		1.9	1.3	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	8.0	7.0	5.9	6.8	2.3	6.7	7.0	7.2	7.3	7.4	7.5	7.2	6.9	5.3	6.4
Average nominal interest rate on forex debt (in percent)	-3.9	-4.1	-3.5	-2.6	1.2	2.4	2.8	2.6	2.4	2.2	2.0	2.4	1.4	0.9	1.3
Average real interest rate on domestic debt (in percent)	3.1	2.1	2.7	-1.7	6.0	-0.3	-0.7	0.0	0.6	0.7	1.3	0.3	2.1	3.8	2.5
Real exchange rate depreciation (in percent, + indicates depreciation)	-3.1	-0.5	-9.2	-4.4	35.8	7.0	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	4.2	4.1	3.6	8.0	6.5	6.1	6.7	7.0	6.9	6.7	6.1	6.6	5.3	3.6	4.9
Growth of real primary spending (deflated by GDP deflator, in percent)	16.8	8.9	-3.7	2.3	6.0	3.4	9.1	7.2	4.3	6.5	7.7	6.4	7.6	5.6	7.0
Grant element of new external borrowing (in percent)	...	...	...	...	...	47.6	50.6	49.6	50.4	51.2	49.8	49.9	49.0	47.7	...

Sources: Country authorities; and IMF 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 4d. Myanmar: Sensitivity Analysis for Key Indicators of Public Debt, 2017–2037

	Projections							
	2017	2018	2019	2020	2021	2022	2027	2037
PV of Debt-to-GDP Ratio								
Baseline	34	33	33	33	33	34	35	34
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	34	33	33	33	33	33	35	36
A2. Primary balance is unchanged from 2017	34	33	33	33	33	34	36	41
A3. Permanently lower GDP growth 1/	34	33	34	34	34	35	39	46
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2018-2019	34	34	36	36	36	37	40	42
B2. Primary balance is at historical average minus one standard deviations in 2018-2019	34	34	35	35	35	35	36	35
B3. Combination of B1-B2 using one half standard deviation shocks	34	34	35	35	35	35	38	39
B4. One-time 30 percent real depreciation in 2018	34	38	37	37	36	36	36	34
B5. 10 percent of GDP increase in other debt-creating flows in 2018	34	38	38	38	38	38	38	36
PV of Debt-to-Revenue Ratio 2/								
Baseline	195	190	190	196	197	196	191	169
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	195	188	188	193	193	193	192	176
A2. Primary balance is unchanged from 2017	195	189	190	195	196	196	197	200
A3. Permanently lower GDP growth 1/	195	191	193	200	202	203	211	224
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2018-2019	195	196	203	212	214	215	218	207
B2. Primary balance is at historical average minus one standard deviations in 2018-2019	195	194	199	205	204	203	196	171
B3. Combination of B1-B2 using one half standard deviation shocks	195	193	198	205	206	206	206	190
B4. One-time 30 percent real depreciation in 2018	195	217	213	216	213	209	195	170
B5. 10 percent of GDP increase in other debt-creating flows in 2018	195	219	218	223	221	219	207	176
Debt Service-to-Revenue Ratio 2/								
Baseline	14	16	18	20	20	21	21	21
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	14	16	18	20	20	21	22	20
A2. Primary balance is unchanged from 2017	14	16	18	20	20	21	21	22
A3. Permanently lower GDP growth 1/	14	16	18	21	20	21	23	24
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2018-2019	14	16	19	21	21	22	23	23
B2. Primary balance is at historical average minus one standard deviations in 2018-2019	14	16	18	21	20	21	21	21
B3. Combination of B1-B2 using one half standard deviation shocks	14	16	18	21	20	21	22	22
B4. One-time 30 percent real depreciation in 2018	14	17	21	23	22	23	23	22
B5. 10 percent of GDP increase in other debt-creating flows in 2018	14	16	18	21	20	21	22	21

Sources: Country authorities; and IMF 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.