BANGLADESH

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FIFTH AND SIXTH REVIEWS UNDER THE EXTENDED CREDIT FACILITY ARRANGEMENT—DEBT SUSTAINABILITY ANALYSIS

Approved By
Markus Rodlauer and Peter Allum (IMF) and Satu Kahkonen (IDA)

Prepared by
International Monetary Fund
International Development Association

Risk of external debt distress	Low
Augmented by significant risks stemming from domestic public and/or private external debt?	No

This debt sustainability analysis (DSA) was prepared jointly by the staffs of the IMF and IDA (World Bank Group). The results indicate that Bangladesh remains at a low risk of external public debt distress, with no significant vulnerabilities related to domestic debt or private external debt.[1]

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[1] For the purposes of this DSA, the public sector comprises the central government and nonfinancial public enterprises. This analysis is based on the joint Fund-Bank debt sustainability framework for conducting debt sustainability analysis in low-income countries. Under IDA's Country Policy and Institutional Assessment (CPIA), Bangladesh is assessed to be a medium performer, with an average rating of 3.28 during 2011–13. This DSA uses the indicative thresholds for countries for this category.

A. Background

This Debt Sustainability Analysis (DSA) presents staffs' macroeconomic outlook and assumptions about the public sector's external and domestic borrowing paths.[2] The DSA incorporates the authorities' estimates of the stock of public external and domestic debt and private external debt as of end-FY14 (fiscal year 2014, July 2013-June 2014) and analyzes the likely trajectories of standard debt sustainability (solvency and liquidity) ratios through FY35.

As of end-FY14, total public sector and public sector-guaranteed external nominal debt amounted to US$26 billion (15 percent of GDP or 79 percent of exports of goods and services). The World Bank and the Asian Development Bank are—by far—the two largest creditors, with outstanding loans of US$12 and US$7 billion, respectively. The largest bilateral creditor is Japan, with an outstanding loan of US$2 billion (text table).

Bangladesh: Public and Publicly Guaranteed External Debt
(At end-June 2014)

	In millions of U.S. dollars	In percent of total external debt
Multilateral debt	21,019	81.0
World Bank	12,167	46.9
Asian Development Bank	7,403	28.5
International Monetary Fund	813	3.1
International Fund for Agricultural Development	344	1.3
Islamic Development Bank	231	0.9
Other	61	0.2
Bilateral debt	3,469	13.4
Japan	2,229	8.6
China	329	1.3
Korea, Republic of	318	1.2
India	174	0.7
Kuwait	144	0.6
Other	275	1.1
Guarantees provided to external borrowing by state-owned enterprises	364	1.4
Short-term debt	1,103	4.3
Total	25,954	100.0
(Percent of GDP)	15.0	

Sources: Bangladesh authorities; and IMF staff estimates.

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[2] The last full DSA was prepared in FY12 and based on the end-June 2011 stock of debt (SM/11/278, Supplement 1 and IDA/SEC/65557). In line with the *Staff Guidance Note on the Application of the Joint Bank-Fund Debt Sustainability Framework for Low-Income Countries* (SM/13/292, IDA/SEC/82566), a full DSA is expected to be prepared once every three years for PRGT-eligible, IDA-only countries.

Total public sector domestic debt as of end-FY14 amounted to 2.8 trillion taka (21 percent of GDP or 190 percent of central government revenue, including grants). Domestic debt comprises mostly commercial banks' holdings of treasury instruments and non-banks' holdings of national savings certificates.[3] It also includes net credit by Bangladesh Bank and the outstanding liabilities of state-owned enterprises to the banking system (text table).

Bangladesh: Public Domestic Debt
(At end-June 2014)

	In billions of taka	In percent of total domestic debt
Central government	2,724	97.4
Overdraft at Bangladesh Bank (BB)	132	4.7
Ways and means advances from BB	0	0.0
Treasury bills	425	15.2
Treasury bonds	1,178	42.1
Directorate of National Savings instruments	761	27.2
General Provident Fund	229	8.2
State-owned enterprises		
Net liabilities to the banking system	72	2.6
Total	2,796	100.0
(Percent of GDP)	20.8	

Sources: Bangladesh authorities; and IMF staff estimates.

In FY12–14 economic growth and inflation outcomes were broadly in line with what had been projected in the FY12 DSA (the last full DSA), but the outturns for some other macroeconomic variables were significantly different (text table)**.** In particular, exports, imports and real primary fiscal spending grew significantly slower than what had been envisaged. The real US$/taka bilateral exchange rate (using GDP deflators)

Bangladesh: Selected Macroeconomic Indicators, FY2012–14
(Average annual percent change, unless otherwise mentioned)

	FY12 DSA projection	Outcome
Economic growth	6.4	6.2
Inflation (GDP deflator)		
In taka	9.2	7.0
In dollars	2.0	4.0
Exports of goods and services (in dollars)	14.6	9.4
Imports of goods and services (in dollars)	14.7	4.6
Average interest rates (in percent)		
Nominal rate on foreign debt	1.6	1.0
Real rate on domestic debt	1.5	3.5
Real primary spending	13.2	5.2

Sources: Bangladesh authorities; and IMF staff calculations.

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[3] High exposure of commercial banks to the central government remains a concern (see Box 1 in IMF Country Report No. 14/149 for a discussion). Development of an active secondary market and a funded pension system could help weaken the bank-sovereign link.

appreciated by 7 percent over the three-year period against the expectation of no change.

The public sector's debt to GDP ratio has declined relative to the FY12 DSA. This is the result of two main factors. First, the authorities introduced in FY14 a rebased and higher GDP series (base year shifted from FY96 to FY06), which led the debt-to-GDP ratio to decline from 41.9 percent to 36.3 percent in FY13. Second, actual fiscal deficits have been lower than expected. As a result, the public debt-to-GDP ratio fell by 2.3 percentage points from FY11 to FY14 (using the new GDP series for both years) as compared with a 0.7 percentage point increase projected in the FY12 DSA. The public sector's external debt to GDP fell over the same period by 3.5 percentage points of GDP as compared with a projected decline of 1.9 percentage points of GDP in the FY12 DSA.

B. Underlying Assumptions

The new set of macroeconomic projections and assumptions is elaborated in Box 1 and also shown in Table 1. These projections and assumptions are broadly in line with those in the FY12 DSA (text table). The new DSA incorporates a significant ramp up of public investments financed by the revenue gain expected from the new value-added tax (VAT) that will be introduced in FY17.

Bangladesh: Comparison of Selected Macroeconomic Assumptions in Different DSAs
(In percent; unless otherwise indicated)

	Historical average 1/	Medium-term projection 2/	Long-term projection 3/
Economic growth			
FY12 DSA (FY02–32)	6.0	6.8	6.5
FY14 DSA Update (FY04–34)	6.2	6.6	6.5
FY15 DSA (FY05–35)	6.1	6.8	6.5
Inflation (GDP deflator)			
FY12 DSA (FY02–32)	5.7	8.3	4.5
FY14 DSA Update (FY04–34)	6.6	6.8	4.9
FY15 DSA (FY05–35)	6.7	6.8	5.0
Inflation (GDP deflator in US$ terms)			
FY12 DSA (FY02–32)	2.9	1.9	1.6
FY14 DSA Update (FY04–34)	3.3	5.3	3.0
FY15 DSA (FY05–35)	3.9	2.5	2.0
Growth of exports			
FY12 DSA (FY02–32)	14.0	13.2	9.0
FY14 DSA Update (FY04–34)	15.1	10.3	12.0
FY15 DSA (FY05–35)	14.8	8.7	9.5
Growth of imports			
FY12 DSA (FY02–32)	14.1	12.5	8.4
FY14 DSA Update (FY04–34)	15.2	9.8	11.0
FY15 DSA (FY05–35)	15.0	9.7	8.7
Non-interest current account deficit (in percent of GDP)			
FY12 DSA (FY02–32)	-1.4	0.3	0.4
FY14 DSA Update (FY04–34)	-1.0	0.0	1.0
FY15 DSA (FY05–35)	-0.9	1.0	1.7
Average nominal interest rate on external borrowing			
FY12 DSA (FY02–32)	1.0	1.6	2.1
FY14 DSA Update (FY04–34)	1.0	2.2	3.1
FY15 DSA (FY05–35)	1.0	1.5	3.0
Average real interest rate on domestic borrowing			
FY12 DSA (FY02–32)	3.9	2.5	5.4
FY14 DSA Update (FY04–34)	3.3	2.2	3.7
FY15 DSA (FY05–35)	3.4	3.9	4.4
Average annual growth of real primary spending			
FY12 DSA (FY02–32)	7.0	11.0	6.4
FY14 DSA Update (FY04–34)	3.7	8.0	6.7
FY15 DSA (FY05–35)	1.6	10.4	6.3

Sources: Bangladesh authorities; and IMF staff projections and calculations.

1/ The historical average covers the years FY02-FY11, FY04-FY13, and FY05-FY14 for the three DSAs respectively.

2/ The medium-term projection covers the years FY12-FY17, FY14-FY19, and FY15-FY20 for the three DSAs respectively.

3/ The long-term projection covers the years FY18-FY32, FY20-FY34, and FY21-FY35 for the three DSAs respectively.

Box 1. Bangladesh: Main Macroeconomic Assumptions Underlying the DSA

In the medium term (FY15–20), average annual **real GDP growth** is projected to accelerate to 6.8 percent up from 6.1 percent in recent years, reflecting the demand-pull effect from a significant expected jump in public investment spending. Private investment is expected to benefit from a deepening of the financial sector and an improved trade and investment climate. Over the long term (FY21–35), average annual growth is assumed to converge down to a steady state of 6.5 percent, with the increase over the historical average growth rate of 6.1 percent reflecting the growth impact from expected reforms to improve the investment climate and remove infrastructure bottlenecks.

Inflation, as measured by the GDP deflator, is expected to remain broadly stable over the medium term on the expectation of a broadly unchanged monetary policy framework (although global currency shifts and commodity price shocks pose risks to the inflation projections).

The **real bilateral taka-dollar exchange rate** is projected to remain constant from FY16 onward following a 4 percent increase in FY15.

The **tradable sector** is projected to continue to expand rapidly (both exports and imports are expected to increase about 9 percent annually in nominal terms).

Moderate **current account deficits** are expected to prevail during the projection period. The deficit will increase slightly over time to reach 2.3 percent from FY30 onward, reflecting mainly an assumption that growth in workers' remittances will slow to 6 percent on average. The capital and financial account surplus will strengthen gradually over time led by higher FDI. The overall balance of payments is expected to register surpluses of close to 1 percent of GDP, allowing for the accumulation of reserves broadly in line with the growth of imports.

The **real interest rate on external debt** rises gradually over the projection period, reflecting an assumed decline in the **grant element of new external borrowing** to less than 10 percent. **The government's real domestic borrowing rates** are expected to increase to between 4-4.5 percent over the medium term, where they remain over the longer term.

The **primary fiscal deficit (including grants)** is expected to average 1.8 percent of GDP over the medium term as compared to an average annual deficit of 1.2 percent in recent years. The higher primary deficit over the medium term reflects the impact of a public sector pay hike (effective from FY16, and adding about 1 percent of GDP) and a significant increase in public investment, partly offset by higher revenue from the implementation of the new VAT and by lower energy subsidies. In the long term, the primary fiscal deficit stabilizes at a lower share of GDP as public investment moderates following the expected spike in coming years, more than offseting an expected increase in pension costs due to population ageing..

C.   External DSA

Under the baseline scenario, Bangladesh's public and publicly guaranteed (PPG) external debt to GDP ratio is projected to trend down slightly from 15 percent of GDP in FY14 to 13 percent of GDP in FY35. All associated PPG indicators remain well within the respective policy-dependent solvency thresholds under the baseline scenario and all associated standard bound tests (Figure 1 and Tables 2–3).

D.   Public DSA

The present value (PV) of public debt to GDP ratio is projected to remain broadly stable over the medium term, but rise slightly in the long term, reflecting a gradual increase in real interest rates as the concessionality of debt is assumed to decline steadily. By FY35 the debt-to-GDP ratio will rise to 39 percent of GDP as compared with 36 percent of GDP in FY14. As in the case of the external DSA, all associated PPG indicators remain well within the benchmark value for all standard bound tests (Figure 2 and Tables 4–5).[4]

E.   Alternative scenario

An alternative scenario has been constructed to consider the consequences of failing to introduce the new VAT. In that case, the tax revenue to GDP ratio would be lower by about 2 percentage points relative to the baseline. With no consolidation in expenditure assumed, the fiscal deficit would widen, leading to higher domestic borrowing costs. As a result, there would be a significant deterioration in all standard debt sustainability indicators, and the debt trajectory would become clearly unsustainable (Figure 4). This implies that in the absence of a boost to tax revenues through the introduction of the new VAT, to keep public debt on a sustainable path, a significant cut in public expenditure would eventually be needed with knock-on effects on economic growth and poverty reduction.

F.   Authorities' views

The authorities agreed with staffs' view that the risk of external debt distress is low. This low risk results principally from the government's commitment to maintain low fiscal deficits in line with long-standing practice. Moreover, most external borrowing is either on highly concessional terms (grant element of 35 percent or higher) or moderately concessional, but with long maturities. Domestic borrowing is more costly and with lower duration; however, it

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[4] Risks to the medium-term growth outlook are tilted clearly to the downside. In particular, the main risk is an intensification of domestic political unrest and uncertainty. A materialization of this risk in the short run is unlikely to derail the main debt trajectory: if the medium-term growth rate remains the same as the historical average, the public debt-to-GDP ratio would worsen by 1.8 percentage points of GDP by FY35 relative to the baseline. Another risk would be a slower-than-anticipated implementation rate for public investment projects, but the impact on debt sustainability would be offset by a smaller fiscal deficit. Failure to implement the VAT would make the debt path unsustainable (see Alternative Scenario).

helps in developing local debt markets in addition to providing needed resources for the budget.

The risk of debt distress is further contained by an active and prudent debt management policy in line with the provisions in the Public Money and Budget Management Act of 2009. In the Ministry of Finance, debt management responsibilities are distributed between (1) Economic Relations Division (in charge of most external borrowing), (2) Finance Division (in charge of government guarantees), and (3) Internal Resources Division (in charge of domestic borrowing). In addition, Bangladesh Bank acts as fiscal agent and issues marketable domestic debt on behalf of the government. Overall responsibility for formulating the debt management strategy rests with the Finance Division. Interagency coordination has been strengthened with the creation of a Standing Committee on Nonconcessional Borrowing in 2013. In FY14, the Finance Division prepared a medium term debt strategy paper, which found that Bangladesh's debt position was robust given the stable macroeconomic outlook.

G. Conclusion

The macroeconomic framework is broadly unchanged from the last full DSA. With no major changes to prospective borrowing assumptions (volumes and costs), the debt sustainability assessment remains unchanged and the risk of external and public debt distress continues to be classified as low. However, in the absence of a permanent boost to revenues, derived for instance from a failure to implement the VAT, and with no fiscal consolidation, there would be a significant deterioration in all standard debt sustainability indicators, and the debt trajectory would become unsustainable.

Figure 1. Bangladesh: Indicators of Public and Publicly Guaranteed External Debt, 2015-2035 1/ 2/

(In percent, unless otherwise mentioned)

a. Debt Accumulation

Rate of Debt Accumulation
Grant-equivalent financing (% of GDP)
Grant element of new borrowing (% right scale)

b.PV of debt-to-GDP+remittances ratio

c.PV of debt-to-exports+remittances ratio

d.PV of debt-to-revenue ratio

e.Debt service-to-exports+remittances ratio

f.Debt service-to-revenue ratio

Baseline —— Historical scenario —— Most extreme shock 1/ ---- Threshold

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

1/ Data on a fiscal year basis; e.g., 2014 corresponds to July 2013–June 2014.

2/ 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 terms shock; in d. to a one-time depreciation shock; in e. to a non-debt flows shock; and in figure f. to a one-time depreciation shock.

Figure 2. Bangladesh: Indicators of Public Debt, 2015-2035 1/ 2/

(In percent)

—— Baseline   - - - Fix Primary Balance   —— Most extreme shock: 1/

- - - Historical scenario   ▄▄▄ Public debt benchmark

PV of Debt-to-GDP Ratio

Most extreme shock: other debt-creating flows

PV of Debt-to-Revenue Ratio 3/

Most extreme shock: other debt-creating flows

Debt Service-to-Revenue Ratio 3/

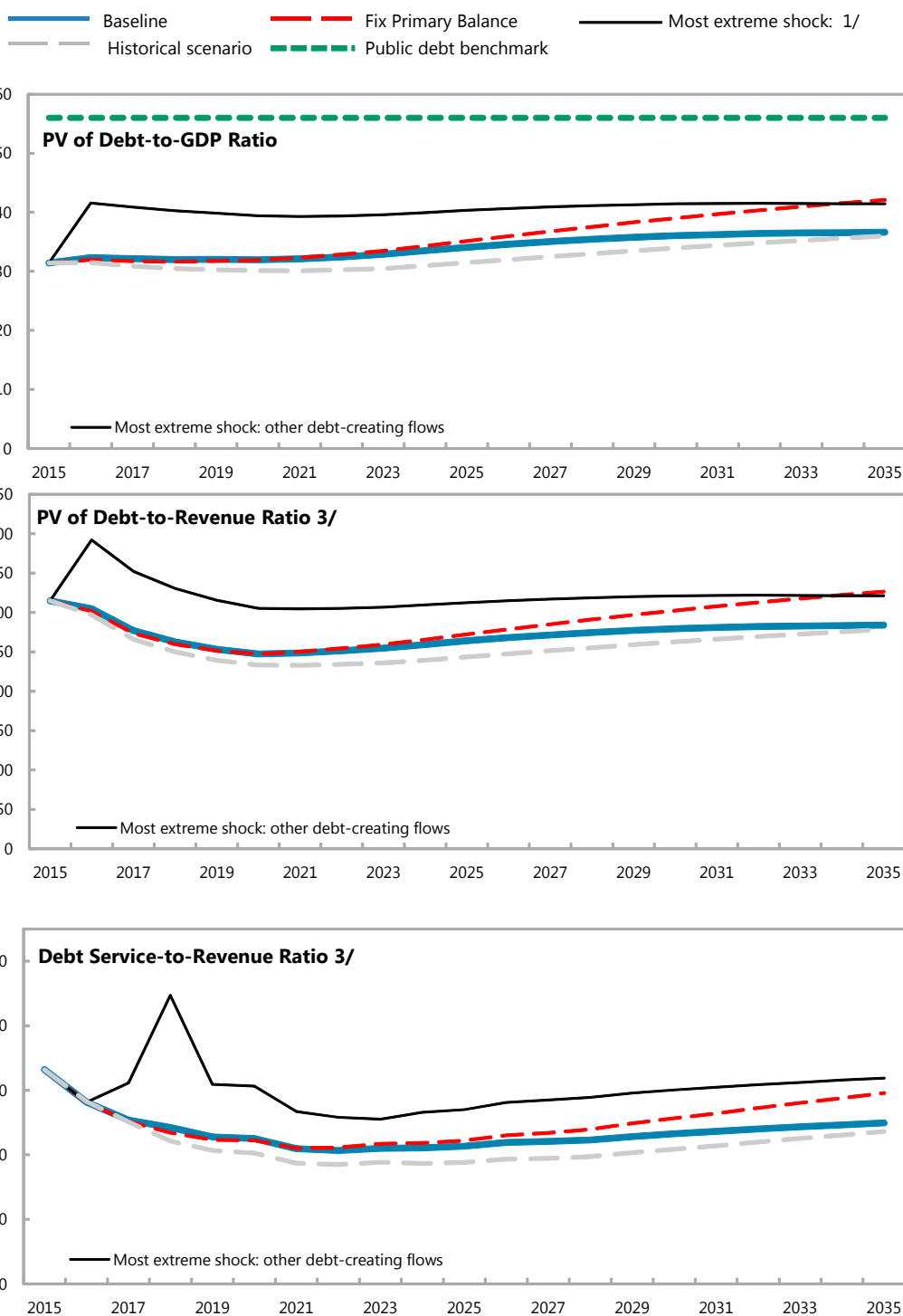Most extreme shock: other debt-creating flows

Sources: Bangladesh authorities; and IMF staff estimates and projections.
1/ Data on a fiscal year basis; e.g., 2014 corresponds to July 2013–June 2014.
2/ The most extreme stress test is the test that yields the highest ratio on or before 2025.
3/ Revenues are defined inclusive of grants.

Table 1. Bangladesh: DSA Key Variables 1/

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030	2035
(In percent of GDP, unless otherwise mentioned)												
Nominal GDP (in billions of U.S. dollars)	133	150	173	195	210	229	250	273	298	450	681	1,030
Real GDP (percentage change)	6.5	6.0	6.1	6.5	6.5	7.0	7.0	7.0	7.0	6.5	6.5	6.5
GDP deflator (percentage change)	8.2	7.2	5.7	5.8	6.8	7.2	7.1	6.8	7.1	5.2	4.7	4.7
GDP deflator (percentage change in US$)	-2.7	6.2	8.7	5.8	1.0	1.9	2.1	2.1	2.0	2.0	2.0	2.0
Gross national savings	27.9	30.0	29.4	28.1	28.6	30.1	31.2	31.8	32.0	31.7	31.4	31.2
Public national savings	2.9	2.9	2.7	2.1	1.6	2.1	2.7	3.2	3.4	3.4	3.3	3.1
Private national savings	25.1	27.1	26.7	26.0	27.0	28.0	28.4	28.5	28.6	28.2	28.1	28.1
Gross investment	28.3	28.4	28.6	29.0	29.9	31.5	32.8	33.5	33.8	33.8	33.6	33.4
Public investment	5.8	6.6	6.5	6.9	7.9	8.9	9.7	10.1	10.2	9.9	9.7	9.6
Private investment	22.5	21.7	22.0	22.1	22.0	22.6	23.1	23.4	23.6	23.9	23.9	23.9
Fiscal (central government)												
Total revenue and grants	11.2	11.2	10.9	10.0	10.6	11.6	12.2	12.6	12.9	12.9	12.9	12.9
Foreign grants	0.5	0.5	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Total expenditure	14.2	14.6	14.0	13.9	15.0	15.9	16.4	16.7	16.9	16.7	16.6	16.6
Interest payments	1.9	2.0	2.1	2.0	2.1	2.3	2.3	2.3	2.4	2.2	2.1	2.2
Overall balance	-3.0	-3.4	-3.1	-3.9	-4.4	-4.3	-4.2	-4.1	-4.0	-3.8	-3.7	-3.7
Primary balance	-1.1	-1.4	-1.0	-1.9	-2.3	-2.0	-1.9	-1.8	-1.7	-1.7	-1.6	-1.5
Net domestic financing	2.3	2.2	2.1	3.2	3.4	3.3	3.2	3.0	3.1	3.0	2.8	2.8
Net external financing	0.6	0.8	0.7	0.8	1.0	1.0	0.9	1.1	1.0	0.8	0.9	0.9
Balance of payments												
Exports of goods and services	20.0	19.6	19.0	17.3	17.5	17.7	17.8	18.0	18.2	18.9	19.7	20.5
Imports of goods and services	29.3	26.4	25.3	24.8	25.3	25.4	25.5	25.6	25.7	25.7	25.8	25.9
Workers' remittances	9.6	9.6	8.2	7.8	7.7	7.5	7.2	7.0	6.8	6.0	5.3	4.7
Other current account items (net)	-0.6	-1.2	-1.1	-1.2	-1.1	-1.1	-1.1	-1.1	-1.2	-1.3	-1.4	-1.6
Current account, including official transfers	-0.3	1.6	0.8	-0.8	-1.3	-1.4	-1.6	-1.7	-1.8	-2.1	-2.3	-2.3
Foreign direct investment	0.9	1.2	0.8	0.9	0.9	1.0	1.0	1.1	1.1	1.5	1.5	1.5
External borrowing (net)	0.6	0.8	0.8	0.9	1.0	1.0	1.0	1.2	1.1	1.0	1.0	1.0
Central government	0.6	0.8	0.8	0.8	1.0	1.0	0.9	1.1	1.0	0.8	0.9	0.9
Public enterprises with guarantee	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1
Gross official reserves	7.6	10.1	12.4	12.8	13.0	12.8	12.5	12.3	12.1	11.9	11.8	11.8
(months of prospective imports of goods and services)	3.1	4.1	5.3	5.6	5.6	5.5	5.4	5.2	5.2	5.1	5.1	5.0

Sources: Bangladesh authorities; and IMF staff estimates and projections.
1/ Data on a fiscal year basis; e.g., 2014 corresponds to July 2013–June 2014.

Table 2. Bangladesh: External Debt Sustainability Framework, Baseline Scenario, 2012–2035 1/

(In percent of GDP, unless otherwise indicated)

	Actual 2012	2013	Est. 2014	Historical [6] Average	Standard [6] Deviation	Proj. 2015	2016	2017	2018	2019	2020	2015-2020 Average	2025	2035	2021-2035 Average
External debt (nominal) 1/	**19.1**	**16.9**	**17.7**			**16.8**	**17.0**	**16.7**	**16.4**	**16.1**	**15.9**		**15.1**	**13.9**	
of which: public and publicly guaranteed (PPG)	17.9	15.8	15.1			14.1	14.5	14.2	14.1	14.1	14.0		13.9	13.4	
Change in external debt	-0.6	-2.2	0.8			-1.0	0.3	-0.3	-0.3	-0.3	-0.2		-0.1	-0.2	
Identified net debt-creating flows	-1.2	-4.9	-3.9			-1.1	-0.6	-0.6	-0.5	-0.4	-0.3		-0.3	-0.1	
Non-interest current account deficit	**0.1**	**-1.8**	**-1.1**	**-0.9**	**1.4**	**0.4**	**0.9**	**1.0**	**1.1**	**1.3**	**1.4**		**1.7**	**1.7**	**1.7**
Deficit in balance of goods and services	9.2	6.8	6.3			7.5	7.9	7.8	7.7	7.6	7.5		6.8	5.4	
Exports	20.0	19.6	19.0			17.3	17.5	17.7	17.8	18.0	18.2		18.9	20.5	
Imports	29.3	26.4	25.3			24.8	25.3	25.4	25.5	25.6	25.7		25.7	25.9	
Net current transfers (negative = inflow)	-10.1	-10.0	-8.6	-9.0	1.3	-8.2	-8.0	-7.8	-7.6	-7.3	-7.1		-6.3	-4.9	-5.9
of which: official	-0.1	-0.1	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Other current account flows (negative = net inflow)	0.9	1.3	1.3			1.1	1.0	1.0	1.0	1.1	1.0		1.1	1.2	
Net FDI (negative = inflow)	**-0.9**	**-1.2**	**-0.8**	**-0.9**	**0.2**	**-0.9**	**-0.9**	**-1.0**	**-1.0**	**-1.1**	**-1.1**		**-1.5**	**-1.5**	**-1.5**
Endogenous debt dynamics 2/	**-0.4**	**-1.9**	**-2.0**			**-0.6**	**-0.6**	**-0.7**	**-0.6**	**-0.6**	**-0.6**		**-0.5**	**-0.3**	
Contribution from nominal interest rate	0.3	0.2	0.3			0.4	0.4	0.4	0.4	0.4	0.4		0.5	0.5	
Contribution from real GDP growth	-1.2	-1.0	-0.9			-1.0	-1.0	-1.1	-1.1	-1.1	-1.0		-0.9	-0.8	
Contribution from price and exchange rate changes	0.5	-1.1	-1.3			...	...	...	...	...	...		...	...	
Residual (3-4) 3/	**0.7**	**2.7**	**4.7**			**0.1**	**0.9**	**0.3**	**0.2**	**0.2**	**0.1**		**0.2**	**-0.1**	
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/	...	...	12.7			12.2	12.4	12.1	11.8	11.6	11.6		11.6	11.8	
In percent of exports	...	...	66.7			70.2	70.9	68.3	66.6	64.8	63.6		61.2	57.7	
PV of PPG external debt	**...**	**...**	**10.1**			**9.5**	**9.8**	**9.6**	**9.5**	**9.6**	**9.7**		**10.3**	**11.3**	
In percent of exports	**...**	**...**	52.9			54.8	56.1	54.3	53.3	53.7	53.2		54.5	55.0	
In percent of government revenues	**...**	**...**	96.4			98.2	95.5	85.1	80.0	78.4	76.8		81.9	89.5	
Debt service-to-exports ratio (in percent)	**5.7**	**5.9**	**5.3**			**10.5**	**8.1**	**6.9**	**6.7**	**6.2**	**6.0**		**6.3**	**7.8**	
PPG debt service-to-exports ratio (in percent)	**4.8**	**4.4**	**3.7**			**8.1**	**5.8**	**4.7**	**4.6**	**4.4**	**4.2**		**4.2**	**5.5**	
PPG debt service-to-revenue ratio (in percent)	**8.9**	**8.1**	**6.8**			**14.4**	**9.8**	**7.3**	**6.9**	**6.4**	**6.0**		**6.3**	**9.0**	
Total gross financing need (Billions of U.S. dollars)	1.1	-1.1	0.0			6.2	6.5	6.3	6.9	7.3	7.5		9.7	22.4	
Non-interest current account deficit that stabilizes debt ratio	0.6	0.4	-1.9			1.4	0.6	1.4	1.4	1.6	1.6		1.7	1.9	
Key macroeconomic assumptions															
Real GDP growth (in percent)	6.5	6.0	6.1	6.1	0.6	6.5	6.5	7.0	7.0	7.0	7.0	6.8	6.5	6.5	6.5
GDP deflator in US dollar terms (change in percent)	-2.7	6.2	8.7	3.9	4.4	5.8	1.0	1.9	2.1	2.1	2.0	2.5	2.0	2.0	2.0
Effective interest rate (percent) 5/	1.5	1.4	1.7	1.2	0.3	2.6	2.7	2.8	2.9	2.7	3.0	2.8	3.2	4.2	3.5
Growth of exports of G&S (US dollar terms, in percent)	6.0	10.2	11.9	14.8	8.4	2.7	8.4	10.2	10.2	10.2	10.2	8.7	9.5	9.5	9.5
Growth of imports of G&S (US dollar terms, in percent)	1.6	1.4	10.7	15.0	14.9	10.4	9.9	9.5	9.5	9.5	9.5	9.7	8.7	8.7	8.7
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	27.1	33.9	41.2	39.0	29.4	29.5	33.4	17.8	6.3	14.6
Government revenues (excluding grants, in percent of GDP)	10.8	10.7	10.4			9.7	10.3	11.3	11.9	12.3	12.6		12.6	12.6	12.6
Aid flows (in Billions of US dollars) 7/	2.2	2.8	3.2			3.0	3.7	3.9	4.4	4.9	4.9		6.9	16.1	
of which: Grants	0.6	0.7	0.8			0.6	0.7	0.7	0.8	0.9	0.9		1.4	3.1	
of which: Concessional loans	1.5	2.1	2.4			2.4	3.1	3.2	3.6	4.0	4.0		5.5	13.0	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...			0.7	0.9	0.9	0.9	0.8	0.8		0.6	0.4	0.5
Grant-equivalent financing (in percent of external financing) 8/	...	...	...			38.8	44.5	51.6	49.3	41.0	41.8		31.8	21.4	29.0
Memorandum items:															
Nominal GDP (Billions of US dollars)	133.3	150.0	172.9			194.8	209.6	228.5	249.7	272.7	297.5		450.1	1029.9	
Nominal dollar GDP growth	3.7	12.5	15.2			12.7	7.6	9.0	9.3	9.2	9.1	9.5	8.6	8.6	8.6
PV of PPG external debt (in Billions of US dollars)			17.4			18.5	20.0	21.4	23.2	25.7	28.2		45.7	114.5	
(PVt-PVt-1)/GDPt-1 (in percent)						0.6	0.8	0.7	0.8	1.0	0.9	0.8	1.1	1.0	1.0
Gross workers' remittances (Billions of US dollars)	12.7	14.3	14.1			15.2	16.1	17.0	18.1	19.2	20.3		27.2	48.7	
PV of PPG external debt (in percent of GDP + remittances)	...	...	9.3			8.8	9.1	8.9	8.8	9.0	9.0		9.7	10.8	
PV of PPG external debt (in percent of exports + remittances)	...	...	37.0			37.8	39.0	38.2	37.9	38.6	38.7		41.3	44.7	
Debt service of PPG external debt (in percent of exports + remittances)	...	...	2.6			5.6	4.0	3.3	3.3	3.1	3.0		3.2	4.5	

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

1/ Includes both public and private sector external debt. Data on a fiscal year basis; e.g., 2014 corresponds to July 2013-June 2014.
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. Bangladesh: Sensitivity Analysis for 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+remittances ratio								
Baseline	9	9	9	9	9	9	**10**	11
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2015-2035 2/	9	7	6	4	3	1	**-3**	-9
A2. New public sector loans on less favorable terms in 2015-2035 3/	9	9	9	10	10	11	**13**	16
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2016-2017	9	9	9	9	9	9	**10**	11
B2. Export value growth at historical average minus one standard deviation in 2016-2017 4/	9	9	10	10	10	10	**10**	11
B3. US dollar GDP deflator at historical average minus one standard deviation in 2016-2017	9	9	9	9	9	9	**10**	11
B4. Net non-debt creating flows at historical average minus one standard deviation in 2016-2017 5/	9	9	10	9	10	10	**10**	11
B5. Combination of B1-B4 using one-half standard deviation shocks	9	8	8	8	8	8	**9**	11
B6. One-time 30 percent nominal depreciation relative to the baseline in 2016 6/	9	12	12	12	12	12	**13**	15
PV of debt-to-exports+remittances ratio								
Baseline	38	39	38	38	39	39	**41**	45
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2015-2035 2/	38	32	25	18	12	6	**-15**	-38
A2. New public sector loans on less favorable terms in 2015-2035 3/	38	40	41	42	44	46	**54**	68
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2016-2017	38	38	37	37	38	38	**41**	44
B2. Export value growth at historical average minus one standard deviation in 2016-2017 4/	38	40	43	43	43	43	**45**	47
B3. US dollar GDP deflator at historical average minus one standard deviation in 2016-2017	38	38	37	37	38	38	**41**	44
B4. Net non-debt creating flows at historical average minus one standard deviation in 2016-2017 5/	38	41	41	40	41	41	**43**	44
B5. Combination of B1-B4 using one-half standard deviation shocks	38	35	32	33	33	34	**37**	42
B6. One-time 30 percent nominal depreciation relative to the baseline in 2016 6/	38	38	37	37	38	38	**41**	44
PV of debt-to-revenue ratio								
Baseline	98	95	85	80	78	77	**82**	89
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2015-2035 2/	98	78	55	38	24	12	**-29**	-72
A2. New public sector loans on less favorable terms in 2015-2035 3/	98	97	90	89	90	91	**108**	135
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2016-2017	98	94	85	80	78	77	**82**	90
B2. Export value growth at historical average minus one standard deviation in 2016-2017 4/	98	96	92	87	84	82	**86**	89
B3. US dollar GDP deflator at historical average minus one standard deviation in 2016-2017	98	95	86	81	79	78	**84**	91
B4. Net non-debt creating flows at historical average minus one standard deviation in 2016-2017 5/	98	98	91	85	83	81	**85**	89
B5. Combination of B1-B4 using one-half standard deviation shocks	98	89	75	71	70	69	**76**	88
B6. One-time 30 percent nominal depreciation relative to the baseline in 2016 6/	98	132	118	111	109	107	**114**	125

Table 3. Bangladesh: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2015–2035 1/ (continued)
(In percent)

	2015	2016	2017	2018	2019	2020	2025	2035
				Projections				
Debt service-to-exports+remittances ratio								
Baseline	6	4	3	3	3	3	**3**	4.5
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2015-2035 2/	6	4	3	3	2	2	**0**	-1
A2. New public sector loans on less favorable terms in 2015-2035 3/	6	4	3	3	3	3	**4**	6
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2016-2017	6	4	3	3	3	3	**3**	4
B2. Export value growth at historical average minus one standard deviation in 2016-2017 4/	6	4	3	4	3	3	**4**	5
B3. US dollar GDP deflator at historical average minus one standard deviation in 2016-2017	6	4	3	3	3	3	**3**	4
B4. Net non-debt creating flows at historical average minus one standard deviation in 2016-2017 5/	6	4	3	3	3	3	**3**	5
B5. Combination of B1-B4 using one-half standard deviation shocks	6	4	3	3	3	3	**3**	4
B6. One-time 30 percent nominal depreciation relative to the baseline in 2016 6/	6	4	3	3	3	3	**3**	4
Debt service-to-revenue ratio								
Baseline	14	10	7	7	6	6	**6**	9
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2015-2035 2/	14	10	7	6	5	4	**1**	-3
A2. New public sector loans on less favorable terms in 2015-2035 3/	14	10	7	7	6	6	**7**	12
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2016-2017	14	10	8	7	7	6	**6**	9
B2. Export value growth at historical average minus one standard deviation in 2016-2017 4/	14	10	7	7	7	6	**7**	9
B3. US dollar GDP deflator at historical average minus one standard deviation in 2016-2017	14	10	8	7	7	6	**7**	9
B4. Net non-debt creating flows at historical average minus one standard deviation in 2016-2017 5/	14	10	8	7	7	6	**7**	9
B5. Combination of B1-B4 using one-half standard deviation shocks	14	10	7	7	6	6	**6**	9
B6. One-time 30 percent nominal depreciation relative to the baseline in 2016 6/	14	14	10	10	9	9	**9**	13
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 7/	14	14	14	14	14	14	**14**	14

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

1/ Data on a fiscal year basis; e.g., 2014 corresponds to July 2013–June 2014.
2/ 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.
3/ 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.
4/ 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 an offsetting adjustment in import levels).
5/ Includes official and private transfers and FDI.
6/ Depreciation is defined as percentage decline in dollar/local currency rate, such that it never exceeds 100 percent.
7/ 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 4. Bangladesh: Public Sector Debt Sustainability Framework, Baseline Scenario, 2012–2035
(in percent of GDP, unless otherwise indicated)

	Actual 2012	Actual 2013	Est. 2014	Average 5/	Standard Deviation 5/	2015	2016	2017	2018	2019	2020	2015-20 Average	2025	2035	2021-35 Average
Public sector debt 1/	37.4	36.3	35.9			36.0	37.0	36.8	36.6	36.5	36.3		37.7	38.8	
of which: foreign-currency denominated	17.9	15.8	15.1			14.1	14.5	14.2	14.1	14.1	14.0		13.9	13.4	
Change in public sector debt	-0.8	-1.1	-0.4			0.1	1.0	-0.2	-0.1	-0.1	-0.2		0.4	0.0	
Identified debt-creating flows	-0.4	-1.9	-0.9			0.1	1.2	0.3	0.2	0.3	0.1		0.5	0.4	
Primary deficit	1.0	1.4	1.0	1.2	0.4	1.9	2.2	2.0	1.8	1.8	1.6	1.9	1.6	1.1	1.4
Revenue and grants	11.2	11.2	10.9			10.0	10.6	11.6	12.2	12.6	12.9		12.9	12.9	
of which: grants	0.5	0.5	0.5			0.3	0.3	0.3	0.3	0.3	0.3		0.3	0.3	
Primary (noninterest) expenditure	12.2	12.6	11.9			11.9	12.8	13.6	14.0	14.4	14.5		14.5	14.0	
Automatic debt dynamics	-1.4	-3.2	-1.8			-1.9	-1.2	-1.8	-1.8	-1.7	-1.7		-1.3	-1.1	
Contribution from interest rate/growth differential	-2.1	-1.6	-1.2			-1.3	-1.5	-1.8	-1.7	-1.6	-1.6		-1.3	-1.0	
of which: contribution from average real interest rate	0.3	0.5	0.9			0.8	0.7	0.6	0.7	0.8	0.8		1.0	1.3	
of which: contribution from real GDP growth	-2.3	-2.1	-2.1			-2.2	-2.2	-2.4	-2.4	-2.4	-2.4		-2.3	-2.4	
Contribution from real exchange rate depreciation	0.7	-1.7	-0.6			-0.6	0.3	0.0	0.0	0.0	-0.1		...	...	
Other identified debt-creating flows	0.0	0.0	0.0			0.1	0.1	0.1	0.2	0.2	0.1		0.3	0.3	
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)	0.0	0.0	0.0			0.1	0.1	0.1	0.2	0.2	0.1		0.3	0.3	
Residual, including asset changes	-0.4	0.8	0.5			0.0	-0.2	-0.5	-0.4	-0.4	-0.3		-0.1	-0.4	
Other Sustainability Indicators															
PV of public sector debt	...	...	30.9			31.4	32.3	32.1	32.0	32.0	31.9		34.1	36.6	
of which: foreign-currency denominated	...	...	10.1			9.5	9.8	9.6	9.5	9.6	9.7		10.3	11.3	
of which: external	...	...	10.1			9.5	9.8	9.6	9.5	9.6	9.7		10.3	11.3	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	5.6	6.2	4.9			6.3	6.2	5.5	4.9	4.5	4.1		3.3	3.3	
PV of public sector debt-to-revenue and grants ratio (in percent)	...	...	282.8			315.0	304.9	277.0	262.8	253.5	247.4		264.2	284.1	
PV of public sector debt-to-revenue ratio (in percent)	...	...	295.6			324.5	314.5	284.9	269.9	260.0	253.7		270.7	291.0	
of which: external 3/	...	...	96.4			98.2	95.5	85.1	80.0	78.4	76.8		81.9	89.5	
Debt service-to-revenue and grants ratio (in percent) 4/	24.3	24.5	24.6			33.2	28.2	25.4	24.2	22.8	22.5		21.3	24.9	
Debt service-to-revenue ratio (in percent) 4/	25.3	25.6	25.7			34.2	29.1	26.1	24.9	23.4	23.1		21.9	25.5	
Primary deficit that stabilizes the debt-to-GDP ratio	1.8	2.5	1.4			1.8	1.3	2.2	2.0	1.9	1.9		1.1	1.2	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	6.5	6.0	6.1	6.1	0.6	6.5	6.5	7.0	7.0	7.0	7.0	6.8	6.5	6.5	6.5
Average nominal interest rate on forex debt (in percent)	1.2	1.0	0.9	1.0	0.1	1.2	1.3	1.4	1.6	1.6	2.0	1.5	2.6	4.0	3.0
Average real interest rate on domestic debt (in percent)	2.1	3.5	4.9	3.4	1.2	4.3	3.3	3.3	3.4	3.6	3.7	3.6	4.0	4.3	4.1
Real exchange rate depreciation (in percent, + indicates depreciation)	3.9	-9.9	-4.1	-1.8	5.5	-4.1	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	8.2	7.2	5.7	6.7	1.1	5.8	6.8	7.2	7.1	6.8	7.1	6.8	5.2	4.7	5.0
Growth of real primary spending (deflated by GDP deflator, in percent)	6.4	9.1	0.2	1.6	3.3	6.1	15.3	13.2	10.5	9.9	8.0	10.5	6.1	6.9	6.3
Grant element of new external borrowing (in percent)	...	...	...	...	...	27.1	33.9	41.2	39.0	29.4	29.5	33.4	17.8	6.3	...

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

1/ Central government gross debt including debt owed to the IMF, plus domestic bank borrowing by the nonfinancial public sector and external borrowing by public enterprises that is supported by central government guarantees, including short-term oil related suppliers' credits. The years in the table refer to fiscal years. For example, 2014 refers to July 2013-June 2014.

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. Bangladesh: Sensitivity Analysis for Key Indicators of Public Debt, 2015–2035 1/
(In percent)

				Projections				
	2015	2016	2017	2018	2019	2020	**2025**	2035
PV of Debt-to-GDP Ratio								
Baseline	31	32	32	32	32	32	**34**	37
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	31	31	31	30	30	30	**31**	36
A2. Primary balance is unchanged from 2015	31	32	32	32	32	32	**35**	42
A3. Permanently lower GDP growth 2/	31	32	32	32	32	32	**35**	40
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2016-2017	31	33	33	33	34	34	**37**	41
B2. Primary balance is at historical average minus one standard deviations in 2016-2017	31	32	31	31	31	31	**34**	36
B3. Combination of B1-B2 using one half standard deviation shocks	31	32	31	32	32	32	**35**	39
B4. One-time 30 percent real depreciation in 2016	31	37	36	36	35	35	**37**	41
B5. 10 percent of GDP increase in other debt-creating flows in 2016	31	42	41	40	40	39	**40**	41
PV of Debt-to-Revenue Ratio 3/								
Baseline	315	305	277	263	253	247	**264**	284
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	315	297	266	250	239	233	**244**	278
A2. Primary balance is unchanged from 2015	315	302	273	260	251	247	**272**	327
A3. Permanently lower GDP growth 2/	315	305	278	264	255	250	**272**	308
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2016-2017	315	308	286	273	265	261	**285**	317
B2. Primary balance is at historical average minus one standard deviations in 2016-2017	315	300	270	257	248	242	**260**	281
B3. Combination of B1-B2 using one half standard deviation shocks	315	300	271	259	252	248	**272**	304
B4. One-time 30 percent real depreciation in 2016	315	346	310	292	279	271	**287**	318
B5. 10 percent of GDP increase in other debt-creating flows in 2016	315	392	352	330	316	305	**313**	322
Debt Service-to-Revenue Ratio 3/								
Baseline	33	28	25	24	23	23	**21**	25
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	33	28	25	22	21	20	**19**	24
A2. Primary balance is unchanged from 2015	33	28	25	23	22	22	**22**	30
A3. Permanently lower GDP growth 2/	33	28	25	24	23	23	**22**	27
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2016-2017	33	28	26	25	24	24	**23**	28
B2. Primary balance is at historical average minus one standard deviations in 2016-2017	33	28	25	23	22	22	**21**	25
B3. Combination of B1-B2 using one half standard deviation shocks	33	28	25	23	21	22	**22**	27
B4. One-time 30 percent real depreciation in 2016	33	30	29	28	27	27	**27**	34
B5. 10 percent of GDP increase in other debt-creating flows in 2016	33	28	31	45	31	31	**27**	32

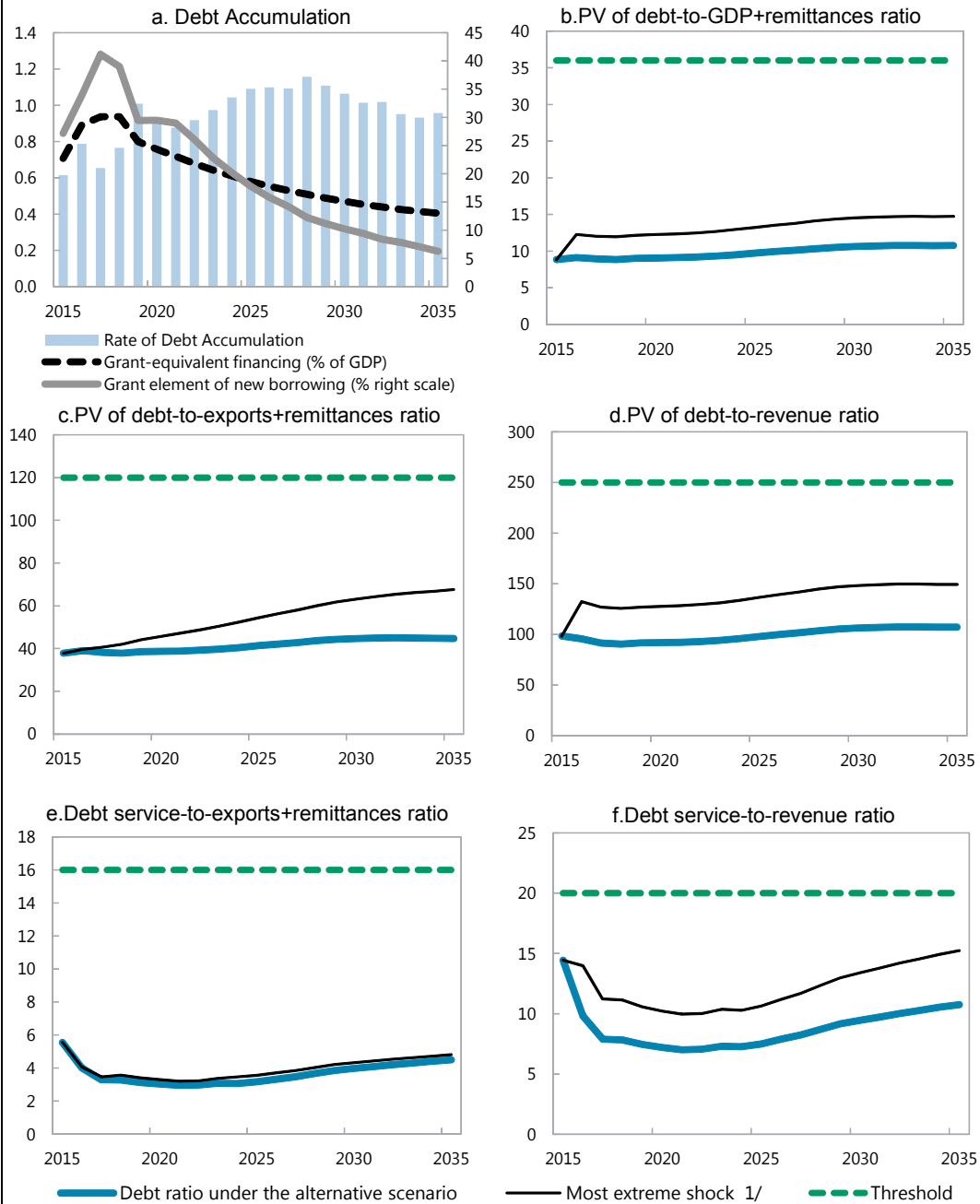Sources: Bangladesh authorities; and IMF staff estimates and projections.
1/ Data on a fiscal year basis; e.g., 2014 corresponds to July 2013–June 2014.
2/ Assumes that real GDP growth is at baseline minus one standard deviation divided by the square root of the length of the projection period.
3/ Revenues are defined inclusive of grants.

Figure 3. Bangladesh (Alternative Scenario): Indicators of Public and Publicly Guaranteed External Debt, 2015-2035 1/ 2/

(In percent, unless otherwise mentioned)

a. Debt Accumulation

- Rate of Debt Accumulation
- Grant-equivalent financing (% of GDP)
- Grant element of new borrowing (% right scale)

b.PV of debt-to-GDP+remittances ratio

c.PV of debt-to-exports+remittances ratio

d.PV of debt-to-revenue ratio

e.Debt service-to-exports+remittances ratio

f.Debt service-to-revenue ratio

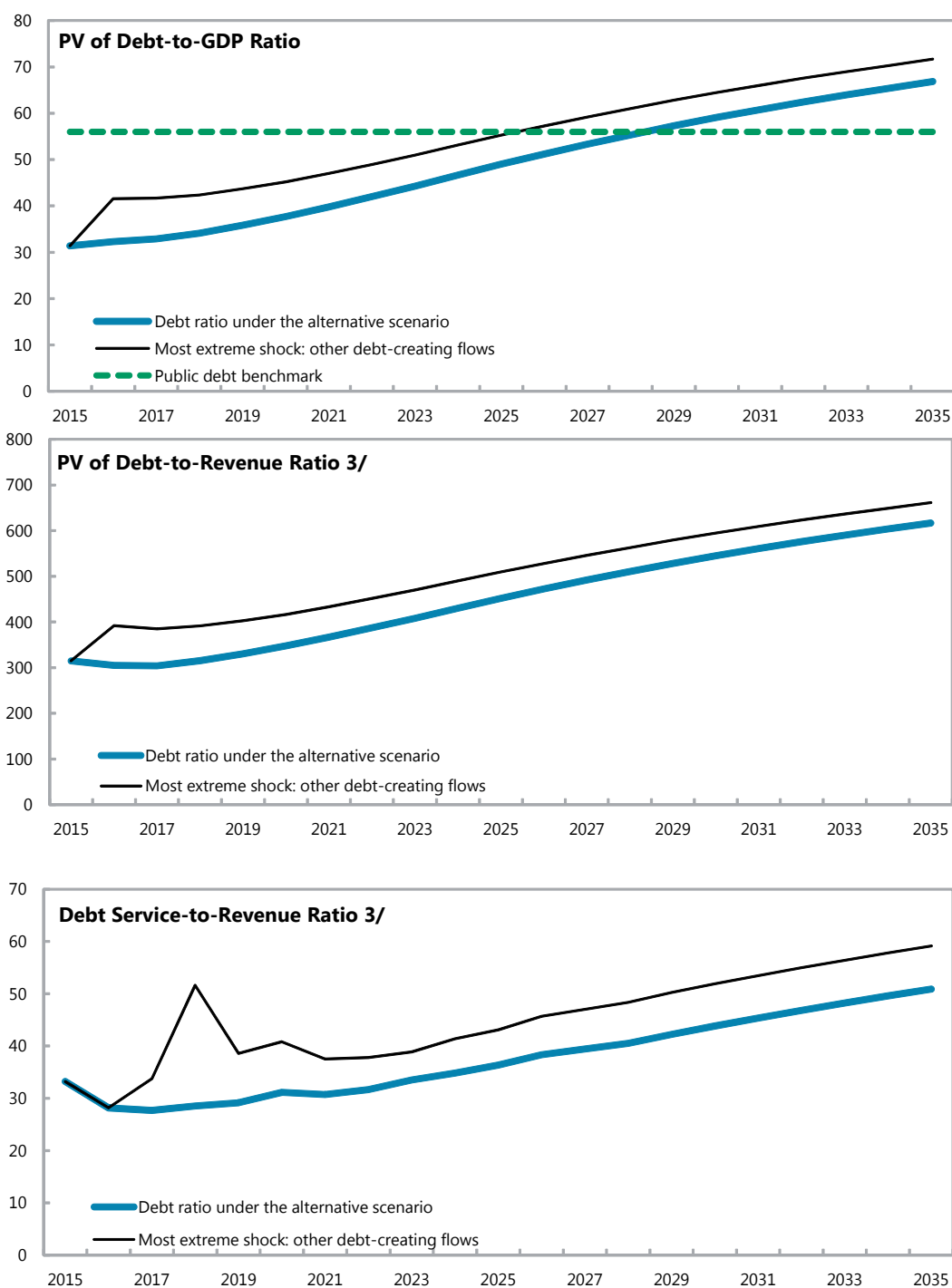Debt ratio under the alternative scenario — Most extreme shock 1/ — Threshold

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

1/ Data on a fiscal year basis; e.g., 2014 corresponds to July 2013–June 2014.

2/ 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 terms shock; in d. to a one-time depreciation shock; in e. to a non-debt flows shock; and in figure f. to a one-time depreciation shock.

Figure 4. Bangladesh (Alternative Scenario): Indicators of Public Debt, 2015-2035 1/ 2/

(In percent)

PV of Debt-to-GDP Ratio

Debt ratio under the alternative scenario
Most extreme shock: other debt-creating flows
Public debt benchmark

PV of Debt-to-Revenue Ratio 3/

Debt ratio under the alternative scenario
Most extreme shock: other debt-creating flows

Debt Service-to-Revenue Ratio 3/

Debt ratio under the alternative scenario
Most extreme shock: other debt-creating flows

Sources: Bangladesh authorities; and IMF staff estimates and projections.
1/ Data on a fiscal year basis; e.g., 2014 corresponds to July 2013–June 2014.
2/ The most extreme stress test is the test that yields the highest ratio on or before 2025.
3/ Revenues are defined inclusive of grants.