INTERNATIONAL MONETARY FUND

REPUBLIC OF UZBEKISTAN

**STAFF REPORT FOR THE 2018 ARTICLE IV CONSULTATION—
DEBT SUSTAINABILITY ANALYSIS**

April 19, 2018

Approved By
**Adnan Mazarei and
Zeine Zeidane (IMF)
and John Panzer (IDA)**

Prepared by the staffs of the International Monetary Fund and the International Development Association.

Uzbekistan Joint Bank-Fund Debt Sustainability Analysis	
Risk of external debt distress	Low
Augmented by significant risks stemming from domestic public and/or private debt?	No

Based on the Joint Bank-Fund Low-Income Country Debt Sustainability Analysis (LIC-DSA), Uzbekistan has maintained a low risk of external debt distress rating, with debt indicators remaining below relevant thresholds in both the baseline and stress scenarios[1]. The analysis suggests that most shocks applied to baseline indicators would have only a moderate impact on debt ratios. However, an exchange rate depreciation would have a significant impact on the debt-to-exports ratio, but still leave it well below its indicative threshold. Large international reserves also mitigate concerns regarding the impact of external shocks on external sustainability. The analysis assumes modest government deficits and external borrowing over the medium term.

---

[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. Uzbekistan is classified as having medium policy performance with a Country Policy and Institutional Assessment (CPIA) average of 3.43 for the period 2014–16, and the DSA uses the indicative threshold indicators on the external public debt for countries in this category: 40 percent for the present value (PV) of debt-to-GDP ratio; 150 percent for the PV of the debt-to-exports ratio; 250 percent for the PV of the debt-to-revenue ratio; and 20 percent for the debt service-to-exports and debt-service-to-revenue ratios.

BACKGROUND

1.   **The stocks of total external and public and publicly guaranteed debt remain low and are expected to decline as a share of GDP over the medium term**.[2] In 2017, public and publicly guaranteed external debt measured about 25 percent of GDP, while private sector debt measured about 17 percent of GDP. These indicators increased significantly in 2017 compared to 2016 due to the 50 percent depreciation of the sum in September 2017. Nonetheless, the levels of these indicators remain modest. The relatively low level of debt reflects solid growth, robust exports, and modest external borrowing in recent years.

Text Table 1. Uzbekistan: External Public and Private Debt, 2017			
	Millions of U.S. dollars	Percent of GDP	Percent of External Debt
Total External Debt	15,563	41.3	100
Public and Publicly Guaranteed Debt	7,529	24.5	41
Public Debt	5,243	11.7	28
Guaranteed Debt	2,286	5.1	12
Private Debt	8,035	16.8	59
Sources: Uzbekistan authorities; IMF and World Bank staff calculations.			

2.   **As the government holds almost no domestic debt, public debt consists entirely of external debt.** Historically, the government has issued only a small amount of treasury bills. But the DSA does not include the potential fiscal costs that could arise from restructuring state enterprises or the banking system.

3.   **Staff assesses risks to debt sustainability as low**. The World Bank's Country Policy and Institutional Assessment (CPIA) rating classifies Uzbekistan's policies and institutions at the low end of the "medium performer" category. Indicators of the quality of policies and institutions have risen modestly over the last 10 years, with the largest improvements on indicators for economic and public management.

Figure 1. Uzbekistan: Policy and Institutional Assessment
(2005-16, Out of 6)

Source: World Bank.

---
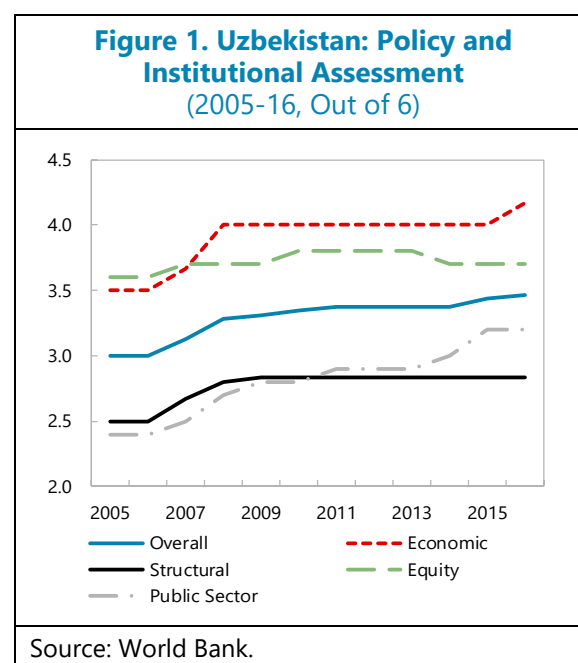
[2] PPG debt consists of debt of the central government and state enterprise debt guaranteed by the government. Non-government guaranteed debt of state enterprises is included in private sector debt.

MACROECONOMIC ASSUMPTIONS

4.   **Macroeconomic assumptions are less favorable in this DSA compared with the 2015 DSA** (Text Table 2). Real GDP growth is lower than projected in 2015, reflecting the slowdown that occurred in 2017 along with revisions to the GDP methodology which also lowered GDP growth. However, beyond 2020 staff projects growth of 6.0 percent, which is only marginally lower than the 6.5 percent growth rate assumed in the previous DSA. The augmented fiscal deficit, which reflects the consolidated budget and net lending by the Fund for Reconstruction and Development, is projected to run a deficit of about 1½ percent of GDP compared with a slight surplus in the 2015 DSA. This primarily reflects lower projections for the revenue to GDP ratio, which is based on the outturn for 2017. The current account balance is projected to run modest deficits over the medium term under current projections, as trade liberalization and higher investment contribute to higher imports. Actual external and PPG debt-to-GDP ratios were higher in 2017 than projected in the 2015 DSA. This was due to (i) higher than projected private sector debut and (ii) the 50 depreciation of the exchange rate in 2017 which raised the debt-to-GDP ratios.

Text Table 2. Uzbekistan: Comparison of Selected Macroeconomic Indicators					
	2016	2017	2018	2019	2020
Real GDP growth (percent)					
Current DSA	7.8	5.3	5.0	5.0	5.5
2015 DSA	7.0	6.7	6.5	6.5	6.5
Fiscal Deficit (percent of GDP) 1/					
Current DSA	-0.6	-3.3	-1.3	-1.4	-1.4
2015 DSA	-0.1	0.0	0.2	0.3	0.6
Current Account (percent of GDP)					
Current DSA	0.7	3.7	0.2	-1.0	-2.7
2015 DSA	0.0	0.2	0.3	0.4	0.8

Sources: Uzbekistan authorities and IMF & World Bank staff estimates and projections.
1/ The fiscal deficit includes revenues and expenditures of the Fund for Reconstruction and Development.

EXTERNAL AND PUBLIC DSA

5.   **Currently, all of Uzbekistan's public debt is foreign currency denominated, external debt; therefore this section combines the external and public debt sustainability analyses**. In 2016, the Uzbekistan government paid off all domestic currency denominated public debt and remaining public debt consists entirely of external debt. Thus, indicators for total and external public debt are identical.

Public and Publicly Guaranteed (PPG) External Debt

6.   **PPG debt is projected to rise gradually over the next 20 years.** (Table 1). Under the baseline, the government's primary balance is projected to be balanced or in small surplus over the medium term (Table 3). Disbursements of new debt are assumed to average around 3 percent of GDP per annum, as the government uses multilateral and bilateral official borrowing to invest in needed infrastructure.

- Historically, about two-thirds of government borrowing came from multilateral creditors with the remainder from official bilateral creditors. The debts have maturities on the order of 20 years and implicit interest rates of around 2 percent.

- For state enterprises, about three-quarters of guaranteed debts have come from official bilateral creditors, with a small portion from commercial creditors. Official borrowing has been on terms similar to that of the government. Commercial borrowing has an average maturity of about 5 years with implicit interest rates of around 2½ percent.

The projections assume borrowing maturities and interest rates will be similar to their historical values. Under these assumptions, the PPG debt-to-GDP ratio is projected to rise from 20 percent in 2018 to 25 percent in 2023 and to 30-32 for 2028-38.

7.   **Under the baseline, all debt burden indicators remain below their indicative thresholds**. On solvency indicators, the PV of PPG debt-to-GDP rises from 16 percent in 2018 to 24 percent in 2038, and throughout the period is well below its indicative threshold of 40 percent. The PV of PPG debt-to-exports ratio would rise from 40 percent in 2018 to 67 percent in 2028 and 72 percent in 2038, less than half the indicative threshold of 150 percent. Following a similar trajectory, the PV of PPG debt-to-revenue ratio would gradually rise to around 70 percent in 2028, before increasing to 76 in 2038, well below the indicative threshold of 250 percent. On liquidity indicators—PPG debt service-to-exports and to-revenue ratios—stay at or below 6 percent, significantly lower than the 20 percent thresholds, while the overall debt service-to-exports ratio falls from 16 percent in 2018 to 12 percent in 2038.

8.   **The DSA shows that debt ratios are robust to a range of adverse shocks** (Table 2 and Figure 1).

- A **one standard deviation shock to export growth or inflation, a nominal depreciation of 30 percent, or a combination of one-half standard deviation shocks** would each raise the PV of debt-to-GDP and PV of debt-to-revenue ratios by 30-45 percent in 2028 compared to the baseline, but remain below their indicative thresholds.

- A one standard deviation **shock to export growth** would have a bigger impact on the PV of debt-to-exports ratio, which would rise from 67 percent in 2018 to almost 120 percent in 2028, but still below the threshold of 150 percent.

- As Uzbekistan has run significant current account surpluses in the past, **assuming key variables return to historical averages** results in a sharp decline in external debt over the medium term.

- **Shocks would have very limited impact on the flow indicators**. Debt service-to-exports and to-revenue ratios—which would remain at or below 5 percent in 2028 under every alternative shock scenario.

Total External Debt

9.   **Under the baseline scenario, total external debt declines from 38 percent of GDP in 2018 to 34 percent of GDP in 2023, before rising back to around 40 percent in 2038** (Tables 1 & 2 and Figure 1). Private external debt is primarily held by domestic subsidiaries of foreign corporations and banks. It is projected to decline from 18 percent of GDP in 2018 to 9 percent of GDP in 2023, as some enterprises pay off outstanding debt to reduce their external liabilities. Thereafter, private external debt is projected to be relatively constant at around 9 percent of GDP. As discussed above, PPG debt is expected to rise modestly out 2038.

CONCLUSION

10.   **Based on the debt sustainability analysis, Uzbekistan's risk of debt distress continues to be low.** All solvency and liquidity indicators are projected to remain well below their respective thresholds under both the baseline and stress scenarios. All the scenarios have only a modest impact on most debt ratios. However, a nominal depreciation shock would raise the PV of PPG debt-to-exports ratio significantly (but still below the indicative threshold).

11.   **Debt sustainability ratios could worsen if external borrowing is significantly higher than projected**. This analysis assumes the increase in external borrowing is modest, i.e. after an initial boost as reforms get underway, external PPG borrowing remains around 3 percent of GDP. Additional external borrowing could result in higher growth, exports, and revenues, but could impose an additional burden if not used wisely.

Table 1. Uzbekistan: External Debt Sustainability Framework, Baseline Scenario, 2015-2038 1/
(In percent of GDP, unless otherwise indicated)

	Actual			Historical Average 6/	Standard Deviation 6/	Projections						2018-2023 Average			2024-2038 Average
	2015	2016	2017			2018	2019	2020	2021	2022	2023		2028	2038	
External debt (nominal) 1/	**18.5**	**20.3**	**41.3**			**38.1**	**35.2**	**34.3**	**33.7**	**33.6**	**33.7**		**38.4**	**40.4**	
of which: public and publicly guaranteed (PPG)	9.3	10.5	24.5			20.1	21.0	21.9	22.8	23.8	24.7		29.5	31.5	
Change in external debt	-3.3	1.8	21.0			-3.2	-3.0	-0.9	-0.5	-0.1	0.1		0.9	0.0	
Identified net debt-creating flows	-1.9	-0.9	4.1			-0.8	1.3	1.1	1.0	0.9	0.7		0.5	0.4	
Non-interest current account deficit	**-1.0**	**-1.1**	**-4.7**	**-3.9**	**2.8**	**-0.2**	**1.7**	**1.8**	**1.8**	**1.7**	**1.6**		**1.5**	**1.5**	**1.5**
Deficit in balance of goods and services	1.8	1.8	1.0			5.8	6.1	7.3	6.9	6.5	5.9		5.9	5.9	
Exports	19.6	19.0	29.0			38.9	34.3	34.4	33.9	33.6	33.4		33.4	33.4	
Imports	21.5	20.8	30.1			44.7	40.4	41.7	40.8	40.1	39.3		39.3	39.3	
Net current transfers (negative = inflow)	-0.4	-0.6	-0.8	-0.5	0.8	-1.0	-0.9	-0.9	-0.9	-0.8	-0.8		-0.8	-0.8	-0.8
of which: official	0.0	0.0	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)	-2.5	-2.3	-4.9			-5.0	-3.5	-4.7	-4.3	-3.9	-3.5		-3.6	-3.6	
Net FDI (negative = inflow)	**-0.1**	**-0.2**	**-0.2**	**-1.6**	**1.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**		**0.0**	**0.0**	**0.0**
Endogenous debt dynamics 2/	**-0.8**	**0.3**	**9.0**			**-0.6**	**-0.5**	**-0.6**	**-0.8**	**-0.8**	**-0.8**		**-1.0**	**-1.2**	
Contribution from nominal interest rate	0.3	0.4	1.0			1.8	1.1	1.2	1.1	1.1	1.0		1.1	1.1	
Contribution from real GDP growth	-1.6	-1.4	-1.5			-2.5	-1.6	-1.8	-1.9	-1.9	-1.9		-2.1	-2.3	
Contribution from price and exchange rate changes	0.5	1.4	9.5			…	…	…	…	…	…		…	…	
Residual (3-4) 3/	-1.4	2.7	16.9			-2.3	-4.3	-2.0	-1.5	-1.0	-0.6		0.4	-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/	…	…	36.0			33.6	30.2	29.0	28.1	27.7	27.6		31.3	32.9	
In percent of exports	…	…	124.1			86.5	88.1	84.3	83.0	82.5	82.5		93.6	98.4	
PV of PPG external debt	**…**	**…**	**19.2**			**15.6**	**16.1**	**16.6**	**17.2**	**17.9**	**18.6**		**22.4**	**24.0**	
In percent of exports	**…**	**…**	**66.3**			**40.2**	**47.0**	**48.4**	**50.9**	**53.3**	**55.6**		**67.0**	**71.8**	
In percent of government revenues	**…**	**…**	**60.8**			**49.2**	**51.1**	**51.9**	**54.1**	**56.5**	**58.7**		**70.7**	**75.8**	
Debt service-to-exports ratio (in percent)	**4.7**	**5.2**	**13.6**			**15.6**	**13.9**	**13.2**	**12.2**	**11.5**	**10.9**		**9.8**	**12.0**	
PPG debt service-to-exports ratio (in percent)	**3.0**	**3.3**	**3.4**			**3.6**	**3.6**	**3.5**	**3.5**	**3.5**	**3.5**		**3.1**	**5.3**	
PPG debt service-to-revenue ratio (in percent)	**1.7**	**2.0**	**3.1**			**4.4**	**3.9**	**3.8**	**3.7**	**3.7**	**3.7**		**3.3**	**5.6**	
Total gross financing need (Billions of U.S. dollars)	0.6	0.4	0.2			3.2	3.8	3.9	3.9	3.8	3.8		4.8	10.2	
Non-interest current account deficit that stabilizes debt ratio	2.3	-2.9	-25.7			3.0	4.7	2.7	2.3	1.8	1.5		0.6	1.5	
Key macroeconomic assumptions															
Real GDP growth (in percent)	7.9	7.8	5.3	7.9	1.0	5.0	5.0	5.5	6.0	6.0	6.0	5.6	6.0	6.0	6.0
GDP deflator in US dollar terms (change in percent)	-2.4	-7.0	-31.8	1.0	13.8	-19.9	12.8	1.1	1.1	0.5	0.4	-0.7	0.7	0.7	0.7
Effective interest rate (percent) 5/	1.4	1.9	3.5	2.2	0.7	3.7	3.6	3.6	3.5	3.4	3.3	3.5	3.1	2.9	3.0
Growth of exports of G&S (US dollar terms, in percent)	-10.3	-2.8	9.4	5.5	14.7	12.6	4.5	6.8	5.7	5.6	5.9	6.8	6.7	6.7	6.7
Growth of imports of G&S (US dollar terms, in percent)	-16.4	-2.8	3.7	7.7	18.7	24.9	7.2	10.0	4.9	4.5	4.6	9.3	6.7	6.7	6.7
Grant element of new public sector borrowing (in percent)	…	…	…	…	…	31.6	31.4	31.5	31.4	31.4	31.4	31.5	31.4	31.4	31.4
Government revenues (excluding grants, in percent of GDP)	34.5	32.1	31.6			31.7	31.6	32.0	31.9	31.7	31.6		31.6	31.6	31.6
Aid flows (in Billions of US dollars) 7/	0.3	0.2	0.2			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
of which: Grants	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
of which: Concessional loans	0.3	0.2	0.2			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Grant-equivalent financing (in percent of GDP) 8/	…	…	…			1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Grant-equivalent financing (in percent of external financing) 8/	…	…	…			31.6	31.4	31.5	31.4	31.4	31.4		31.4	31.4	31.4
Memorandum items:															
Nominal GDP (Billions of US dollars)	66.5	66.7	47.9			40.3	47.7	50.8	54.5	58.0	61.8		85.4	163.4	
Nominal dollar GDP growth	5.3	0.3	-28.2			-15.9	18.4	6.6	7.2	6.5	6.5	4.9	6.7	6.7	6.7
PV of PPG external debt (in Billions of US dollars)			5.9			6.5	7.3	8.1	9.0	10.0	11.1		18.5	37.8	
(PVt-PVt-1)/GDPt-1 (in percent)						1.3	2.0	1.7	1.8	1.8	1.8	1.7	2.2	1.5	1.8
Gross workers' remittances (Billions of US dollars)	1.4	1.2	1.2			1.0	1.2	1.3	1.4	1.5	1.6		2.2	4.2	
PV of PPG external debt (in percent of GDP + remittances)	…	…	18.8			15.2	15.7	16.2	16.8	17.5	18.1		21.8	23.4	
PV of PPG external debt (in percent of exports + remittances)	…	…	60.9			37.7	43.7	45.1	47.3	49.5	51.7		62.2	66.7	
Debt service of PPG external debt (in percent of exports + remittances)	…	…	3.1			3.4	3.3	3.3	3.3	3.3	3.2		2.9	4.9	

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 2. Uzbekistan: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2018-2038
(In percent)

	2018	2019	2020	2021	2022	2023	2028	2038
				Projections				
PV of debt-to GDP ratio								
Baseline	16	16	17	17	18	19	**22**	24
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2018-2038 1/	16	12	7	3	-2	-6	**-22**	-37
A2. New public sector loans on less favorable terms in 2018-2038 2	16	16	17	19	20	21	**28**	34
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2019-2020	16	15	16	16	17	17	**21**	22
B2. Export value growth at historical average minus one standard deviation in 2019-2020 3/	16	19	25	26	26	27	**29**	24
B3. US dollar GDP deflator at historical average minus one standard deviation in 2019-2020	16	20	24	25	26	27	**32**	34
B4. Net non-debt creating flows at historical average minus one standard deviation in 2019-2020 4/	16	16	17	18	18	19	**23**	23
B5. Combination of B1-B4 using one-half standard deviation shocks	16	20	26	26	27	28	**31**	29
B6. One-time 30 percent nominal depreciation relative to the baseline in 2019 5/	16	21	22	23	23	24	**29**	31
PV of debt-to-exports ratio								
Baseline	40	47	48	51	53	56	**67**	72
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2018-2038 1/	40	35	21	8	-5	-17	**-67**	-112
A2. New public sector loans on less favorable terms in 2018-2038 2	40	47	51	55	59	63	**83**	102
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2019-2020	40	45	47	49	51	53	**64**	68
B2. Export value growth at historical average minus one standard deviation in 2019-2020 3/	40	62	100	103	106	108	**119**	98
B3. US dollar GDP deflator at historical average minus one standard deviation in 2019-2020	40	45	47	49	51	53	**64**	68
B4. Net non-debt creating flows at historical average minus one standard deviation in 2019-2020 4/	40	47	50	53	55	57	**67**	69
B5. Combination of B1-B4 using one-half standard deviation shocks	40	52	70	73	75	78	**88**	82
B6. One-time 30 percent nominal depreciation relative to the baseline in 2019 5/	40	45	47	49	51	53	**64**	68
PV of debt-to-revenue ratio								
Baseline	49	51	52	54	57	59	**71**	76
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2018-2038 1/	49	38	23	8	-5	-18	**-71**	-118
A2. New public sector loans on less favorable terms in 2018-2038 2	49	51	54	58	63	67	**88**	108
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2019-2020	49	48	48	50	53	55	**66**	70
B2. Export value growth at historical average minus one standard deviation in 2019-2020 3/	49	59	79	81	83	84	**92**	76
B3. US dollar GDP deflator at historical average minus one standard deviation in 2019-2020	49	63	75	78	81	85	**102**	108
B4. Net non-debt creating flows at historical average minus one standard deviation in 2019-2020 4/	49	51	54	56	58	60	**71**	73
B5. Combination of B1-B4 using one-half standard deviation shocks	49	63	80	82	85	87	**99**	92
B6. One-time 30 percent nominal depreciation relative to the baseline in 2019 5/	49	66	68	71	74	77	**92**	99

Table 2. Uzbekistan: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2018-2038 (concluded)
(In percent)

				Projections				
	2018	2019	2020	2021	2022	2023	**2028**	2038
Debt service-to-exports ratio								
Baseline	4	4	4	4	4	3	**3**	5
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2018-2038 1/	4	4	3	3	2	2	**0**	-7
A2. New public sector loans on less favorable terms in 2018-2038 2	4	4	3	4	4	4	**5**	8
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2019-2020	4	4	4	4	3	3	**3**	5
B2. Export value growth at historical average minus one standard deviation in 2019-2020 3/	4	4	5	6	6	6	**5**	9
B3. US dollar GDP deflator at historical average minus one standard deviation in 2019-2020	4	4	4	4	3	3	**3**	5
B4. Net non-debt creating flows at historical average minus one standard deviation in 2019-2020 4/	4	4	4	4	4	4	**3**	5
B5. Combination of B1-B4 using one-half standard deviation shocks	4	4	4	5	4	4	**4**	7
B6. One-time 30 percent nominal depreciation relative to the baseline in 2019 5/	4	4	4	4	3	3	**3**	5
Debt service-to-revenue ratio								
Baseline	4	4	4	4	4	4	**3**	6
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2018-2038 1/	4	4	4	3	3	2	**0**	-7
A2. New public sector loans on less favorable terms in 2018-2038 2	4	4	4	4	4	4	**5**	9
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2019-2020	4	4	4	4	4	4	**3**	5
B2. Export value growth at historical average minus one standard deviation in 2019-2020 3/	4	4	4	5	4	4	**4**	7
B3. US dollar GDP deflator at historical average minus one standard deviation in 2019-2020	4	5	6	6	6	5	**5**	8
B4. Net non-debt creating flows at historical average minus one standard deviation in 2019-2020 4/	4	4	4	4	4	4	**3**	6
B5. Combination of B1-B4 using one-half standard deviation shocks	4	5	5	5	5	5	**4**	8
B6. One-time 30 percent nominal depreciation relative to the baseline in 2019 5/	4	5	5	5	5	5	**4**	8
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	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 assur an offsetting adjustment in import levels).

4/ Includes official and private transfers and FDI.

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

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

Table 3. Uzbekistan: Public Sector Debt Sustainability Framework, Baseline Scenario, 2015-2038
(In percent of GDP, unless otherwise indicated)

	Actual			Average 5/	Standard Deviation 5/	Estimate	Projections								2024-38 Average
	2015	2016	2017			2018	2019	2020	2021	2022	2023	2018-23 Average	2028	2038	
Public sector debt 1/	16.8	10.5	24.5			20.1	21.0	21.9	22.8	23.8	24.7		29.5	31.5	
of which: foreign-currency denominated	16.8	10.5	24.5			20.1	21.0	21.9	22.8	23.8	24.7		29.5	31.5	
Change in public sector debt	-17.8	-6.3	14.0			-4.4	0.9	0.9	0.9	1.0	0.9		0.9	0.0	
Identified debt-creating flows	-0.8	-0.7	12.5			-7.4	-2.9	-2.2	-1.6	-1.0	-0.8		-1.1	-1.3	
Primary deficit	-0.7	-0.7	1.2	-3.6	3.3	-1.2	-1.7	-1.2	-0.5	0.0	0.2	-0.7	0.1	0.1	0.1
Revenue and grants	34.5	32.1	31.6			31.7	31.6	32.0	31.9	31.7	31.6		31.6	31.6	
of which: grants	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Primary (noninterest) expenditure	33.8	31.5	32.8			30.6	29.9	30.9	31.4	31.7	31.9		31.8	31.7	
Automatic debt dynamics	0.0	0.1	11.4			-6.2	-1.2	-1.0	-1.0	-1.0	-1.0		-1.2	-1.4	
Contribution from interest rate/growth differential	-5.0	-2.0	-1.8			-4.7	-2.9	-2.6	-2.6	-2.6	-2.6		-3.1	-3.5	
of which: contribution from average real interest rate	-2.5	-0.8	-1.3			-3.6	-2.0	-1.5	-1.4	-1.3	-1.2		-1.5	-1.7	
of which: contribution from real GDP growth	-2.5	-1.2	-0.5			-1.2	-1.0	-1.1	-1.2	-1.3	-1.3		-1.6	-1.8	
Contribution from real exchange rate depreciation	5.0	2.1	13.2			-1.5	1.7	1.5	1.6	1.6	1.6		...	...	
Other identified debt-creating flows	-0.1	-0.1	-0.1			-0.1	-0.1	-0.1	0.0	0.0	0.0		0.0	0.0	
Privatization receipts (negative)	-0.1	-0.1	-0.1			-0.1	-0.1	-0.1	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	-17.0	-5.6	1.5			3.0	3.8	3.1	2.5	2.0	1.8		2.0	1.3	
Other Sustainability Indicators															
PV of public sector debt	...	...	19.2			15.6	16.1	16.6	17.2	17.9	18.6		22.4	24.0	
of which: foreign-currency denominated	...	...	19.2			15.6	16.1	16.6	17.2	17.9	18.6		22.4	24.0	
of which: external	...	...	19.2			15.6	16.1	16.6	17.2	17.9	18.6		22.4	24.0	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...		...	...	
Gross financing need 2/	0.2	0.3	3.1			0.2	-0.4	0.0	0.7	1.2	1.4		1.2	1.9	
PV of public sector debt-to-revenue and grants ratio (in percent)	...	...	60.8			49.2	51.1	51.9	54.1	56.5	58.7		70.7	75.8	
PV of public sector debt-to-revenue ratio (in percent)	...	...	60.8			49.2	51.1	51.9	54.1	56.5	58.7		70.7	75.8	
of which: external 3/	...	...	60.8			49.2	51.1	51.9	54.1	56.5	58.7		70.7	75.8	
Debt service-to-revenue and grants ratio (in percent) 4/	2.5	3.0	6.1			4.4	3.9	3.8	3.7	3.7	3.7		3.3	5.6	
Debt service-to-revenue ratio (in percent) 4/	2.5	3.0	6.1			4.4	3.9	3.8	3.7	3.7	3.7		3.3	5.6	
Primary deficit that stabilizes the debt-to-GDP ratio	17.1	5.6	-12.8			3.2	-2.6	-2.0	-1.4	-1.0	-0.7		-0.8	0.1	
Key macroeconomic and fiscal assumptions															
Real GDP growth (in percent)	7.9	7.8	5.3	7.9	1.0	5.0	5.0	5.5	6.0	6.0	6.0	5.6	6.0	6.0	6.0
Average nominal interest rate on forex debt (in percent)	0.8	1.9	4.0	0.8	1.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1
Average real interest rate on domestic debt (in percent)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Real exchange rate depreciation (in percent, + indicates depreciation)	16.8	14.2	151.3	24.8	44.5	-7.3	...	...	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	8.5	8.1	19.0	15.4	5.6	20.3	13.8	10.2	9.5	8.7	8.2	11.8	8.2	8.2	8.2
Growth of real primary spending (deflated by GDP deflator, in percent)	14.9	0.2	9.8	2.6	5.3	-2.1	2.7	8.9	7.6	7.1	6.6	5.1	5.9	6.0	6.0
Grant element of new external borrowing (in percent)	...	...	...	...	...	31.6	31.4	31.5	31.4	31.4	31.4	31.5	31.4	31.4	...

Sources: Country authorities; and staff estimates and projections.

1/ [Indicate coverage of public sector, e.g., general government or nonfinancial public sector. Also whether net or gross debt is used.]

2/ Gross financing need is defined as the primary deficit plus debt service plus the stock of short-term debt at the end of the last period.

3/ Revenues excluding grants.

4/ Debt service is defined as the sum of interest and amortization of medium and long-term debt.
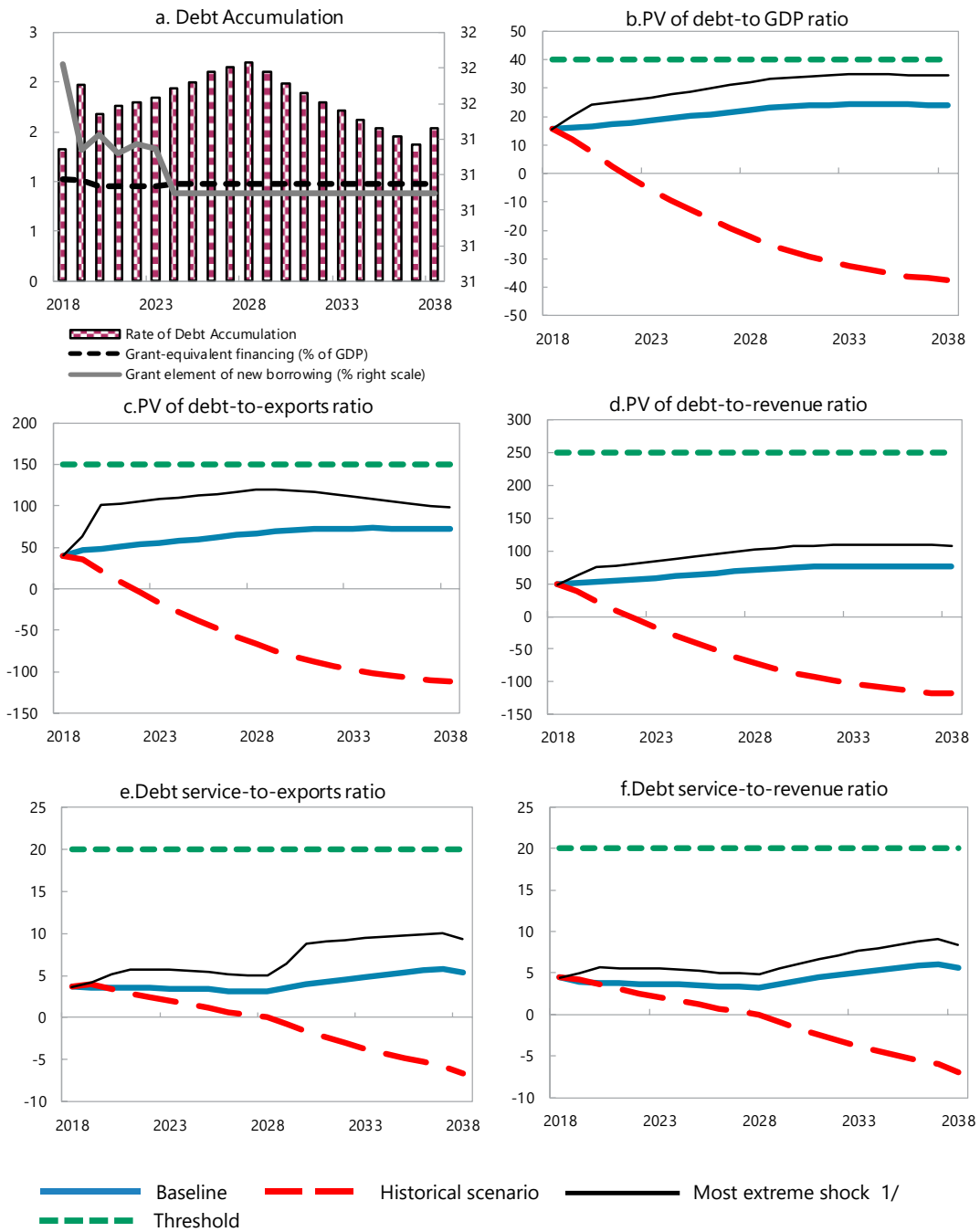
5/ Historical averages and standard deviations are generally derived over the past 10 years, subject to data availability.

Table 4. Uzbekistan: Sensitivity Analysis for Key Indicators of Public Debt, 2018-2038

	Projections							
	2018	2019	2020	2021	2022	2023	2028	2038
PV of Debt-to-GDP Ratio								
Baseline	16	16	17	17	18	19	22	24
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	16	14	13	11	9	7	-1	-17
A2. Primary balance is unchanged from 2018	16	16	17	17	17	17	16	11
A3. Permanently lower GDP growth 1/	16	16	17	18	18	19	25	33
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2019-2020	16	15	15	15	15	15	16	13
B2. Primary balance is at historical average minus one standard deviations in 2019-2020	16	17	18	19	19	20	24	25
B3. Combination of B1-B2 using one half standard deviation shocks	16	16	15	15	15	15	14	10
B4. One-time 30 percent real depreciation in 2019	16	23	23	23	23	24	28	32
B5. 10 percent of GDP increase in other debt-creating flows in 2019	16	23	23	24	24	25	28	27
PV of Debt-to-Revenue Ratio 2/								
Baseline	49	51	52	54	57	59	71	76
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	49	45	40	35	29	22	-5	-53
A2. Primary balance is unchanged from 2018	49	52	53	54	54	53	51	36
A3. Permanently lower GDP growth 1/	49	51	53	55	58	61	79	104
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2019-2020	49	49	47	47	47	48	50	41
B2. Primary balance is at historical average minus one standard deviations in 2019-2020	49	54	56	58	61	63	75	78
B3. Combination of B1-B2 using one half standard deviation shocks	49	49	47	47	46	46	45	32
B4. One-time 30 percent real depreciation in 2019	49	73	71	72	74	75	88	100
B5. 10 percent of GDP increase in other debt-creating flows in 2019	49	72	72	74	76	78	88	87
Debt Service-to-Revenue Ratio 2/								
Baseline	4	4	4	4	4	4	3	6
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	4	4	3	3	3	3	1	-2
A2. Primary balance is unchanged from 2018	4	4	4	4	4	4	3	3
A3. Permanently lower GDP growth 1/	4	4	4	4	4	4	4	7
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2019-2020	4	4	4	4	3	3	3	4
B2. Primary balance is at historical average minus one standard deviations in 2019-2020	4	4	4	4	4	4	3	6
B3. Combination of B1-B2 using one half standard deviation shocks	4	4	4	4	3	3	3	3
B4. One-time 30 percent real depreciation in 2019	4	5	6	6	6	6	5	10
B5. 10 percent of GDP increase in other debt-creating flows in 2019	4	4	4	5	4	4	4	7

Sources: Country authorities; and staff estimates and projections.
1/ Assumes that real GDP growth is at baseline minus one standard deviation divided by the square root of the length of the projection period.
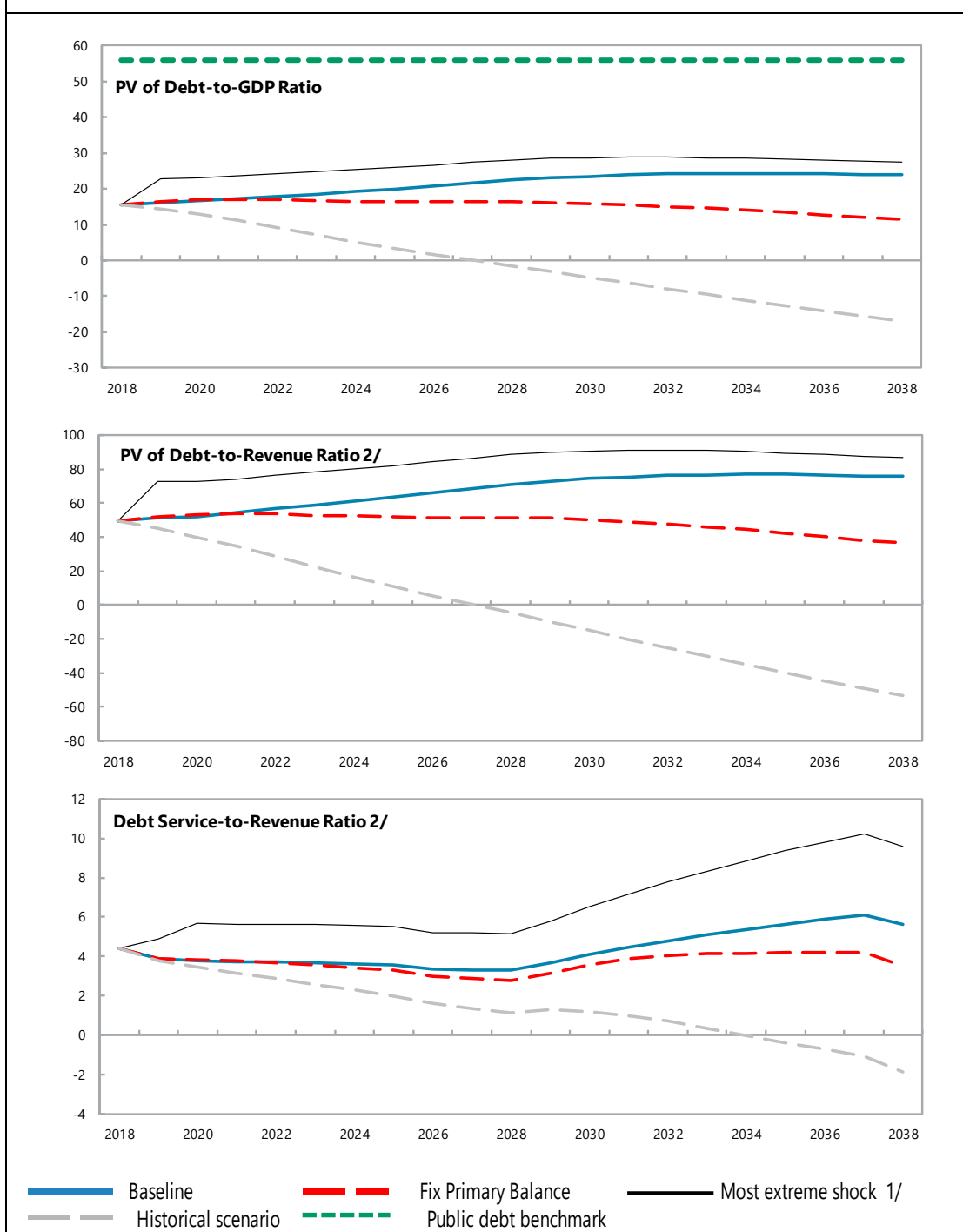2/ Revenues are defined inclusive of grants.

Figure 1. Uzbekistan: Indicators of Public and Publicly Guaranteed External Debt Under Alternatives Scenarios, 2018-2038 1/

a. Debt Accumulation

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

b. PV of debt-to GDP ratio

c. PV of debt-to-exports ratio

d. PV of debt-to-revenue ratio

e. Debt service-to-exports ratio

f. Debt service-to-revenue ratio

Legend:
- Baseline
- Historical scenario
- Most extreme shock 1/
- Threshold

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 GDP deflator shock; in c. to Exports shock; in d. to GDP deflator shock; in e. to Exports shock and in figure f. to a GDP deflator shock.

**Figure 2. Uzbekistan: Indicators of Public Debt
Under Alternatives Scenarios, 2018-2038 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.