BOSNA I HERCEGOVINA
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БОСНА И ХЕРЦЕГОВИНА
МИНИСТАРСТВО ФИНАНСИЈА
И ТРЕЗОРА

BOSNIA AND HERZEGOVINA
MINISTRY OF FINANCE
AND TREASURY

Bosnia and Herzegovina Public Debt Sustainability Analysis 2020-2023

Sarajevo, October 2020

Content:

Introduction

Bosnia and Herzegovina Public Debt Sustainability Analysis (BIH DSA) is based on the methodology developed by the International Monetary Fund (IMF) for countries with market access (MAC DSA Methodology)[1].

The aim of BIH DSA is to assess the current state of BiH indebtedness and medium term public indebtedness developments, as well as to define basic risks which might influence public debt sustainability.

It is important to note that the approach as such does not define the threshold after which public debt becomes unsustainable. Rather, it provides a series of indicators, information and implications of defined stress tests on the basis of which it is determined whether the current situation and estimated public debt developments are sustainable and under which conditions.

The DSA facilitates efficient public finance management and macroeconomic stability through representation of effects and consequences of public indebtedness, i.e. impact of different indebtedness portfolio scenarios on certain macroeconomic indicators.

[1] http://www.imf.org/external/pubs/ft/dsa/mac.htm

Methodology clarifications

The present analysis implies assessment of key macro-economic variables and public debt developments, as well as testing vulnerability of projected public debt developments against different macro financial shocks in accordance with MAC DSA.

In accordance with MAC DSA, analysis is based on a formal and standardised tool (MAC DSA Template). MAC DSA Template was developed in order to facilitate preparations for public debt analysis. It is based on risks and thus implies that the same level of analysis is not required for all countries. Likewise, there is a distinction between two types of countries: developed countries (NE) and developing countries (TN)[2].

DSA and debt risk assessment imply observation of debt in terms of certain indicators. Those used in the analysis are debt burden indicators and debt profile indicators. Since MAC DSA Methodology distinguishes two types of countries, threshold values of indicators are different for TN and NE countries. Since BiH is classified as a TN country, DSA BiH uses debt burden and debt profile indicators for TN countries (Table 1).

Table 1 BiH 2018 debt burden and debt profile indicators

	Indicators	BiH (2019)
Debt burden indicators		
Public debt (% of GDP)	60	31.4
Gross public sector financing needs (% of GDP)[3]	15	1.7
Debt profile indicators		
Bond yield spreads (basic points) [4]	800	470.4
Foreign financing needs (% of GDP)[5]	20	6.8
Public debt held by non-residents (% share in total debt)	60	72.6
Public debt in foreign currency (% share in total debt)	80	72.6
Changes in short term public debt (% of total debt)[6]	1.5	-0.2

The stated indicators (measures, reference marks) for public debt-GDP ratio and gross public debt financing needs-GDP ratio include two important concepts related to debt difficulties, i.e. solvency and liquidity. As for debt profile indicators, experience shows that, as a rule, debt difficulties events were preceded by increase in the share of short term debt and debt denominated in foreign currency in total debt and increase in foreign financing needs, which increase pressure on existing foreign currency reserves, while the high share of debt held by non-residents increases vulnerability in terms of recovery and interest rate risks and thus justify their observation.

[2] Countries are designated as NE or TN on the basis of their classification in the World Economic Outlook. https://www.imf.org/en/Publications/WEO/weo-database/2020/October/select-country-group

[3] Including primary balance, public debt interest and principal payments and other factors such as capital increase in banks, privatisation proceeds, deposit withdrawal, changes in matured outstanding obligations and debt acquaintance.

[4] As of 31 December 2018, Republika Srpska (RS) has a bond issued in the international financial market (bonds issued under the London Club debt are included in the analysis as credit borrowing from the London Club).

[5] Defined as current account balance plus repayment of total short term foreign debt under remaining maturity.

[6] Annual change in short term public debt (under original maturity) as a percentage of total public debt.

DSA BiH assumptions

For preparation of the DSA, the most important role is assumed by the input quality, both historical input and macro-fiscal projections (baseline scenario), as the unreal macro-framework may produce a "distorted image" in defining the results in the analysis.

As inputs, DSA BiH uses historical data of the Central Bank of BiH (CB BiH), Agency for Statistics of BiH, Ministry of Finance and Treasury of BiH (MFT BiH) and Entity Ministries of Finance and Finance Directorate of Brčko District (FD BD), as well as projections based on macro-economic indicators projections of the Directorate for Economic Planning of BiH (DEP BiH) from September 2020, central government fiscal projections in the Global Framework of Fiscal Balance and Policies in BiH 2021-2023 (GFFBP BiH), foreign debt interest rates development projections in the Medium Term Debt Management Strategy of BiH and MFT BiH data on BiH domestic and foreign debt.

DSA BiH includes public debt, ie domestic debt of Entities and BD BiH and BiH foreign debt which, in turn, includes foreign state debt[7], foreign Entities' and BD BiH debt[8] and local self-government units' foreign debt[9].

The projected foreign public debt state 2020-2023 is based on the amount of withdrawn credit funds plus estimated withdrawals under projects in implementation and projects in the procedure of conclusion[10] and minus the estimated amount of principal repayment.

DSA BiH assumes the following:

- BiH credit rating will not be lowered in the medium term,
- There will be no significant increases of referent interest rates and foreign exchange rates,
- CB BiH will maintain monetary stability in accordance with the currency board arrangement, pursuant to provisions of the Law on Central Bank of Bosnia and Herzegovina,
- There will be no significant delays in implementation of projects financed from or planned to be finance from external sources, all recorded in MFT BiH.

Accordingly, DSA BiH is based on assumptions shown in Table 2, representing the baseline scenario in the analysis.

Main risks related to the 2020-2023 baseline scenario estimates are as follows:

- Actualisation of September 2020 DEP BiH assumptions related to real GDP growth and fiscal projections in the GFFBP BiH 2021-2023, defining the financing needs and directly influencing debt level decrease/increase,
- Actualisation of assumptions related to floating interest rates values and foreign exchange values,

[7] Foreign state debt is state debt created pursuant to an international agreement with MFT BiH as borrower on behalf of BiH.

[8] Foreign debt of Entities and BD BiH is debt of Entities and BD BiH created pursuant to an international agreement with an Entity Ministry of Finance as borrower on behalf of the Entity/BD BiH Finance Directorate as borrower on behalf of BD BiH.

[9] Foreign debt of local self-government units is debt created pursuant to an international agreement concluded directly between a local self-government unit and a creditor which is serviced directly by the local self-government unit.

[10] Projects in the procedure of conclusion are projects for which there is an initiative to negotiate, projects for which negotiations are ongoing with creditors, projects in the procedure of approval by creditors and projects which are concluded and are in the procedure of ratification, all recorded in MFT BiH. This includes projects in the area of road, railway, water and communal infrastructure, energy, health care, agriculture, banking, education, etc.

- Actualisation of assumptions on the dynamics of withdrawal of funds under foreign credits under implementation and credits in the procedure of conclusion, and
- BiH credit rating lowering in the medium term.

Applied scenarios and stress tests

The baseline scenario represents medium term macro-economic and fiscal projection the actualisation of which depends on numerous risks. Shock implications and scenarios are observed in order to estimate their influence.

In this regard, in order to analyse vulnerability of the baseline scenario to defined shocks and changes and determine main risks related to sustainability of debt, DSA BiH uses two alternative scenarios and six stress tests.

- Alternative scenarios applied are two standardises alternative scenarios, i.e. a historical scenario and a constant primary balance scenario, the results of which are shown in Table 3. Stated scenarios are described below:

  - **Historical scenario**-real GDP growth, primary balance and real interest rate set on historical averages throughout the projection period, while other variables are the same as in the baseline scenario.
  - **Constant primary balance scenario**-primary balance-GDP ratio throughout the projection period is set at the value of the first year projection, while other variables are the same as in the baseline scenario.

- Stress tests used in DSA BiH relate to decrease of the real GDP growth, increase of the primary deficit relative to GDP, interest rate growth, depreciation of domestic currency, combination of stated shocks and to shocks of potential obligations of the financial sector (Table 4). Detailed clarifications of the stated stress tests is shown below:

  - **Primary balance**-primary balance-GDP ratio is equivalent to 50 per cent of planned cumulative adjustment, i.e. divergence of the primary balance in comparison with the historical average. Interaction thus created is such that it will lead to significant increase of the interest rate by 25 basis points per increase in the primary deficit by 1 per cent of GDP.

  - **Real GDP growth**-real GDP growth is decreased by one standard deviation over two consecutive years of projection (historical average minus one standard deviation). Real growth decrease results in lower inflation (0.25 percentage point per GDP increase decrease by 1 percentage point). Revenues-GDP ratio remains the same as in the baseline scenario, but the ratio of primary expenditures and GDP increases since the level of expenditure results in primary balance decrease. Primary balance decrease results in interest rate increase by 25 basis points.

  - **Interest rate-**nominal interest rate increases over the projected period, excluding the first year of projection, for the difference between maximal real interest rate over the previous ten years and average realistic interest rate over the projection period.

- **Exchange rate**-depreciation of domestic currency of 30 per cent in the projected period, excluding the first year of projection and effects of the exchange rate on inflation, with given elasticity of 0.25 per cent in the second year of the projection.

- **Combined macro-fiscal shock**-represents aggregation of individual shocks where avoidance of double counting of individual shocks affecting more than variable are taken into account. Combined shock includes the biggest impact of individual shocks on all appropriate variables (real GDP growth, primary balance, exchange rate and interest rate).

- **Shocks of potential obligations of the financial sector**-one-time increase of primary expenditures in the amount of 10 per cent of banking sector assets in the second year of the projection results in real GDP shock growth, i.e. real growth decreases by one standard deviation over two consecutive years. Revenues-GDP ratio remains the same as in the baseline scenario. Accordingly, the primary balance decreases which results in a higher interest rate, while decrease of the real growth results in a lower inflation.

MAC DSA Template shows flows which result in debt creation for each stated scenario. Results of the stated scenarios and stress tests enable assessment of public debt sustainability over a particular time period.

DSA BIH results

DSA results enable determination of highest risks to debt sustainability and qualitative estimates of debt sustainability, primarily depending on the quality of historical data and macro financial estimates.

- The DSA BiH results imply that BiH debt is sustainable over the medium term on the basis of the 2020-2023 baseline scenario, with a -3.0 to 3.4 per cent real growth, -0.1 to 1.2 per cent inflation, -4.5 to 1.7 per cent primary balance of GDP and 2.2 per cent effective interest rate.
- In addition, the analysis showed that basic risks that may affect debt sustainability arise from the debt profile, i.e. that the basic risks are represented by public debt held by non-residents and debt in foreign currencies, as well as foreign financing needs and market perception. Namely, the indicator of the debt profile related to public debt held by non-residents exceeds the indicator and represents a significant risk to debt sustainability in the medium term as 72.6 per cent of public debt is held by non-residents, which is above the indicator of 60 per cent. In addition, foreign currency public debt as the percentage of total debt, foreign financing needs in comparison to GDP, and bond yield spreads do not exceed the indicators, but pose certain risks to debt sustainability. Namely, foreign currency public debt share of 72.6 per cent of total public debt does not exceed the 80 per cent indicator, but it poses a high risk that could potentially affect public debt sustainability (the assumption is that the risk is moderate if it ranges between 20 and 60 per cent, and high above 60 per cent). However, considering the currency boar arrangement of CB BiH, i.e. BAM and EUR correlation and high share of debt in EUR, this risk is deemed moderate.Foreign financing needs in 2019 represent 6.8 per cent of GDP and represent a moderate risk which can affect debt sustainability (the assumption is that the risk is moderate if it ranges between 5 and 15 per cent, and high above 15 per cent). The market perception risk is moderate at 470.4 basis points for the bond spread[11] and ranges between 200 and 600 basis points [12] (the assumption is that the risk is moderate if it ranges between 200 and 600 basis points, and high above 600 basis points).

- Debt burden indicators (public debt/GDP and public sector financing needs/GDP) are within the defined indicators (measures, references) and in comparison with both the baseline scenario and stress tests and do not represent risk to debt sustainability.
- In 2019, the public debt/GDP indicator was 31.4 per cent and it is not high as per international standards, but the global health crisis caused by the Covid-19 outbreak and its impact in Bosnia and Herzegovina has to be taken into account. All macro-financial projections from the stated used sources, as well as current variations in public

[11] Bonds spreads are defined as a spread above German bonds with similar maturity.The term “bonds spread” relates to a difference between interest rates of two bonds, i.e. deduction of yields of one bond from the other. Bonds spread reflects relative risks of bonds comparison. The wider the spread, the higher the risk.

[12]Basis points (BPS) relate to a common unit of measurement for interest rates and other percentages in finance. Relation between percentage changes and basis points may be summarised as follows: 1 per cent change=100 basis points or 0.01 per cent=1 basis point.

debt imply real drop in GDP and revenues and increase in public debt. In accordance with the baseline scenario, the stated indicator shows an increasing tendency, from 31.4 per cent in 2019 to 37.4 per cent in 2020, 38.0 per cent in 2021 and gradual recovery, i.e. 37.1 and 34.6 per cent in 2022 and 2023, respectively. This development is primarily the result of GDP decrease due to a downturn in economic activity caused by the Covid-19 pandemics and increase of the public debt in the stated period. Bearing in mind the real GDP growth variation coefficient, there is a certain risk to actualisation of this indicator, i.e. the risk from deterioration of the projected public debt/GDP.

- In accordance with the baseline scenario, the BPF/GDP indicator will increase from 1.7 per cent in 2019 to 8.2 per cent in 2020, 6.1 per cent in 2021, 4.4 per cent in 2022 and 3.7 per cent in 2023. In comparison to 2019, the BPF will significantly increase in 2020 and 2021, primarily as the result of the projected primary deficit.

- Public debt service in comparison with revenues, in accordance with the baseline scenario in 2023, will increase from 10.1 per cent in 2019 to 13.6 per cent in 2023, primarily due to the increased service of the current foreign debt in 2023. Assessment of reality of the projected primary balance trajectory through its comparison to the primary balance reflected in the past shows a significant risk in its actualisation. In this regard, caution is required with the public debt repayment profile due to possible variations in actualisation of revenues and expenditures projections. Bearing in mind the aforementioned, we believe that in contracting future indebtedness, the terms under which the principal would mature in 2023 should be avoided.

Table 2 BIH Public Sector Debt Sustainability Analysis (DSA) - Baseline Scenario

(in percent of GDP unless otherwise indicated)

Debt, Economic and Market Indicators [1/]

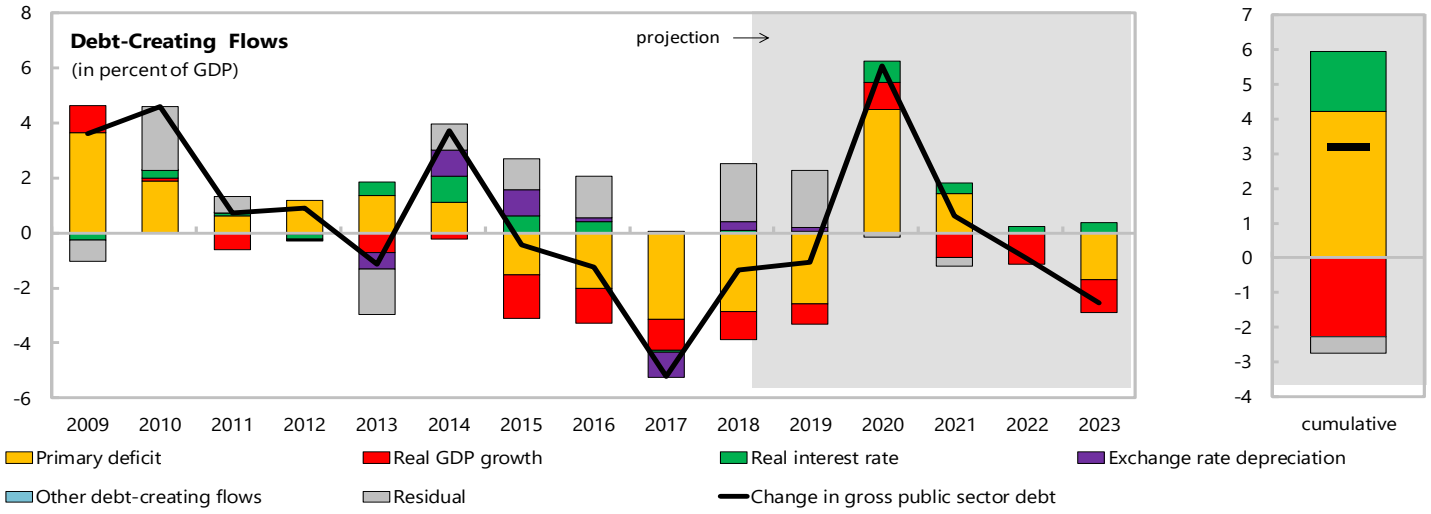
	Actual			Projections			
	2009-2017 [2/]	2018	2019	2020	2021	2022	2023
Nominal GDP (in million BAM)	28.486,1	34.264,0	35.753,0	34.644,0	35.888,0	37.569,0	39.291,0
Nominal gross public debt	37,1	32,4	31,4	37,4	38,0	37,1	34,6
Public gross financing needs	4,2	2,8	1,7	8,2	6,1	4,4	3,7
Public debt (in percent of potential GDP)	37,0	33,1	32,4	36,5	37,3	37,0	35,0
Real GDP growth (in percent)	1,2	3,2	2,4	-3,0	2,5	3,1	3,4
Inflation (GDP deflator, in percent)	1,2	1,9	1,9	-0,1	1,1	1,5	1,2
Nominal GDP growth (in percent)	2,5	5,1	4,3	-3,1	3,6	4,7	4,6
Effective interest rate (in percent) [4/]	1,9	2,2	2,2	2,2	2,2	2,2	2,2

As of august 28, 2020

Sovereign Spreads		
Bond Spread (bp) 3/		507
5Y CDS (bp)		n.a.
Ratings	Foreign	Local
Moody's	B3	B3
S&Ps	B	B
Fitch	n.a.	n.a.

Contribution to Changes in Public Debt

	Actual			Projections					
	2009-2017	2018	2019	2020	2021	2022	2023	cumulative	debt-stabilizing primary balance [9/]
Change in gross public sector debt	0,6	-1,3	-1,1	6,1	0,6	-0,9	-2,5	3,2	
Identified debt-creating flows	0,2	-3,5	-3,1	6,2	0,9	-0,9	-2,5	3,7	
Primary deficit	0,3	-2,9	-2,6	4,5	1,4	0,0	-1,7	4,2	-0,8
Primary (noninterest) revenue and gra	41,3	42,0	42,0	41,5	41,1	40,3	39,6	162,6	
Primary (noninterest) expenditure	41,7	39,1	39,4	46,0	42,5	40,3	38,0	166,8	
Automatic debt dynamics [5/]	-0,2	-0,6	-0,5	1,7	-0,5	-0,9	-0,8	-0,5	
Interest rate/growth differential [6/]	-0,2	-0,9	-0,7	1,7	-0,5	-0,9	-0,8	-0,5	
Of which: real interest rate	0,3	0,1	0,1	0,8	0,4	0,2	0,4	1,7	
Of which: real GDP growth	-0,5	-1,0	-0,7	1,0	-0,9	-1,1	-1,2	-2,3	
Exchange rate depreciation [7/]	0,1	0,3	0,1	...	...	...	...	...	
Other identified debt-creating flows	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	
Please specify (1) (e.g., privatization r	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	
Contingent liabilities	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	
Please specify (2) (e.g., other debt flo	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	
Residual, including asset changes [8/]	0,5	2,1	2,0	-0,2	-0,3	0,0	0,0	-0,5	



Source: IMF staff.

1/ Public sector is defined as general government.

2/ Based on available data.

3/ Long-term bond spread over German bonds (bp).

4/ Defined as interest payments divided by debt stock (excluding guarantees) at the end of previous year.

5/ Derived as [r - π(1+g) - g + ae(1+r)]/(1+g+π+gπ) times previous period debt ratio, with r = effective nominal interest rate; π = growth rate of GDP deflator; g = real GDP growth rate; a = share of foreign-currency denominated debt; and e = nominal exchange rate depreciation (measured by increase in local currency value of U.S. dollar).

6/ The real interest rate contribution is derived from the numerator in footnote 5 as r - π (1+g) and the real growth contribution as -g.

7/ The exchange rate contribution is derived from the numerator in footnote 5 as ae(1+r).

8/ Includes asset changes and interest revenues (if any). For projections, includes exchange rate changes during the projection period.

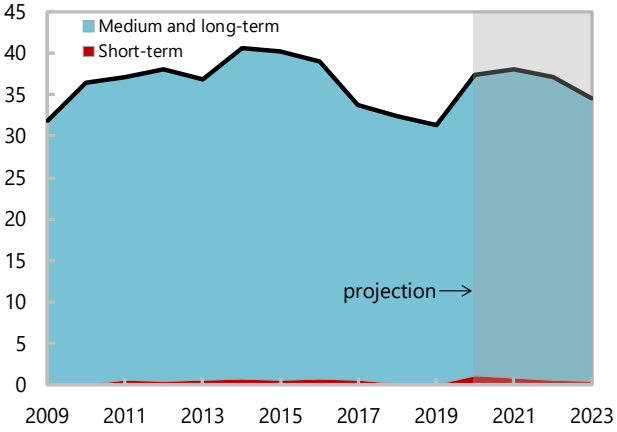
9/ Assumes that key variables (real GDP growth, real interest rate, and other identified debt-creating flows) remain at the level of the last projection year.

Table 3 BIH Public DSA - Composition of Public Debt and Alternative Scenarios

Composition of Public Debt

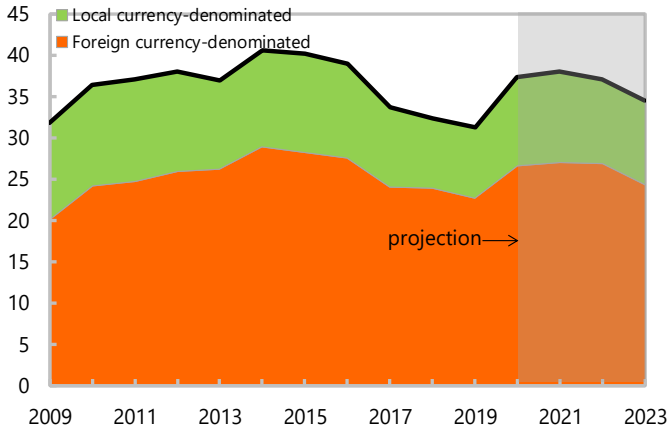
By Maturity

(in percent of GDP)

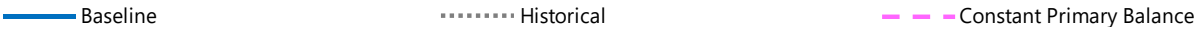


By Currency

(in percent of GDP)

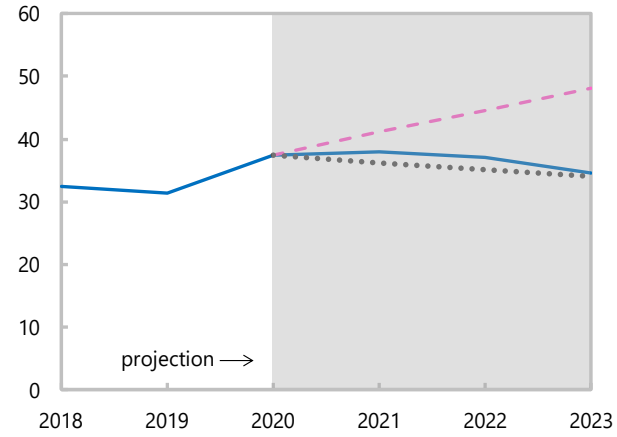


Alternative Scenarios



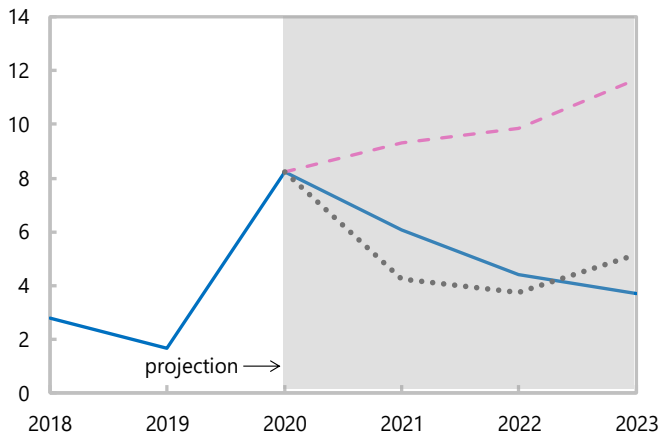
Gross Nominal Public Debt [1/]

(in percent of GDP)



Public Gross Financing Needs

(in percent of GDP)



Underlying Assumptions

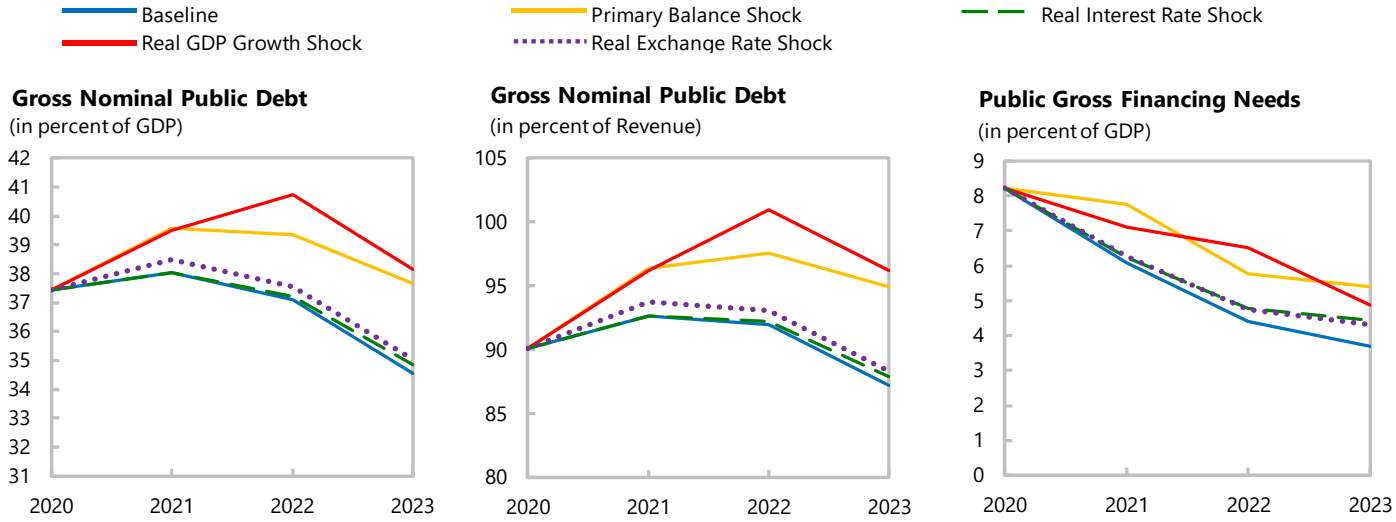
(in percent)

Baseline Scenario	2020	2021	2022	2023
Real GDP growth	-3,0	2,5	3,1	3,4
Inflation	-0,1	1,1	1,5	1,2
Primary Balance	-4,5	-1,4	0,0	1,7
Effective interest rate	2,2	2,2	2,2	2,2
Constant Primary Balance Scenario				
Real GDP growth	-3,0	2,5	3,1	3,4
Inflation	-0,1	1,1	1,5	1,2
Primary Balance	-4,5	-4,5	-4,5	-4,5
Effective interest rate	2,2	2,2	2,1	2,2

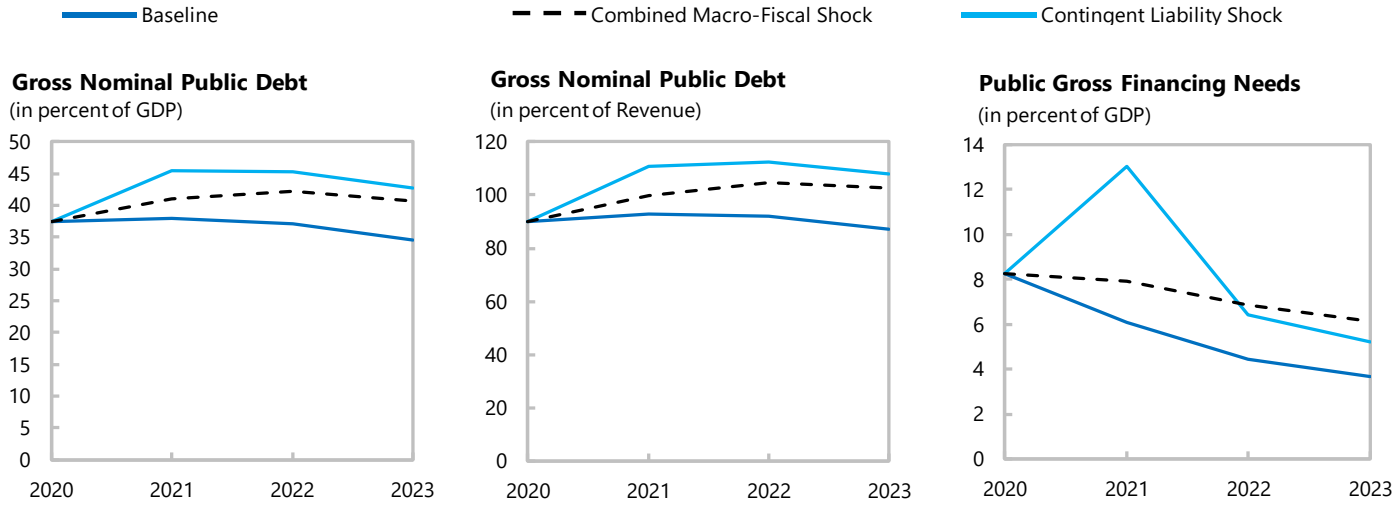
Historical Scenario	2020	2021	2022	2023
Real GDP growth	-3,0	2,0	2,0	2,0
Inflation	-0,1	1,1	1,5	1,2
Primary Balance	-4,5	0,6	0,6	0,6
Effective interest rate	2,2	2,2	2,1	2,1

Tabela 4. BIH Public DSA - Stress Tests

Macro-Fiscal Stress Tests



Additional Stress Tests



Underlying Assumptions

(in percent)

Primary Balance Shock	2020	2021	2022	2023
Real GDP growth	-3,0	2,5	3,1	3,4
Inflation	-0,1	1,1	1,5	1,2
Primary balance	-4,5	-3,0	-0,7	0,9
Effective interest rate	2,2	2,2	2,2	2,3
Real Interest Rate Shock				
Real GDP growth	-3,0	2,5	3,1	3,4
Inflation	-0,1	1,1	1,5	1,2
Primary balance	-4,5	-1,4	0,0	1,7
Effective interest rate	2,2	2,2	2,4	2,7
Combined Shock				
Real GDP growth	-3,0	1,0	1,7	3,4
Inflation	-0,1	0,7	1,1	1,2
Primary balance	-4,5	-3,0	-1,5	0,9
Effective interest rate	2,2	2,2	2,4	2,8

Real GDP Growth Shock	2020	2021	2022	2023
Real GDP growth	-3,0	1,0	1,7	3,4
Inflation	-0,1	0,7	1,1	1,2
Primary balance	-4,5	-2,2	-1,5	1,7
Effective interest rate	2,2	2,2	2,2	2,3
Real Exchange Rate Shock				
Real GDP growth	-3,0	2,5	3,1	3,4
Inflation	-0,1	1,7	1,5	1,2
Primary balance	-4,5	-1,4	0,0	1,7
Effective interest rate	2,2	2,2	2,2	2,3
Contingent Liability Shock				
Real GDP growth	-3,0	1,0	1,7	3,4
Inflation	-0,1	0,7	1,1	1,2
Primary balance	-4,5	-8,0	0,0	1,7
Effective interest rate	2,2	2,5	2,5	2,6