



MACROECONOMIC FORECAST

SEPTEMBER 2022



BULGARIAN NATIONAL BANK

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Abbreviations

BNB	Bulgarian National Bank
CPI	Consumer Price Index
EC	European Commission
ECB	European Central Bank
EU	European Union
EWRC	Energy and Water Regulatory Commission
GDP	Gross Domestic Product
IMF	International Monetary Fund
HICP	Harmonised Index of Consumer Prices
NRRP	National Recovery and Resilience Plan
NSI	National Statistical Institute

SUMMARY

The BNB forecast of key macroeconomic indicators is prepared as at 30 September 2022 and is based on assumptions about global economic developments and price dynamics of main commodity groups in international markets as of 9 September 2022. The continuation and escalation of the war in Ukraine create higher than usual uncertainty in the projected values for the main macroeconomic indicators, the dynamics of which is strongly influenced by the projected technical assumptions. The baseline scenario of the forecast does not include negative effects on the Bulgarian economy that would result from possible shortages of natural gas in Bulgaria. The forecast does not take into account the potential impact of political uncertainty in Bulgaria on economic activity and inflation.

The increase in external demand by Bulgaria's main trading partners and the performance of Bulgarian exports in the first half of 2022 were stronger than expected, despite the negative effects stemming from the war in Ukraine. However, indications of a deterioration in the external environment at the end of 2022 and the beginning of 2023 increase. The war in Ukraine, high raw material prices, rising interest rates, concerns about a shortage of natural gas and worsened economic agents' sentiment were among the main factors contributing to this outlook. Technical assumptions underlying the forecast imply that external demand for Bulgarian goods and services will grow by 2.9 per cent in 2022, followed by a decline of -0.1 per cent in 2023 and a rebound in growth to 4.1 per cent in 2024. Commodity prices in international markets continue to exhibit high volatility with futures prices included in the assumptions indicating that for most commodities they will remain persistently above their 2021 levels. Market expectations for energy product prices in euro are for these prices to continue rising at high rates on an annual basis until mid-2023, before starting to decline year on year, remaining, however, significantly above their 2021 levels throughout the projection horizon. Non-energy product prices in euro are assumed to grow substantially in 2022, mainly driven by higher food prices, followed by broad-based declines across sub-groups in 2023 and an increase in 2024 in line with the assumptions about global economic activity developments. Market participants' expectations point to a continued strong increase in short-term interest rates in the euro area at the end of 2022 and early 2023, stabilising close to the current levels over the rest of the forecast horizon.

Based on the assumptions described above, the baseline scenario of the forecast projects Bulgaria's real GDP growth to slow to 2.8 per cent in 2022 and to 0.1 per cent in 2023, before accelerating to 3.4 per cent in 2024. The lower growth of economic activity in 2022 will reflect the increased negative contribution of net exports and the slowdown of private consumption growth driven by the negative effect of rising inflation on real disposable income of households. These developments will be only partially compensated by the expected higher government consumption growth as well as the substantial accumulation of inventories in the economy, reflecting elevated inflation expectations and uncertainty about the efficient functioning of global supply chains. Assumptions about deterioration in the global macroeconomic environment coupled with persistent relatively high inflation in consumer prices will lead to a further slowdown in economic activity growth in 2023. In addition, the expected reversal of the trend of accumulating stocks of raw materials, materials and finished products in the economy and the projected negative contribution of changes in inventories in the following year will also significantly limit real GDP growth. A factor, which will most support the economic activity in 2023 is the expected absorption of funds under the National Recovery and Resilience Plan (NRRP) by both private and public sectors. The projected acceleration in real GDP growth in 2024 is consistent with the technical assumption of a recovery in external demand and the expected increase in final consumer expenditure in the context of subdued inflationary pressures.

Annual HICP inflation rate is projected to be 14.9 per cent at the end of 2022. The significant increase in production costs of firms in the context of a robust year-on-year growth of euro prices of essential food and energy commodities (electricity, natural gas and oil) in international markets will contribute most to the acceleration of inflation compared to the end of 2021. Other factors with significant pro-inflation-

ary effect are the projected strong increase in unit labour costs and the accelerated annual growth of import prices of finished industrial products due to inflationary developments in major trading partners of Bulgaria. Administratively controlled prices are also expected to have a relatively high positive contribution to headline inflation at the end of the year, reflecting mainly price rises of some utility services approved by the Energy and Water Regulatory Commission (EWRC) in August 2022. The forecast takes into account the assumed developments in energy commodities and food prices in international markets, expecting HICP growth rate to slow to 4.1 per cent at the end of 2023, while inflation will remain high on average for the year (7.6 per cent). At the end of 2024, inflation is projected to further slow to 3.4 per cent.

Risks to the real GDP growth forecast are assessed as balanced for 2022 and 2023, while risks of lower growth compared to that in the baseline scenario prevail for 2024. More favourable economic developments in Bulgaria's main trading partners in the short term are a prerequisite for higher than projected growth in exports of goods and services in real terms. An additional risk to higher growth of economic activity stems from the possibility that the trend of accumulating inventories by firms is sustained for a longer period. Risks of weaker economic activity arise mainly from the ongoing military conflict in Ukraine and the likelihood of stronger and more prolonged rises in commodity prices in international markets, heightened uncertainty and deepening problems in global supply chains. Other risks to lower economic growth are associated with potential shortage of natural gas in Bulgaria, faster and stronger increase in interest rates by leading central banks, as well as slower than expected absorption of funds under EU programmes and implementation of investment projects under the NRRP. A factor likely to affect the relevance of the forecast baseline scenario is the upcoming revision of GDP reported data, which is scheduled to be published by the NSI on 19 October 2022.

There are risks to the inflation forecast of a stronger increase in prices *vis-à-vis* the baseline scenario for the whole projection horizon. These risks are associated mainly with commodity price dynamics in international markets. The possibility of a stronger than projected strengthening of the two-way link between nominal wages and prices implies higher than projected core inflation. Moreover, risks arise from possible increases in regulated prices compared to the baseline scenario. Concurrently, the possibility of extending the duration of the measure to compensate firms for the high electricity prices, which is valid until the end of 2022, is a prerequisite for lower than projected inflation in the medium run.

FORECAST OF KEY MACROECONOMIC INDICATORS FOR 2022–2024

External Environment

The BNB forecast of key macroeconomic indicators is prepared as at 30 September 2022 and is based on assumptions about global economic developments and price dynamics of main commodity groups in international markets as of 9 September 2022. The continuation and escalation of the war in Ukraine create higher than usual uncertainty in the projected values for the main macroeconomic indicators, the dynamics of which is strongly influenced by the projected technical assumptions. The baseline scenario of the forecast does not include negative effects on the Bulgarian economy resulting from possible shortages of natural gas in Bulgaria¹. The forecast does not take into account the potential impact of political uncertainty in Bulgaria on economic activity and inflation in the 2022–2024 period.

The forecast is built on the assumptions about the change in external demand for Bulgarian goods and services based on the most recent projections of the European Central Bank (ECB), including information as of 25 August 2022. Taking into account unfavourable developments in growth prospects of economic activity, financing conditions and inflation in Bulgaria's main trading partners after this date, the assumptions of the ECB baseline scenario have been adjusted according to the BNB assessment towards weaker growth in external demand for Bulgarian goods and services over the entire forecast horizon.² These assumptions imply that external demand for Bulgarian goods and services will grow by 2.9 per cent in 2022, followed by a decline of -0.1 per cent in 2023 and a rebound

in growth to 4.1 per cent in 2024. External demand growth in 2022 in the current assumptions is higher than in the June forecast owing mainly to a stronger than expected economic activity in Bulgaria's main trading partners in the first half of 2022 despite the negative effects stemming from the war in Ukraine. However, indications of a deterioration in the economic environment in our major trading partners at the end of 2022 and the beginning of 2023 increase. The war in Ukraine, high raw material prices, increase in interest rates by leading central banks, concerns about shortages of natural gas and worsened economic agents' sentiment were among the main factors contributing to this outlook.

The assumptions for the price change in energy commodities (crude oil, natural gas, electricity)³ and non-energy commodities (metals⁴, food⁵ and other commodities⁶)⁷ take into account prices of futures contracts concluded on international markets by 9 September 2022, with these prices showing high volatility since the beginning of the war in Ukraine.

¹ An assessment of the potential magnitude of direct and indirect effects of disrupted natural gas supplies on individual sectors of the Bulgarian economy is presented in the research topic entitled Bulgaria's Economic Connectedness with Russia, Ukraine and Belarus and Dependency of the Bulgarian Economy on the Use of Natural Gas, [Economic Review, issue 1/2022](#).

² Demand for Bulgarian goods and services from euro area countries in 2022, 2023 and 2024 is reduced in line with the adverse macroeconomic scenario of [ECB macroeconomic projections of September 2022](#).

³ The assumption about price dynamics of petroleum products for the whole projection horizon is based on data on futures contracts traded in international markets. As regards natural gas, prices of futures contracts for delivery until the third quarter of 2023 are also used, followed by a technical assumption that prices will remain unchanged at the level attained until the end of 2024. Assessments of electricity price movements are based on market information from futures contracts concluded in the German market until the third quarter of 2023, followed by a technical assumption that prices will remain unchanged at the level attained until the end of 2024.

⁴ Including ferrous metals, copper, aluminium, lead and zinc weighted in accordance with the Bulgaria's foreign trade flows.

⁵ Including pigmeat, coffee, wheat, maize, rice, soybeans, sugar and cocoa weighted in accordance with the Bulgaria's foreign trade flows.

⁶ Including rubber, timber and cotton weighted in accordance with the Bulgaria's foreign trade flows.

⁷ Futures contracts concluded for trading of relevant commodities on international markets were used, with data available until the end of the third quarter of 2023. For the rest of the forecast horizon there is no public information on the volume and number of futures transactions for these commodities on international markets. Therefore, the price dynamics is assessed by taking into account the historical correlation with the global trade dynamics in line with forecast's external assumptions.

The assumptions imply that for the entire forecast horizon prices of most commodities (in particular energy and food) will remain persistently above their 2021 levels, with crude oil, electricity, natural gas and food prices in euro⁸ showing significant increases in 2022. Broken by quarter, natural gas and electricity prices will continue to report annual growth until the end of the second quarter of 2023, while crude oil prices will continue to rise on an annual basis until the first quarter of 2023. Technical assumptions for the remainder of the forecast horizon imply that energy commodity prices in euro will decline year on year, remaining however above their levels of 2021. The downward slope of futures contracts⁹ for natural gas, crude oil and electricity indicating price declines in these commodities, may not fully take into account long-term effects on the prices of these products from structural changes stemming from the war in Ukraine, transition to carbon neutrality in EU countries and stated intentions to reduce their dependence on energy imports from Russia¹⁰. This could be considered a factor for maintaining higher price levels of energy products over medium to long-term horizons. Non-energy product prices and mostly food prices are assumed to grow significantly in euro on an annual basis in 2022. In 2023 assumptions suggest a decline in the prices of all major non-energy commodity sub-groups in euro, probably reflecting mainly historically high price levels attained in 2022 and market concerns about significant deterioration in global economic environment, which would limit the demand for such commodities. It is assumed for 2024 that prices of non-energy

products will rise in line with set expectations of growth in global economic activity and trade.

Forecast assumptions include market expectations of a continued strong increase in short-term interest rates in the euro area money market at the end of 2022 and in the first half of 2023 and their stabilisation at close to the current levels over the rest of the forecast horizon.

Economic Activity in Bulgaria

In the first quarter of 2022 annual growth of real GDP was 4.5 per cent, according to non-seasonally adjusted data of the NSI (from 4.8 per cent in the second half of 2021). In the structure of growth, changes in inventories made the largest positive contribution (5.6 percentage points) over the first half, reaching in nominal terms their historical peak since 1995 (6.7 per cent of nominal GDP for the first half of the year). Growth in inventories can be explained by targeted accumulation of higher stocks of raw materials and finished products due to expectations of a further price increase and uncertainty about the efficient functioning of global supply chains, as well as work in progress (e.g. in construction and manufacturing).¹¹ Other components with a positive contribution to the annual growth of real GDP in the first six months of the year included private consumption (2.5 percentage points) and government consumption (1.5 percentage points), while net exports contributed negatively to the change in economic activity (-4.1 percentage points). Fixed capital investment retained the early 2021 downward trend on an annual basis (a contribution of -1.1 percentage points). Available economic indicators¹² for the third quarter of 2022 indicated slowdown of the annual growth in economic activity of Bulgaria.

Reflecting these developments and assumptions about deterioration of the economic environment in our major trading partners at the end of 2022 and early 2023, growth in domestic eco-

⁸ The forecast of euro commodity prices is based on a technical assumption about the euro/US dollar exchange rate, which is fixed for the whole forecast horizon at its average value for July and August 2022 and for the last ten days as of the date when the external environment assumptions were made (9 September 2022). Reflecting this technical assumption, in 2022 the euro depreciated against the US dollar by 11.1 per cent.

⁹ The downward slope of the price curve of futures contracts for commodities can be explained by a market condition called backwardation, meaning the implicit benefit of owing a physical commodity for future use compared to being available for use after the implementation of the contract. This means that at the time of concluding a futures contract, economic agents tend to discount the value of the commodity to be delivered in a more distant future, and thus, the futures price signals a commodity price decline in the long run, although this price dynamics may not materialise in the spot market, and the commodity prices may rise.

¹⁰ For details, see: <https://eur-lex.europa.eu/legal-content/BG/TXT/?uri=CELEX:52022DC0108>.

¹¹ The high contribution of inventories to real GDP growth in the first two quarters of the year, the factors explaining it and the time profile of the discontinued trend to accumulation of inventories represented a source of an uncertainty to the economic activity outlook in the projection horizon.

¹² This refers to the indicators tracking consumer confidence, business climate, production indices in industry, manufacturing and retail trade turnover indices.

economic activity is expected to slow down to 2.8 per cent in 2022 and more essentially in 2023 (to 0.1 per cent), thereafter accelerating to 3.4 per cent in 2024. The lower rate of growth in real GDP over 2022 compared to 2021 will be driven by both the increased negative contribution of net exports and the projected slowdown of the domestic demand growth. These effects will only be partially offset by the higher positive contribution of inventories changes compared to 2021.¹³ Growth in exports of goods and services in 2022 will be limited by the assumptions of significant slowdown in external demand, while imports will rise in line with the increase in final consumption expenditure and changes in inventories characterised by a high import component. By sub-component of domestic demand, private consumption growth is expected to slow down compared to 2021 despite the strong growth rate of nominal remunerations in the private sector and higher social expenditure under the consolidated fiscal programme for 2022,¹⁴ as inflation acceleration will have a limiting effect on households' purchasing power. At the same time, we expect government consumption growth to accelerate in real terms to 6.0 per cent in 2022, with the forecast reflecting higher expenditure for intermediate consumption, health care and wages of public sector employees, which are in force since 1 July 2022 under the Law amending the State Budget Law of the Republic of Bulgaria for 2022. The projected decrease in total investment in 2022 by 1.5 per cent will be determined entirely by the private sector. Investment activity of corporations will

continue to be constrained by the increased economic uncertainty, worsening attitudes of managers about future production activity, increased prices of goods for investment purposes and difficult financing through own funds in some sectors, given the increased costs of production.¹⁵ Government investments are expected to grow on an annual basis, to which EU-funded investments will have a major positive contribution in view of a projected higher absorption rate of these funds in the final phase of the 2014–2020 programming period, and to a lesser extent, investments financed by national funds, given their expected smooth recovery due to the low base level of 2021. Investments which are expected to be implemented under the National Recovery and Resilience Plan (NRRP)¹⁶ will have a significantly less influence on the dynamics of total fixed capital investments this year.

In 2023 real GDP growth is expected to slow substantially as a result of deterioration in the external economic environment, a halt in the trend to accumulation of inventories and slowdown in domestic demand growth. The projected decline of inventories in the economy will reflect weakening of incentives by firms to maintain high stocks of commodities, raw materials and finished products based on assumptions of a year-on-year decline in euro prices of much of the raw materials in international markets and deterioration of the outlook for economic activity. The slowdown in domestic demand growth will be driven by a lower increase in both private and government consumption compared to 2022. Factors that will constrain private consumption growth are projected declines in households' real disposable income, the expected slowdown in consumer

¹³ When preparing the macroeconomic forecast, changes in inventories in the economy are usually not projected, so that they have a neutral contribution to the GDP change over the forecast horizon. In the current forecast, however, this approach is changed due both to the significant accumulation of inventories by firms in the first half year and retention of some of the factors for maintaining higher stocks of commodities, raw materials and finished products in the short term. Therefore, this forecast assumes that over the second half of 2022 the nominal value of changes in inventories as a percentage of GDP will remain close to the current level. For the rest of the forecast horizon, the nominal value of changes in inventories (as a share of GDP) is expected to follow a gradual downward trend to average historical levels. This will lead to a negative contribution of inventories to real GDP developments mostly in 2023 and, to a significantly lesser extent, in 2024. If the practice of a neutral contribution of changes in inventories over the forecast horizon is applied, then, after adjustment for their import component in the baseline scenario of the current forecast, real GDP growth would be 1.2 per cent in 2022 and 0.8 per cent in 2023.

¹⁴ This refers to the increase in pension expenditure set out in the Law amending the Law on the Budget of Public Social Security for 2022, in force since 1 July 2022, and the planned additional rise in part of the pensions as of 1 October 2022.

¹⁵ National accounts data for the first half of 2022 indicate a year-on-year decline of gross operating surplus in some sectors, such as construction, trade, transport, hotels and restaurants and arts, entertainment and recreation.

¹⁶ Information on the amount of expected EU grants and private national co-financing under the NRRP, used in preparing the macroeconomic forecast, is based on the final version of the plan of April 2022, whereas assumptions of the implementation of the plan by year over the projection horizon are made by the BNB. In line with the information contained in the Convergence Programme of the Republic of Bulgaria for 2022–2025, the bulk of expected EU grants is projected to be in the form of fixed capital investment of the general government sector, a smaller portion to be utilised as capital transfers to the private sector, whereas the amount of expected current transfers and public consumption is significantly lower.

credit growth and increased savings incentives amid rising interest rates. At the same time, assuming a decrease in expenditure related to intermediate government consumption, as set out in the Mid-Term Budget Forecast for 2023–2025, general government consumption growth will slow down substantially.¹⁷ In 2023 fixed capital investment for the total economy is projected to grow year on year, mainly under the influence of the expected absorption of NRRP funds by both the private and public sectors. The entry into the final year of projects implementation under the 2014–2020 programming period will also contribute positively to the growth of public investments, while a more conservative forecast is made for investments financed by national funds, which foresees a decrease in their volume on an annual basis. At the same time, private sector investments that are not linked to co-financing and NRRP grants are projected to continue declining in the face of an increased uncertainty and deterioration of financing conditions. The contribution of net exports is projected to remain negative in 2023, driven by higher growth of goods imports than exports. Exports of goods in 2023 will be constrained by assumptions of a decrease in total external demand for Bulgarian goods and services, but will continue to grow year on year due to the characteristics of the product structure of exports, where external demand is anticipated to remain strong for some products. At the same time, imports of goods will be supported by the growth of fixed capital investments, which have the highest import component among domestic demand components.

We project growth in economic activity to accelerate in 2024 in line with the expected upward dynamics of domestic demand and contraction of the negative contribution of changes in inventories and net exports. Domestic demand dynamics will be driven by higher growth in final consumer expenditure compared to 2023 amid an assumption of a lowering economic uncertainty, real disposable income growth and an expected halt of the fall in intermediate government consumption. Fixed capital investments will continue to grow in 2024 (albeit at a slower

pace than projected in 2023), supported by both projects financed by national funds and continued absorption of NRRP funds. At the end of the forecast horizon, we expect inventories changes to gradually return to their average historical levels, thereby gradually shrinking their negative contribution to GDP growth. The negative contribution of net exports will also contract in line with the assumptions of a recovery of external demand for Bulgarian goods and services.

Balance of Payments

The current account deficit of the balance of payments is projected to widen in 2022 to reach its peak (-2.4 per cent of GDP) in 2023, then to contract slightly in 2024. This dynamics is mainly driven by the forecast for the balance of trade in goods, whose deficit is projected to expand subsequently as a percentage of GDP in 2022 and 2023 and then to decrease in 2024. At the same time, we expect the surplus on trade in services to remain unchanged as a share of GDP over the forecast horizon. The net primary income deficit is expected to increase gradually over the projection horizon, but to remain at comparatively low historical levels due to the projected subdued economic activity in Bulgaria in the second half of 2022 and in 2023. During 2022 dividends distributed by the banking sector outside the country will contribute to the deficit under this item.¹⁸ The surplus under the item 'secondary income, net' is projected to increase as a percentage of GDP in the period 2022–2024, mainly through higher incoming transfers to the general government sector. In 2022 the capital account surplus is expected to remain lower than in 2021, but to rise more significantly in 2023 and 2024, mainly due to an increase in incoming transfers under the NRRP.

Labour Market

The number of employees in the economy rose by 1.5 per cent on an annual basis in the first six months of 2022, favoured largely by the sector of services. We expect employment growth to begin slowing at the end of

¹⁷ Bulgaria's 2022–2025 Convergence Programme, published in May 2022, foresees a decline in government consumption as a percentage of GDP in 2023 compared to 2022.

¹⁸ On 24 February 2022 the BNB decided [to suspend the restriction on distributions of bank profits for 2019 and 2020](#).

the year and to reach 1.1 per cent on average in 2022, thereafter decreasing slightly by 0.1 per cent during 2023 in line with the projected slowdown in economic activity. The assumption of an improvement in the external environment and an increase in real GDP growth over 2024 is expected to be reflected in employment growth, though limited to 0.5 per cent as a result of unfavourable demographic trends in Bulgaria. At the same time, the unemployment rate is expected to fall smoothly from 4.6 per cent in 2022 to 4.2 per cent in 2024, with the continuing decline of the working-age population having a major impact on this. Real labour productivity growth is expected to slow down to 1.7 per cent in 2022 and to rise to 2.9 per cent in 2024 in line with projected GDP growth and limited growth of employed persons. Increased economic activity amid growing labour shortages and strong increases in consumer prices and inflation expectations led to a 19.0 per cent rise in compensation *per* employee year on year in the first half of 2022. These developments are expected to persist until the end of the year, and the growth of compensation *per* employee to reach 19.2 per cent in 2022, thereafter slowing down in nominal terms to 7.5 per cent in 2023 and remaining below the average annual rate of growth in consumer prices, which will reflect in a decrease of real household income. Lower wage growth compared to inflation will be determined by the projected weakening of economic activity in Bulgaria, thereby limiting firms' ability to pass on increased labour costs to end users. Slowdown of inflation in 2024 is expected to contribute to a more moderate increase in nominal compensation *per* employee, but the deepening of labour shortages will continue to exert pressure to raise wages in real terms above labour productivity growth. Consequently, the growth rate of compensation *per* employee is expected to stand at 7.5 per cent in 2024. The strong labour income growth in 2022, given a slowing labour productivity rise, contributed to a 17.2 per cent increase in nominal unit labour costs. Projected lower growth in compensation *per* employee is expected to limit growth in nominal unit labour costs to 7.2 per cent in 2023, and the gradual increase in labour productivity will further aggravate the slowdown in their growth during 2024.

Monetary Sector

The currency board arrangement in Bulgaria implies a comparatively rapid transmission of the ECB's monetary policy to monetary conditions in the country. Based on the ongoing cycle of interest rate increases, as well as market expectations for further tightening of monetary conditions in the euro area, we expect both lending and deposit rates in Bulgaria to rise significantly from currently historically low levels, with the largest increase expected in the fourth quarter of 2022 and the first half of 2023. From the second half of 2023 to the end of the forecast horizon, deposit and lending interest rates are projected to stabilise at the achieved higher levels in line with market expectations for euro area money market rate developments.

Growth in the credit to the non-government sector is expected to remain relatively high in 2022 and to reach 10.4 per cent at the end of the year. The significant acceleration in consumer price inflation and the sustained negative real interest rates on housing loans, despite their projected increase, are likely to further stimulate demand for housing loans, with still strongly negative real deposit rates constituting an additional factor fostering demand for such loans. The economic uncertainty, persistent bottlenecks in supply chains and significant increases in commodity and raw material prices are expected to continue to stimulate in the short term demand for credit resources by firms for working capital and inventories, thereby contributing to maintaining comparatively high credit growth for non-financial corporations until the end of 2022. In 2023 slowdown in credit growth for both households and non-financial corporations is expected, which will be affected by rising lending rates in combination with projected lower inflation, anticipated slowdown in private consumption growth and weak investment activity of firms. In addition, the increases announced by the BNB in the countercyclical capital buffer to 1.5 per cent, effective from 1 January 2023, and up to 2.0 per cent, in force from 1 October 2023, are expected to have a potential limiting effect on the supply-side credit activity. In 2024, slight acceleration in the growth of credit to the non-governmental sector is expected in line with the projected improve-

ment in the economic environment. Banking system deposits are projected to rise further at comparatively high rates over the forecast horizon, supported by continuing wage growth and expected increases in deposit interest rates.

Inflation

In the first eight months of 2022, inflation measured by the Harmonised Index of Consumer Prices (HICP) followed a strong acceleration trend and reached 15.0 per cent in August 2022. In the short term, we expect the upward pressures on consumer prices to remain significant, reflecting assumptions on price dynamics of food, electricity for business customers and natural gas in international markets. At the same time, a factor that will limit further acceleration of inflation is the emerging base effect of the sharp rise in consumer prices at the end of 2021. In the medium term, inflationary pressures are expected to follow a gradual downward trend, but to remain high due to the intensification observed since early 2022 in the two-way link between prices and nominal labour wages in the economy, reflecting in a rapid transfer of inflation to nominal household income through indexations and a consequent secondary effect on inflation from shifting higher labour costs of firms to final consumer prices and from increasing consumer demand.

According to the baseline forecast scenario, annual inflation is expected to be 14.9 per cent at the end of 2022 (from 6.6 per cent at the end of 2021)¹⁹, reflecting the contribution of all major groups of goods and services.²⁰ The constructed probability distribution suggests that the actual value of inflation will lie in a comparatively wide range at the end of the year (from 11.6 per cent to 18.8 per cent, with the probability estimated at 60 per cent), which results from: (1) the persisting significant volatility of the international commodity prices in the context of the ongoing war in Ukraine; (2) the uncertainty about the effects of the imposition by EU Member States of a partial embargo on Russian

crude oil and petroleum products, as well as a ban on insurance of ships for oil exports from Russia, which will enter into force by the end of the year; (3) the degree of interaction between nominal wage growth and consumer prices in the face of labour shortages²¹ in the main economic sectors, as well as the ambiguity around the effects of government measures to compensate households for high inflation; (4) the uncertainty about dynamics of administratively determined prices.²² According to the macroeconomic forecast, inflation at the end of 2022 will be driven mainly by the substantial increase in firms' production costs due to the strong year-on-year growth of euro international prices of essential food and energy commodities (electricity,²³ natural gas and oil). Other factors with an essential pro-inflationary effect are expected to be the projected strong increase in unit labour costs and accelerated inflation of industrial goods in major trading partners of Bulgaria. By HICP component, the food group followed by services and non-food goods are expected to have the largest contribution to inflation at the end of 2022. We expect the prices of transport fuels in Bulgaria to remain at comparatively high levels in the fourth quarter, and the effects of an assumed fall in the euro oil price on a quarterly basis are likely to be offset by the removal of the 0.25 BGN/litre compensation for individuals introduced by the government in July 2022 due to the exhaustion of budget resources provided for this purpose. However, the contribution of transport fuels to annual inflation is projected to decrease at the close of 2022 as a result of a base effect of their significant rise at the end of 2021. Administratively controlled prices are expected to have a relatively high positive contribution to headline inflation at the end of the year, reflecting mainly price rises of electricity,

²¹ For more information, see the research topic on Macroeconomic Effects of Demographic Processes in Bulgaria [Economic Review, issue 2 of 2022](#).

²² After the cut-off date of the forecast [the EWRC approved a natural gas price for October](#) (excluding prices for access, transfer, excise and VAT) which is lower by 34 per cent than the September price. The decrease in the natural gas price has not been included in the baseline scenario of the forecast.

²³ Estimates of the electricity price dynamics in Bulgaria are based on technical constructed assumptions, while taking into account measures announced by the government to compensate domestic firms for high electricity prices until the end of 2022.

¹⁹ The baseline scenario projects average annual inflation to reach 13.2 per cent in 2022, from 2.8 per cent in 2021.

²⁰ At the end of 2022 inflation measured by consumer price index (CPI) is likely to be higher than HICP inflation. For more information, see highlights entitled *Comparison of Inflation According to the CPI and the HICP* published in the BNB Macroeconomic Forecast, September 2021.

heating²⁴, water and sewerage services, and central gas supply approved by the Energy and Water Regulatory Commission (EWRC) in August 2022, as well as the reported increase in urban transport fares in the second and third quarter of 2022.

The growth rate of consumer prices is projected to slow down to 4.1 per cent by end-2023 (within the range of -0.2 per cent to 9.7 per cent with a probability of 60 per cent according to constructed probability distribution) and to 3.4 per cent by end-2024 (within the range of -1.4 per cent to 10.3 per cent with a probability of 60 per cent according to constructed probability distribution)²⁵. The downward dynamics in inflation is mainly driven by external assumptions, which at the time of the forecast production implied a year-on-year decline in international energy prices in euro at the end of 2023 and 2024, as well as a substantial slowdown in annual growth in prices of imported food. Factors of a fiscal nature that will partially offset the disinflationary effect of international prices are the forecast assumptions for: 1) a removal of the reduced rate for restaurant and catering services from the beginning of 2023²⁶; 2) phasing out of the zero VAT rate for the supply of bread and flour and the reduced VAT rate of 9 per cent for the supply of natural gas and district heating from 1 July 2023²⁷. Core HICP components are expected to continue to make a strong positive contribution to inflation in 2023 and 2024 in line with projected growth in unit labour costs and private consumption and the ECB expectations of a further increase in industrial goods in Bulgaria's major trading partners in the euro area. Although by the time of preparing the forecast no information on possible

adjustments in administratively controlled prices in 2023–2024 was available (excluding tobacco products), the baseline scenario assumes that in the medium run these prices will increase in tune with the projected labour cost dynamics of firms producing such goods and services.²⁸ An exception of this approach has been made for the regulated price of central gas supply which is projected to follow the dynamics of natural gas prices in international markets.

²⁴ According to the EWRC decision the average increase in the price of heating for households for a period from 1 July 2022 to 20 June 2023 will be 29.7 per cent. In August 2022 the NSI reported an 8.7 per cent increase in the price of heating, with the rest of the increase expected to be reflected in the consumer price index at the beginning of the heating season (in November) that is the NSI common practice.

²⁵ The baseline scenario projects average annual inflation to reach 7.6 per cent in 2023 and 3.7 per cent in 2024.

²⁶ The currently reduced VAT rate does not apply to services related to the supply of beer, wine and spirits, for which the VAT rate was raised in July 2022.

²⁷ These assumptions are in line with the time limits set out in paragraph § 15e of the Transitional and Final Provisions of the Law on Value Added Tax. The amendments to the Law on Value Added Tax were made by the Law on Amendments to the Law on the State Budget of the Republic of Bulgaria for 2022 adopted in July 2022.

²⁸ Adopting an approach to keep administratively controlled prices unchanged throughout the whole projection horizon is a prerequisite to underestimating the headline inflation, especially in periods of a steady increase in nominal labour income in the economy, accounting for a significant part of firms' production costs. Information at micro level from Orbis database of Bureau van Dijk and NSI Supply-Use tables have been used in determining the production cost structure of these firms.

FORECAST REVISIONS

Compared with the June 2022 macroeconomic forecast the expectations are for higher growth in real GDP in 2022, but for lower growth in 2023 and 2024. The revisions to growth in economic activity over the forecast horizon are largely technical and reflect the BNB changed approach to forecasting the change in inventories, resulting in a strongly positive contribution of inventories to the change in real GDP in 2022 and a negative contribution in 2023 and 2024 (compared with a neutral contribution for all years of the forecast horizon in the macroeconomic forecast of 24 June 2022).

In 2022 real GDP growth has been revised by 0.9 percentage points, which in addition to the projected positive contribution of the change in inventories also reflects an upward revision in government consumption in line with the reported data for the second quarter of 2022. Data on the implementation of the consolidated fiscal programme at the end of the first half of the year indicate that intermediate consumption expenditure has a significant positive contribution to government consumption growth. The revisions of GDP components are only partly offset by the projected higher negative contribution of net exports and the expected decline in fixed capital investment (compared to growth in the June 2022 macroeconomic forecast). The stronger negative contribution of net exports in the current forecast is due to both higher imports in the first half of 2022 and the expected higher imports related mostly to the projected accumulation of inventories in this forecast. The downward revision in fixed capital investment was driven to a greater extent by the private sector and reflects both the weak investment activity of corporations in the first half of the year and expectations of a larger increase in financing costs, and a stronger deterioration in the external economic environment at the end of the year compared to the June forecast.

Real GDP growth has been revised downward by 1.6 percentage points for 2023. In addition

to the changed approach to forecasting the change in inventories, the revision is due to lower growth in fixed investment and private consumption compared to the June 2022 forecast. The revision in investment results from the expected lower gross fixed capital formation of both the private sector and government. The private investment component has been revised downward based on assumptions for a deterioration in the macroeconomic environment compared to the June 2022 forecast. Lower growth in gross fixed capital formation of the general government sector is mainly due to the expected lower investment under the National Recovery and Resilience Plan (NRRP), with the forecast reflecting information on the progress in intermediate stages and targets for the implementation of the plan²⁹. A key factor behind weaker private consumption growth is the projected decline in household purchasing power as a result of the upward revision in consumer price inflation on an annual average basis in 2023.

In 2024 economic activity growth has been revised downward by -0.3 percentage points from the June 2022 macroeconomic projection, mainly driven by the projected low negative contribution of the change in inventories and the downward revision in private consumption growth. Lower growth in private consumption reflects the downward revision in real household disposable income growth in the current forecast compared with the June forecast.

The inflation forecast of consumer prices at the close of 2022 has been slightly revised upward (by 0.2 percentage points) due to the groups of administratively controlled prices and food as a result of additional reporting data received and the revised technical assumptions on the dynamics of natural gas and electricity prices in international markets. Annual inflation for the end of 2023 and the end of 2024 is

²⁹ For details, see: Intermediate Stages and Targets for the Implementation of the NRRP. Information System for Administration and Monitoring of EU Funds in Bulgaria.

revised by 0.3 percentage points each toward higher price growth, mainly due to the services and non-food groups. The upward revision in core inflation is driven by projected stronger growth in unit labour costs and expectations of higher inflation over the 2023–2024 period in Bulgaria's main trading partners compared to the June 2022 forecast. Rates of food price change over the 2023–2024 period have been revised downward, reflecting mainly the revised assumptions on international commodity prices and, to a lesser extent, the revision of private consumption dynamics. In terms of inflation of energy products (excluding those with administratively controlled prices) a stronger decline in prices is expected at the end of 2023 and a lower decline at the end of 2024 compared to the June 2022 forecast, reflecting entirely current assumptions on the international oil price in euro.

GDP and Inflation Forecast Revisions (30 September 2022 *vis-à-vis* 24 June 2022)

Annual rate of change, per cent	Forecast as of 30 September 2022				Forecast as of 24 June 2022				Revision (percentage points)			
	2021	2022	2023	2024	2021	2022	2023	2024	2021	2022	2023	2024
GDP at constant prices	4.2	2.8	0.1	3.4	4.2	1.9	1.7	3.7	0.0	0.9	-1.6	-0.3
Private consumption	8.0	3.4	1.7	3.6	8.0	3.4	2.7	3.9	0.0	0.0	-1.0	-0.3
Government consumption	4.0	6.0	0.1	2.0	4.0	4.1	0.0	2.0	0.0	1.9	0.1	0.0
Gross fixed capital formation	-11.0	-1.5	7.2	4.8	-11.0	3.5	12.8	4.7	0.0	-5.0	-5.6	0.1
Exports of goods and services	9.9	8.9	1.5	4.2	9.9	2.9	1.4	3.9	0.0	6.0	0.1	0.3
Imports of goods and services	12.2	13.6	2.2	3.7	12.2	5.0	4.6	3.7	0.0	8.6	-2.4	0.0
HICP at end of period	6.6	14.9	4.1	3.4	6.6	14.7	3.8	3.1	0.0	0.2	0.3	0.3
Core inflation	3.2	11.8	7.8	5.3	3.2	13.0	5.8	4.7	0.0	-1.2	2.0	0.6
Energy products	35.0	25.5	-5.5	-1.1	35.0	26.0	-1.8	-2.6	0.0	-0.5	-3.7	1.5
Food	8.1	23.1	3.4	3.6	8.1	22.6	4.5	3.9	0.0	0.5	-1.1	-0.3
Goods and services with administratively controlled prices and tobacco products	3.0	7.6	0.8	0.7	3.0	5.8	1.0	1.0	0.0	1.8	-0.2	-0.3

Source: the BNB.

RISKS TO THE FORECAST

The baseline scenario of the forecast is characterised by very high uncertainty about external environment developments even in the short run due to the ongoing military conflict between Russia and Ukraine. Taking into account the technical assumptions on the external economic environment in the baseline scenario, risks to the real GDP growth forecast are assessed as balanced for 2022 and 2023, while risks of lower growth in Bulgaria's real GDP prevail for 2024.

More favourable economic developments in Bulgaria's main trading partners at the end of 2022 and early 2023 are a prerequisite for higher than projected growth in real exports of goods and services in the baseline scenario. An additional risk to higher growth in economic activity arises from a possible continued accumulation of inventories by firms and an extension of the measure to compensate firms for high electricity prices in 2023. A risk to weaker economic activity is associated with the likelihood of a potential shortage of natural gas in Bulgaria during the winter months. As a result of the ongoing military conflict in Ukraine, the external environment will continue to be a source of risk to the outlook due to a possibly stronger and longer-than-expected rise in international commodity prices, a heightened uncertainty and deepening of constraints to the functioning of global supply chains. Another risk to lower growth stems from potentially faster and stronger interest rate increases in the USA, UK and euro area compared to the technical assumptions used in the baseline scenario. In addition, a higher than projected increase in Bulgaria's lending and deposit rates in the baseline scenario, triggered by a stronger tightening of the ECB monetary policy, is a precondition for lower growth in private consumption and private investment over the forecast horizon. A risk to the economic activity forecast arises also from a possible slower absorption of EU programme funds and implementation of investment projects under the NRRP against the time profile set in the baseline scenario. A factor likely to affect the relevance of the forecast baseline scenario is the upcoming revision of GDP reported data, which

is scheduled to be published by the NSI on 19 October 2022.

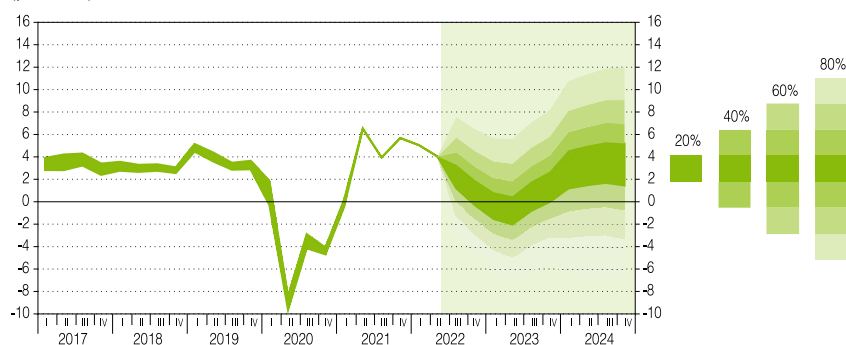
The uncertainty over the outlook for a particular indicator may be graphically illustrated by means of a fan chart. Chart bands coloured with specific colour set an interval in which with a certain probability the projected value is expected to fall³⁰ (for further details see the note to the following chart). Usually, each interval widens with the increase in the forecast horizon, reflecting the increasing uncertainty further into the future. The middle band of the chart depicted in the darkest colour includes the baseline scenario of the annual rate of change of real GDP and the probability distribution shows a 20 per cent probability for the actual value to fall within this band in each of the quarters. Given the nature of the severe shock caused by the war in Ukraine and the uncertainty surrounding its development over time, the uncertainty interval under the current forecast is wider than usually even in the short term, which is evident by the profile of the fan chart since the third quarter of 2022. According to the probability distribution for 2022 with 60 per cent probability the annual rate of change of real GDP is expected to be in the range of 0.8 per cent to 4.8 per cent.

There are risks of a stronger increase in prices *vis-à-vis* the baseline scenario in realising the inflation forecast for the whole projection

³⁰ The fan chart is constructed on the basis of the so-called asymmetric exponential distribution. To present the forecasting team's estimate of the uncertainty of projected values, it is necessary to estimate the general uncertainty of the forecast (by determining the dispersion σ of the distribution) and the so-called balance of risks (by determining the asymmetry parameter ν of the distribution), indicating in which direction the realised value is more likely to deviate from the projected value. The balance of risks is determined subjectively by the forecasters on the basis of possible changes in the structure of the economy, inaccuracies in the information available at the time of the forecast production, imperfections in forecasting methods employed, forthcoming economic policy decisions, etc. Historical data on the average forecast error made by the BNB experts when preparing previous forecasts are used to determine the general uncertainty to the forecast. In the currently constructed fan charts the forecast error is overestimated by 40 per cent for the first two years and by 50 per cent for the third year relative to normal. For further details on producing the fan chart, see the box entitled Measurement and Presentation of Uncertainty in Forecasting Economic Indicators, Economic Review, issue 1 of 2012.

Fan Chart of the Expected Annual Rate of Change in Real GDP

(per cent)

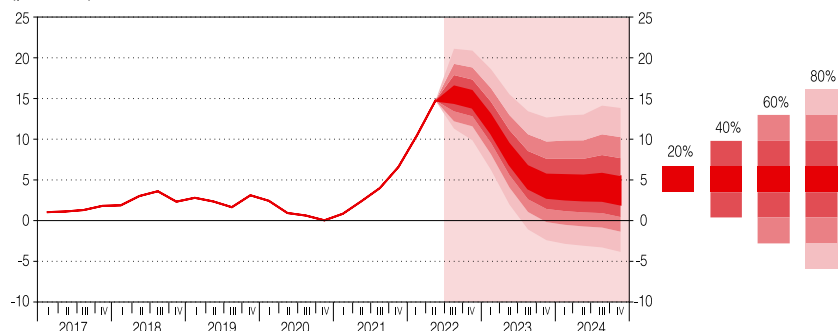


Notes: The chart provides historical series and annual real GDP growth forecast according to non-seasonally adjusted data. The fan chart shows expert views of the forecasters on the uncertainty surrounding the projected value based on a probability distribution. The reporting period includes revised GDP growth estimates, with the latest reporting periods revised on fewer occasions, thus narrowing the band. The middle band of the projected horizon chart, depicted in the darkest tone, includes the central projection and the probability distribution shows a 20 per cent probability for the actual value to fall in this band in each of the quarters. If neighbouring bands (in the same brighter tone) are added to the middle band, there would be a 40 per cent coverage of the probability mass. Thus, by adding each same tone couple of bands, the probability for the value to fall there would be increased by 20 percentage points to reach 80 per cent. The probability for the value to remain outside the coloured part of the chart is 20 per cent based on the distribution chosen.

Source: the BNB.

Fan Chart of the Expected Annual Rate of Change in Inflation at the End of the Period

(per cent)



Note: The fan chart shows expert views of the forecasters on the uncertainty surrounding the projected value based on a probability distribution. The middle band of the chart, depicted in the darkest tone, includes the central projection and the probability distribution shows a 20 per cent probability for the actual value to fall in this band in each of the quarters. If neighbouring bands (in the same brighter tone) are added to the middle band, there would be a 40 per cent coverage of the probability mass. Thus, by adding each same tone couple of bands, the probability for the value to fall there would be increased by 20 percentage points to reach 80 per cent. The probability for the value to remain outside the coloured part of the chart is 20 per cent based on the distribution chosen.

Source: the BNB.

horizon. These risks are associated mainly with international raw materials price dynamics. In particular, there is a significant risk that energy prices will not fall in 2023 and 2024, as seen from the market expectations at the time of preparing the forecast, due to ongoing structural changes in EU countries: the transition to carbon neutrality and the intentions declared by these countries to reduce Russia energy dependency. In addition, a possible stronger and frequent indexation of wages and social benefits to inflation compared with the baseline scenario, including due to labour shortages and the political cycle in Bulgaria, would be a prerequisite for stronger growth in private consumption and unit labour costs. Under such a scenario, a change in firms' pricing behaviour (including in the speed and extent of pass-through of increased production costs to final consumer prices) could be expected compared to current estimates based on the macroeconomic model used to produce the forecast. Higher than projected inflation is also likely to occur in case of stronger increases in regulated electricity prices for households, heating and water and sewerage services compared to the baseline scenario due to steadily increased production costs. Concurrently, a possible extension of the government measure to compensate firms for high electricity prices, which will be valid until the end of 2022, is a prerequisite for lower than projected inflation in the medium run. The fan chart of

inflation suggests that with a probability of 60 per cent, annual inflation in consumer prices is expected to range between 11.6 and 18.8 per cent at the end of 2022.

Forecast of Key Macroeconomic Indicators for 2022–2024

(per cent)

	2021	2022	2023	2024
Annual rate of change				
GDP at constant prices	4.2	2.8	0.1	3.4
Private consumption	8.0	3.4	1.7	3.6
Government consumption	4.0	6.0	0.1	2.0
Gross fixed capital formation	-11.0	-1.5	7.2	4.8
Exports of goods and services	9.9	8.9	1.5	4.2
Imports of goods and services	12.2	13.6	2.2	3.7
HICP at end period	6.6	14.9	4.1	3.4
Core inflation	3.2	11.8	7.8	5.3
Energy products	35.0	25.5	-5.5	-1.1
Food	8.1	23.1	3.4	3.6
Goods and services with administratively controlled prices and tobacco products	3.0	7.6	0.8	0.7
Employment	0.2	1.1	-0.1	0.5
Unit labour costs	5.4	17.2	7.2	4.5
Labour productivity	4.0	1.7	0.3	2.9
Unemployment rate (share of labour force)	5.3	4.6	4.5	4.2
Claims on the non-government sector	8.8	10.4	5.0	5.4
Claims on corporations*	4.7	8.9	3.8	4.0
Claims on households	13.4	12.8	6.6	7.3
Deposits of the non-government sector	9.1	10.7	8.5	7.6
Share of GDP				
Balance of payments current account	-0.5	-1.6	-2.4	-2.3
Trade balance	-4.3	-6.6	-7.2	-6.4
Services, net	6.0	5.8	5.7	5.9
Primary income, net	-3.5	-2.5	-3.1	-3.8
Secondary income, net	1.2	1.7	2.2	2.1
Annual rate of change				
External assumptions				
External demand	10.4	2.9	-0.1	4.1
Average annual Brent oil price (in USD)	66.5	43.9	-13.8	-8.0
Average annual price of non-energy products (in USD)	43.2	-1.9	-11.8	9.0
Brent oil price at the end of period (in USD)	78.7	17.9	-10.1	-7.1
Prices of non-energy products at the end of period (in USD)**	14.3	-9.2	5.3	10.1

* Data refer to non-financial corporations.

** Prices of non-energy products are weighted against the structure of Bulgarian imports of goods.

Source: the BNB.

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THE SCULPTURAL COMPOSITION BY KIRIL SHIVAROV DEPICTING HERMES AND DEMETER ON THE SOUTHERN FAÇADE OF THE BULGARIAN NATIONAL BANK BUILDING IS USED IN COVER DESIGN