



MACROECONOMIC FORECAST

DECEMBER 2021



BULGARIAN NATIONAL BANK

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The quarterly publication of the BNB *Macroeconomic Forecast* provides annual projections of key macroeconomic indicators for Bulgaria in the current and next two years. The macroeconomic forecast is prepared by the BNB Economic Research and Forecasting Directorate and does not necessarily reflect the views of the members of BNB's Governing Council about the prospects for the development of the Bulgarian economy. Information regarding the forecast preparation procedure, as well as technical details on the macroeconomic forecasting model can be found in *Economic Review, BNB Forecasting Function* section, issue 4 of 2015: https://www.bnb.bg/bnbweb/groups/public/documents/bnb_publication/pub_ec_r_2015_04_en.pdf.

The Macroeconomic Forecast publication (December 2021) was presented to the BNB Governing Council at its 27 January 2022 meeting. It employs statistical data and information available as of 13 January 2022. The estimates and projections published in this issue should not be regarded as advice or recommendation. The information in the publication should be used exclusively at the user's risk.

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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 based on information published by 13 January 2022. The approach in making the assumptions regarding international commodity prices was changed from the previous forecasts in terms of both the used methodology and the scope of the commodities included. Forecast assumptions about external environment developments employ information as of 17 December 2021 and suggest that external demand for Bulgarian goods and services will continue growing over the whole projection horizon. Prices in euro of petroleum products and natural gas are assumed to continue rising on an annual basis until the end of the third quarter of 2022, which will be followed by declines until the end of 2023. The forecast includes an assumption for a continuous year-on-year increase in the price of electricity in euro until the end of 2022 and its year-on-year decreases in the following year. Non-energy product prices in euro are assumed to rise on an annual basis for the whole projection horizon.

Under the baseline forecast scenario, real GDP of Bulgaria will post 3.7 per cent growth in 2021, driven almost entirely by a 7.5 per cent increase in private consumption. All other GDP components, excluding government consumption, are expected to have a negative contribution to the change in economic activity over 2021. In 2022 GDP growth is anticipated to slow down slightly to 3.6 per cent, reflecting largely significantly weaker growth in private consumption and, to a lesser degree, a government consumption decline, while net exports and investments will have positive contributions to the economic growth. Factors behind the slowdown of private consumption growth in 2022 will be the high base of 2021 and expected negative effects of projected inflation acceleration until mid-2022 on real disposable income of households and consumer sentiment. In 2023 GDP growth is expected to accelerate to 4.5 per cent, reflecting mainly a projected strong increase in public and private investments in line with the forecast time profile of funds absorption under the National Recovery and Resilience Plan. At the same time, net exports are expected to have a negative contribution to the GDP change due to stronger growth in imports compared to exports.

Annual inflation measured by the Harmonised Index of Consumer Prices (HICP) is projected to accelerate further in the first half of the year, thereafter decelerating to 7.5 per cent at the end of 2022. The upward dynamics in consumer prices will primarily reflect increased production and transportation costs of firms as a result of the price hikes in electricity for industrial consumers and in other primary energy commodities at end-2021 along with assumptions about further quarterly growth in some of their prices in the first quarter of 2022. The increase in food prices in international markets, higher unit labour costs and the broad-based acceleration of inflation in the euro area and other of Bulgaria's major trading partners are projected to be other factors with a pro-inflationary effect. The growth rate of consumer prices is expected to slow down to 3.4 per cent by end-2023 mainly due to the technical assumptions about price declines in primary energy commodities in international markets.

Risks to the GDP growth forecast are assessed as balanced for 2021, while for 2022 and 2023 there are risks of lower growth compared to that in the baseline scenario. Major risks for 2022 and 2023 stem from the possibility of postponing the implementation of investment projects financed by national funds, a slower than projected absorption rate of EU programme funds and a delayed implementation of investment projects under the National Recovery and Resilience Plan against the time profile set in the baseline scenario. Another major risk is related to higher inflation compared to the baseline scenario which would exert an additional negative effect on projected real household income and would worsen to a larger extent economic agents' senti-

ments. This would lead to a lower assessment of the level of private consumption and investments than in the baseline scenario.

There are risks of a stronger increase in prices *vis-à-vis* the baseline scenario for the whole projection horizon. Such risks are likely to materialise in case of a more prolonged and/or stronger commodity price increases in international markets compared to what external assumptions constructed by 17 December 2021 suggest in the current forecast. Another risk for materialisation of higher inflation stems from possible changes in the regulated prices of electricity, water and sewerage services and heating after the expiry on 31 March 2022 of the moratorium on these prices introduced by the government in December 2021. On the other hand, the extension of the timeframe and/or the scope of the government measures to compensate firms for energy prices after the first quarter of 2022 is a precondition for lower inflation than that projected in the baseline scenario.

FORECAST OF KEY MACROECONOMIC INDICATORS FOR 2021–2023

External Environment

The BNB forecast of key macroeconomic indicators is based on data published by 13 January 2022, with information used to prepare external assumptions comprising the period up to 17 December 2021. The forecast employs assumptions about global economic developments based on the most recent projections of the European Central Bank (ECB), the European Commission (EC) and the International Monetary Fund (IMF). The BNB approach in making assumptions regarding international commodity prices was changed from the previous projection exercises in terms of both the used methodology and the scope of the included commodities. Energy products price dynamics in the assumptions reflects market expectations measured by futures contracts traded on international markets. Compared to the previous projections, the scope of commodities under review was extended by including the prices of natural gas and electricity to explicitly reflect them in the BNB macroeconomic model.¹ As regards the assumptions for non-energy product prices, the methodology for their preparation was changed. In the previous BNB projections, the assumptions regarding the prices of these commodity groups for the whole projection horizon were based solely on the latest ECB forecast available at the time, which was utilising information from futures contracts. In the current BNB forecast, futures contracts in international markets until the end of 2022 were used as no public information on sufficient volumes and number of such futures contracts was available

¹ The assumption about the price of petroleum products for the whole projection horizon is based on the dynamics of futures contracts traded in international markets. As regards natural gas, prices of futures contracts for delivery until the first quarter of 2023 are also used. Due to the lack of public information on sufficient volumes and number of futures contracts for the period after this date, natural gas prices are assumed to follow the price dynamics of oil futures contracts. Assessments of the electricity price path are based on market information about futures contracts trade on the Italian and German markets until the second quarter of 2023, thereafter the price is kept at the level achieved until the end of 2023.

after this period. Therefore, the price dynamics of non-energy commodities in 2023 is assessed by considering their historical correlation with the global trade dynamics included in the assumptions.

In 2021 energy and non-energy products were characterised by substantial price increases. This was in line with the historically high prices of natural gas in Europe over the fourth quarter of 2021 which were also reflected in higher prices of other energy goods, such as electricity and coal. At the same time, in 2021 prices of several non-energy goods and raw materials increased significantly due to continuing bottlenecks in global supply chains and enhanced global demand.

Based on these assumptions, prices in euro of petroleum products and natural gas are expected to continue rising on an annual basis until the end of the third quarter of 2022, which will be followed by declines on an annual basis until the end of 2023. The forecast includes an assumption of a continuous year-on-year increase in the electricity price in euro until the end of 2022 and its decreases on an annual basis in the following year. Non-energy product prices in euro are assumed to rise on an annual basis over the whole projection horizon.² The assumptions suggest that external demand for Bulgarian goods and services³ will rise by 8.6 per cent in 2021, thereafter increasing by 5.1 per cent in 2022 and 5.6 per cent in 2023.

Any unfavourable economic effects emerging from the continuing global supply chain

² The forecast of raw material prices in euro 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 October and November 2021 and for the last ten days prior to 17 December 2021, the date when the external environment assumptions were compiled. Reflecting this technical assumption, in 2022 the euro will depreciate against the US dollar by 3.4 per cent year on year.

³ The assumption of the growth rate of external demand for Bulgarian goods and services is based on [the ECB macroeconomic projections](#) as of December 2021.

bottlenecks and the spread of the COVID-19 pandemic are reflected in the forecast to the extent to which these factors are reflected in the assumptions for the growth rate in external demand for Bulgarian goods and services and in the market expectations for commodity prices and short-term money market interest rates in the euro area as of 17 December 2021. This forecast does not seek to reflect the effects of global supply chain bottlenecks and the continuing COVID-19 spread which are specific to the Bulgarian economy.

Economic Activity in Bulgaria

In January–September 2021 real GDP increased by 3.6 per cent from the same period of 2020, according to non-seasonally adjusted data,⁴ reflecting almost entirely an increase in private consumption. Thus, as of the third quarter of 2021 a recovery of economic activity⁵ to 99.8 per cent was achieved compared to the level of the fourth quarter of 2019, before the onset of the crisis caused by the spread of COVID-19. Available economic indicators⁶ for the last quarter of 2021 broadly indicate a further increase in real GDP on a quarterly basis. As a result, real GDP of Bulgaria for 2021 is expected to post 3.7 per cent growth, driven almost entirely by a 7.5 per cent increase in private consumption. An increase in final consumption expenditure of households over the year will reflect comparatively strong growth in labour income and in net fiscal transfers to households along with improving consumer sentiment. All other GDP components, excluding government consumption, are expected to have a negative contribution to GDP growth in 2021. Increased wage and healthcare expenditure projected in the budgetary framework for 2021 and the revised state budget⁷ in September will contribute positively to real growth in govern-

⁴ According to NSI seasonally adjusted data, real GDP in the January–September 2021 period rose by 3.3 per cent on an annual basis.

⁵ Based on NSI seasonally adjusted data on Bulgaria's real GDP.

⁶ This refers to the indicators tracking consumer confidence, business climate, production indices in industry and services, turnover indices in manufacturing and retail trade.

⁷ This refers to the Law amending the State Budget Law of the Republic of Bulgaria for 2021 of 16 September 2021 and the Law amending the Law on the Budget of the National Health Insurance Fund for 2021 of 16 September 2021.

ment consumption, which is expected to amount to 4.1 per cent.

The forecast for 2022 and 2023 includes information, according to which Bulgaria is expected to receive from the EU BGN 12.9 billion for the implementation of the National Recovery and Resilience Plan (NRRP) in the 2022–2026 period. Private national investments totalling BGN 6.8 billion are planned to be attracted to these funds.⁸ The bulk of the NRRP grants to be received are expected to be in the form of fixed capital investments of the general government, while a smaller portion is expected to be absorbed as government consumption. Based on the assumptions set by the BNB in the current macroeconomic forecast, the nominal value of investment projects funded under the plan is anticipated to be relatively low in 2022, reflecting the delay in submitting the plan and the ongoing process of approving it by the European Commission. In 2023 the implementation of investment projects under the plan is projected to be of essential significance in accelerating growth of fixed capital investment in the economy.

In 2022 GDP growth is projected to slightly slow down to 3.6 per cent due mainly to significantly lower growth in private consumption and a decrease in government consumption.⁹ The slowdown of private consumption growth in the 2022 forecast will be attributable to the

⁸ 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 October 2021 version of the plan, whereas the assumptions on the implementation of the plan by year over the projection horizon have been made by the BNB.

⁹ Due to the political situation in Bulgaria, the forecast about the dynamics of government consumption components for 2022–2023 has been prepared in the absence of a budgetary framework for 2022 and a medium-term budgetary projection, thus posing uncertainty to the forecast. As a result, the forecast is based on BNB staff assumptions on the dynamics of government consumption and does not reflect the effect of possible fiscal measures, which may be initiated by the government with Bulgaria's new budgetary framework. In 2022, projections suggest a slowdown in nominal growth of expenditure on public sector compensation of employees, intermediate consumption and health insurance payments as compared with 2021 projections on these components. Concurrently, government consumption is expected to contribute negatively to real GDP growth due to the projected comparatively high increase in its price component. Projected higher net transfers to households attributable mainly to a pension recalculation as of 25 December 2021 and payment of supplements to pensions until June 2022 approved by the government, as well as an assumed indexation of pensions from July 2022 under the so-called Swiss rule will further support private consumption growth throughout the year.

high base of 2021 and the negative effects of projected higher inflation until mid-2022 on real disposable income of households and consumer sentiment. The projected effect of inflation on real disposable income of households in 2022 will be largely offset by higher nominal compensation *per* employee and the assumption of a rise in net fiscal transfers to households. As a result of these mutually compensating factors, real disposable income of households in 2022 is projected to remain relatively unchanged from that in 2021. High inflation in 2022 is anticipated to worsen consumer sentiment, which will have a negative effect on the household propensity to consume. As regards firms, the negative shock on the supply side, prompted by higher commodity prices, is projected to deteriorate firms' sentiment limiting the private sector investment activity. Concurrently, the projected 8.9 per cent increase in total investment in the economy over 2022 will be driven mainly by investment of funds under the NRRP (mostly government and, to a lesser extent, private investment), as well as by government investment as a result of an expected higher pace of absorption of EU funds in the last phase of the 2014–2020 programme period and a gradual recovery of nationally financed public investments. Net exports are expected to have a positive contribution to projected GDP growth in 2022 due to a stronger rise in exports compared to imports.

In 2023 GDP growth is expected to accelerate to 4.5 per cent, reflecting mainly a projected strong increase in public and private investment in line with the forecast time profile of funds absorption under the NRRP and the acquisition of new fighter aircrafts¹⁰. Public investment will be further supported by the ongoing implementation of nationally funded large infrastructure projects.¹¹ Private sector investments other than those under the NRRP are also expected to grow in line with projected growth in domestic

¹⁰ In line with the information of the revised medium-term budget forecast for the 2021–2023 period published in December 2020, the forecast includes the expected acquisition of new fighter planes in 2023, worth BGN 1.1 billion. Delivery of the equipment is reflected in the level of public investment in 2023 and in the amount of imported goods over the same year.

¹¹ The macroeconomic forecast does not include estimates of the potential effect of the funds which Bulgaria will receive under the multiannual financial framework for 2021–2027 on the economic activity due to the lack of sufficiently specific information at the time of finalising this forecast.

and external demand and contracted spare capacity. In 2023 household consumption growth is projected to accelerate consistent with the dynamics of real disposable income of households, which will increase mainly at the expense of anticipated faster growth of nominal wages compared with inflation. Concurrently, significant growth of investment, which has a large import component, and acquisition of new fighter aircrafts will result in stronger growth of imports compared with exports and, consequently, to a negative contribution of net exports to real GDP growth in 2023. Real government consumption is projected to increase slightly in 2023, though contributing almost neutrally to GDP growth throughout the year.

Balance of Payments

The balance of payments current account is projected to account for a deficit of -1.1 per cent of GDP in 2021, from -0.3 per cent in 2020. The increase in the deficit on an annual basis will be largely driven by the higher trade balance deficit, reflecting stronger growth in the real volume of goods imports compared to that of exports and, to a lesser extent, by the increasing negative balance on net primary income. Throughout 2022 the current account deficit will gradually decrease, reporting a surplus of 0.2 per cent of GDP in 2023. These developments will be ascribable mainly to the projected higher surplus in services trade, driven by the expected gradual rebound in travel services of which Bulgaria is a net exporter. The higher annual surplus on the net secondary income item, reflecting mainly the expected rise in remittances by Bulgarian emigrants, which fell to very low values in 2020 and 2021 compared with historical ones, will contribute to a lesser extent to the lower current account deficit in 2022 and the projected surplus in 2023. In 2022 and 2023 the capital account surplus is projected to increase on an annual basis, with the stronger rise expected to be driven mainly by transfers under the NRRP in 2023.

Labour Market

The number of employed is projected to increase slightly by 0.2 per cent in 2021 and

to grow further by 1 per cent in 2022 and 0.6 per cent in 2023, but to remain lower than in 2019 at the end of the projection horizon due to unfavourable demographic developments in Bulgaria. The unemployment rate is anticipated to rise slightly to 5.5 per cent in 2021 mostly as a result of the changes in the methodology of the Labour Force Survey in early 2021, which have not been reflected in the data for previous years. Concurrently, the strengthening economic activity in Bulgaria is projected to result in a decrease in the unemployment rate to 5.1 per cent in 2022 and 4.8 per cent in 2023. Labour productivity growth is anticipated to reach 3.7 per cent in 2021 and to moderate to 2.7 per cent in 2022 due to the increased number of employed in the economy. Concurrently, expected stronger growth in GDP over 2023, determined mostly by investments under the NRRP, will have a favourable effect on labour productivity in 2023 and growth is expected to accelerate to 3.7 per cent. Compensation *per* employee is projected to rise by 9.2 per cent in 2021 and 10.4 per cent in 2022. While growth in 2021 has been driven by higher wages in both the private and public sectors, acceleration in the growth rate of compensation *per* employee in 2022 is expected to be determined entirely by wage increases in the private sector. Projected high inflation in 2022 amid growing labour shortages¹² will contribute most strongly to accelerating private sector wage growth. In the context of limited labour growth opportunities, despite the strengthening economic activity in Bulgaria, growth of nominal labour income *per* employee will slow down to 8.4 per cent in 2023, consistent with the projected lower inflation. Nominal unit labour costs are expected to decrease to 5.3 per cent in 2021 (9.5 per cent in 2020), reflecting the recovery in labour productivity growth. The projected dynamics of compensation *per* employee and labour productivity will push up nominal unit labour costs by 7.5 per cent in 2022 and slow down growth to 4.5 per cent in 2023.

¹² NSI business situation survey data, seasonally adjusted by the BNB, suggest that in December 2021 about 26 per cent corporations in Bulgaria experienced labour shortages (against the average historical value of 12.7 per cent and the highest value of 32 per cent in December 2019).

Inflation

Following a period of subdued consumer price dynamics in the context of a pandemic, since the second quarter of 2021 inflation in Bulgaria has been rapidly accelerating to reach 6.3 per cent in November and exceeded significantly projections of the September 2021 forecast. The acceleration of inflation has been broad-based across HICP components, reflecting the pro-inflationary impact of external and internal factors resulting from both supply and demand developments. These factors can be broken down into four main groups: 1) a surge in international prices of energy (oil, natural gas and electricity) and food products; 2) a significant price rise in international transportation costs and higher prices of certain industrial goods due to bottlenecks in global supply chains; 3) an increase in unit labour costs; and 4) strong growth in private consumption in Bulgaria (reflecting nominal household income growth, enhanced consumer confidence and a decline in the savings rate). The increase in energy and food prices was the key driver of inflation acceleration in Bulgaria. This was largely attributable to the high energy intensity of the Bulgarian economy and the higher vulnerability to changes in international energy prices after 2020. This trend was driven by Bulgarian electricity market coupling with that of the other EU Member States in South-East Europe¹³, where the cost of the generated electricity is higher and is influenced to a greater extent by the price of natural gas, which is used more for electricity generation in those countries than in Bulgaria. Another factor for the faster pass-through of international prices to the Bulgarian economy was the Agreement between Bulgargaz EAD and Gazprom Export as of March 2020 on a change in the pricing formula for the supply of natural gas¹⁴. According to the new supply terms and conditions, the natural gas price is currently recalculated on a

¹³ In 2021 the Independent Bulgarian Energy Exchange was fully integrated in the day-ahead electricity market in South-East Europe, which was implemented in two steps. In May 2021 the integration of the Bulgarian-Greek bidding zone border was completed, while in October 2021 the coupling with Romania was accomplished. For details, see [Independent Bulgarian Energy Exchange \(IBEX\)](#) press release.

¹⁴ For details, see [Bulgargaz EAD](#) press release.

monthly basis.¹⁵ These facts could explain the record increase (by 35.4 per cent year-on-year) in producer price index (PPI) on the domestic market as reported by the NSI in November 2021. Moreover, the PPI data pointed to a relatively fast pass through of higher production costs to the producer prices of intermediate and consumer goods.

Taking into account the PPI dynamics, the assumptions about international commodity price developments, the estimated relation between energy prices and prices of the other goods along the supply chain, and the projected quarterly increase in private consumption over the fourth quarter, the annual growth rate of HICP is expected to accelerate to 7.7 per cent at the end of 2021.¹⁶

Annual inflation measured by the HICP¹⁷ is expected to accelerate further in the first half of the year before slowing down to 7.5 per cent at the end of 2022. The upward dynamics of consumer prices will reflect mostly negative supply side effects, related to the price hikes in energy resources at the end of 2021 and the assumptions about continued growth in electricity and natural gas prices on a quarterly basis for industrial consumers in the first quarter of 2022. Assumptions about the trajectory of electricity prices are based on market information derived from the futures contracts about the Italian and

¹⁵ According to the previous pricing mechanism, the supply price of natural gas for a given quarter was determined based on the price dynamics of oil and alternative fuels to natural gas in international markets over the last nine months, including movements in the USD/BGN exchange rate. Under the new pricing mechanism, the natural gas price is recalculated every month. In addition, the new mechanism is based on a hybrid formula that takes into account both oil price dynamics (oil component) and the price dynamics of gas futures contracts traded on the Netherlands exchange – *Dutch Title Transfer Facility* (hub indexation), having a predominant weight in the formula.

¹⁶ The NSI data published on 18 January 2022 following the BNB forecast show that in December 2021 HICP recorded a smaller increase of 6.6 per cent on an annual basis. The difference from what was expected in the baseline scenario was largely due to the lower than projected inflation in food and core components (in particular services). When preparing the projections for food inflation, Commodity Exchange and Wholesale Markets State Commission weekly data were used, suggesting that the growth rate in wholesale food prices accelerated to 15.1 per cent on an annual basis in December from 9.5 per cent in October and 9.0 per cent in November 2021. These prices posted a significantly higher increase than that reported under HICP.

¹⁷ The inflation measured by CPI is expected to be higher than that under HICP due to methodological specificities when constructing the two indices. For more information, see highlights entitled Comparison of Inflation According to the CPI and the HICP published in the BNB [Macroeconomic Forecast](#), September 2021.

German markets, and take into account the announced government measures for compensation of firms in the first quarter of 2022.¹⁸ Withdrawal of these measures is assumed for the remainder of the year due to lack of information at the time of finalising this forecast concerning their possible extension or introduction of new measures. The possible introduction of new energy subsidies for firms or changes in the duration or amount of the existing ones would be a prerequisite for lower inflation compared to the forecast baseline scenario. The surge in international food prices and higher unit labour costs will be other factors with a pro-inflationary effect. As regards demand-side pressures, their impact on core prices is expected to weaken somewhat in line with the projected slowdown in private consumption growth rate. The services and food groups are expected to have the largest contribution to inflation in 2022. The group of administratively controlled price is expected to have a slightly positive contribution to inflation, with the baseline scenario including only the officially announced regulatory changes as of 13 January 2022.

The growth rate of consumer prices is expected to slow down to 3.4 per cent by end-2023 mainly reflecting the technical assumptions for a decline in international prices of energy commodities. It is expected that services and food groups will continue to have the highest positive contribution to inflation in 2023 in line with the projected growth in unit labour costs and private consumption, and assumptions about a further increase in international food prices. Although at the time of preparing the forecast no information on changes in administratively controlled prices for 2023 was available, the baseline scenario assumed that in the medium run these prices will increase in line with the projected labour cost dynamics of firms, producing such goods and services.¹⁹

¹⁸ For more information on consumer support measures due to high energy prices, see [Ministry of Energy press release](#).

¹⁹ Adopting an approach to keep administratively controlled prices unchanged throughout the whole projection horizon, is a prerequisite to underestimating the underlying inflation, especially in periods of 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 identifying the production costs structure of these firms.

Monetary Sector

Growth of credit to the private sector is expected to accelerate to 8.2 per cent year-on-year by end-2021 (4.5 per cent in December 2020) mainly driven by the strong increase in household credit, in particular housing loans. Low lending rates coupled with favourable housing market prospects amid high liquidity and persistent high inflows of attracted funds in the banking system, contributed to the continued acceleration in annual growth in credit to households. Lending activity is expected to slow down somewhat over 2022–2023, partly reflecting projected deceleration in the private consumption growth rate in real terms. Additional factors that are expected to have a potential dampening effect on credit growth on the supply side, include BNB increases in the countercyclical buffer rate from 0.5 per cent to 1.0 per cent, effective as of 1 October 2022 and from 1.0 per cent to 1.5 per cent, effective as of 1 January 2023, as well as the introduc-

tion of new regulatory measures related to the minimum requirements for own funds and eligible liabilities (MREL) of credit institutions. Concurrently, the projected high inflation during the current year coupled with still low lending rates and the continuous increase in house prices will stimulate demand for loans by households. The trend towards a gradual acceleration of the annual growth of credit to non-financial corporations is expected to persist in line with the projected increase in private investment. Over the projection horizon, non-government sector's deposits in the banking sector are expected to rise further, however slowing down gradually. These developments will reflect the 'storage' fee introduced by some commercial banks for holding cash above a certain amount and negative real interest rates on deposits. In the context of a continuous increase not only in income but also in prices, part of the liquid funds are expected to be used for consumption or investment opportunities to be sought as alternatives to deposits.

FORECAST REVISIONS

Compared with the forecast published in September 2021, current projections are for lower real GDP growth in 2021 and 2022, but for higher growth in 2023. The revisions of the GDP historical time series published by the NSI on 18 October 2021 contributed significantly to the revisions in GDP and its components forecast in 2021 and 2022 compared to the September 2021 forecast particularly in terms of private consumption, net exports and investment in fixed capital.²⁰

The downward revision of real GDP growth for 2021 amounts to 0.2 percentage points reflecting mainly the significantly higher negative contribution of net exports due to stronger than projected growth of goods and services imports coupled with lower growth of goods and services exports. Both components are strongly influenced by NSI revision of GDP and its components historical time series for 2020 and the first half of 2021. In addition, exports were revised downwards compared with the September 2021 forecast also due to the new assumptions about weaker external demand for Bulgarian goods and services and the reported lower than projected in the September 2021 forecast increase in exports of services other than tourism in the third quarter of 2021. Investment in fixed capital in 2021 was revised towards a larger decline on an annual basis, reflecting the significant revision of historical time series for 2020 and the first half of 2021 carried out by the NSI. At the same time, revisions to net exports and investment were offset largely by the projected considerably higher growth in household consumption. In respect with private consumption, the reported higher than projected increase in households' expenditures in the third quarter of 2021 and the NSI revision of the historical time series explain most of the forecast revision of this GDP component.

Real GDP growth for 2022 has been revised downwards by 1.1 percentage points due to the projected slower growth in fixed capital investment and private consumption compared with the September 2021 forecast. The revision in investment is driven mainly by the shift of investment expenditure projected under the NRRP toward the end of the forecast horizon, which affected primarily government investment. In addition, the amount of private investment has been reduced as a result of the expected higher production costs of firms and their deteriorated sentiment. The downward revision of private consumption growth in 2022 compared to the September 2021 forecast will be attributable to the higher base of 2021 following the NSI revisions to historical time series and the revision of household real disposable income compared to the forecast of September 2021. In the current forecast, high inflation in 2022 has largely offset the increase in nominal household income, resulting in a level of real disposable income close to that in 2021, while in the forecast of September 2021 household real disposable income was expected to grow and support to a larger extent the rise in private consumption.

In 2023 economic activity growth is expected to increase by 0.7 percentage points compared with the September 2021 forecast. This is mainly due to projected stronger growth of investment, reflecting the assumption of shifting a portion of investment expenditure under the NRRP from 2022 to 2023. Government investment is projected to post a significantly stronger increase than projected in September 2021, as its profile in the September forecast was set according to the information of the Convergence Programme of the Republic of Bulgaria (2021–2023) published in May 2021, implying a larger share of funds received under the NRRP in 2022. At the same time, private and government consumption growth has been revised downwards compared to the September 2021 forecast. The projected slower increase in household real disposable

²⁰ For further information on data revisions by the NSI, see highlights entitled Revision of GDP Data, published in the BNB [Economic Review, issue 3/2021](#).

income is the main factor for the revision of private consumption owing to the substantially higher inflation, while the factor behind the government consumption revision is the assumption of lower intermediate consumption spending related to the pandemic, such as expenditures for the purchase of vaccines, personal protective equipment, and for distance learning in the education system.

The inflation forecast has been revised upwards for the entire projection horizon. Across groups, food and core HICP components have been revised the most. This reflects newly published information on price developments in Bulgaria and globally, assumptions about international commodity price dynamics, and changes in the structure of the macroeconomic model used in preparing the forecast. Changes to the model have been made to estimate the effect of electricity and natural gas price developments on

firms' production costs and the effect of their pass-through onto HICP components. An additional factor behind the revision in core inflation and mainly in services inflation involves the projected stronger increase during 2022–2023 in unit labour costs. With regard to consumer energy prices (excluding those with administratively controlled prices), the inflation forecast has been revised downwards for 2022 and upwards over the remaining projection horizon, reflecting both changes in the assumptions about international oil prices and the strong base effect of the significant rise in transport fuel prices at the end of 2021. Inflation in administratively controlled prices is lower than the previous forecast at the end of 2022 and is higher at the end of 2023, which is due to both new available information and the technical assumptions made for the change in these prices in the medium run.

GDP and Inflation Forecast Revisions (13 January 2022 *vis-à-vis* 28 September 2021)

Annual rate of change (per cent)	Forecast as of 13 January 2022				Forecast as of 28 September 2021				Revision (percentage points)			
	2020	2021	2022	2023	2020	2021	2022	2023	2020	2021	2022	2023
GDP at constant prices	-4.4	3.7	3.6	4.5	-4.2	3.9	4.7	3.8	-0.2	-0.2	-1.1	0.7
Private consumption	-0.4	7.5	2.8	3.1	0.2	4.7	3.8	3.4	-0.6	2.8	-1.0	-0.3
Government consumption	8.3	4.1	-1.7	0.2	7.5	5.1	-1.6	1.9	0.8	-1.0	-0.1	-1.7
Gross fixed capital formation	0.6	-7.8	8.9	17.7	-5.1	-4.0	13.4	11.0	5.7	-3.8	-4.5	6.7
Exports of goods and services	-12.1	8.6	7.3	6.5	-11.3	9.6	7.6	5.2	-0.8	-1.0	-0.3	1.3
Imports of goods and services	-5.4	10.8	6.0	7.2	-6.6	9.4	6.9	6.0	1.2	1.4	-0.9	1.2
HICP at end of period	0.0	7.7	7.5	3.4	0.0	3.8	1.5	1.6	0.0	3.9	6.0	1.8
Core inflation	0.5	5.6	9.2	4.0	0.5	2.1	2.1	2.2	0.0	3.5	7.1	1.8
Energy products	-13.4	35.0	-6.6	0.8	-13.4	20.0	-5.5	-0.9	0.0	15.0	-1.1	1.7
Food	2.0	9.0	14.1	4.7	2.0	4.5	2.2	1.7	0.0	4.5	11.9	3.0
Goods and services with administratively controlled prices and tobacco products	1.2	2.9	1.4	1.2	1.2	1.8	1.7	1.1	0.0	1.1	-0.3	0.1

Notes:

1) The revision of real GDP data in 2020 is due to the NSI revision of historical data for GDP and its components for the period starting from the first quarter of 1995. New data were published on 18 October 2020.

2) The NSI data published on 18 January 2022 following the BNB forecast show that in December 2021 the increase in HICP reached 6.6 per cent on an annual basis. The difference to the expected in the baseline scenario was largely due to the lower than projected inflation in food and core components (mainly services).

Source: the BNB.

RISKS TO THE FORECAST

Risks to the GDP growth forecast are assessed as balanced for 2021, while for 2022 and 2023 there are risks of lower growth compared to that in the baseline scenario.

Major risks for 2022 and 2023 involve the possibility of postponing the implementation of investment projects financed with national funds, a slower absorption rate of EU programme funds and delayed implementation of investment projects under the NRRP against the time profile set in the baseline scenario. Another major risk stems from realising higher inflation compared to the baseline scenario which would exert a negative effect on projected real household income and would worsen to a larger extent economic agent attitudes. This would lead to a lower assessment of the level of private consumption and investments than in the baseline scenario. Risks to lower real GDP growth in 2022 and 2023 stem from the global development of COVID-19 pandemic, although negative effects have been relatively limited in the last waves of the virus spread on the economic activity in Bulgaria owing to the nature of the containment measures and gradual adaptation of economic agents' behaviour to them.

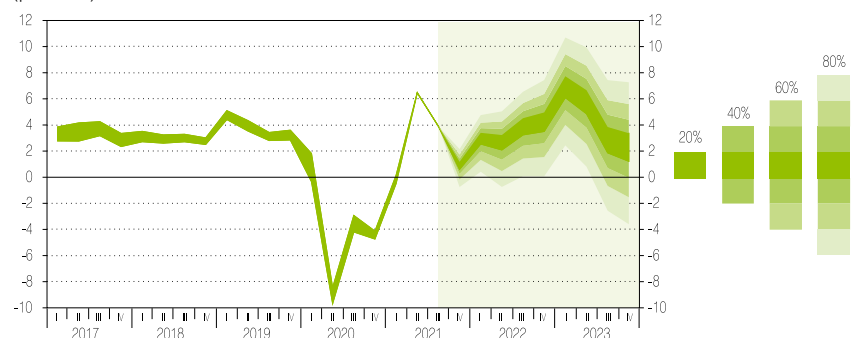
Given the lack of budgetary framework for 2022 and up-to-date medium-term budget forecast at the time of preparing the current macroeconomic forecast, there is some uncertainty about the effect of possible new discretionary measures which may be initiated by the government in the 2022–2023 period on domestic demand. Moreover, uncertainty exists both in terms of the duration of the measures taken so far to mitigate the impact of COVID-19, and in terms of the duration of the subsidies intro-

duced to compensate firms for the high energy prices.

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 fall (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. According to the chart the probability distribution for 2022 shows a 60 per cent probability for the real GDP annual rate of change to be within the range from 1.2 per cent to 5.2 per cent.

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

(per cent)

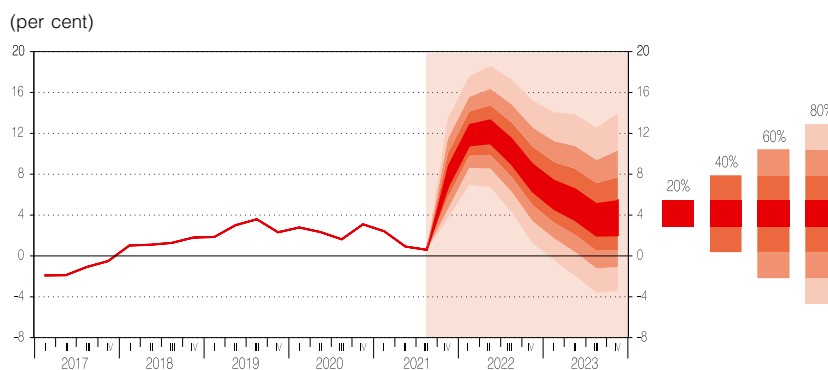


Notes: The chart provides historical series and annual real GDP growth forecast according to non-seasonally adjusted data. The fan chart shows expert views of the forecasters on the uncertainty surrounding the projected value based on a probability distribution. The reporting period includes revised 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 colour, 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 colour) are added to the middle band, there would be a 40 per cent coverage of the probability mass. Thus, by adding each same colour 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.

There are risks of a stronger increase in prices *vis-à-vis* the baseline scenario in realising the inflation forecast for the whole projection horizon. Such risks are likely to materialise in case of a more prolonged and/or stronger commodity price increases in international markets compared to what external assumptions constructed by 17 December 2021 suggest in the current forecast. This could help firms to change their pricing, including the speed and degree of higher production cost pass-through to end-use consumer prices, as compared with current estimates on the basis of the econometric model used in preparing the forecast. Another risk for materialisation of higher inflation stems from possible changes in the regulated prices of electricity, water and sewerage services and heating after the expiry on 31 March 2022 of the moratorium on these prices introduced by the government in December 2021. On the other hand, the extension of the timeframe and/or the scope of the government measures to compensate firms for energy prices after the first quarter of 2022 is a precondition for lower inflation than that projected in the baseline scenario.²¹ The balance of risks regarding inflation is graphically shown in the fan chart here. It suggests that with a probability of 60 per cent, annual inflation in consumer prices is expected to range between 3.4 and 12.6 per cent at the end of 2022.

Fan Chart of the Expected Annual Inflation at the End of the Period



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 colour, 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 colour) are added to the middle band, there would be a 40 per cent coverage of the probability mass. Thus, by adding each same colour 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.

²¹ The HICP data released in December 2021 show lower propensity of retail trade firms to pass their higher costs onto consumer prices in the same period. If this tendency persists during the following months, there are risks of inflation being lower than projected.

Forecast of Key Macroeconomic Indicators for 2021–2023

(per cent)

	2020	2021	2022	2023
Annual rate of change				
GDP at constant prices	-4.4	3.7	3.6	4.5
Private consumption	-0.4	7.5	2.8	3.1
Government consumption	8.3	4.1	-1.7	0.2
Gross fixed capital formation	0.6	-7.8	8.9	17.7
Exports of goods and services	-12.1	8.6	7.3	6.5
Imports of goods and services	-5.4	10.8	6.0	7.2
HICP at end period*	0.0	7.7	7.5	3.4
Core inflation	0.5	5.6	9.2	4.0
Energy products	-13.4	35.0	-6.6	0.8
Food	2.0	9.0	14.1	4.7
Goods and services with administratively controlled prices and tobacco products	1.2	2.9	1.4	1.2
Employment	-2.3	0.2	1.0	0.6
Unit labour costs	9.5	5.3	7.5	4.5
Labour productivity	-2.1	3.7	2.7	3.7
Unemployment rate (share of labour force)	5.2	5.5	5.1	4.8
Claims on the non-government sector	4.5	8.2	7.3	7.3
Claims on corporations**	2.3	4.2	5.2	5.5
Claims on households	6.6	12.8	9.8	9.5
Deposits of the non-government sector	9.7	9.7	7.6	7.3
Share of GDP				
Balance of payments current account	-0.3	-1.1	-0.6	0.2
Trade balance	-3.2	-4.7	-5.3	-5.2
Services, net	5.0	6.7	7.4	8.1
Primary income, net	-3.4	-4.0	-4.4	-4.2
Secondary income, net	1.4	0.9	1.7	1.6
Annual rate of change				
External assumptions				
External demand	-8.2	8.6	5.1	5.6
Average annual Brent oil price (in USD)	-33.9	67.6	2.5	-4.4
Average annual price of non-energy products (in USD)	3.5	35.0	6.9	4.0
Brent oil price at the end of period (in USD)	-28.9	82.6	-12.4	-3.8
Prices of non-energy products at the end of period (in USD)	12.2	28.7	2.2	7.8

* The NSI data published on 18 January 2022 following the BNB forecast show that in December 2021 the increase in HICP reached 6.6 per cent on an annual basis. The difference to the expected in the baseline scenario was largely due to the lower than projected inflation in food and core components (mainly services).

** Data refer to non-financial corporations.

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